ICTHM

3rd International Conference on Technology, Humanities & Management

Sustainable Futures: Managing the Digital - Human Shift

28th - 30th January 2025

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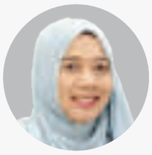

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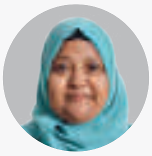

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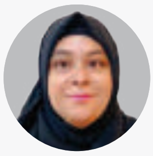

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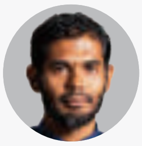

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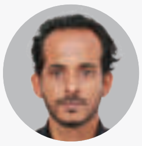

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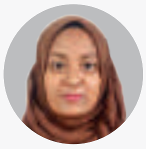

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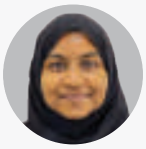

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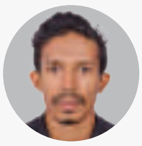

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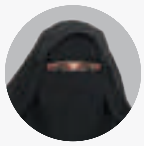

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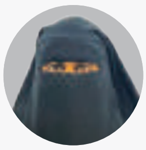

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HIGHLIGHTS OF ICTHM 2025

The International Conference on Technology, Humanities, and Management (ICTHM 2025) was held at Zikura International College, Fuvahmulah, Maldives from 28th January to 29h January 2025, as a hybrid event that permits participation both virtually and in person. The theme, ‘Sustainable Futures: Managing the Digital-Human Shift’ allowed the conference to promote quick knowledge of significant research in the fields of technology, humanities, and management in light of new developments present in the modern world. The conference brought together academics, industry professionals, and researchers to explore innovative strategies for a sustainable and digitally integrated future.

Throughout the two-day event, a wide range of research papers were presented, reflecting the diverse themes of the conference. One of the key papers examined the impact of digital literacy on mobile marketing effectiveness in the e-business sector in Myanmar, emphasizing the increasing reliance on digital skills for business success. Another paper focused on AI-driven innovations in customer engagement within the U.S. fashion industry, exploring how artificial intelligence is reshaping brand strategies and consumer interaction.

The evolving role of social media in shaping consumer behaviour was another significant focus. A comparative analysis of social media and search engine marketing examined their influence on young consumers' brand perception in Myanmar. Additionally, a study investigated the impact of Douyin short video content on consumer purchasing intention in China, highlighting the role of digital entertainment platforms in influencing buyer behavior. A correlational study conducted in Fuvahmulah, Maldives, examined the impact of social media on the consumer decision-making process, providing insights into digital influence on local youth.

In the context of sustainability and finance, a study on Environmental, Social, Governance, and Disclosure (ESGD) and firm performance of listed companies in Europe provided insights into the financial implications of corporate sustainability practices. Similarly, a comparative study on the impact of climate change and economic indicators between developed and developing countries underscored the need for data-driven policy interventions to address global economic sustainability challenges.

DAY 1 OF ICTHM 2025

Day 1 – Tuesday, 28 January 2025	
08.00 am – 08.45 am	**Breakfast & Registration**
08.45 am – 09.00 am	**Opening session**
09.00 am – 09.15 am	**Welcoming Speech** Dr Abdulla Rasheed Ahmed Advisor_ Zikura International College, Maldives
09:15 am – 09:30 am	**Inaugurating the Conference and Officiating speech** Tan Sri Azam Baki Chief Commissioner, Malaysian Anti-Corruption Commission, Malaysia
09.30 am – 10.00 am	**Keynote Address I** Professor Dr Jamaliah Said Director, Accounting Research Institute University Technology Mara, Malaysia "Enhancing National Security: The Role and Impact of the Malaysian Safety Index"
10.00 am – 10.15 am	**Group Photo**
10.15 am – 10.30 am	**Break**
10.30 am – 11.30 am	**Panel Discussion** Navigating the Digital Economy: Transparency, Accountability, and Sustainable Growth

11.30 am – 12.00 pm	**Keynote Address II** Uz. Adam Shamil President of the Commission Anti-Corruption Commission, Maldives "Innovation in Corruption Prevention: Safeguarding Economies for Futures"
12.00 pm – 01.30 pm	**Lunch Break**
01.30 pm - 02.00 pm	**Keynote Address III** Ms. Shirumeena Hussain Assistant Auditor General Auditor General's Office, Maldives "Bridging Transparency and Technology: The Role of Auditors in the Digital-Human Transition"
02.00 pm – 03.30 pm	**Parallel session I**
03:30 pm - 04:00 pm	**Break**
04:00 pm - 05:15 pm	**Parallel session II**
05:15 pm	**End of Day 1**
08.00 pm – 10.00 pm	**Conference Dinner** Hosted by Fuvahmulah City Council

Rephrase the side note. *An exhibition was held showcasing products of small businesses as a side event.*

DAY 2 OF ICTHM 2025

Day 2 – Wednesday, 29 January 2025 (Paper Presentations Face to Face and Online)	
08.00 am - 08.45 am	Breakfast
09.00 am – 09.15 am	Opening session
09.15 am – 09.30 am	**Welcoming Speech** Assoc. Prof. Dr. Nor Balkish Zakaria Deputy Director Accounting Research Institute Universiti Teknologi MARA, Malaysia
09.30 am – 10.00 am	**Keynote Address IV** Asst Prof. Dr. Kritsada Sriphaew Dean of International College Rangsit University, Thailand "Data Mining and Machine Learning: Transforming ICT into Strategic Insights"
10.00 am – 10.30 am	**Keynote Address V** Mr. Mohamed Shareef Director of Government and International Relations OXIQA Pvt Ltd Republic of Maldives "Empowering Communities Through Digital Innovation: Lessons from Leadership in Technology"

10.30 am - 11.30 am	**Panel Discussion** "AI for Good: Harnessing Machine Learning for Sustainable Societal Development"
11.30 am – 12.00 pm	**Keynote Address VI (Online)** Dr. Saif Yousif Alsewaidi President Arid Scientific Foundation Türkiye "The Islamic Endowment (Waqf) as the Foundation of Modern Sustainability: A Historical and Practical Perspective"
12.00 pm- 01.30 pm	**Lunch break**
01.30 pm – 01.45 pm	**MOU/MOA Signing**
01.45 pm - 03:30 pm	**Parralel Session III**
03:30 pm - 04:00 pm	**Break**
04.00 pm - 05.00 pm	**Closing Ceremony** Awarding of Certificates for Best Paper/Best Presenter Awarding of gifts to Keynotes, Panelists and Moderators Acknowledgment of Sponsors **Closing speech** Ismail Rafeeq Mayor, Fuvahmulah City Council
05.00 pm	**End of Day 2**

LIST OF PROCEEDINGS

16. Effectiveness of Simulation for the Development of Critical Thinking Skills of Undergraduate Nursing Students; Systematic Review. *(Paper ID: 33)*
17. Exploring the Effectiveness of High-Fidelity Simulation Mannequins in Nursing Education. *(Paper ID: 34)*
18. Unraveling the Sociolinguistic Dynamics of Leadership Discourse: A Thematic Analysis in the Maldives. *(Paper ID: 35)*
19. Digital Media, Influencer Marketing and Social Media Influence on Business's Public Relations Strategies. *(Paper ID: 38)*

3rd International Conference in Technology, Humanities and Management
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Comparative Impact of Climate Change and Economic Indicators between Developed and Developing Countries

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Abstract

This research investigates how climate change affects economic factors in comparison between developed and developing countries. The samples used in this study contain two groups – 384 developed countries and 610 developing countries. A total sample of 994 was collected from the World Bank database, from 2014 to 2023. The variables used in this research include rainfall (RF), humidity (HM), and air temperature (AIR) for climate change and Gross Domestic Product Growth (GDPG), unemployment rate (UER), and foreign direct investment (FDI) for economic indicators. T-tests and multiple regression (fixed effects models) are employed to answer research questions and hypotheses. The findings can be concluded that all variables, except for GDPG, are statistically different between the two groups. While the climate change variables are entered into the regression models, RF is found to be statistically significant and negative to UEP for the developed country group. AIR is found to be negatively significant to FDI for developed and developing country groups. It is essential to emphasize that climate change is a drawback to the overall prosperity of nations. It is crucial for any country to have strategic planning and monitoring to address the challenges posed by climate change. Keywords: climate change, rainfall, humidity, air temperature, GDP Growth, unemployment rate, foreign direct investment

Keywords: *climate change, rainfall, humidity, air temperature, GDP Growth, unemployment rate, foreign direct investment*

1.Introduction

There has been a global increase in the frequency and intensity of extreme weather events such as heat waves, droughts, and floods over time (Zhao, 2020). If it is left unchecked, the steady rise in global temperatures and the corresponding fluctuations in seasonal weather patterns can have a significant negative influence on people's quality of life and negatively affect economic activity (Mawejje, 2024). Furthermore, there is already a serious risk to the world economy from climate change (Nordhaus, 2019). However, depending on one's geographic location and other contributing circumstances, the effects of climate change vary. Economic indicators changes as a result of climate change are common, not only in developed countries but also in developing countries (Nikolaou et al., 2015). Climate change is increasingly recognized as a significant risk to businesses across the globe (Wright & Nyberg, 2017), influencing everything from supply chain disruptions to regulatory costs and shifting consumer preferences as climate change such as tropical cyclones cause property destruction, fatality, and long-term reductions in economic output. However, the way business responds to these challenges differs according to the geographical situation and economic context (Lorenzen, 2014). In particular, temperature has a tremendous impact on human systems across a wide range of social scales; heat increases fatality and lowers productivity in humans by inciting hostility and violence. Elevated temperatures can also lead to crop damage, increase the need for electricity, and cause population shifts (Kaushal et al., 2016) both in developed and developing countries (Carleton & Hsiang, 2016).
Developed and developing countries observe extremely different effects of climate change due to economic indicators. Because industrialized nations have more access to resources (Gollin et al., 2015), cutting-edge technology, and resilient infrastructure—factors that positively correlate with economic indicators (Toader et al., 2018) such as GDP growth and investment—their businesses are better positioned to manage the risks associated with climate change, according to research. On the other hand, companies in developing nations sometimes have operational difficulties and risks (Brès et al., 2019) resulting from a lack of funding, which limits their ability to grow economically. However, these businesses may strengthen their resistance to the effects of climate change by utilizing technology breakthroughs and establishing global alliances (Adenle et al., 2015), which will ultimately support sustainable economic growth. For example, businesses in less environmentally risky areas usually experience greater profits (Rubin, 2016), indicating that developed nations are more willing to deal with climate change. On the other hand, firms in countries with low to middle incomes are particularly impacted by climate change (Huang et al., 2017), which puts their stable operations and profit at risk. Moreover, firms in countries with low to middle incomes are particularly impacted by climate change (Shan et al., 2017), which puts their stable operations and profit at risk. When compared to their developed substitutes, the negative consequences have a greater negative influence (Shrestha et al., 2020) on firm performance due to a multiplicity of market difficulties and restricted adaptability.
Climate change is significantly impacting key economic indicators from a business perspective, driving shifts in productivity, costs, and market dynamics (Dafermos et al., 2018). Extreme weather events disrupt supply chains and operations, leading to reduced output and increased expenses, while sectors like renewable energy see growth opportunities (Giannakis & Papadopoulos, 2016) . Rising insurance premiums, regulatory compliance costs, and inflationary pressures linked to energy and resource disruptions (Xu et al., 2022) further affect profitability. Additionally, shifting consumer preferences towards sustainable products challenge businesses to

adapt (Hoek et al., 2017), while companies that embrace green practices may attract more investment and ensure long-term stability in an increasingly climate-conscious market.
Further detail on some of the important questions that are going to be explained in this research will be what aspects of the techniques used by businesses in both developed and developing countries to mitigate the effects of climate change differences (Abbass et al., 2022), what role do government policies and regulations play in shaping corporate responses changes of economic indicators due to climate change in developed versus developing nations? How do climate changes affect productivity(Solaun & Cerdá, 2019), operational performance and economic indicators across different economic contexts and how do wealthy and developing nations differ in this regard?
The purpose of the research paper is to analyze the aspects that contribute to these questions. The results of this research could improve both knowledge of theory and practice by providing critical information about how climate change and firm performance can significantly influence both developed and developing countries.

2.Literature Review

One of the most important issues facing the world now is climate change. Although its consequences are seen everywhere, they vary greatly between developed and developing countries. The difference is caused by elements including geographic vulnerability, technological advancement, economic resilience, and policy flexibility (Kakderi & Tasopoulou, 2017). Recognizing the impact of climate change on economic metrics such as GDP, employment, inflation, and public spending can offer valuable understanding of the wider socio economic ramifications in diverse geographical areas (Hussain et al., 2019).
The GDP of developing nations is more severely impacted by climate change than the GDP of developed countries (Newell et al., 2021). The economic output of the poorest nations worldwide is expected to decrease by 1.3% for every degree Celsius that global temperatures rise. This is a far greater impact than that of wealthy countries, who typically have more mixed economies and stronger adjusting methods (Dell et al., 2012). A lot of developing nations rely heavily on the agricultural sector, which suffers extensively and reduces production, biodiversity, and human health (Hannah et al., 2020). Millions of people become vulnerable as a result of these disruptions and the weak economy, which also increases instability, migration, and expulsion (Kar et al., 2024). Climate change offers serious risks to socioeconomic sustainability in nations like Pakistan, especially with regard to public health and food security (Bikash Chandra Ghosh et al., 2023). The overall social, economic, and environmental structure of developing countries is put at risk by climate change.
The impact of climate change on unemployment rates differs between developed and developing countries due to variations in economic structures, resilience, and adaptation capacity (Taylor et al., 2016). In developed countries, industries like manufacturing and fossil fuels may experience job losses as economies transition toward greener energy and technologies, but these losses are often offset by new employment opportunities in renewable energy, technology, and environmental services (Ostergaard et al., 2020). Meanwhile, in developing countries, the effects are more severe. Agriculture, a key employer, is highly vulnerable to climate disruptions such as droughts and floods, leading to job losses and limited opportunities for workers to transition to other sectors. Developing countries also lack the social safety nets and resources to quickly retrain

displaced workers, exacerbating unemployment rates and deepening economic inequality (Duval & Loungani, 2019).
The relationship between climate change and Foreign Direct Investment (FDI) is complex, particularly when comparing developed and developing countries. Climate risks significantly influence FDI inflows, especially in emerging and developing economies (EMDEs), where high susceptibility to climate impacts can deter foreign investors. Conversely, FDI can also play a crucial role in financing green projects and enhancing eco-efficiency in less-developed countries. The following sections elaborate on these dynamics. Countries with robust financial sectors can mitigate these adverse effects, enhancing their attractiveness for FDI despite climate vulnerabilities (Gopalan et al., 2023). In Africa, industrialization and FDI are significant predictors of climate change, necessitating tailored climate strategies based on varying emissions and vulnerabilities across countries (Ali et al., 2024). On the other hand, Long-term FDI accumulation in less-developed countries has been shown to improve carbon dioxide emissions' scale and eco-efficiency, suggesting potential benefits for climate change mitigation (Mejia, 2023).
While some arguments suggest that climate change may not have a significant impact on economic indicators (Pankratz et al., 2019), this paper hypothesizes that climate change does indeed affect key economic metrics, with distinct differences between developed and developing countries (Seung & Ianelli, 2016). In developed nations, advanced economies may exhibit greater resilience, with the capacity to invest in green technologies, mitigate job losses through retraining, and adapt infrastructure to withstand climate-related disruptions (Dr.Salman Hamid El-Hermisy, 2021). Conversely, developing countries, with economies heavily dependent on climate-sensitive sectors like agriculture and lacking robust financial and technological resources (Millner & Dietz, 2014) , are more vulnerable to the negative effects of climate change on GDP and unemployment rates. Therefore, the hypothesis suggests that while both developed and developing countries face economic challenges from climate change, the scale and nature of these impacts differ significantly, with developing countries experiencing more severe and immediate economic consequences (Botzen et al., 2019).

In many studies climate change often refers to rainfall , humidity, and air temperature. Our hypotheses are set according to these individual climate change measurements.The rainfall is an important factor that can negatively impact economic activities. High rainfall can cause flooding, which negatively affects production activities negatively. In this research paper, the hypothesis are as follows;

H_1: Climate change (Rainfall) negatively influences economic indicators (measured by GDP, UER, and FDI).

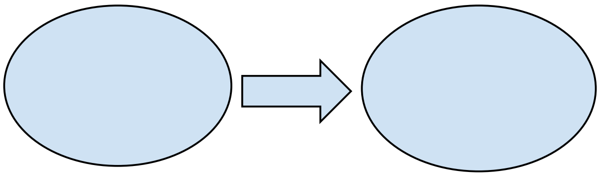
When analyzing climate change in areas with tropical monsoon climates, the humidity index is a crucial factor. The following are the hypotheses outlined in this study paper;

H_2: Climate change (Humidity) negatively influences economic indicators (measured by GDP, UER, and FDI).

Climate change can affect the average temperature. Additionally, climate change can affect the viability of production activities and increase economic costs of an economy. In this research paper, the hypothesis are as follows;

H_3: Climate change (air temperature) negatively influences economic indicators (measured by GDP, UER, and FDI).

The theoretical structure for this investigation is shown in the subsequent diagram. See Figure 1



3. Research Methodology

3.1 Data Selection

In the methodology section, The data have utilized the access to World Bank , a reputable website to gather various economic indicators and climate indicators related variables. The data collected is secondary data from the World Bank, a computer software system to monitor and analyze real-time market data and assess economic indicators in developed countries and developing countries.The samples used in this study contain two groups – 384 developed countries and 610 developing countries. A total sample of 994 was collected from World Bank database, from 2014 to 2023. Choosing the World Bank for our secondary data collection means that we get reliable and up-to-date information for analysis in trends and make comparisons.

3.2 Variables

The study framework that is being provided defines important dependent and independent variables in order to investigate the relationship between climate parameters and economic performance. Indicators of a nation's economic health include its Gross Domestic Product growth (GDPG), Unemployment Rate (UER). UER, stated as a percentage, shows the percentage of the labor force that is unemployed, while GDP, measured in millions of dollars, represents the entire value of goods and services produced. Moreover, Foreign Direct Investment (FDI) is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. Measurements are made of climate-related factors such as rainfall, humidity, air temperature to determine how these affect economic results. The amount of water falling from the atmosphere is measured in millimeters for both precipitation and rainfall, whereas the amount of moisture in the air is indicated by grams per cubic meter for humidity. Fahrenheit represents the average air temperature, which is indicative of the overall environment. This paradigm provides a thorough analysis of the relationship between the environment and economic resilience by highlighting the ways that variations in climate may have an impact on economic performance, both directly and indirectly.

Table 1. Variable Definition

No	Variable Definition				
1	Dependent Variables	Economic	Gross Domestic product Growth (GDPG)	Annual percentage growth rate of GDP at market prices based on constant local currency.	Millions($)
			Unemployment Rate (UER)	Unemployment refers to the share of the labor force that is without work but available for and seeking employment.	Percentage(%)
			Foreign Direct Investment (FDI)	Foreign direct investment is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor.	Million Dollars (US $)
2	Independen t Variables	Climate	Rainfall (RF)	Rainfall is defined as any kind of water that falls from clouds as a liquid or a solid.	Millimeter(mm)
			Humidity (HM)	A moderate degree of wetness, especially of the atmosphere.	Gram per Cubic meter (gm^3)
			Air Temperature (AIR)	A base index representing temperature over different timescales	Fahrenheit(F)

3.3 Research Modeling

A panel data analysis is carried out to confirm the degree to which performance. The regression model specifications are as follows:

$$GDP_{it} = \beta0 + \beta_1 rainfall_{it} + \beta_2 Humidity + \beta_3 temperature + \epsilon_x \quad .... (1)$$

$$UER_{it} = \beta0 + \beta_1 rainfall_{it} + \beta_2 Humidity + \beta_3 temperature + \epsilon_x \quad .... (2)$$

$$FDI_{it} = \beta 0 + \beta_1 rainfall_{it} + \beta_2 Humidity + \beta_3 temperature + \epsilon_x \quad \ldots\ldots (3)$$

The three sets of models—one with GDP, UER as the dependent variable and the other with FDI—are used to test the study hypotheses. There are 3.3 three sets consisting of a singular model that analyzes the correlations between the three dependent variables (GDP, UER, and FDI) and the rainfall, humidity, and air temperature independent variables.

4. Findings

Regarding a certain variable, the table compares two groups: Developed (n = 384) and Developing (n = 610). The mean for the Developed group is 2.19 (SE = 0.19, SD = 0.19), and the 95% CI falls between 1.82 and 2.57. With a CI ranging from 2.24 to 3.06, the Developing group, on the other hand, displays a higher mean of 2.65 (SE = 0.21, SD = 0.21). With a CI of 2.19 to 2.77, the combined sample of 994 observations has an overall mean of 2.48 (SE = 0.15). The Developing group has a higher mean value, as indicated by the -0.46 mean difference between the two groups; nevertheless, the 95% CI for the mean difference falls between -1.06 and 0.14, including zero. The discrepancy between the two groups may be due to sampling variability rather than a real underlying effect, as this implies that the observed difference may not be statistically significant at the 95% confidence level. To determine the significance of this difference, more statistical analysis—including hypothesis testing—would be required.

Table 1: Two sample tests with equal variants

Group	Obs	Mean	Std.err	Std.dev	[95%conf.	interval]
Developed	384	2.193924	0.1920371	0.1920371	1.816345	2.571503
Developing	610	2.653512	0.2082915	0.2082915	2.244456	3.062569
Combined	994	2.475965	0.1478993	0.1478993	2.185734	2.766196
Diff		-0.4595889	0.3035565	0.3035565	-1.055275	0.1360978

Both the combined data and descriptive statistics for the two groups—developed and developing countries—are shown in this table. Developing countries had a slightly higher value on the measured variable on average, as indicated by the "Mean" value of 2.27 for the Developing group and 2.19 for the Developed group. The Developing group's standard deviation (Std.dev) is significantly higher (5.14) than the Developed group's (3.76), indicating greater unpredictability in the data from Developing nations. The mean and standard deviation of the combined group, which includes both developed and developing nations, are 2.48 and 4.66, respectively. There is statistical evidence for a difference between the groups since the 95% CIs for their mean values do not substantially overlap. Although the difference is not statistically significant at the 95% level (since the interval includes zero), the "diff" row indicates that the Developed group has a lower mean than the Developing group. The mean difference between the two groups is -0.46, with a 95% confidence interval ranging from -1.06 to 0.14.

Table 2: Two-sample t test with equal variances

Group	Obs	Mean	Std.err.	Std.dev	[95% conf.	interval]
Developed	384	2.193924	0.1920371	3.763144	1.816345	2.571503
Developing	610	2.2653512	0.2082915	5.14442	2.244456	3.062569
Combined	994	2.475965	0.1478993	4.662934	2.185734	2.766196
diff		-0.4595889	0.3035565		-1.055275	0.1360978

Regarding a particular variable, the table compares two groups: Developed (n = 384) and Developing (n = 610). In the Developed group, the 95% CI ranges from 9.73 to 9.90, and the mean is 9.82 (SE = 0.04, SD = 0.86). With a CI ranging from 9.06 to 9.20, the Developing group's mean is lower at 9.13 (SE = 0.035, SD = 0.86). An overall mean of 9.40 (SE = 0.03), with a confidence interval of 9.34 to 9.45, is obtained from the combined sample of 994 observations. A statistically significant higher mean for the Developed group is indicated by the 0.68 mean difference between the two groups, with a 95% confidence interval (CI) for the difference ranging from 0.57 to 0.79. Given that the Developed group continuously displays higher numbers than the Developing group, this difference points to a significant gap between the two groups.

Table 3: two sample tests with equal variants

Group	Obs	mean	std.err	std.dev	[95%conf.	interval]
Developed	384	9.815351	0.0438388	0.8590624	9.729156	9.901546
Developing	610	9.133248	0.0349572	0.8633788	9.064598	9.201901
Combined	994	9.396757	0.0292808	0.9231568	9.339298	9.454217
diff		0.6821016	0.056134		0.5719465	0.792257

The regression results for the effects of different factors on GDP growth (GDPG) are shown in this table. The estimated change in GDP growth for a one-unit change in each of the predictors (temperature, rainfall, hmd, UEP, and FDI) is represented by the coefficient for that predictor. With a coefficient of -0.015, the temperature variable (temp) shows a marginally negative correlation with GDP growth; however, this effect is not statistically significant ($p = 0.744$). The Urban Employment Proportion (UEP) is negatively related to GDP growth, with a coefficient of -0.133, and while the effect is marginally significant at the 10% level ($p = 0.056$), the 95% confidence interval crosses zero. Foreign Direct Investment (FDI) has a positive coefficient of 0.467, but the effect is not statistically significant ($p = 0.123$). The constant term (_cons) is positive but also not significant ($p = 0.945$). The model's residuals have a standard deviation (sigma_u) of 1.52 for the individual effects and 3.51 (sigma_e) for the overall error, with a rho value of 0.158, suggesting a relatively low degree of correlation between the individual and overall errors.

Table 4. Regression Results for GDP Growth (GDPG) with Various Predictors

GDPG	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
temp	-0.01534	0.046921	-0.33	0.744	-0.1073	0.076627
rainfall	-0.00095	0.000719	-1.32	0.187	-0.00236	0.000461
hmd	-0.00887	0.036275	-0.24	0.807	-0.07997	0.062224
UEP	-0.1328	0.069403	-1.91	0.056	-0.26883	0.003225

FDI	0.466748	0.302521	1.54	0.123	-0.12618	1.059679
_cons	0.307548	4.450474	0.07	0.945	-8.41522	9.030317

The regression coefficients and statistical significance for the several GDP growth (GDPG) predictors are shown in the table. Temperature has no discernible effect on GDP growth, according to the variable temp, which has a negative coefficient of -0.0002431, a standard error of 0.322, and is statistically insignificant (z = -0.01, p = 0.994). Similarly, rainfall is not statistically significant (z = 0.88, p = 0.378) despite having a positive coefficient of 0.0003512 and a standard error of 0.0003984. With a statistically insignificant coefficient of -0.0257969 (SE = 0.028746), the variable hmd (humidity) does not appear to have a significant impact on GDP growth (z = -0.9, p = 0.37). The negative coefficient for UEP (urbanisation) is -0.0433016 (SE = 0.038847). However, it is also not statistically significant (p = 0.265, z = -1.11). The positive coefficient for foreign direct investment (FDI) is 0.2804398 (SE = 0.269435), but it is likewise not statistically significant (z = 1.04, p = 0.298). A non-significant intercept (z = 0.5, p = 0.616) is indicated by the constant term (cons), which is 1.795473 (SE = 3.58082). sigma_u = 0.91361196 and sigma_e = 4.988979 characterise the residual variance of the model. The two error components have a low correlation (rho = 0.0259), indicating that the unobserved heterogeneity in the model has little impact on the outcomes. In general, there are no statistically significant correlations between any of the predictors and GDP growth at the traditional levels.

Table 5: Regression Results for GDP Growth (GDPG) with Environmental and Economic Predictors

GDPG	Coefficient	Std.err	z	P.|z|	[95%conf.	interval]
temp	-0.0002431	0.322	-0.01	0.994	-0.063354	0.0628677
rainfall	0.0003512	0.0003984	0.88	0.378	-0.0004296	0.001132
hmd	-0.0257969	0.028746	-0.9	0.37	-0.0821381	0.0305442
UEP	-0.0433016	0.038847	-1.11	0.265	-0.1194404	0.0328372

FDI	0.2804398	0.269435	1.04	0.298	-0.247643	0.8085226
_cons	1.795473	3.58082	0.5	0.616	-5.222805	8.813752

The regression coefficients and statistical significance for the several GDP growth (GDPG) predictors are shown in the table. Temperature has no discernible effect on GDP growth, according to the variable temp, which has a negative coefficient of -0.0002431, a standard error of 0.322, and is statistically insignificant (z = -0.01, p = 0.994). Similarly, rainfall is not statistically significant (z = 0.88, p = 0.378) despite having a positive coefficient of 0.0003512 and a standard error of 0.0003984. With a statistically insignificant coefficient of -0.0257969 (SE = 0.028746), the variable hmd (humidity) does not appear to have a significant impact on GDP growth (z = -0.9, p = 0.37). The negative coefficient for UEP (urbanisation) is -0.0433016 (SE = 0.038847). However, it is also not statistically significant (p = 0.265, z = -1.11). The positive coefficient for foreign direct investment (FDI) is 0.2804398 (SE = 0.269435), but it is likewise not statistically significant (z = 1.04, p = 0.298). A non-significant intercept (z = 0.5, p = 0.616) is indicated by the constant term (cons), which is 1.795473 (SE = 3.58082). sigma_u = 0.91361196 and sigma_e = 4.988979 characterise the residual variance of the model. The two error components have a low correlation (rho = 0.0259), indicating that the unobserved heterogeneity in the model has little impact on the outcomes. In general, there are no statistically significant correlations between any of the predictors and GDP growth at the traditional levels.

Table 6. Regression Results for GDP Growth (GDPG) with Various Predictors

GDPG	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
temp	-0.01534	0.046921	-0.33	0.744	-0.1073	0.076627
rainfall	-0.00095	0.000719	-1.32	0.187	-0.00236	0.000461
hmd	-0.00887	0.036275	-0.24	0.807	-0.07997	0.062224
UEP	-0.1328	0.069403	-1.91	0.056	-0.26883	0.003225
FDI	0.466748	0.302521	1.54	0.123	-0.12618	1.059679
_cons	0.307548	4.450474	0.07	0.945	-8.41522	9.030317

The Urban Employment Proportion (UEP) regression findings based on economic and environmental factors are shown in this table. There are no statistically significant impacts of temp, rainfall, and hmd on UEP ($p > 0.05$). In contrast, UEP is significantly impacted negatively by GDPG (GDP growth) (coefficient = -0.054, p = 0.006), suggesting that a lower UEP is linked to higher GDP growth. Likewise, UEP is significantly decreased by FDI (Foreign Direct Investment) (coefficient = -0.885, p = 0.002). With a value of 23.36, the constant term is statistically significant. These results demonstrate that, in contrast to environmental influences, economic factors such as GDP growth and foreign direct investment have a considerable impact on UEP.

Table 7: Urban Employment Proportion (UEP) Regression Results with Economic and Environmental Predictors

UEP	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
temp	-0.061	0.088	-0.69	0.488	-0.233	0.111
rainfall	-0.001	0.001	-0.7	0.486	-0.003	0.001
hmd	-0.067	0.070	-0.95	0.342	-0.205	0.071
GDPG	-0.054	0.020	-2.74	0.006	-0.093	-0.015
FDI	-0.885	0.290	-3.06	0.002	-1.453	-0.317
_cons	23.360	5.606	4.17	0	12.372	34.348

The regression findings for FDI as predicted by temperature, rainfall, GDP growth (GDPG), urban employment proportion (UEP), human development (hmd), and rainfall are shown in this table. Higher temperatures are linked to lower FDI, as indicated by the coefficient for temperature, which is -0.035 and shows a significant negative relationship with FDI (p = 0.039). Rainfall appears to have little effect on foreign direct investment (FDI), as evidenced by its very modest positive coefficient of 0.0002, which is not statistically significant (p = 0.557). Although human development (hmd) has a negative coefficient of -0.016, there is no significant correlation between it and FDI (p = 0.210). With a positive but statistically insignificant correlation of 0.010 (p = 0.129), GDP growth (GDPG) does not appear to have a meaningful impact on foreign direct investment. With a correlation of -0.027 (p = 0.022), the Urban Employment Proportion (UEP) and FDI have a negative and statistically significant association, indicating that a greater UEP is linked to a lower FDI. When all variables are zero, the constant term (_cons) is 11.40 and highly significant (p < 0.0001), indicating a considerable baseline level of FDI.

Table 8: Regression Results for Foreign Direct Investment (FDI) with Various Predictors

FDI	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
temp	-0.035	0.017	-2.07	0.039	-0.068	-0.002
rainfall	0.000	0.000	0.59	0.557	0.000	0.001
hmd	-0.016	0.013	-1.25	0.21	-0.041	0.009
GDPG	0.010	0.007	1.52	0.129	-0.003	0.023
UEP	-0.027	0.012	-2.29	0.022	-0.050	-0.004

The regression coefficients for the factors influencing foreign direct investment (FDI) are shown in the table. Higher temperatures are linked to lower FDI, as indicated by the variable temp's significant negative coefficient of -0.0264646 (SE = 0.0130761, z = -2.02, p = 0.043). Likewise, there is a substantial negative correlation between FDI and hmd (humidity) (coefficient = -0.0239406, SE = 0.0104339, z = -2.29, p = 0.022), indicating that higher humidity lowers FDI inflows. Conversely, FDI is positively and significantly impacted by GDPG (GDP growth) (coefficient = 0.0071058, SE = 0.0027148, z = 2.62, p = 0.009), suggesting that higher GDP growth is linked to higher FDI. A significant negative coefficient of -0.0164199 (SE = 0.0056233, z = -2.92, p = 0.004) is also found for the variable UEP (Urban Employment Proportion), suggesting that lesser FDI is associated with a larger share of urban employment. The constant term, which represents the baseline amount of FDI when all other variables are zero, is statistically significant (coefficient = 11.18448, SE = 0.6914209, z = 16.18, p = 0.000). These findings highlight the intricate interactions between environmental and economic issues, with urban employment having a decreasing effect, GDP growth having a positive impact, and warmth and humidity having a negative impact on foreign direct investment.

Table 9:Regression Results for Foreign Direct Investment (FDI) with Environmental and Economic Predictors

FDI	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
temp	-0.02646	0.013076	-2.02	0.043	-0.05209	-0.00084
rainfall	-1.3E-05	0.000156	-0.08	0.933	-0.00032	0.000293
hmd	-0.02394	0.010434	-2.29	0.022	-0.04439	-0.00349
GDPG	0.007106	0.002715	2.62	0.009	0.001785	0.012427
UEP	-0.01642	0.005623	-2.92	0.004	-0.02744	-0.0054
_cons	11.18448	0.691421	16.18	0	9.829316	12.53964

Regression Results for Urban Employment Proportion (UEP) with Various Predictors

The regression findings for the Urban Employment Proportion (UEP) as predicted by temperature, rainfall, GDP growth (GDPG), human development (hmd), and foreign direct investment (FDI) are shown in this table. Temperature has a positive but statistically insignificant correlation with UEP ($p = 0.464$), as indicated by the coefficient of 0.056. With a coefficient of -0.003 ($p = 0.028$), rainfall has a negative and statistically significant impact on UEP, indicating that heavier rainfall is linked to a decline in the share of urban employment. Despite having a positive value of -0.056, human development (hmd) is not statistically significant ($p = 0.332$). At a marginal significance level (p = 0.087), GDP growth (GDPG) likewise exhibits a negative coefficient of -0.049, suggesting a moderately negative relationship between GDP growth and UEP. With a coefficient of -0.503 (p = 0.024), foreign direct investment (FDI) has a substantial negative impact on UEP, indicating that higher FDI is linked to a lower share of urban employment. 9.68 is the constant term (_cons), and p = 0.052 indicates that it is marginally significant. The model's residuals show a strong correlation between the individual effects and the overall error term, with a rho value of 0.76 and standard deviations (sigma_u) of 3.07 for the individual effects and 1.72 (sigma_e) for the overall error.

Conclusion

Although the degree and kind of these effects vary, the study shows that climate change has a major impact on economic indicators in both developed and developing nations. The Statistical result found that RF is found to be statistically significant and negative to UEP for the developed country group. In areas where farming still holds significance, abundant rainfall can elevate crop yields, creating a surge in seasonal agricultural employment and alleviating overall joblessness. Climatic factors, particularly precipitation, can influence construction endeavors, yet often, gentle showers can prove advantageous by stimulating economic pursuits that thrive on moisture (such as energy generation through hydropower). Specific segments of the economy, like retail and entertainment, might flourish during wet weather (for instance, increased foot traffic in indoor venues like shopping centers), potentially leading to a rise in job prospects. Moreover, AIR is found to be negatively significant to FDI for developed and developing country groups. As the globe warms, the specter of climate change has profoundly shaped investment strategies across the planet. Both affluent and emerging nations are awakening to the economic repercussions of climate change (such as infrastructure degradation, soaring insurance premiums, and operational interruptions). This awareness may prompt foreign investors to reassess the enduring viability of investments in areas experiencing heightened temperatures. Investors are progressively weighing environmental, social, and governance (ESG) criteria. Elevated temperatures could be interpreted as an indicator of inadequate environmental sustainability, potentially dissuading investors who are focused on eco-friendly, sustainable ventures. Strong policy, financial, and technology infrastructures in industrialized countries allow companies to successfully reduce risks, promoting resilience to climatic changes. On the other hand, businesses in poor nations are more vulnerable because they have fewer resources, shoddy infrastructure, and a greater reliance on climate-sensitive industries like agriculture. The examination of variables including CO2 emissions, rainfall, humidity, and air quality reveals the complex relationship between climate conditions and economic metrics like GDP, unemployment, and foreign direct investment. In order to maintain economic growth and employment levels, policymakers should prioritize increasing renewable energy, improving air quality, and reducing CO2 emissions. Businesses in poor nations can increase production and resilience in the face of climate issues by investing in cutting-edge and adaptable technologies. Developing countries can receive the financial and technical assistance they need to manage climate-related risks by fortifying international alliances.To fully capture the effects of climate change, future research should incorporate more socioeconomic and environmental factors, such as adoption rates of renewable energy and investments in climate adaptation. Localized impacts of climate change on business performance can be identified by focussing more intently on certain areas within developed and developing countries. To evaluate how the connection between climate conditions and economic performance changes over time, include longitudinal studies. These suggestions are meant to serve as a roadmap for both short-term legislative actions and long-term scholarly research, advancing our knowledge of and ability to address the economic issues raised by climate change.

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ESGD AND FIRM PERFORMANCE OF LISTED COMPANIES IN EUROPEAN

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Abstract

This research aims to establish the impact of ESGD (Environmental, Social, Governance and Disclosure) factors in European publicly listed firms. Using 3900 firm-year observations of firms from 2015-2023 from Bloomberg Terminal, the study employs Key Performance Indicators such as Return of Assets, Return of Equity and Tobin's Q (TBQ). According to the results derived from the application of Ordinary Least Squares (OLS), Fixed Effect Models (FEM), and Random Effect Models (REM) using the collected panel data, results show a positive relationship between ESGD practices and ROA, suggesting improved operational performance. Conversely, a negative association with ROE reflects the complex interplay between ESGD initiatives and shareholder returns. Tobin's Q outcomes vary, demonstrating ESGD's potential to elevate market valuation in specific contexts. These are the insights that throw light and use ESGD as an important strategic means of enhancing transparency, effectiveness, and stability in the financial results. It is observed that there are disparities in the adoption rates of green bonds across the regions, the Regional disparity in the adoption of green bonds and the factors driving it can be explained by the fact that western Europe leads the pack as they have stronger regulation beginning with the EU Taxonomy to the Sustainable Finance Disclosure Regulation (SFDR) while REG Southern and Eastern Europe trail behind because they do not have the same pressure. Furthermore, the research establishes the importance of diversity and inclusion within ESGD frameworks and shows how these endeavors relate positively to innovation and staff encouragement.

Keywords: ESGD, corporate sustainability, financial performance, transparency, European markets, regulatory frameworks

1. Introduction

In recent years, the emphasis on Environment, Social, and Government (ESG) Disclosure has significantly increased across Europe, with more than 80% of European investors now incorporating ESG disclosure (ESGD) factors into their decision-making processes (Paridhi et al., 2024). This shift marks a broader transformation where sustainable and ethical business practices have moved from being optional considerations to becoming essential components of corporate strategy. Driven by tiger regulatory frameworks, growing investor demands, and integrating ESGD principles to enhance their market position, build resilience, and achieve long-term success. At its core, ESGD examines a company's performance across four vital dimensions. Environment (E) factor evaluates how companies minimize their ecological footprint through actions like reducing greenhouse gas emissions, managing water and waste and in order to promote energy efficiency (Mudaliyar & Sharmar, 2022). Social (S), aspect look at a company's approach to managing its relationship with employees, supplies, stakeholders, and the broader community. It includes considerations like fostering diversity and inclusion, ensuring employee well-being, and upholding human rights, while Governance (G) measures the integrity and transparency of a company's leadership, including its decision-making processes, board diversity, executive compensation, and shareholder rights (Wang et al., 2011). And the newly emphasized Disclosure (D) component focuses on the transparency and accuracy of a company's reporting practices, ensuring that all environmental, social, and governance activities are properly disclosed to stakeholders, regulatory bodies, and the public in a clear and standardized manner (Bernardi & Stark, 2016). Increasing stakeholder demand for transparency and comprehensive information has heightened the significance of Disclosure(D) within the ESGD framework. Investors are now more focused on companies that offer clear and thorough reporting on their ESG practices, reflecting a wider trend toward socially responsible investing (Goldberg et al., 2008). This shift indicates a growing preference for investments that deliver not just financial returns but also positive ethical and social impacts, positioning strong ESGD performance as a crucial factor in attracting capital. While Corporate Social Responsibility (CSR) reporting has provided a foundation for non-financial disclosure, It alone has not proven sufficient to guarantee a company's long-term sustainability. Instead, a broader approach like ESGD, which incorporates environmental stewardship, social responsibility, sound government, and comprehensive disclosure practices, is essential for managing risks and building resilience (Carlin & Guthrie, 2001). The global financial crisis highlighted the importance for such an integrated strategy, demonstrating that transparency, strong governance, and ethical business practices are critical for navigating systemic risks (Boubaker & Nguyen, 2018). The significance of ESG factors has surged in recent years, particularly in Europe, where there is heightened scrutiny from investors, consumers, and regulatory bodies. A growing number of investors prioritize sustainability, leading to increased demand for companies that demonstrate strong ESG performance (Yoon, 2023). Research indicates that companies with robust ESG practices often achieve better financial outcomes, as they are better positioned to navigate risks and capitalize on opportunities in a dynamic market environment (Paridhi et al., 2024). Furthermore, companies that effectively implement ESG strategies tend to enhance their reputations, foster customer loyalty, and achieve operational efficiencies(Long et al., 2013) . For instance, studies have shown that strong ESG performance correlates positively with higher equity returns and reduced risk, making a compelling case for integrating ESG into core business strategies (Zioło et al., 2023). Europe has been at the forefront of the global movement towards ESGD, with the region's regulation landscape evolving rapidly to promote sustainable and ethical practices among listed companies, Initiatives like the European Green Deal, the EU Sustainable finance Disclosure Regulation (SFDR), and the Non Financial Reporting Directive (NRED) are pushing companies to demonstrate their commitment to ESGD principles (Kumar et al., 2024). As a result, firms with strong ESGD credentials are increasing a positive link between robust ESGD practices and enhanced Financial performance (Tadoori & Vadithala, 2023). In this study, further discussion on server key questions: How of ESGD practices affect firm performance across various sectors, such as energy, finance, manufacturing, and technology? What specific value do diversity initiatives contribute within the broader ESGD framework, particularly regarding innovation, workforce engagement, and market reach? Additionally, How can companies effectively navigate the complex challenges of integrating ESGD strategies such as compliance costs, data transparency, and shifting regulatory landscapes to achieve sustainable growth and long term resilience? To study the influences of ESGD along with the other financial indicators to influence the profitability of the listed companies in Europe.

2. Literature Reviews

The development of Environmental, Social, and Governance (ESG) frameworks represents a complex process shaped by numerous determinants, including investment methodologies, corporate operations, and governance benchmarks. These frameworks have become progressively vital for the implementation of sustainable business practices and the formulation of investment decisions. ESG metrics function as essential indicators for evaluating the sustainability of business operations and for advancing principles of the circular economy (Khandelwal et al., 2023). An increasing number of corporations are embracing ESG reporting to improve transparency and accountability, thereby facilitating sustainable practices and guiding investment decisions (Khandelwal et al., 2023). The significance of ESG indicators in factor-based investing is paramount, allowing for the strategic optimization of investment portfolios that adhere to sustainability principles while realizing performance standards that rival conventional benchmarks (Chan et al., 2020). Approximately 25% of new capital is allocated to ESG funds, indicating a substantial transformation in investor priorities towards sustainability (Friede et al., 2015) . The incorporation of ESG policies by development banks and private sector entities has resulted in the formulation of widely recognized governance standards, thereby fostering transparency and accountability within decision-making processes (McIntyre, 2015). These standards are increasingly regarded as critical elements of global administrative law, affecting both public and private sectors (McIntyre, 2015).

ESGD (Environmental, Social, Governance, and Disclosure) framework has evolved from the traditional ESG model to better meet the increasing demands for transparency and accountability in corporate practices (Gherghina, 2024). Originally, the ESG framework assessed companies based on three core criteria: environmental sustainability, social responsibility, and governance effectiveness (John et al., 2024). However, recent advancements have introduced a fourth component Disclosure (D) which underscores the critical need for companies to provide precise, comprehensive, and transparent information about their operations and impacts (Novia et al., 2024). This integration of Disclosure into the ESG framework is a direct response to heightened expectations from stakeholders and investors for more detailed reporting on a company's ESG performance (Chen & Xie, 2022). The ESGD model distinguishes itself from traditional ESG by explicitly prioritizing disclosure as a fundamental criterion (Wen et al., 2022). This shift emphasizes that transparent communication of environmental, social, and governance activities is essential for building stakeholder trust and meeting regulatory requirements (Salman & Ishak, 2023). Moreover, Linden (2019) said it reflects an understanding that robust disclosure practices are crucial for enhancing market credibility and supporting informed decision-making among investors. By prioritizing Disclosure, the ESGD framework aims to ensure that companies not only engage in sustainable practices but also openly communicate their efforts and outcomes to the public and relevant authorities. ESGD practices has been shown to positively impact firm performance, both in financial and non-financial terms (Tadoori & Vadithala, 2023). Empirical studies suggest that companies with strong ESGD performance often achieve better financial outcomes, such as improved profitability, higher stock valuations, and lower costs of capital (Stefan, 2016). For example, companies that implement robust environmental practices, such as reducing greenhouse gas emissions and improving energy efficiency, not only contribute to sustainability but also reduce operational costs and mitigate regulatory risks (Khafizov, 2021). In Europe, diversity, and inclusion (D&I) initiatives play a critical role in driving firm performance across several key areas, including innovation, workforce engagement, market reach, and decision-making quality. Studies consistently show that companies embracing diversity at leadership levels experience stronger performance outcomes, particularly in financial and innovation metrics. For example, research from McKinsey reveals that firms with diverse boards are 27% more likely to outperform financially. Additionally, ethnic diversity in leadership improves societal impact, positively affecting areas like community involvement and employee engagement (Formanek, 2021). Examples from European companies, such as diversity leaders in the UK, showcase how equitable gender and ethnic representation at executive levels correlates with better financial and social outcomes. These practices demonstrate the potential of D&I to drive both financial performance and long-term sustainability in today's competitive markets (Saha et al., 2024). The Disclosure component of ESGD plays a critical role in this dynamic by fostering transparency and building trust with investors, which can lead to increased market valuation and improved access to capital (Rastogi et al., 2023). Thus, comprehensive ESGD practices are increasingly recognized as strategic tools that enhance both financial performance and overall corporate resilience (Baibarac & Petrescu, 2019). Understanding these variations is crucial for assessing the broader impact of ESGD in Europe (Charron et al., 2022). Southern and Eastern European countries have lower levels of ESGD performance, partly due to less developed regulatory frameworks and market pressures. Furthermore, studies comparing the impact of ESGD across regions reveal that companies in Western Europe tend to outperform those in Eastern Europe in terms of sustainability performance, corporate governance, and diversity measures (Smith, 2007). Studies on the effectiveness of these regulations provide a mixed picture. On the one hand, the EU Taxonomy has been praised for providing a clear and standardized framework for classifying sustainable economic activities (Chen et al., 2023). It has helped create greater transparency and accountability among companies by setting clear guidelines for what constitutes a "sustainable" activity. The SFDR has also been effective in encouraging financial institutions to show the sustainability risks associated with their investments. Another key area for improvement lies in the lack of standardization in ESGD reporting. While the EU Taxonomy and SFDR have introduced some level of standardization, there is still considerable variation in how companies report ESGD date (Nicholas, Charron & Victor, 2022). Finally, there is a need for greater emphasis on diversity within ESGD frameworks (Ferreira, 2022). Research suggests that companies embracing ESGD are better equipped to mitigate risks, reduce costs, and improve market resilience. For example, energy companies that transition to sustainable energy practices not only comply with regulatory requirements but also benefit from reduced operational costs and enhanced financial performance (Horváth et al., 2022). Firms in the manufacturing and finance sectors have similarly leveraged ESGD strategies to improve their market position and resilience in dynamic markets (Westhead et al., 2001). Additionally, robust governance practices, particularly in transparency and disclosure, have emerged as critical components in attracting sustainable investments. Companies with transparent reporting practices tend to build stronger relationships with stakeholders, leading to better access to capital and higher market valuations (Frost et al., 2008). Furthermore, diversity and inclusion (D&I) initiatives within ESGD frameworks contribute significantly to innovation and financial performance. Firms with diverse leadership teams are 27% more likely to outperform financially, as they benefit from diverse perspectives that foster creativity and effective decision-making (Bergman et al., 2012). Despite the evident benefits, regional variations across Europe impact the adoption and effectiveness of ESGD practices. Western European countries like Germany and the Netherlands have outperformed Southern and Eastern European regions in ESGD implementation due to stronger regulatory frameworks and market pressures (Pazarbasioglu & Ötker, 1994). European regulations, such as the EU Taxonomy and the Non-Financial Reporting Directive (NFRD), have played a pivotal role in pushing companies toward more sustainable and transparent practices. However, when analyzing the relationship between ESG practices and firm performance, particularly in the European and Italian contexts, the literature shows inconsistencies and lacks systematization. This divergence is especially pronounced in Italy, where the Directive on disclosure was only implemented in 2016 (Raes et al., 2016). Much of the existing research focuses on the connection between ESG disclosure and financial performance or market value, while studies exploring the …direct impact of ESG on firm performance or the individual pillars are limited (Junius et al., 2020). Most of these studies are also highly specific to particular sectors, further complicating the development of a comprehensive understanding. For example, Almeyda and Darmansya's five-year analysis of G7 countries finds a significant correlation between ESG disclosure and firm performance, as measured by ROA and ROC, but no such correlation with market value metrics like stock price and price-to-earnings ratios (Skelton et al., 2019). Their study also reveals that the environmental pillar is positively linked to ROC and stock price, while the social and governance pillars show no significant relationship. A long-term study of the Eurostoxx50 index confirms this lack of connection between ESG efforts and market value, a finding mirrored by analyses of Italian listed companies (Mikołajek-Gocejna, 2024). However, other studies in the same context suggest that ESG disclosure holds value relevance, indicating that the relationship between ESG and firm performance may vary depending on the scope and metrics of analysis (Triwacananingrum et al., 2024). Studies suggest that Environmental, Social, and Governance (ESG) and Disclosure (ESGD) practices can offer sustained competitive advantages. Companies with strong ESGD initiatives often gain long-term benefits like enhanced reputation, greater brand loyalty, and improved risk management. These benefits arise from aligning with investor and consumer demands for sustainability and ethics, leading to better market performance and financial results. Additionally, firms that integrate ESGD into their core strategies may achieve cost savings and operational efficiencies. However, the effectiveness of these practices varies by industry and depends on consistent, strategic implementation. (Li, 2024). Studies show that Environmental, Social, and Governance (ESG) and Diversity (ESGD) practices can provide sustained competitive advantages by enhancing reputation, customer loyalty, and risk management. Companies that effectively integrate ESGD principles often achieve better market positioning and financial performance. However, the benefits depend on industry context and the quality of implementation (Quairel-Lanoizelée, 2011).

Table 1: Summary results from previous study

Primary Variable	SIGN			
	ROE	ROA	TBQ	Citation
ESGD	(+)	(+)	(+)	Almeyda and Darmansya (Skelton et al., 2019)
	(+)	(+)	(+)	Tadoor & Vadithala, 2023
	(+)	(+)	(+/-)	Khafizov, 2021
	(+)	(+)	(+)	Stefen, 2016
	(+)	(+)	(+/-)	Frost et al., 2008

3. Research Methodology

3.1 Sample Selection

In the methodology section, have utilized the access to Bloomberg, a reputable financial data website to gather various ESG-related variables. The secondary data utilized in this study was procured from the Bloomberg terminal. Choosing Bloomberg for our secondary data collection means that we get reliable and up-to-date information for analysis of trends and make comparisons. A Total of 3,900 firm-year observations of European companies from 2015 to 2023 are collected.

3.2 Variables

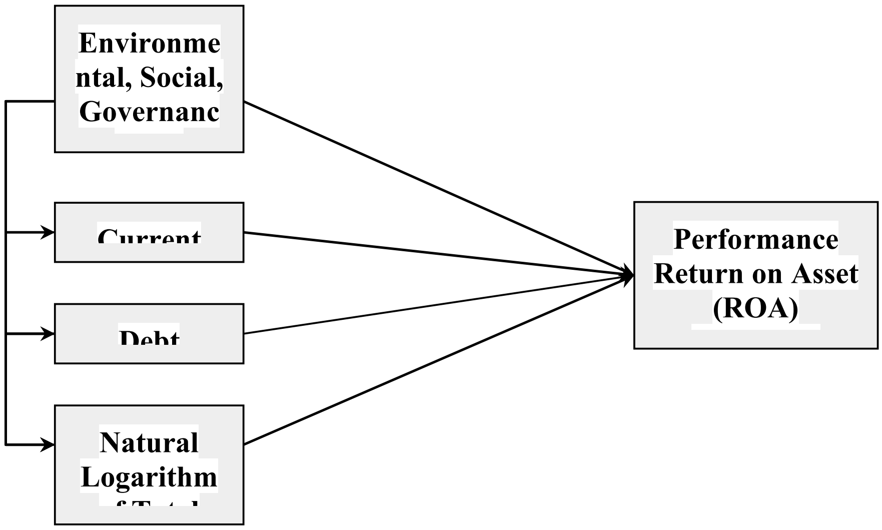
In this study, the analysis focuses on a set of key variables that influence the firm performance of listed companies in Europe. Each variable plays a unique role in evaluating different aspects of corporate performance and government. The main independent variable, ESGD, represents the level of corporate social responsibility and transparency within a firm. Additional financial ratios and metrics, such as the Current Ratio (CR), Debt Equity Ratio (DE), Natural Logarithm of Total Assets, and Tobin's Q (TBQ), provide a comprehensive view of the firm's financial health and operation efficiency.

Table 1: Variables Description

	Variable	Acronym	Description
1	Environmental, Social, Governance and Disclosure	ESGD	It focuses on sustainable practices, social responsibility, governance, and transparent reporting to ensure ethical and responsible business operations.
2	Current Ratio	CR	Current Ratio is a financial metric that measures a company's ability to pay off its short-term liabilities with its short-term assets.
3	Debt Equity Ratio	DE	Debt Equity Ratio is a financial metric that compares a company's total debt to its shareholders' equity.
4	Natural Logarithm of Total Assets	SIZE	The natural logarithm of total assets is a scaled-down value of a company's total assets using the natural log, helping to compare companies of different sizes.
5	Return on Assets	ROA	Return on Assets is a financial ratio that shows the percentage of profit a company earns relative to its

			total assets. It measures how efficiently a company uses its assets to generate profit.
6	Tobin's Q	TBQ	Tobin's Q is a ratio that compares the market value of a company to the replacement cost of its assets. It measures whether the company's market value is higher or lower than the cost of its assets.

Figure 1 framework



3.3 Research Methodology

A panel data analysis is carried out to confirm the degree to which ESG has affected a company's financial performance. The regression model specifications are as follows:

$ROA_{i,t} = \beta 1ESGDit + \beta 2CRit + \beta 3DEit + \beta 4SIZEit + \beta 5TBQit + \varepsilon it$ ……..…….(Equation 1)
$TBQA_{i,t} = \beta 1ESGDit + \beta 2CRit + \beta 3DEit + \beta 4SIZEit + \beta 5TBQit + \varepsilon it$ ………….(Equation 2)

The two sets of models one with ROA as the dependent variable and the other with TOBIN's Q are used to test the study hypotheses. There are two sets consisting of a singular model which analyzes the correlations between the two dependent variables (TOBIN and ROA) and the ESGD independent variable. Ordinary least square (OLS), fixed effect model (FEM) and random effect model (REM) are used in this study. Later the selection of FEM and REM will be justified using the Hausman Test for the model selection.

4. Findings

The findings from this study is presented in Table 1. The table summarizes descriptive information of the factors studied. The means, standard deviation, minimum, maximum are presented. ESGD and firm performance of listed companies in Europe with the average ESGD and current ratio (53.67, 1.64) respectively. The maximum value of ESGD and CR (83.61, 29.27) and the minimum value of ESGD and CR (7.29, 0.11) respectively. Moreover, the standard deviation of the ESGD and CR (12.18 , 1.33) respectively. The return on assets (ROA), return on equity (ROE) and TBQ rates of mean (6.80, 17.68, 2.29). The maximum value of ROA, ROE and TBQ are (60.90, 250.19 and 29.57). The minimum value of ROA, ROE and TBQ are (-41.06, -107.71 and 0.34) Moreover, the standard deviation of ROA, ROE and TBQ are (7.15, 19.84 and 1.97) respectively. See Table 1.

Table 1: The Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
ESGD	3,900	53.67	12.18	7.29	83.61
CR	3,900	1.64	1.33	0.11	29.27
DE	3,900	2.38	9.49	-34.83	250.98
SIZE	3,900	4.09	0.67	1.70	5.93
ROA	3,900	6.80	7.15	-41.06	60.90
ROE	3,900	17.68	19.84	-107.71	250.19
TBQ	3,900	2.29	1.97	0.34	29.57

Source: Author's Processing

Table 2 displays the correlation matrix among variables. To perform regression modeling on variables with the same units, most variables are expressed as percentages. However, the size variable is computed as the natural logarithm of total assets. The highest correlation was presented between Return on Asset (ROA) and Return on Equity significantly with a correlation result (0.693). The next correlation variable is between Return on Equity (ROE) and Tobin's Q (TBQ) significant with a correlation result (0.365). The lowest correlation was presented between the Current Ratio (CR) and Dept Equity Ratio (DE) growth rate with (0.080). See table 2

Table 2: Correlative Matrix of variable

	ESGD	CR	DE	SIZE	ROA	ROE	TBQ
ESGD	1						
CR	-0.215	1.000					
DE	0.045	-0.080	1.000				
SIZE	0.429	-0.273	0.136	1.000			
ROA	-0.135	0.162	-0.079	-0.302	1.000		
ROE	-0.033	-0.049	0.066	-0.144	0.693	1.000	
TBQ	-0.281	0.265	-0.055	-0.407	0.587	0.365	1.000

Source: Author's Processing

Table 3 represent the ESGD and firm performance of listed companies in Europe on ROA based on the Fixed-effect (within) regression model (which is the most optimal from the

Hausman Test, see Table 6) and finds that the average ESGD and Current Ratio index are significant 95% confidence interval. In addition, R square show the range within 0.5134, between 0.6236, overall 0.5735. The interpretation shows the average ESGD increased by one unit, ROA increased by 0.0222. In addition, the Current Ratio index increased by one unit, ROA increased by 0.2425. On the other side, Dept Equity Ratio (DE) index decreased by on unit, ROA decreased by 0.0230. In addition, Natural Logarithm of Total Assets (SIZE) index decreased by on unit, ROA decreased by 2.7209. See table 3.

Table 3: ROA Fixed-effects regression model

ROA	Coefficient	Std. err.	t	P>|t|
ESGD	0.0222	0.0094	2.3600	0.0190
CR	0.2425	0.0640	3.7900	0.0000
DE	-0.0230	0.0068	-3.3600	0.0010
SIZE	-2.7209	0.3498	-7.7800	0.0000
ROE	0.2191	0.0039	56.2600	0.0000
TBQ	0.3896	0.0525	7.4200	0.0000
_cons	11.6269	1.2849	9.0500	0.0000
R-squared:				
Within	0.5134			
Between	0.6236			
Overall	0.5735			

Source: Author's Processing

Table 4 represent the ESGD and firm performance of listed companies in Europe on ROE based on the Random-effect (within) regression model and finds that the average ESGD and Current Ratio index are significant 95% confidence interval. In additional, R square show the range within 0.4905, between 0.5337, overall 0.5066. The interpretation shows the average ESGD decreased by one unit, ROE decreased by .703268. In addition, the Current Ratio index decreased by one unit, ROE decreased by .5962538. On the other side, Dept Equity Ratio index increased by on unit, ROE increased by .657005. In additional, Natural Logarithm of Total Assets (SIZE) index increased by on unit, ROE increased by 4174923. See table 4

Table 4: ROE Fixed-effects regression model

ROE	Coefficient	Std.eer.	t	P>|t|
ESGD	-.0703268	.0297978	-2.36	0.018
CR	-.5962538	.2025381	-2.94	0.003
DE	.0657005	.0216513	3.03	0.002
SIZE	4,174,923	1,113,964	3.75	0.000
ROA	2,192,955	.0389796	56.26	0.000
TBQ	.0066105	.1673642	0.04	0.968

_cons	-9,726,583	4,109,796	-2.37	0.018
R-squared:				
Within	0.4905			
Between	0.5337			
Overall	0.5066			

Source: Author's Processing

Table 5 represent the ESGD and firm performance of listed companies in Europe on ROA based on the Random-effect (within) regression model and finds that the average ESGD and Current Ratio index are significant 95% confidence interval. In addition, R square show the range within 0.0824, between 0.3741, overall 0.2986. The interpretation shows the average ESGD increased by one unit, TBQ increased by 0.0235007. CR decreased by one unit, TBQ decreased by 0.0689821. DE increased by one unit, TBQ increased 0.0011919. In additional, Natural Logarithm of Total Assets (SIZE) index decreased by one unit, TBQ decreased by 1450928. See table 5

Table 5: Random-effects GLS regression of TBQ

TBQ	Coefficient	Std.eer.	t	P>|t|
ESGD	.0235007	.0030194	7.78	0.000
CR	-.0689821	.0206799	-3.34	0.001
DE	.0011919	.0022143	0.54	0.590
SIZE	-1,450,928	.1112833	-13.04	0.000
ROA	.0406795	.0054799	7.42	0.000
ROE	.000069	.0017461	0.04	0.968
_cons	6,798,408	.4037252	16.84	0.000
R-squared:				
Within	0.0824			
Between	0.3741			
Overall	0.2986			

Source: Author's Processing

Table 6 summarizes the findings on the impact ESGD on firm performance among listed companies in Europe. ESGD shows a positive association with ROA but a negative association with ROE, indicating that while ESG efforts may enhance asset efficiency, they may have a complex effect on returns to shareholders. The Current Ratio (CR) displays a strong positive relationship with both ROA and ROE, suggesting that higher liquidity supports profitability and equity returns. The Debt-to-Equity ratio (DE) presents mixed results, positively influencing ROE but slightly reducing ROA, implying that leverage affects these metrics differently. Firm Size (SIZE) is negatively associated with ROA and TBQ, which may indicate limitations in efficiency and growth potential for larger firms.

The adjusted R^2 values indicate varying model fit across the performance measures, with ROA having the highest explained variance (62.77%), followed by ROE (52%) and TBQ (42.71%). The Hausman test results are significant, supporting the use of a fixed effects model that accounts for specific characteristics within each firm. Overall, the findings suggest that while ESGD can positively impact certain financial metrics, its effects on broader performance indicators are complex and may vary depending on other firm characteristics. See table 6

Table 6: Model Summary Result

	ROA	ROE	TBQ
Performance	Mutiple OLS	Mutiple OLS	Mutiple OLS
constant	11.6269	-9726583	6798408
ESGD	0.0222*	-0.0703268*	0.0235007*
CR	0.2425*	0.5962538*	-0.0689821
DE	-0.023*	0.0657005*	0.0011919
SIZE	-2.7209*	4174923*	-1,450,928
	Within=0.5100	Within= 0.4905	Within= 0.0824
R^2	Between=0.6642	Between=0.5337	Between=0.3741
	Overall=0.6043	Overall=0.5066	Overall=0.2986
Adjuested R^2	0.6277	0.52	0.4271
Hauman test	0.0000	0.0000	0.0000
	Prob>Chi^2	Prob>Chi^2	Prob>Chi^2
	FE is optimal	FE is optimal	FE is optimal

Source: Author's Processing
Note: * designates the 1% significant coefficients

5. Conclusion

5.1 Research Discussion

This paper examined the impact of Environmental, Social, Governance, and Disclosure (ESGD) factors on the performance of listed European companies. Using secondary data from Bloomberg, we analyzed how ESGD dimension influences key financial metrics such as Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q (TBQ). Our findings reveal that strong ESGD practices, particularly in transparency and disclosure, positively correlate with Improved ROA and TBQ, highlighting their role in enhancing operational efficiency and market valuation. However, the relationship with ROE is more complex, suggesting that while ESGD factors contribute to firm stability, they may have varied effects on shareholder returns. The study underlines that ESGD practices not only fulfill regulatory and stakeholder expectations but also offer a strategic advantage by building resilience and attracting sustainable investment. Differences in ESGD adoption across European regions reflect varying regulatory pressures, with Western European firms often leading in sustainability performance. These insights reinforce the importance of a robust ESGD framework for long-term financial and reputational benefits, positioning companies to adapt to evolving market and regulatory demands.

5.2 Discussion

In this paper, ESGD (Environmental, Social, Governance, and Disclosure) positively impacts ROA (Return on Assets) at a 1% significance level and demonstrates a statistically strong relationship between ESGD practices and firm profitability and operational efficiency. The positive sign for ROA suggests that ESGD initiatives contribute meaningfully to financial performance. This aligns with previous research, where strong ESG practices were shown to correlate with improved financial metrics, such as profitability and asset utilization (Stefan,2016). Companies that prioritize environmental efficiency, social responsibility, and transparent governance often reduce regulatory risks and operational costs, further supporting their financial health (Khafizov,2021). Furthermore, the inclusion of Disclosure (D) in the ESG framework likely amplifies this positive impact. As the study indicates, increased transparency can attract investors and build trust, leading to greater market valuation and access to capital (Bernardi & Stark,2016). This finding is especially relevant in the European context, where stringent regulatory requirements, such as the EU Taxonomy and SFDR, encourage comprehensive ESGD reporting, reinforcing the positive effect of ESGD on financial outcomes.

5.3 Contribution

ESGD must be strategically integrated to enhance operational efficiency (ROA) and market valuation (Tobin's Q), despite its potential to challenge short-term shareholder returns (ROE). Strong regulatory frameworks are essential to address regional disparities, ensuring ESGD adoption aligns sustainability with financial performance and long-term resilience.

5.2 Limitation

A limitation of the analysis lies in its focus on data from 2015 to 2023, which may not account for the long-term evolution of ESGD practices. Over the next decade, ESGD is likely to be shaped by stricter regulations, advancements in reporting technology and shifting stakeholder demands. These changes could redefine its role from a competitive differentiator to a standard business practice, potentially impacting its influence on financial metrics. With the integration of new factors such as climate risk and AI-driven transparency, further research will be critical to understanding ESGD's future impact on corporate performance and sustainability.

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GENDERED PATHWAY TO CUSTOMER SATISFACTION WITH E-PROCUREMENT DASHBOARD SYSTEMS IN INDONESIA

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Abstract

In the increasingly digital environment, e-procurement systems have become essential for entities endeavoring to enhance operational efficiency, transparency, and the overall satisfaction of stakeholders. Despite the increase in adoption rates, uncertainties persist regarding the perceptions and interactions of specific user groups, especially in different genders—concerning e-procurement dashboards. This study investigates the factors influencing customer satisfaction with e-procurement dashboard systems, focusing on gender disparities. The study employs a quantitative research method, using questionnaires distributed to 168 users of the e-procurement dashboard system of Indonesia's Electronic Procurement Services (LPSE). Data were collected via an online survey conducted in October 2023, with respondents rating their perceptions of the latent variables on a five-point Likert scale. Structural equation modeling (SEM) was used to analyze the relationships between the latent variables. The model fit indices indicated an acceptable fit, with a chi-square to a degree of freedom ratio of 3.229, Goodness of Fit Index (GFI) of 0.607, Adjusted Goodness-of-Fit Index (AGFI) of 0.523, Comparative Fit Index (CFI) of 0.820, and Root Mean Square Error of Approximation (RMSEA) of 0.116. The findings revealed that intention to use significantly influences perceived transparency for both genders, with slightly higher regression weights for females. System quality also positively impacts transparency, with a stronger effect observed among male users. Transparency strongly influences customer satisfaction, particularly for female users, indicating that females place a higher value on transparency in achieving satisfaction. These insights offer practical implications for designing more inclusive and effective e-procurement systems and provide a foundation for future research to explore additional demographic factors and the impact of emerging technologies on user satisfaction.

Keywords: E-Procurement, Customer Satisfaction, Gender Differences, Transparency, Intention to Use

1. Introduction

In today's competitive business landscape, advanced technologies becomes essential for achieving operational efficiency and gaining customer satisfaction. E-procurement dashboard systems have emerged as transformative instruments, fundamentally altering the management of procurement processes. Through the integration of electronic procurement into a cohesive platform, these systems facilitate streamlined workflows, augment transparency, and bolster decision-making, encompassing activities such as supplier selection, order placement, payment processing, and performance evaluation (Qi et al., 2021; Mousavi & Bossink, 2020).

Gender perceptions markedly affect the manner in which users engage with and experience satisfaction derived from technology. Empirical studies suggest that males typically emphasize technical performance and operational efficiency, whereas females concentrate on user-friendliness and supportive features (Wang et al., 2019; Adam et al., 2020). These disparities underscore the imperative for e-procurement systems to cater to a variety of preferences, thereby ensuring fair and holistic user satisfaction. Furthermore, quality dimensions such as system quality, information quality, and service quality are fundamental in cultivating trust and fulfilling user anticipations.

System quality guarantees that the platform exhibits reliability, user-friendliness, and the capacity to mitigate errors and delays, thereby facilitating efficient procurement processes (Buchanan et al., 2017). Information quality, which delivers precise and real-time data, augments transparency and bolsters informed decision-making (Golini et al., 2017; Pavlou et al., 2020). Service quality, encompassing user assistance and timely issue resolution, is imperative for sustaining system reliability and enhancing customer satisfaction (Mishra et al., 2018). Collectively, these dimensions of quality contribute to temporal efficiency and cost savings, thereby ensuring smooth operations and increased customer trust (Wamba et al., 2020).

Notwithstanding considerable progress, scholarly inquiry focusing on gender-specific preferences within e-procurement systems remains scarce, particularly in culturally heterogeneous environments such as Indonesia. As the most populous Muslim-majority nation globally, Indonesia embodies distinctive cultural and gender-related dynamics that profoundly influence the adoption of technology (Fenton et al., 2019). Comprehending these dynamics is essential, as male and female users may prioritize divergent features such as interface design, functionality, and support services.

This study endeavors to examine the determinants that affect customer satisfaction with e-procurement dashboard systems, placing a significant emphasis on gender disparities within the Indonesian context. By elucidating these determinants, this investigation aspires to furnish organizations with insights that facilitate the customization of e-procurement systems to accommodate a diverse array of user requirements, consequently enhancing overall satisfaction and promoting more inclusive technological solutions (Oliveira et al., 2019; Tarhini et al., 2016). Addressing these distinct preferences can catalyze increased system adoption, improved user experiences, and augmented competitive advantages (Tarhini et al., 2016).

This research addresses a vital gap in comprehending the gendered trajectories toward satisfaction with e-procurement systems, particularly within the culturally distinctive milieu of Indonesia. By concentrating on the dimensions of system quality, information quality, and service quality, while also considering gender-specific inclinations, organizations can optimize these systems to attain elevated levels of satisfaction and operational excellence (Fenton et al., 2019; Pavlou et al., 2020; Mousavi & Bossink, 2020). Ultimately, the adoption of inclusive design principles ensures that technological innovations contribute to sustainable customer loyalty and organizational prosperity (Wamba et al., 2020).

2. Literature Review

An in-depth comprehension of customer satisfaction regarding e-procurement dashboard systems necessitates various established theories and methodologies within the domains of information systems and technology adoption. Elements such as system quality, transparency, intention to utilize, and user satisfaction are paramount and ought to be the focal point for the architects of the dashboard systems.

The DeLone and McLean Information Systems Success Model (D&M IS Success Model) (DeLone & McLean, 2003) serves as a foundational framework for this investigation by underscoring the interconnected dimensions of system success, which encompass system quality, information quality, and service quality. These determinants exert a direct influence on user satisfaction and intention to utilize, thereby elucidating how the technical and functional efficacy of e-procurement dashboards is integral to their overall success. Expanding upon this theoretical framework, the Technology Acceptance Model (TAM) (Davis, 1989) enriches the discourse by correlating user perceptions of utility and ease of use with their propensity to embrace the technology. The synergistic insights derived from these models indicate that the attainment of a high-caliber system, which is adept at providing accurate, reliable, and user-centric services, is pivotal for encouraging adoption and enhancing satisfaction.

The Expectation-Confirmation Theory (ECT) (Bhattacherjee, 2001) enhances existing frameworks by emphasizing the correspondence between users' anticipations and the actual operational efficacy of the system. When an e-procurement dashboard fulfills or surpasses user expectations concerning system reliability, transparency, and support services, it is probable that levels of user satisfaction will rise. This correspondence highlights the necessity of developing systems that not only exhibit high performance but also closely correspond to users' expected results.

Transparency, a pivotal construct in this investigation, relates to these theoretical frameworks by shaping user trust and confidence. Transparency theory (Harrison & Sayogo, 2014) posits that the provision of accessible, timely, and precise information cultivates trust and enhances satisfaction. Within the realm of e-procurement dashboards, transparency fortifies the dimensions of reliability and quality delineated in the D&M IS Success Model and ECT, thereby ensuring that users possess confidence in the system's capabilities.

Furthermore, gender discrepancies, as elucidated by Social Role Theory (Eagly, 1987), intertwine with these conceptual frameworks to elucidate the manner in which males and females perceive and prioritize various system attributes. Empirical evidence suggests that males frequently emphasize technical performance and operational efficiency, whereas females tend to prioritize user-friendliness and supportive functionalities (Venkatesh & Morris, 2000; Gefen & Straub, 1997). Such distinctions are pivotal for the customization of systems that cater to a diverse array of user requirements and for fostering equitable levels of satisfaction.

Within the context of this investigation, the theoretical frameworks coalesce to elucidate how quality dimensions, informed by transparency and modulated by gender-specific preferences, propel satisfaction and system adoption. The synthesis of these theoretical perspectives offers a holistic framework for comprehending and enhancing customer satisfaction with e-procurement dashboard systems. By establishing connections among these concepts, this research underscores the significance of developing inclusive, high-functioning systems that meet diverse user expectations and cultural contexts, particularly in environments such as Indonesia.

This study hypothesizes the relationships among pivotal variables and their gender-specific ramifications. Initially, the intention to utilize the e-procurement dashboard system is hypothesized to exert an influence on perceived transparency, with variations contingent upon gender. Empirical evidence suggests that male users tend to emphasize performance metrics, whereas female users are inclined to prioritize usability and support, leading to divergent perceptions of transparency (Venkatesh et al., 2016; Wang et al., 2019).

H1: The intention to utilize the e-procurement dashboard system exerts a positive influence on perceived transparency, which differs by gender.

Subsequently, system quality, information quality, and service quality—fundamental components of the DeLone and McLean Information Systems Success Model—are anticipated to augment transparency. Elevated system quality guarantees reliability and usability, while precise information and proficient support contribute to fostering trust and clarity (Petter et al., 2008; Wixom & Todd, 2005).

H2: The quality of the e-procurement dashboard system positively influences perceived transparency, which differs by gender.

Lastly, transparency, which constitutes a vital element in fostering user trust and satisfaction, is hypothesized to exhibit variation between male and female users. In accordance with Expectation-

Confirmation Theory (ECT), satisfaction is derived when performance aligns with or surpasses user expectations (Bhattacherjee, 2001). Transparency serves to keep users informed, thereby reinforcing trust and enhancing overall satisfaction (Harrison & Sayogo, 2014; Wamba et al., 2020).

H3: Transparency exerts a positive influence on customer satisfaction with the e-procurement dashboard system, which differs by gender.

These hypotheses reflect the study's emphasis on quality, transparency, and gendered pathways to satisfaction within e-procurement systems

3. Research Method

This study adopts a quantitative approach, utilizing a questionnaire to gather data from 168 users of Indonesia's Electronic Procurement Services (LPSE) e-procurement dashboard in October 2023. The survey aimed to assess the relationships between quality dimensions, intention to use, transparency, and customer satisfaction. Respondents, all experienced users of the LPSE system, rated their perceptions using a five-point Likert scale.

The survey measured six latent variables: system quality, information quality, service quality, intention to use, transparency, and customer satisfaction. System quality was evaluated based on reliability, usability, and performance, while information quality assessed accuracy, timeliness, and relevance. Service quality included user support, training, and maintenance. Intention to use was measured using TAM-based indicators of usefulness and ease of use (Venkatesh & Davis, 2000), and transparency focused on the accessibility of accurate and timely information. Customer satisfaction was assessed through the degree to which the system met user expectations (Bhattacherjee, 2001).

The data were analyzed using structural equation modeling (SEM), which enables simultaneous examination of multiple relationships between variables. SEM provided comprehensive insights into the factors driving customer satisfaction and highlighted areas for system improvement (Hair et al., 2019).

4. Findings and Discussion

The structural equation modeling (SEM) analysis provided detailed insights into gender-specific factors influencing satisfaction with the e-procurement dashboard system, revealing both similarities and significant differences between male and female users. The model fit indices indicated an acceptable but suboptimal fit, with a chi-square to the degree of freedom ratio (χ^2/DF) of 3.229, within the acceptable range of ≤ 5 (Wheaton et al., 1977). However, other indices, such as the Goodness of Fit Index (GFI: 0.607) and the Comparative Fit Index (CFI: 0.820), fell below the recommended thresholds, suggesting areas for refinement (Bentler, 1990). See Figures 1 and 2.

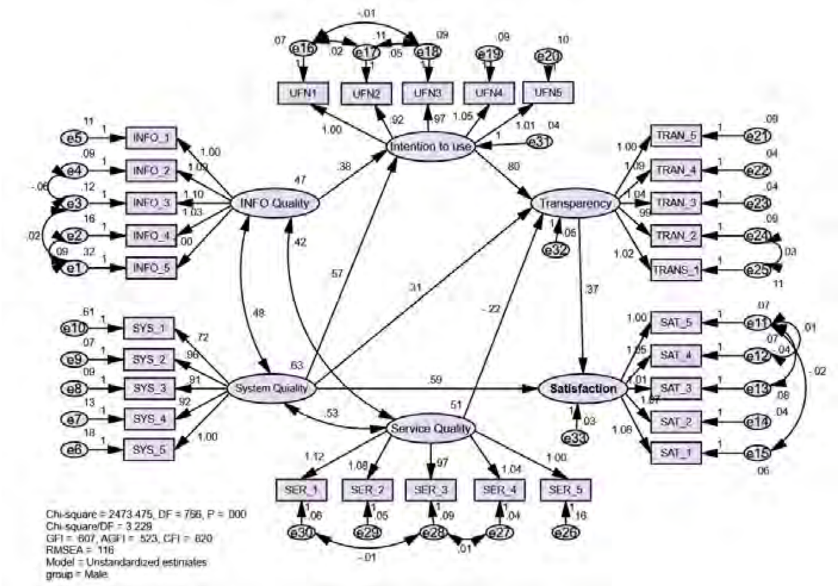

Figure 1: Male's Satisfaction Model

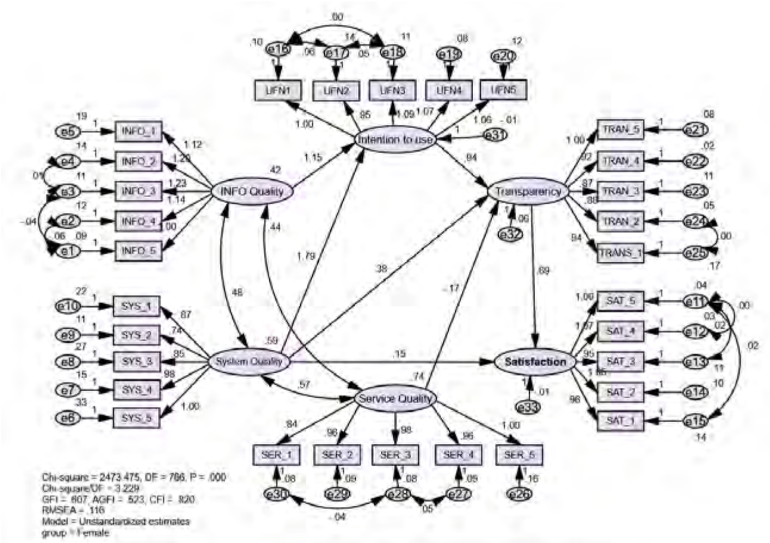

Figure 2: Female's Satisfaction Model

For male users, the intention to use the system emerged as a strong predictor of perceived transparency (regression weight: 0.8). This suggests that when male users have a strong intention to use the system, they perceive it as more transparent. Similarly, system quality significantly influenced transparency (0.31), indicating that males value reliability, usability, and performance as critical to perceiving transparency. Service quality showed a moderate influence on transparency (-0.22), suggesting that service quality plays a less critical role for males to transparency. Two key factors that positively influence male' satisfaction are transparency (regression weight 0.37) and system quality (0.59) with service quality information quality and intention to use are indirectly influence male' satisfaction. See Figure 1.

Female users exhibited different priorities. Intention to use also strongly influenced transparency (regression weight 0.94), comparable to male users (0.80). System quality also positively influence transparency (0.38) however, this ranks second after intention to use. Service quality had a negative influence on female transparency (-0.17). While the factors that positively influence satisfaction for female users are transparency (0.69) and system quality (0.15). This is somewhat different when compared to male users as males users see system quality ranked first and intention to use is ranked second to satisfy them. See Figure 2.

For gender-specific differences, the results reveal key differences emerged between genders. Males prioritized system quality first and transparency is prioritized second, while female users give more value to transparency over system quality. The relationship of transparency and system quality toward satisfaction is particularly strong for females, indicating that females are more influenced by transparency. Transparency's role as a determinant of satisfaction was also more pronounced for females (0.69 vs. 0.37 for males), highlighting that females are more sensitive to the transparency. These findings underline the importance of tailoring e-procurement systems to meet gender-specific needs.

For male users, efforts should focus on enhancing system reliability. In contrast, for female users, system design should prioritize comprehensively on transparency which cause female satisfaction Even though transparency emerged as a critical mediator for both genders, but its stronger influence on females suggests that initiatives to improve system transparency could significantly enhance overall satisfaction.

Overall, these results emphasize the need for essential system design and implementation approaches. By addressing the distinct priorities of male and female users, organizations can ensure a more inclusive and effective user experience, ultimately improving the adoption and satisfaction rates of e-procurement dashboard systems.

5. Conclusion

The study delved into the aspects that impact customer satisfaction with e-procurement dashboard systems, particularly highlighting gender differences. The evidence endorsed three hypotheses: (1) the purpose of usage enhances transparency; (2) the system quality caliber boosts transparency; and (3) transparency plays a constructive role in the e-procurement dashboard user's satisfaction. Both male and female participants demonstrated substantial agreement with these associations, although significant disparities were observed. Females give more attention to transparency than males, which influences to their satisfaction.

Regarding the system quality influences the intent to use higher for female users (1.79) in contrast to male users (0.57), implying a stronger concern for technical performance among the female participants. Conversely, transparency exhibited a substantially greater influence on satisfaction for female users (0.69) relative to male users (0.37), signifying its enhanced importance for female participants in attaining satisfaction. Interestingly, males give more focus on information quality which causes their intention to use (0.38), while female users give no attention to information quality (-1.15), in other words, more information will withdraw females to use the system

The findings support the Technology Acceptance Model (TAM), revealing a connection between what users find beneficial and how easy it is to use, which impacts their adoption habits. The results enhance the applicability of TAM by illustrating its relevance across genders in the e-procurement sector.

The exploration of indirect effects revealed that both system quality and information quality affected satisfaction through intention to use and transparency, particularly among female users. These findings elucidate the intricate pathways connecting system characteristics to user satisfaction and the diverse priorities male and female users exhibit.

This research investigates and expands upon the DeLone and McLean Information Systems Success Model, the Technology Acceptance Model (TAM), and the Expectation-Confirmation Theory (ECT) through the inclusion of gender-specific analyses. It highlights the intricate ways in which male and female users engage with e-procurement systems, thereby enhancing theoretical comprehension regarding technology acceptance and system satisfaction. From a practical perspective, the findings underscore the necessity for customized e-procurement designs. Male users tend to prioritize info quality, whereas female users emphasize transparency and support services more. Addressing these distinctions may significantly improve system adoption, satisfaction, and overall efficacy. For instance, enhancing system reliability and performance may more effectively satisfy male users' expectations, while augmenting user support and communication mechanisms may considerably elevate female users' satisfaction levels.

This research delineates several recommendations. Organizations that implement e-procurement systems should contemplate fortifying system reliability and usability to better align with the expectations of male users. Furthermore, organizations should enhance transparency features and support services to address the priorities of female users and consider devising gender-inclusive systems that harmonize technical efficiency with user-friendly, communicative interfaces. These strategies have the potential to foster elevated satisfaction, improve adoption rates, and cultivate a more equitable and effective technological environment. This study offers actionable insights and establishes a robust foundation for future research into gender-specific technology design and adoption strategies.

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SOCIAL MEDIA VS SEARCH ENGINE MARKETING: IMPACT ON YOUNG GENERATION'S BRAND PERCEPTION IN MYANMAR

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Abstract

A strong positive brand perception among customers is crucial to sustaining the business's success. Recently, most Myanmar businesses have focused on the young generation as a growing market. Since Digital Marketing has a greater influence on the perception and acceptance of brands, particularly among the younger generation, businesses should give more attention to developing correct digital marketing strategies. Among digital marketing channels, Social Media Marketing (SMM) and Search Engine Marketing (SEM) are essential to connect with the younger generation, although their functions are different. Myanmar businesses are unsure of which digital marketing channel -SMM or SEM- would be more effective for building brand perception and no prior studies have been conducted in this field, on how SMM and SEM impact brand perception among young customers in Myanmar. To fill this gap, this study aims to help Myanmar businesses gain insights into which digital marketing tool to use for building positive Brand Perception among the young generation. By using the Quantitative Comparative design, this study explored the impact of SMM & SEM on Brand Perception - focusing on perceived recognition, trust, and quality. The key findings suggested both SMM & SEM have positive relationships with Brand Perception. Meanwhile, SMM and SEM have the same impact on Perceived Recognition, however, SMM has more impact on Perceived Trust and SEM has more impact on Perceived Quality. Therefore, Myanmar businesses should invest in specific channels according to their goals. This study helps Myanmar Businesses to effectively and efficiently allocate marketing budgets and strategies.

Keywords: *Social Media Marketing (SMM), Search Engine Marketing (SEM), Brand Perception*

1. INTRODUCTION

In this evolving digital landscape, Digital Marketing plays a crucial role in establishing the perception of companies/brands and accomplishing marketing goals through digital media, data, and technology. Digital Marketing has a greater impact on the perception and acceptance of brands, products, and services, particularly among the younger generation. Nowadays, most businesses see digital marketing tools as fundamental main platforms for connecting with their target customers, building relationships, promoting their products or services, and creating a brand image. Especially, digital marketing tools also help businesses to get real-time data, offering measurable results that are essential in keeping the company in success.

In recent years, most businesses have focused on the young generation as their target customers, seeing them as a growing market. The young generation has increased spending power with financial independence. They are also familiar with technology and e-commerce, making it easier to reach them. According to Suwana, F et al., 2020, the young generations spend more time online and prefer to be active on their smartphones. Moreover, most young consumers are open-minded, so they are likely to easily accept new brands, especially if they suit their needs. In contrast, the young generation becomes less loyal to the brand, making it highly competitive for the brands in the industry. Therefore, businesses should have clear marketing strategies and pay more attention to choosing the right digital marketing tools for connecting with the young generation.

Digital Marketing has remarkably influenced the young generation in many ways, determining their buying behaviors, social interactions, attitudes, and perceptions. Dabija, D. C et al., 2018 stated that young generations use the internet as their primary information source, as seen by the vast number of social networking sites they have accounts on and regularly engage with. Dewinatalia, S et al., 2022 suggested that digital marketing is highly influential on the behavior of young consumers from the awareness stage to the purchasing stage. There are different kinds of Digital Marketing tools to help brands stay ahead in the fierce competition in the industry, by promoting products/services and enhancing brand perception. Despite having a lot, Social Media Marketing (SMM) and Search Engine Marketing (SEM) are essential tools among the young generation, even though their functions & effectiveness are different. Nyagadza, B., 2022 stated the importance of SMM and SEM that the ability to reach consumers via search engines and social media remains constant, even though marketing challenges and limitations may vary.

Social Media Marketing (SMM) is a popular digital marketing tool used by almost all businesses to connect with their target customers and enhance visibility by using social media platforms. Anjel, C, C et al., 2022 stated that social media marketing has a significant role in influencing how young people view and behave toward a brand or product. On the other hand, Search Engine Marketing (SEM) is the most efficient digital instrument to increase sales and enhance the credibility of the brand. Terrance, A. R et al., 2017 stated that as high-ranking websites on SERP are more likely to be found at the top of the search result lists, they attract more visits from search engines, eventually turning those visitors into customers

From the perspective of shaping the brand, Brand Perception is a simple psychological component that affects consumer behavior (Guliyev.S, 2023). Brand Perception mainly comes from the user experience, visibility, reputation, and recommendations. Brand Perception can be measured from the customers' perspectives, such as how well customers recognize a brand, which level of trust customers have in a brand, and how customers think of the quality of a brand.

Having a strong positive brand perception is crucial for businesses as it reflects customer behaviors, by having the impact on building trust and credibility in the customers' minds and emotional connection with customers. Both Search Engine Marketing and Social Media Marketing have different impacts on Brand Perception based on their functions and effectiveness. Social Media Marketing (SMM) influences Brand Perception through engaging content, user-generated content, and influencer partnerships. Meanwhile, Search Engine Marketing (SEM) influences Brand Perception through high-ranking ads, enhanced visibility and credibility. Therefore, it would benefit Myanmar Businesses to connect with their target customers if they clearly understand how Social Media Marketing and Search Engine Marketing affect Brand Perception.

This study focuses on finding out how SMM and SEM influence brand perception among the young generation in Myanmar. Despite other studies comparing the impact of digital tools on brand perception in other countries, no prior studies have been done on how SMM and SEM impact brand perception among the young generation in Myanmar, making it unclear which marketing tool is more effective for Brand recognition, trust and quality perception.

To fill this research gap, this study aims to compare the impact of Social Media Marketing and Search Engine Marketing on Brand Perception in terms of Perceived Recognition, Perceived Trust, and Perceived Quality from the perspective of the young generation in Myanmar, who are around the age of 18 to 35 years old. From this study, Myanmar Businesses will get a clear understanding of the relationship between Social Media Marketing, Search Engine Marketing, and Brand Perception. Consequently, they might know which tool would be the best to engage with young generation customers, increase awareness, and build positive brand perception. Furthermore, this study can contribute to the academic literature on digital marketing by offering insights into digital marketing strategies specifically for emerging markets like Myanmar.

Research Objectives

1) To evaluate the impact of Social Media Marketing on Brand Perception - focusing on Recognition, Trust and Quality as they are critical for understanding a brand's visibility, credibility and customer satisfaction.
2) To evaluate the impact of Search Engine Marketing on Brand Perception - focusing on Recognition, Trust and Quality as they are critical for understanding a brand's visibility, credibility and customer satisfaction.

3) To compare the effectiveness of Social Media Marketing and Search Engine Marketing in building positive Brand Perception among young Myanmar consumers.

Proposed Hypothesis (with their alternates) are:
HA: Social Media Marketing has a strong significant positive impact on Brand Perception regarding recognition, trust and quality.
HB: Search Engine Marketing has a strong significant positive impact on Brand Perception regarding recognition, trust and quality.
HC: SMM impacts brand's perception more strongly than SEM for the young generation in Myanmar

2. LITERATURE REVIEW

2.1 Brand Perception

Brand perception can be defined as how customers perceive a product or service makes them feel, rather than what a brand claims itself. According to Mandagi,D et al., 2021, customers' perceptions of a particular brand are influenced by their prior brand interactions or experiences with it. Therefore, businesses and marketers should pay attention to every step of the customer journey to enhance their engagement and satisfaction at every touch point.

Popa, A., & Pelau, C., 2016 claimed in their study that the brand's importance increases for the younger generations, as they found that young customers were more influenced by marketing communication on their consumer behaviors compared to the older customers. Moreover, Andhini,G, K., & Andanawarih, F. Q., 2022 also stated that Gen Z and late millennials are paying more attention to the brand and the brands' beliefs, resulting in a change in their purchase decision factors and shopping behaviors generally.

Various factors can be used to measure the brand perception for customers. This study focuses on how well the brand is recognized among customers (Perceived Recognition), how many levels of trust the brand has from customers (Perceived Trust), and how customers perceive the quality of the brand (Perceived Quality).

Perceived recognition from customers is fundamental in building the brand image as it is the first step. According to Sürücü,O et al., 2019, when customers become aware of a brand and start using it, their personal experience might turn into brand loyalty, purchasing the product repeatedly. Therefore, having strong positive perceived recognition in the customers' minds is important in building a positive perception of the brands.

Perceived trust is an essential factor in building positive brand perception. Benhardy,K et al., 2020 stated that trust is built based on the expectation of the customers in the company to act according to their needs and wants, therefore, when the customers trust the company, they believe their expectations will be fulfilled. Moreover, Dam, T. C. 2020 suggested that if customers trust the brand, they will show a favorable inclination towards the brand and purchase intention. Therefore, businesses should make sure to fulfill the customers' expectations and enhance their trustworthiness to build a positive brand perception.

Kakko,N et al., 2015 suggested that perceived quality has become a tool for customers to evaluate and judge if a product is worthwhile to buy and to begin the customer experience. Moreover, Yang,Z et al., 2019 also stated that different people have various opinions about the same product based on their attitudes, values, and experiences. If the customers have positive perceptions and attitudes toward the brand, they will be more likely to think the product quality is worth buying. Therefore, it is essential to understand how customers think of the Brand's product or service quality in building a positive Brand perception.

2.2 Social Media Marketing

Nowadays, Social Media is widely used all over the world, leading to social media marketing increasing excessively. Wibowo, A et al., 2021 suggested that by utilizing Social Media Marketing, enterprises can entertain customers with marketing content for free and generate social network activities, beyond that, social media allows customers to customize information searches, get real-time updated information and encourage direct communications between users.

Among the young generation in Myanmar, Min, T., 2024 found out that most of the young generation use social media primarily to reduce stress, to find knowledge related to their academics and career development and also to find new friends. Therefore, it can be said that social media plays a crucial role for the young generation in their daily activities, attitudes, and perceptions. Consequently, most Myanmar businesses use Social Media Marketing as the main digital marketing channel to connect with customers and build their brand. Lwin, C.M., 2022 found out that some Myanmar businesses appear to be able to improve their brand awareness and create a brand image and brand loyalty by utilizing various social media marketing tools. In consequence, the Social Media presence of businesses is vital in Myanmar to stay ahead in the industry and engage with customers.

2.3 Search Engine Marketing

Search engine platforms have turned into essential gateways for accessing information, products, and services, leading to Search Engine Marketing taking advantage of this centrality to enhance the visibility and accessibility of a business's online presence. (Ponvasanth, D et al., 2024). According to Chaffey, D., 2022, Google processes over 8.5 billion searches every day, which equals 6.3m per minute. Therefore, Search Engine Marketing (SEM) has become another popular digital marketing channel most businesses use to reach their target customers and build their brands.

Terrance, A. R et al., 2017 also stated that Search Engine Marketing Management (SEM) integrates the marketing management process by promoting the website’s position towards the beginning of the search result in SERP, leading to increasing the business. Many businesses face fierce competition to get top positions in the SERP, despite making an effort by using both Search Engine Optimization (SEO) and paid search engine advertising. To stay ahead in the huge competition, Ziakis, C., 2019 suggested that web developers need to monitor the algorithm updates and make necessary adjustments to their websites. Moreover, marketers should consider the behavior and perception of their target customers to proactively manage the budget and choose the best options.

According to Statista, Ad spending in the Search Advertising market for Myanmar is projected to reach €132.4m in 2024, showing an annual growth rate of 8.61%. Therefore, it could be said that most Myanmar businesses invest in Search Engine Marketing to appear at a high position on the search result page. To make a better budget allocation in future marketing campaigns, Myanmar businesses should understand the attitudes and perceptions of their target customers towards the brand.

2.4 Social Media Marketing & Search Engine Marketing Impact on Brand Perception

Social media provides a social interaction environment where users may interact with the brands, share and exchange their ideas, create content, and influence audiences (Ceyhan, A., 2019). Hudson, S et al., 2016 also found in their study that when it comes to the relationship with favorite brands, customers who use social media to interact with the brands have a better relationship than those who do not use social media. In addition, Waworuntu, E. C et al., 2022 also stated that customers are more likely to have a favorable opinion of a brand if they have a positive social media marketing experience.

Moreover, Zulqurnain, A. L. I et al., 2016 stated that the long-term benefits of social media marketing include increased consumer trust and perceived value, and a higher chance of customers buying the products from businesses when they need them. Additionally, Savitri, C., 2022 stated that if the marketer can deliver social media quality that satisfies customer demands, customers will have a positive brand image and a high level of brand awareness. Furthermore, Zhang, H et al., 2019 suggested that businesses should use social media marketing to build and maintain their brand image, attract customers with a clear and positive brand image, increase market share and boost operating profit. In contrast, Schivinski, B., & Dabrowski, D., 2016 argued that even though firm-generated social media content helps to build awareness and positive association with the brand, it does not affect how customers see the brand’s worth.

On the other hand, Hamdar, B et al., 2018 suggested that businesses should consider search engine visibility as a tool to boost sales and create positive brand perception. Furthermore, Östberg, N., & Bergström, H., 2016 found that the participants’ brand recognition was affected by the brands that appeared at the top of the SERP, as they were frequently able to recognize what product or service category the brand offers, as well as recall the prior experience with the brands. Moreover, Dou, W et al., 2010 also stated that when the unknown brand appears before well-known ones on Search Engine Result Pages (SERP), users change their views of the new brand by increasing their brand evaluation along brand attributes, for example, they may think of the unknown brand would be the new luxury brand that they could not aware of. Not only that, Ponvasanth, D et al., 2024 found in their study that the prevalence of positive online reviews displayed through Search Engine Marketing significantly increases the consumers' trust towards the brands, demonstrating how important SEM tactics are in driving consumers' confidence in the brand.

3. METHODOLOGY

This research is a Quantitative Comparative Study, comparing the effect of Social Media Marketing (SMM) and Search Engine Marketing (SEM) on Brand Perception among Myanmar nationals (18~40 years old).

This study will primarily use a survey method. According to Taro Yamane., 1967, a sample size of over 100,000 population size needs 400 respondents with a confidence level of 95%. According to Statista, the number of adults in Myanmar who are considered over 18 years old amounted to approximately 36.86 million in 2022. Using the Taro Yamane method, 400 Myanmar nationals between 18 and 40 years old participated in this study. In the survey questionnaires, key questions like asking the nationality and age to clarify that the data collected are within the scope, proving that data are only from Myanmar.

The designed survey consists of 24 questions in total, most of which are multiple choices, Likert scales and open-ended questions. For multiple-choice questions. the respondents would have to choose their most used/preferred ones for specific activities and these questions help with data analysis by providing consistency. For Likert scale questions, the respondents would have to choose the level of agreement in the specific statements ranging from (1) to (5). For open-ended questions, the respondents can share their opinions in deeper insights and help this study better understand their perspectives. The questionnaires were divided into four categories: Demographic, Perceived Recognition, Perceived Trust and Perceived Quality.

Before launching the questionnaires for a total sample size of 400 respondents, a pilot test was conducted as a first step, by asking 20 respondents which is 5% of the total sample size to determine the convenience of answering questionnaires and whether they were easy to understand. The data obtained from the pilot sample of 20 proceeded into the software first to test the reliability of the questionnaires

After passing reliability and validity, the survey questionnaires were sent to 400 respondents via Google Form link from direct messages on Messenger, Line, Telegram and other platforms. Moreover, the link was posted (Google Form) on popular social media platforms among Myanmar citizens like Facebook and X.

The data obtained were transported into the software for analysis. The data were grouped according to their respective categories and computed to find the factor score for each variable. In this research, the linear regression method is used to analyze the data and estimate the relationship between the independent variables (Search Engine Marketing and Social Media Marketing) and the dependent variable Brand Perception regarding Perceived Recognition, Perceived Trust and Perceived Quality.

4. RESULT AND DISCUSSION

This section is organized with 4 main parts: the information about the respondents, the relationship between SMM and Brand Perception, the relationship between SEM and Brand Perception, and a comparison of SMM and SEM impact on Brand Perception.

4.1 Demographics Information

Gender: among the 408 respondents, the majority of respondents are Female, a total of 240 (59%), followed by Male, a total of 166 (41%), and very few Others, a total of 2 (0.5%). The following figure shows the Gender proportion of the respondents.

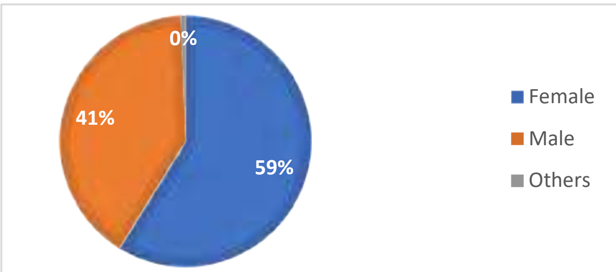

Figure 1. The gender of the respondents

Age range: most users are 22 to 25 years old (total of 252 - 62%), followed by 26 to 30 years old (total of 89 – 22%). Therefore, it can be said that most respondents are in the working age range. Moreover, a few respondents are students who are 18 to 21 years old (total of 41- 10%) and mid-age range 31 to 35 years old (total of 26 – 6%). The following figure shows the age range of the respondents.

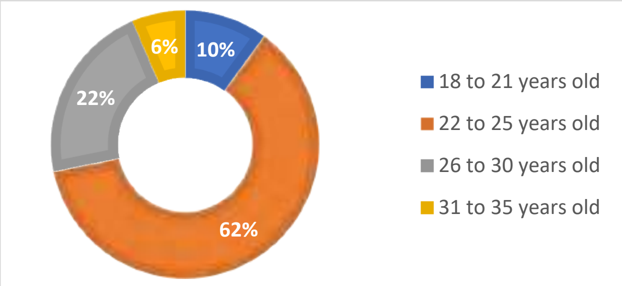

Figure 2. Age range of the respondents

Internet usage per day: the majority of respondents use the Internet 4hr to 8hr per day, which is 56% of respondents (total of 228). Then, 84 respondents (20%) use 9hr to 12hr per day and 64 respondents (16%) use from 1hr to 3hr per day. A few numbers of respondents, which is 6% (total 25), use the internet for over 12hr and only 7 respondents use the internet for less than 1 hour, which is 2%. Therefore, the respondents are very familiar with digital things and the Internet plays a crucial role in their daily lives. The following figure shows the internet usage per day of the respondents. The most used social media platforms among the young generation in Myanmar are Facebook, followed by Instagram, YouTube, TikTok and X.

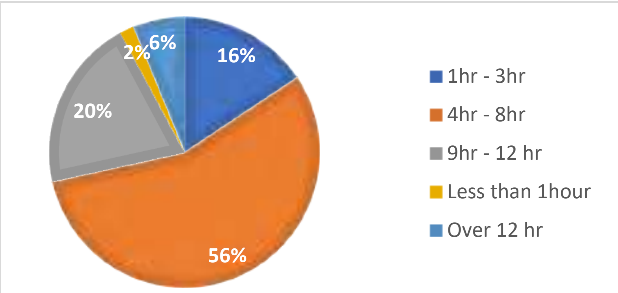

Figure 3. Internet usage per day

4.2 Linear Regression Analysis – SMM and Brand Perception

By using the Linear Regression Analysis; this study determined the relationship between SMM and Brand Perception, diving into 3 factors; Perceived Recognition, Perceived Trust and Perceived Quality.

Table 1.1 Relationship between SMM and Perceived Recognition

	Perceived Recognition				
Social Media Marketing	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	1.85	.28	.00	6.70	.000
SMM Campaign	.25	.05	.25	5.32	.000
SMM Engagement	.19	.06	.16	3.38	.001
SMM Description	.01	.06	.01	.22	.824
	R Square = 0.11		F=15.92	Sig (F) = 0.000	

Table 1.1 indicates that Social Media Marketing variables in this study significantly affect the dependent variable Perceived Recognition of the brand as F=15.92 with Sig(F)=0.000, which is less than 0.05. The regression analysis found that R square = 0.11, which means that SMM can explain 11% of the change in Perceived Recognition of the brand. Moreover, the standardized Coefficient Beta of the SMM is all positive, meaning that SMM has a positive relationship with Perceived Recognition. Furthermore, it

can be seen that the SMM campaign and SMM engagement are good variables for Perceived Recognition, with (T = 5.32 with Sig 0.000, p<0.05), and (T = 3.38 with Sig 0.000, p<0.05) respectively. In comparing the impact of variables, analysis of SMM's variable contributions to the Perceived Recognition reveals that, with a beta value of 0.25, SMM Campaign contributes the most, followed by SMM Engagement (Beta = 0.16) and SMM Description (Beta = 0.01) respectively.

Based on the results, the regression equation can be defined as follows,
Perceived Recognition = 1.85+0.25 SMM Campaign+ 0.19 SMM Engagement+0.01 SMM Description

Table 1.2 Relationship between SMM and Perceived Trust

Social Media Marketing	**Perceived Trust**				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	1.61	.20	.00	7.85	.000
SMM Campaign	.12	.03	.16	3.38	.000
SMM Engagement	.30	.04	.34	7.40	.000
SMM Description	.13	.04	.14	3.02	.003
	R Square= 0.18		F= 29.36	Sig (F) = 0.000	

Table 1.2 reveals that Social Media Marketing variables in this study significantly affect the dependent variable Perceived Trust of the brand as F=29.36 with Sig(F)=0.000, less than 0.05. The regression analysis found that R square = 0.18, which means that SMM can explain 18% of the change in Perceived Trust of the brand. Moreover, the standardized Coefficient Beta of the SMM is all positive, meaning that SMM also has a positive relationship with Perceived Trust. Furthermore, it can be seen that all SMM variables are good for Perceived Trust since their Sig(P) values are less than 0.05. In comparing the variables, it is found that SMM Engagement makes the most contribution in gaining customer's trust, with a Beta value of 0.34, followed by SMM Campaign (Beta= 0.16) and SMM Description (Beta = 0.14), respectively.

Based on the results, the regression equation can be defined as follows,
Perceived Trust = 1.61+ 0.12 SMM Campaign+ 0.30 SMM Engagement+0.13 SMM Description

Table 1.3 Relationship between SMM and Perceived Quality

Social Media Marketing	**Perceived Quality**				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std.Error	Beta		
(Constant)	1.67	0.25	0.00	6.62	.000
SMM Campaign	0.06	0.04	0.07	1.44	.150
SMM Engagement	0.33	0.05	0.31	6.50	.000
SMM Description	0.21	0.05	0.18	3.83	.000
	R Square= 0.14		F= 21.67	Sig (F) = 0.000	

Table 1.3 indicates that Social Media Marketing variables in this study significantly affect the dependent variable Perceived Quality of the brand as F=21.67 with Sig(F)=0.000, less than 0.05. The regression analysis found that R square = 0.14, which means that SMM can explain 14% of the change in the Perceived Quality of the brand. Moreover, the standardized Coefficient Beta of the SMM is all positive, meaning that SMM has a positive relationship with Perceived Quality. Furthermore, it can be seen that SMM Engagement and SMM Description are good variables for Perceived Quality, with (T = 6.50 with Sig 0.000, p<0.05), and (T = 3.83 with Sig 0.000, p<0.05) respectively. In comparing the impact of variables, analysis of SMM's variable contributions to the Perceived Quality reveals that, with a Beta value of 0.31, SMM Engagement contributes the most to customers judging the quality, followed by SMM Description (Beta = 0.18) and small contribution of SMM Campaign (Beta = 0.07).

Based on the results, the regression equation can be defined as follows,
Perceived Quality = 1.67+0.06 SMM Campaign+ 0.33 SMM Engagement+0.21 SMM Description

Therefore, it can be said that Social Media Marketing (SMM) has a significant impact on overall Brand Perception regarding Perceived Recognition, Perceived Trust and Perceived Quality. Therefore, this study aligns with the finding of the study by Savitri, C., 2022 stating that Brand Image will rise in tandem with the rise in Social Media usage.

Therefore, this study accepts

HA: Social Media Marketing has a strong significant positive impact on Brand Perception regarding recognition, trust, and quality.

4.3 Linear Regression Analysis – SEM and Brand Perception

By using the Linear Regression Analysis, this study determined the relationship between SEM and Brand Perception, diving into 3 factors; Perceived Recognition, Perceived Trust and Perceived Quality.

Table 2.1 Relationship between SEM and Perceived Recognition

	Perceived Recognition				
Search Engine Marketing	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std.Error	Beta		
(Constant)	1.26	.25	.00	5.11	.000
SEM Ads	.25	.05	.25	5.20	.000
SEM Top Position	.12	.05	.11	2.30	.022
SEM Description	.18	.06	.14	3.05	.002
	R Square = 0.11		F =16.69	Sig (F) = 0.000	

Table 2.1 indicates that Search Engine Marketing variables in this study significantly affect the dependent variable Perceived Recognition of the brand as F=16.69 with Sig(F)=0.000, which is less than 0.05. The regression analysis found that R square = 0.11, which means that SEM can explain 11% of the change in Perceived Recognition of the brand. Moreover, the standardized Coefficient Beta of the SEM is all positive, meaning that SEM also has a positive relationship with Perceived Recognition. Furthermore, it can be seen that all SEM variables are good for Perceived Recognition as their Sig(P) values are less than 0.05. In comparing the variables, analysis of SEM's variable contributions to Perceived Recognition reveals that, with a beta value of 0.25, SEM ads contribute the most to customers recognizing the brand, followed by SEM Description (Beta = 0.14) and SEM Top Position (Beta = 0.11) respectively.

Based on the results, the regression equation can be defined as follows,

Perceived Recognition = 1.26+ 0.25 SEM Ads + 0.12 SEM Top Position + 0.18 SEM Description

Table 2.2 Relationship between SEM and Perceived Trust

	Perceived Trust				
Search Engine Marketing	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std.Error	Beta		
(Constant)	2.05	.20	.00	9.98	.000
SEM Ads	.04	.04	.05	1.02	.309
SEM Top Position	.33	.04	.36	7.83	.000
SEM Description	.03	.05	.02	.52	.602
	R Square = 0.14		F=21.60	Sig (F) = 0.000	

Table 2.2 indicates that Search Engine Marketing variables in this study significantly affect the dependent variable Perceived Trust of the brand as F=21.60 with Sig(F)=0.000, which is less than 0.05. The regression analysis found that R square = 0.14, which means that SEM can explain 14% of the change in Perceived Trust of the brand. Moreover, the standardized Coefficient Beta of the SEM is all positive, meaning that SEM also has a positive relationship with Perceived Trust. Furthermore, it can be seen that only SEM Top Position is a good variable for Perceived Trust as it has T=7.83, with Sig(p)=0.000, p<0.05. In comparing the impact of variables, analysis of SEM's variable contributions to the Perceived Trust

reveals that, with a beta value of 0.36, SEM Top Position contributes the most in building trust, followed by very small contribution of SEM Ads (Beta = 0.05) and SEM Description (Beta = 0.02) respectively.

Based on the results, the regression equation can be defined as follows,
Perceived Trust = 2.05 + 0.04 SEM Ads + 0.33 SEM Top Position + 0.03 SEM Description

Table 2.3 Relationship between SEM and Perceived Quality

	Perceived Quality				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std.Error	Beta		
(Constant)	1.58	.22	.00	7.18	.000
SEM Ads	.01	.04	.01	.16	.874
SEM Top Position	.34	.05	.34	7.52	.000
SEM Description	.21	.05	.19	4.10	.000
	R Square=0.16		F=25.24	Sig (F) = 0.000	

Table 2.3 indicates that Search Engine Marketing variables in this study significantly affect the dependent variable Perceived Quality of the brand as F=25.24 with Sig(F)=0.000, which is less than 0.05. The regression analysis found that R square = 0.16, which means that SEM can explain 16% of the change in Perceived Quality of the brand. Moreover, the standardized Coefficient Beta of the SEM is all positive, meaning that SEM also has a positive relationship with Perceived Quality. Furthermore, it can be seen that SEM Top Positions and SEM Description are good variables for Perceived Quality with (T = 7.52 with Sig 0.000, $p<0.05$), and (T = 4.10 with Sig 0.000, $p<0.05$) respectively. In comparing the impact of variables, analysis of SEM's variable contributions to the Perceived Quality reveals that, with a beta value of 0.34, SEM Top Position contributes the most in customers judging the quality of the brand, followed by SEM Description (Beta = 0.19) and very small contribution of SEM Ads (Beta = 0.01).

Based on the results, the regression equation can be defined as follows,
Perceived Quality = 1.58 + 0.01 SEM Ads + 0.34 SEM Top Position + 0.21 SEM Description

Therefore, it can be said that Search Engine Marketing (SEM) has a significant impact on overall Brand Perception regarding Perceived Recognition, Perceived Trust and Perceived Quality. Therefore, the findings of this study are reinforced by the findings by Hamdar, B et al., 2018, stating that there is a significant relationship between Search engine marketing and Brand perception.

Therefore, this study accepts
HB: Search Engine Marketing has a strong significant positive impact on Brand Perception regarding recognition, trust and quality.

4.4 Comparison of SMM and SEM Impact on Brand Perception

To compare the impact of SMM and SEM on Brand Perception regarding Recognition, Trust and Quality, both SMM and SEM have the same impact on Perceived Recognition, which is 11%. However, SMM has an impact on Perceived Trust more strongly than SEM as SMM impacts 18% while SEM impacts 14%. On the other hand, SEM has more impact on Perceived Quality than SMM as SEM affects 16% while SMM affects 14%.

However, for overall Brand Perception, SMM impacts Brand Perception more strongly than SEM since SMM affects a total of 43% (11% recognition, 18% trust, 14% quality) on Brand Perception, while SEM affects a total of 41% (11% recognition, 14% Trust, 16% quality). The following table shows the comparison of SMM's and SEM's impact on Brand Perception.

Table 3. Comparison of SMM and SEM Impact on Brand Perception

	Perceived Recognition	Perceived Trust	Perceived Quality	Brand Perception
Social Media Marketing	11%	18%	14%	43%
Search Engine Marketing	11%	14%	16%	41%

	SMM=SEM	SMM>SEM	SEM>SMM	SMM>SEM

Therefore, this study accepts
HC: SMM impacts brand's perception more strongly than SEM for the young generation in Myanmar.

5. CONCLUSION

According to the analysis findings of this study are: Both, Social Media Marketing (SMM) and Search Engine Marketing (SEM) have a strong positive impact on Brand Perception in terms of Perceived Recognition, Perceived Trust, and Perceived Quality among the young generation in Myanmar. In the comparison of their impacts, it was found that SMM and SEM have the same impact on Perceived Recognition, however, SMM has more impact on Perceived Trust while SEM has more impact on Perceived Quality. Social Media does influence significantly on building trust and connecting with people through real engagement and storytelling. On the other hand, Search Engine Marketing is perfect for reaching people who are already searching for what you offer, evidently showcasing quality. The SMM's and SEM's overall impact on Brand Perception is not much different, even though SMM's impact is stronger than SEM's. Therefore, it can be said that both have their strengths and together, they create a powerful way to grow and connect with the audience.

Therefore, brands should portray their presence on both platforms consistently as it's a part of branding, and building awareness. With the accessibility of both platforms easily, the consumers will search both; SEM, and SMM. Search engines are like active consumption, using it when people already have intents, they know what they are searching for. Social media is more like passive consumption as it has so many ways of reaching out to customers, like ads coming in while users are consuming content, or feeds based on their preferences, therefore, Social Media is effective in shaping behavior while Search Engine is good for being ready when they need it. These two marketing tactics should complement each other.

To effectively utilize Social Media Marketing and Search Engine Marketing in building positive Brand Perception among the young generation, this study discovered marketing strategies for Myanmar Businesses. The findings highlight the actionable ways to enhance Perceived Recognition, Perceived Trust and Perceived Quality, which are important for successful branding. First of all, to increase Perceived Recognition among the young generation, Myanmar businesses should prioritize investments in Social Media campaigns and Search Engine Ads as these platforms significantly boost the visibility and brand awareness of their target audience. Secondly, building Perceived Trust requires a strong focus on Social Media Marketing engagement, as it has a greater influence through compelling and interactive content. For Search Engine Marketing, this study reveals that securing the top position in the SERPs can also play a critical role in gaining the trust of the target audience. Lastly, to increase Perceived Quality among the young generation, Myanmar Businesses should invest more in Search Engine Marketing, particularly by getting top SERP rankings as these positions have a high impact on customers' perception of the brand's quality. Moreover, Complementing the Search Engine Marketing efforts with Social Media Marketing, specifically by enhancing engagement, can further increase the quality perception. Overall, Perceived Recognition, Perceived Trust, and Perceived Quality are the foundation of any successful brand. For this reason, Myanmar Businesses should strategically allocate their budget to the most appropriate platform that aligns with their goals to build positive Brand Perception. By doing so, they can create meaningful connections with their target audience, enhance credibility and establish a strong brand presence in the market.

Therefore, businesses and policymakers in Myanmar should adopt a strategic and balanced approach to utilize both Social Media Marketing(SMM) and Search Engine Marketing(SEM) effectively. Firstly, Myanmar businesses should allocate resources to consistently invest in SMM campaigns to enhance Perceived Trust and build genuine connections with their target through interactive and engaging content. At the same time, investments in SEM should focus on achieving top rankings on SERPs to strengthen Perceived Quality and ensure visibility for users with active search intent. Policymakers can support these efforts by promoting digital literacy programs and providing businesses with guidelines to adopt best practices in digital marketing. Additionally, policymakers should support local businesses in using data-driven marketing tools, ensuring that businesses can compete effectively in the digital marketplace.

This study covers the 3 factors for Brand Perception: recognition, trust, and quality, there are other factors in building positive Brand Perception as Brand perception is a wide concept, which is crucial for sustaining success. Therefore, future studies might be needed to know more about Brand Perception. On the other hand, this study focused only on Social Media Marketing and Search Engine Marketing, despite having a lot of digital marketing channels. Therefore, it would be better if it could cover more digital marketing channels including Affiliate Marketing, Email Marketing, and so on. Another thing is that data for this study could only be collected using online questionnaires because of the location constraints, future studies could broaden the age group, geography and choose questions focusing on other influential factors regarding Brand Perception.

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LEVERAGING CONSUMER PSYCHOLOGY IN TOURISM MARKETING

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Abstract

The foundation of tourist behavior is tourist psychology. For tourism experts, studying visitor behavior is essential, particularly during periods of economic or other forms of shifts taking place in the world, countries, tourist destinations. The impact of multiple factors causes a shift in the behavior of tourists. Knowing why tourists travel helps to uncover their reasons for wanting to travel, preferred destinations, and activities. Uncovering the reasons and preferences can help market destinations in the most sufficient ways.This study explores the connection between consumer psychology and tourism marketing in order to have a deeper understanding of decision-making and motivational factors influencing traveler's choices and destination selection. The goal of the study is to make a link between psychological aspects and how they are used in tourism destination promotion. Data were collected through an online survey involving over 400 participants, predominantly aged 18-35, with questions focused on psychological aspects such as motivations, attitudes, and behaviors related to travel decisions. Findings show that travelers prioritize joy and excitement, often spending more during vacations. While tourism campaigns like "Incredible India" have minimal influence, social media serves as a supporting factor in shaping destination preferences. Tourists value natural landscapes, local cuisine, and destinations that resonate with their personal values. These observations offer practical advice for creating more successful marketing plans for the travel and tourism sector. This research provides useful implications for governments and tourism organizations to modify their strategies and meet the changing needs of contemporary travelers by comprehending the psychological foundations of travel decisions.

Keywords: Tourism, Marketing, Psychology, Modern Travelers, Emotions, Preferences

INTRODUCTION

The ability to effectively and efficiently market services, destinations, and experiences to potential customers is essential in a highly competitive industry like tourism. To achieve this, marketers must gain knowledge of specific elements that affect travelers' attitudes, behaviors, and choices. Therefore, in tourism marketing, the psychological component of travel becomes essential. These days, one of the most crucial elements may be consumer psychology, which is the study of how people's ideas, opinions, feelings, and perceptions affect their purchasing decisions. Understanding customer behavior, particularly in the marketing context, will give the company an advantage over competitors and enable it to develop campaigns that connect with consumers on a deeper level.

It also explores customers' feelings that trigger motivation on purchasing decisions. Advertising campaigns that can create positive expressions can also persuade customers to envision their next events with positive hopes toward these. Another essential aspect of it can be the impact of social influence on decision making. In tourism, this can manifest in various ways, such as recommendations, feedback, online reviews and to create media trends. Marketers often apply psychological principles to reach the subconscious mind of their potential customers and those who understand these dynamics can effectively utilize social proof to encourage travelers to choose specific destinations or experiences, creating a sense of community and shared experience.

The decision-making process in consumer psychology might be complex and influenced by many different psychological factors, such as perceived values and risks. In tourism marketing, understanding these elements allows marketers to address concerns travelers may have about costs or safety, thereby guiding them toward making informed decisions. For instance, transparent pricing and highlighting safety instructions can help travelers to make ease about their choices and encourage bookings. Psychology can be used to create strong relations between perception and brand identity, and to persuade the customers and reinforce their attitudes towards specific destinations and attractions.

It also emphasizes the motivations and needs that drive consumers' purchasing behaviors. In tourism marketing, understanding travelers' desires and wants whether it is for relaxation, adventure, trilling tolls or cultural experiences, allow marketers to prepare their messages and offerings accordingly. For example, a campaign whose purpose might be for eco-tourism and environmental sustainability will attract environmentally conscious travelers by matching to their values, motivations and interests. By analyzing different scopes of consumers' psychology will let the business thrive to the fullest and make better decisions and strategies for marketers as well.

Imagine a field that touches nearly every aspect of our lives, from enhancing mental well-being to understanding the complexities of human relationships. Psychology offers this vast array of benefits, helping us not only to explore personal growth and self-improvement but also to tackle challenges like addiction. Whether it's unlocking the secrets of the mind or promoting healthier lives, psychology plays a crucial role in shaping both individual experiences and society as a whole. Head of Psychology, Dr Julie Prescott said "Psychology is everywhere and covers all aspects of life. It's about humans and the human mind" (Longstaff, 2023).

In the tourist sector, psychology is crucial since it shapes people's capacity for both critical and creative thought. Our decision-making is thus influenced by these mental processes, both consciously and unconsciously. We can show how ideas lead to emotions, which in turn influence behaviors, by connecting psychology to consumer decision-making. From choosing travel places to determining which services to utilize, a customer's capacity to make decisions is greatly influenced by their mentality, attitude, and approach. Their entire trip experience is profoundly impacted by the psychological fallout from these choices (Semwal & Sharma, 1970) . As Virdi and Traini (1990) point out, tourists' actions are a reflection of both personal and social dimensions of their free time, with psychological motivations driving these decisions. Beyond just economic factors, tourists invest emotionally, seeking personal fulfillment and memorable experiences, making psychology a key factor in understanding consumer behavior in tourism (Simkova, 2014).

When tourism fails to acknowledge the social aspects of travel, such as how it reflects a tourist's personality, values, and lifestyle, it overlooks a key element of the experience. Tourism isn't just about seeing new places—it's also about connecting with others. These interactions can naturally lead to conflicts, whether between tourists themselves or between tourists and locals, particularly when different attitudes, customs, and traditions clash (Simkova, 2014). In certain instances, these conflicts can become so significant that they overshadow the benefits of tourism altogether.

How Psychology and Tourism Marketing are related Tourism and marketing are related because psychology helps us understand why people make certain choices, such as where they want to travel. Additionally, psychology explains why consumer behavior, preferences, and decision-making are important. Psychological concepts are used by marketers to predict travelers' reactions to various situations, their perceptions of destinations, and the factors that influence their decision to travel.(Pearce, 2011) By taking into things like motivations, desires, and attitudes, marketers can create more effective campaigns. For instance, understanding why a destination generates a particular emotion or why certain advertisements grab attention is beneficial to tourism marketers.

Psychology is crucial in tourism marketing as it reveals how individuals' anxieties and worries regarding risks influence their decisions when traveling. Travelers may steer clear of certain destinations due to concerns about political issues, natural calamities, or health emergencies. For instance, tourism was greatly affected by the Covid-19 pandemic as people feared getting sick and countries-imposed travel bans. As a result, tourism marketing had to quickly focus on reassuring people about safety by addressing health and safety measures. By comprehending the impact fear and risk have on decision-making, marketers can develop tactics to mitigate adverse outcomes and restore confidence in people's travel plans (Li et al., 2020). The desire for safety has also influenced travel preferences, leading to a rise in individuals opting for peaceful or remote locations, outdoor pursuits, and secluded lodgings for added security.

Moreover, understanding the customer’s behavior helps in the formulation of innovative ads. A person may always evaluate their own data and behavior so that every single “interesting” message they create will be “interesting” to them—the kind of message the customer seeks. This leads to higher conversion rates therefore making marketing more interesting and relevant. Developing marketing strategies based on the research results would most likely lead to better proposals and advertising. Psychology is a significant tool used in the interpretation and future modification of customer behavior patterns in case of marketers operating within the travel and tourism niche. (Pearce, 2011)Instead of such a narrow focus on general information, they had the capacity to apply psychological principles in devising answers, emotionally engaging advertising images and words, and striking product designs in a bid to persuade travelers, hence, enhancing the development of the tourism industry.

In the beginning, we have clarified how important psychology is in tourism marketing as it helps the marketers understand the needs, wants and behaviors of the customers. In this section, we will continue to discuss how psychology can be applied to market destinations to the customers. Applying the most suitable psychological theories to customers will ensure better customer engagement, satisfaction and hence leading to better brand loyalty.

One aspect that tourism deals with apart from clients and local people is active personal issues. As the tourism industry becomes more and more popular, any form of added value in the marketing services is of extra value to the industry (Ryglová et al., 2011). The primary values would include communication, understanding of others, ability to understand and feel for clients’ expectations, loyalty and the ability to solve problems. (Šimková, 2014) Understanding the clients’ problems and being able to solve them actively without disturbing the comfort and privacy of the customers is what can be considered as the “intelligence approach” (Šimková, 2014).

In the marketing of travel, emotional appeals are often effective strategies. Affective forecasting suggests that customers anticipate the emotional benefits they will receive from a specific product or service (Wilson & Gilbert, 2005). Marketing for tourism often highlights the emotional benefits of the trip, such as happiness, relaxation, or cultural enrichment, to entice potential customers to picture themselves there and increase their desire to go. Furthermore, peer pressure and social proof are two psychological factors that are commonly utilized in travel advertising. People can be prone to imitating others' behavior, particularly when things are unclear. Positive comments, endorsements, and user-generated material on social media are examples of social proof in the tourism industry that can sway prospective travelers' decisions to visit a certain location. As psychology plays a vital role in tourism marketing, creating the right campaigns for the right target group will create meaningful travel experiences for the customers.

LITERATURE REVIEW

The potential of tourism to improve mental health, personal development, and well-being has long been acknowledged. Researches on the economic benefits of tourism has been conducted, but more recently, the focus has shifted to the effects of tourism on individuals, with its emphasis on happiness and personal growth, positive psychology has become a crucial idea in studies of the connection between psychological well-being and travel.

Tourism, in particular, has a great importance in improving one’s emotional, psychological and even physical states of wellbeing. Generally, research on tourism to date has been more concerned with the benefits’ accruing with the tourism enterprise and society as a whole, in recent times however there has been noticeable focus on perspectives such as tourism and the individual. A highlight of this change is the development of the science of positive psychology which aims to increase feelings of wellbeing including happiness and personal development amongst other purposes (Vada et al., 2020).

Nature and wildlife tourism is particularly noted for its restorative effects, enhancing attention and emotional recovery. Factors such as biodiversity and sensory elements, including the sounds and smells of nature, significantly influence these benefits. Despite its recognized advantages, comprehensive research on the most effective types and durations of nature tourism for various mental health conditions remains limited. Economically, the mental health benefits of nature tourism are substantial, suggesting its potential for integration into public healthcare systems. Adventure tourism, characterized by risk-related activities, promotes self-esteem and emotional wellbeing through transformative experiences (Tang, 2014). In particular, nature tourism has been showing a way to reduce the symptoms of depression and anxiety by keeping people away from the daily stress.

In the competitive and fast-evolving tourism and hospitality industry, consumer trust is one of the most influential components in the choice-making process as well as overall satisfaction. Basically, trust means being assured that the provider of service is reliable, has integrity, and is competent (Li et al., 2020). However, the increasing digitalization and globalization of the industry have changed the dynamics related to trust, and thus it is very important that various dimensions and influences are appropriately comprehended.

The work of Martin Seligman, one of the founders of positive psychology, has focused on improving the positive sides of human experiences and well-being. This work has considerable significance for tourism. Positive psychology, encapsulated into the PERMA model of positive emotions, engagement, relationships, meaning, and accomplishment, offers a conceptual framework where tourism can improve the lives of travelers. Thus, this systematic review has indicated that experiences eliciting positive emotions such as joy, awe, and contentment are very important for the satisfaction of tourists and their general well-being based on the supposition that positive emotions add to heightened life satisfaction and psychological resilience. This framework helps explain the reason why the reports of tourists have higher life satisfaction and psychological resilience based on travel experiences (Vada et al., 2020).

Focusing on personal growth within tourism contexts, Filep and Laing (2018) examine how positive psychology informs tourism directions. They highlight that most scholarly articles emphasize negative outcomes over positive ones. Positive psychology, rooted in Ancient Greek concepts like eudaimonia, emphasizes self-realization and personal development, aligning with human potential and well-being (Filep & Laing, 2018). Similarly, Maslow's (1968) concept of self-actualization resonates with this framework, suggesting that human flourishing involves integrating emotional, rational, and instinctive dimensions holistically (Friedman & Robbins, 2008). While humanistic psychology typically adopts qualitative methodologies, positive psychology often employs quantitative approaches, reflecting distinct but complementary research paradigms (Prentice et al., 2020; Friedman & Robbins, 2008).

While the paper does not provide detailed information on its methodology, it suggests a multimethod approach, balancing both quantitative and qualitative methods (Filep & Laing, 2018). Appreciative inquiry is highlighted as a significant method, along with an exploration of eudaimonia experiences in tourism, emphasizing personal growth and fulfillment (Friedman & Robbins, 2008; Ryan, Huta, & Deci, 2008). Additionally, the need for models that represent cultural diversity is underscored, particularly with the rise of non-Western tourist groups, signaling a shift toward more inclusive research practices (Prentice et al., 2020). This approach reflects a growing emphasis on the interplay between culture and tourism experiences. The authors also call for more detailed studies to explore gender and cultural contexts and to examine the role of festive events in shaping tourism experiences (Filep & Laing, 2018).

Self-determination theory (SDT) and reversal theory (RT) are to understand the motivations and goals of the travelers. The paper aimed to seek a balanced view that can recognize the positive experiences and goals that can be achieved through tourism. Those goals included aesthetic and sensory pleasures as well as the capacity for beauty and transcendence. The authors concluded the paper by discussing how positive psychology can be incorporated into tourism management in order to create the best possible experience for the tourists and host communities (Filep & Laing, 2018).

Trust indeed is an important ingredient in the tourism and hospitality industry, as it has deep influences on decision-making and consumer loyalty. The literature review relating to trust development and maintenance in diverse contexts, given the growth of digital interactions and safety concerns about service quality. A number of dimensions underpin trust in tourism-to wit, brand reputation, customer service, and safety. Their finding indicates that trust, especially in the tourism industry where intangibility of services is high, requires the traveler to make decisions based on reviews and recommendations seen online or based on perceptions of reliability (Li et al., 2020).

As digital tourism platforms grow, trust plays an increasingly vital role. Social media and online reviews significantly influence consumer trust and perceptions. Positive interactions and open communication on these platforms bolster customer confidence, whereas negative reviews and inadequate crisis management can rapidly erode trust, as seen during the COVID-19 pandemic (Gössling, Scott, & Hall, 2020; Li et al., 2020). Furthermore, the literature emphasizes the importance of cultural sensitivity and businesses' ability to adapt their service offerings to meet the evolving expectations of global tourists.

These factors have a profound impact on fostering trust and sustaining consumer relationships in the digital age (Prentice et al., 2020; Li et al., 2020).

The interrelationship among positive psychology, consumer trust, and mental health in tourism contexts shows how such constructs interlink in influencing the tourists' behaviors and satisfaction in general. Tourism experiences, if conceptualized based on positive psychology, improve well-being and simultaneously build consumer trust as a crucial ingredient for the long-term success of the industry. This implies that tourism experiences necessitate a greater focus on the importance of trust and well-being in the post-epidemic landscape (Li et al., 2020), where psychological recovery and emotional bonding constitute the core aspects of the tourism and hospitality industries.

The research done at the White Party Gold Coast, a well-known New Year's Eve celebration on an island close to Gold Coast City, Australia, is summarized in this review of the literature. The goal of the study was to determine how psychological distance and past knowledge affect travelers' imaginations when they respond to marketing communications (Doctor et al., 2021). Information processing theory and construal-level theory are the theoretical frameworks that serve as a basis for investigating the efficacy of marketing tactics in the tourist industry.

Regardless of the audience's psychological distance or degree of familiarity, dynamic films were proven to be considerably more successful than static posters in fostering pleasant feelings and imagination. This means that videos are a better option for event marketing as they may increase the efficacy of promotional content by combining sensory components. Even though videos could inspire creativity more successfully than static visuals, they sometimes have more production expenses. This strategy has drawbacks because the study mainly examined socio-cultural and physical distances, undervaluing other factors including time distance. The study emphasizes the potential of social psychology theories in hospitality and tourism in a larger framework, especially in terms of comprehending consumer behavior and involvement (Doctor et al., 2021).

It has long been known that travel has the power to improve mental health and wellness. While nature tourism is associated with emotional healing and cognitive renewal and delivers restorative benefits via exposure to natural areas, urban tourism provides sensory experiences through events like museum visits and concerts. Adventure tourism enhances mental health by fostering self-esteem and emotional control through its intense, thrill-seeking activities (Buckley, 2022). Research on the therapeutic advantages of travel for mental health, however, is still lacking, particularly when it comes to figuring out the best experiences to enhance mental health.

Due to its ability to aid in the rehabilitation of mental health, tourism is becoming more and more integrated into conventional healthcare, especially in the post-pandemic age. But it's still difficult to compile enough data to justify tourism's place in healthcare plans (Buckley, 2022). In addition to analyzing the economic effects of tourism as a public health tool, future study must completely grasp the psychological mechanisms, sensory experiences, and individual variations in tourist-based interventions.

According to a study conducted by (Simkova, 2014), the potential conflict that can arise from the interactions between the tourists and the local communities might overshadow the benefits that tourism brings to the countries. Therefore, Simkova examined how psychology can be used to determine the tourist behaviors and how it can be applied to tourism professionals to create better experiences for the tourists. The author approached the study through a qualitative method highlighting her own experiences and insights as well as case studies and successful tourism practices that made use of psychology. Publicly available secondary data such as reports, surveys and statistics were used by the author to support her findings (Simkova, 2014).

Maslow's hierarchy of needs play a huge role in this paper as it applies the different steps of the hierarchy to the tourism industry. Simkova highlighted the need to fulfill the basic psychological and safety needs before moving on to the social needs and self-appreciation needs. The paper pointed out the people's need to belong to a particular group or setting as well as in meeting their internal expectations and perceptions (Simkova, 2014).

This research presented how incorporating psychology in tourism marketing can help mitigate success. It highlighted the use of "intelligence approach" as part of the marketing which roughly translates to creating ultimate comfort for the clients. The key to efficient marketing is to have a deep understanding of the tourists' attitudes and motivations. The paper continued to address the psychology in promoting sustainability and how it can be utilized. It was concluded with the author addressing the need to integrate more psychological practices into tourism marketing (Simkova, 2014).

The research paper by Pearce and Packer (2013) explores the link between psychology and tourism specifically on how modern psychological theories can be of help in tourism research. It also recognizes different patterns from a myriad of psychological fields such as motivation, attitude, memory and personal growth. In this paper, the different ways in which the attitude research has changed over a period of time have been discussed. The affective, cognitive and the behavioral components highlighted and the authors mentioned that attitudes are considered not the direct drivers of habits but rather the modifiers.

The methodology of this paper is thematic methodology and it revolved around the main themes such as motivation, attitude, memory and personal growth. This approach presented how psychological theories can be integrated into tourism studies. In the research paper, the authors, Pearce and Packer (2013), highlighted the ways in which social, cognitive and positive psychology can be associated with tourism. By understanding different fields, the authors aimed to have a better understanding towards the tourists' behaviors. The paper also explored other themes such as participant-driven and research-imposed methods as well as highlighted how narrative analysis can be valuable in understanding the tourists.

As the paper focuses on the historical development of attitude research, it presented how the past researches can be of help in contemporary studies. One of the major prospects in the paper is how attitudes are measured using Likert and Thurstone scales. Despite the importance of these scales in measuring attitudes, the authors of this paper criticized how these scales rely on numerical data. Pearce and Packer (2013) also pointed out how this limited the extent of research as it does not take into account the natures of attitudes in a real-world context.

The integration of social cognition theories in attitude research has also been highlighted specifically displaying the deep and shallow processing of information. This is essential in understanding the ways in which the tourists form attitudes from their experiences and interactions. The importance of recognizing the cultural and social contexts has also been highlighted. The authors claimed that the attitudes are not permanent but rather socially and context-dependent. The research paper, by the end, suggested the need for different approaches in the future research such as the longitudinal studies and further exploration of the attribution theory.

In conclusion, tourism has enormous potential to improve individual well-being through positive psychological interactions, the development of trust, well-designed marketing strategies related to consumers' behaviors. As the industry evolves, especially in the post-pandemic period, people are regarding that focusing on mental health and emotional well-being are essential in daily lives. Therefore, future research ought to continue in analyzing the potential of tourism as a tool for promoting happiness, reducing stress and anxiety, and cultivating individual development.

METHODOLOGY

This research uses quantitative approach; the primary data collection method will be through an online survey, which conducted through Google Forms to 404 participants. The target audience contains individuals who have engaged in tourism in the past 6 - 12 months, which will ensure the relevance of the study. The survey will include a list of questions that are aimed at measuring psychological factors such as motivations, attitudes and behaviors related to travel choices. The two main questions this research will be aiming to answer are

- What role does social influence (e.g., peer recommendations, social media) play in shaping travel preferences?
- How can emotional storytelling in tourism marketing be used to influence traveler behavior and decision-making?

The collected data analyzed using descriptive methods and visual tools such as charts and graphs to showcase trends and patterns in the psychological factors influencing tourism decisions. These visual representations will help in identifying key insights and drawing meaningful conclusions about how consumer psychology impacts travel behavior.

RESULT AND DISCUSSION

Overall, 404 survey responses were collected through various platforms from people who are majorly from the age groups of 18-35. The people, through our questionnaire, expressed their opinions on different psychological factors that impact them while making travel decisions. We were able to collect responses from 9 different countries with a majority from Myanmar, Thailand and China.

From the collected data, it is observed that 222 participants (55%) have a monthly income of above 20,000 baht. (See Fig.1)

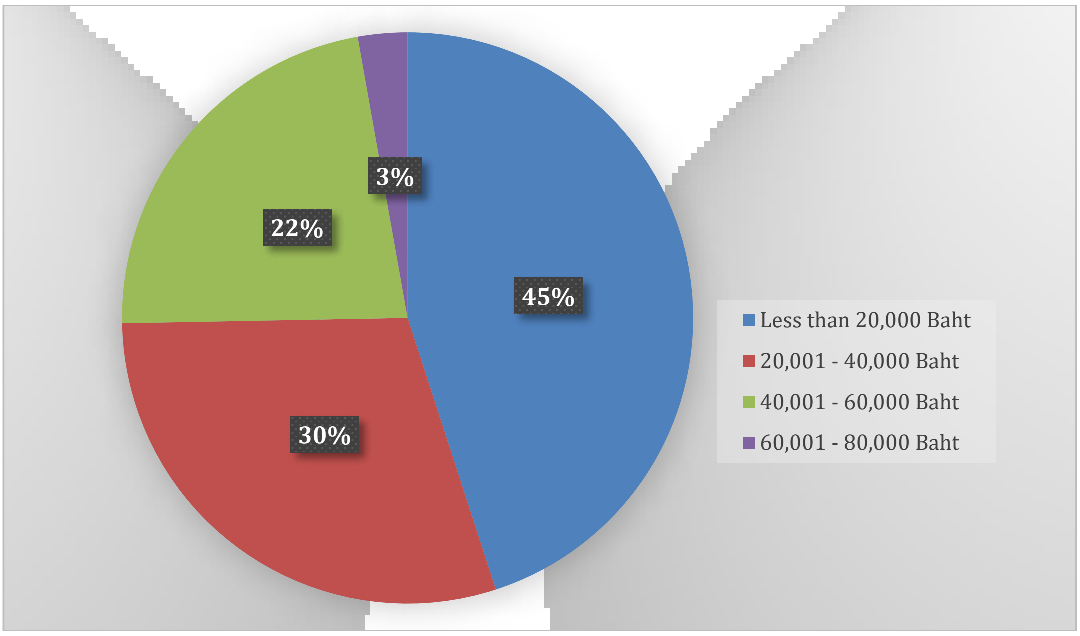

Figure. 1 Monthly Income of Respondents (404 Responses)

From Figure. 2, it can also be seen that excitement, joy and freedom are the three emotions that the people experience the most when looking at travel advertisements. Other emotions people experience include curiosity and nervousness. A majority of the respondents also find it important to feel an emotional connection to their travel destination. (Fig.3)

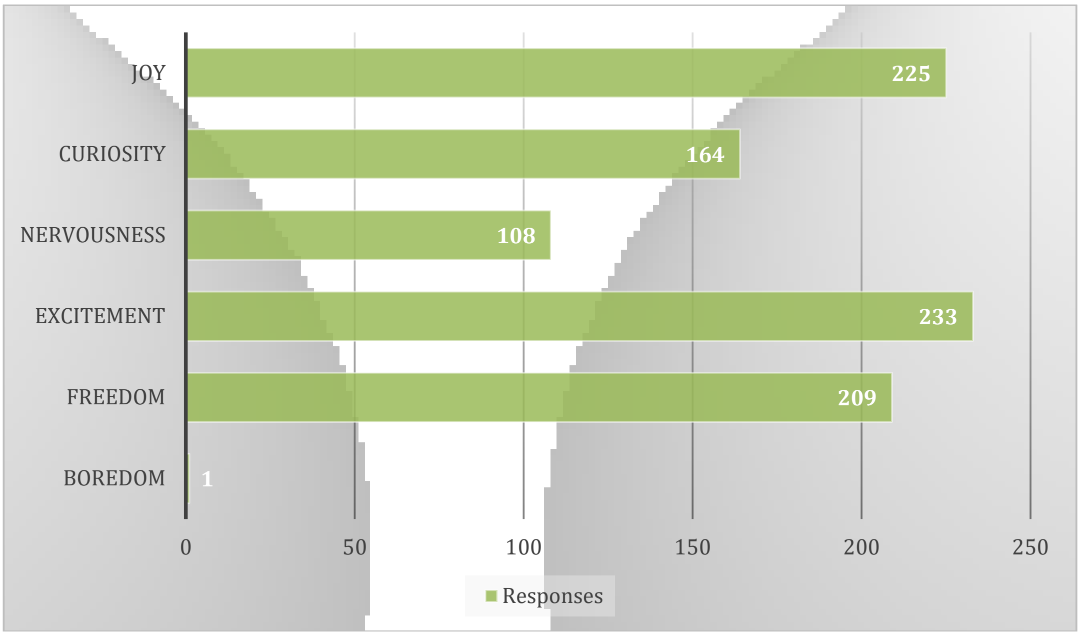

Figure. 2 Emotions Experienced from Travel Advertisements and Promotions(404 Responses)

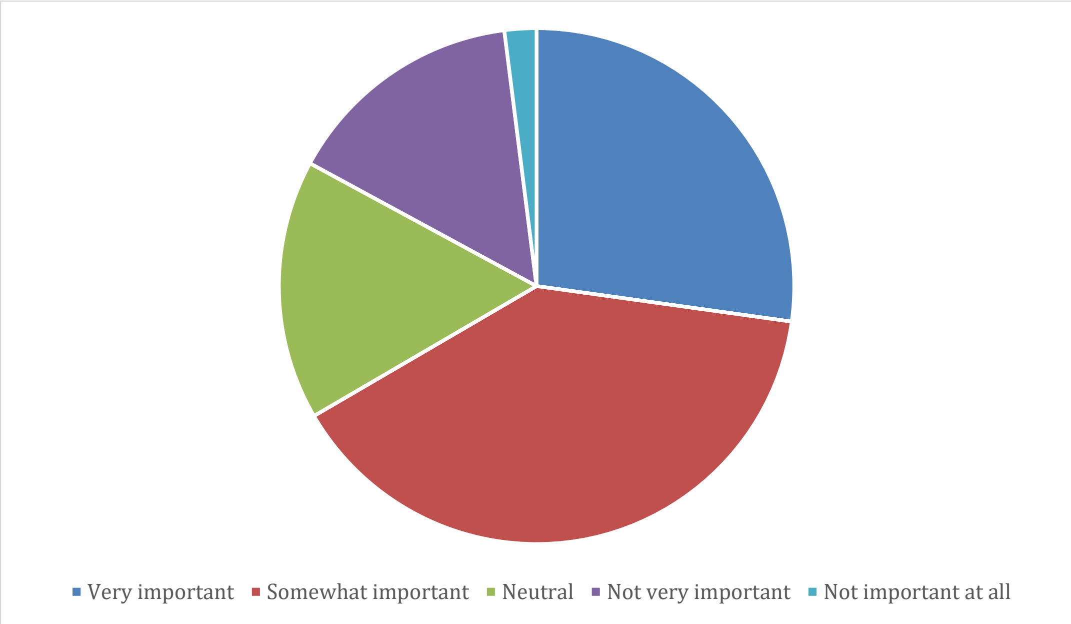

Figure. 3 Importance of Emotional Connection to a Destination(404 Responses)

While further examining the effects of well-developed travel campaigns such as "Incredible India" or "Visit Iceland, we observed that they have a slight to extreme impact on the decision-making factor. (Fig. 4) From this finding, we can deduce that while not all the travelers are affected on the same level by these campaigns, these travel campaigns are effective and have succeeded in creating compelling narratives that resonate with the target audience.

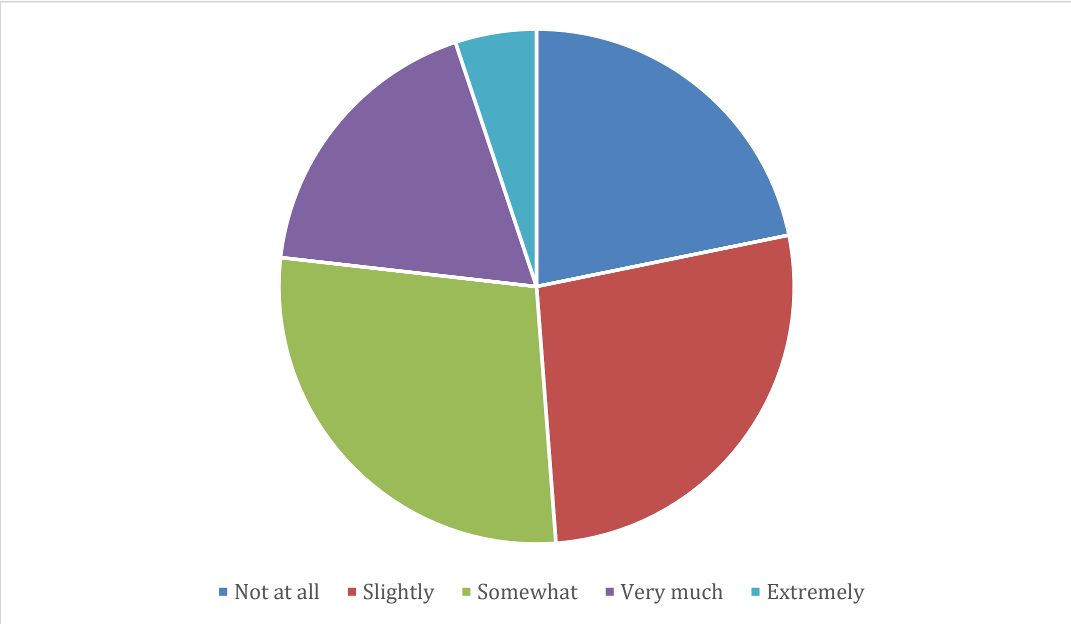

Figure. 4 The Influence of Tourism Brands on Destination Choices(404 responses)

We continued to explore the effects of social media on travel decisions. A large percentile of our respondents answered that while social media sparked their interest to choose a destination, they generally needed more information to decide on it. In some cases, however, social media discouraged the travelers from visiting the destination. Seeing “must-visit” or “bucket-list” destination items also have a moderate influence on the travelers. While asked about the type of social proof that is the most convincing, a majority responded with either seeing photos and videos from other travelers or getting word of mouth recommendations from peers. It was also surprisingly observed that influencer endorsements are more convincing to people rather than detailed written blogs. (Fig. 5)

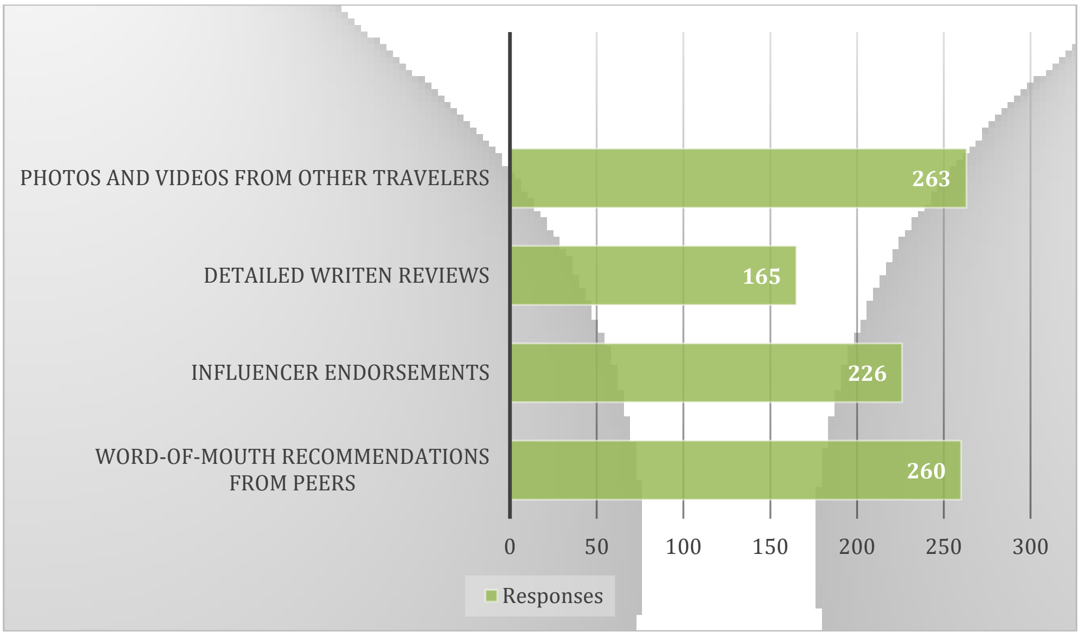

Figure.5 Types of Preferred Social Proof//Evidence (404 responses)

A large percentage of the survey responses presented that while traveling they are looking forward to destinations that help them disconnect from their daily routines. Some of the factors that help people feel connected to a destination include exploring natural landscapes and meeting locals and hearing stories followed by exploring different traditional and customs as well as trying to experience everyday-life as a local. (Fig. 6) This finding can be why the survey responses showed that 88.6% of the respondents spend more money while traveling than in their everyday life.

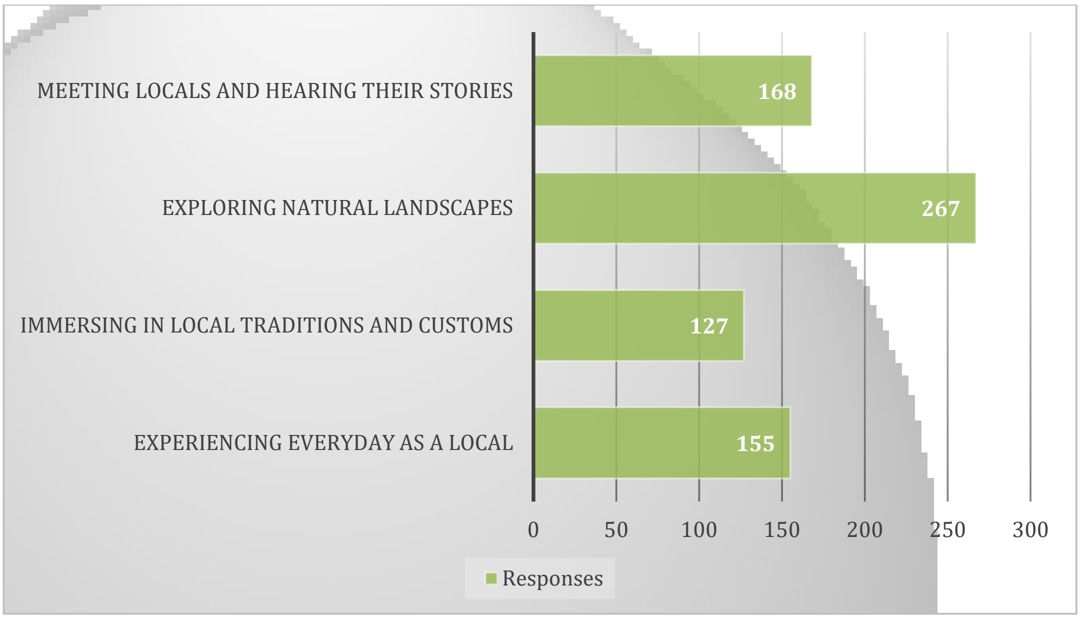

Figure. 6 Factors that make Respondents Feel Connected to a Destination(404 responses)

When being asked about how likely they are to revisit a destination a majority stated they are somewhat likely to do so. Only 22% of the respondents were certain that they are more likely to go back to somewhere they have been before. Food, nature and activity are the top decision factors for revisiting a destination followed by budget and culture of a destination. (Fig. 7)

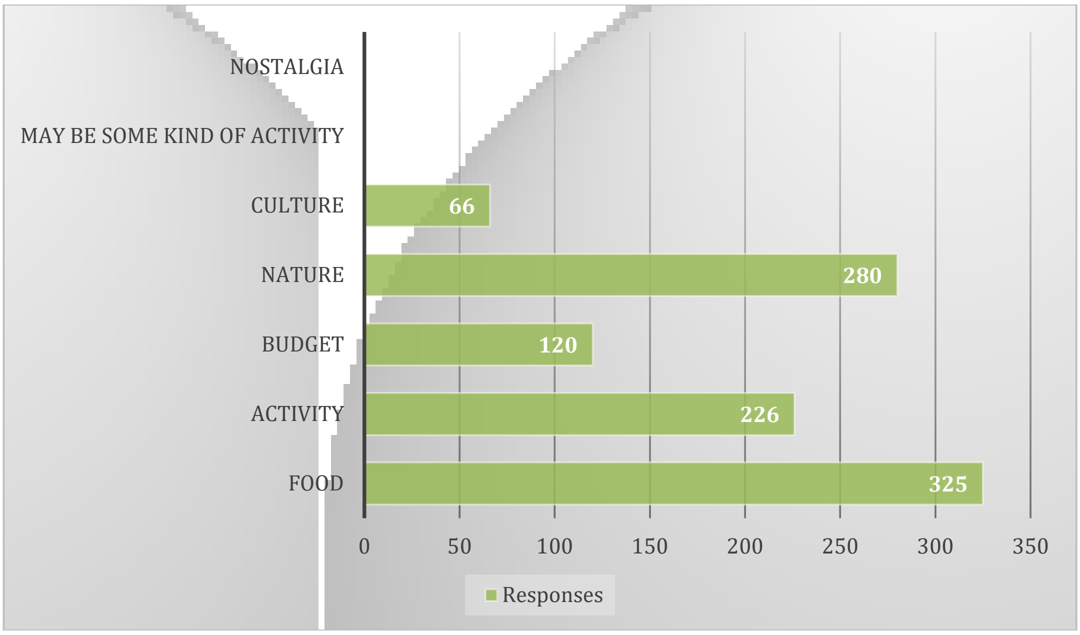

Figure. 7 Influential Aspects in Revisiting a Destination(404 responses)

At the end of the survey, we asked our respondents their opinions on consumer psychology and its connection with the marketing and choice of destinations. One of the respondents replied with “Consumer psychology is very important for a consumer to choose a destination. If it caught their eyes and felt nostalgic, it’s more likely for them to choose it.” This suggests the importance of visuals and first impressions that travel campaigns can hold. If the ads are to present visually appealing content, it will drive customer interest and curiosity. Nostalgia can also be a powerful motivator for choosing destinations. Destinations that are associated with childhood memories, family traditions or past experiences can present a sense of emotional warmth making them more appealing to the consumers.

Another respondent replied with “I think the desire to escape from daily routines and experience something out of the ordinary is a strong psychological driver.” and this indicates the people’s desire for change from their daily routines. Whether it’s personal or work related, traveling offers an opportunity to break away from the stress of these daily routines, providing a sense of renewal and freedom. This answer resonates with our research finding that indicates that people look forward to destinations that help them disconnect from their daily routines.

According to another respondent. “Travelers prioritize meaningful connections, but marketing strategies must adapt to emphasize honesty and practical value”. Today's travelers are looking for deeper connections, whether with local cultures, communities, or the people they travel with, rather than just surface-level experiences. This change means that marketing strategies need to adapt by focusing on authenticity and offering real value. Promoting genuine cultural interactions, sustainable practices, or opportunities for personal growth can strongly appeal to consumers. Being honest in advertising is also essential, as exaggerated promises or overly polished images can harm trust. By aligning with travelers' values and highlighting experiences that are meaningful and accessible, marketers can create stronger and longer-lasting connections with their audience.

Another handful of comments also mentioned how the marketing strategies can differ among older and younger generations as older people might not give as much attention to social media as younger generations do. Some of the respondents also think that in the future nature and environment-based tourism will bloom alongside awareness for mental health. In conclusion, we can see that social media and its marketing campaigns do hold a moderate amount of impact on the travelers and the travelers are often motivated by emotions such as escapism, joy and curiosity while making travel decisions.

CONCLUSION

This study explores the close connection between consumer psychology and tourism marketing, focusing on the psychological factors that shape travelers' behaviors and decisions. The findings show that emotions like joy, excitement, and curiosity play a key role in driving travel choices. Social media and well-designed marketing campaigns, while moderately effective, often act as complementary tools to spark interest and encourage travelers to seek more information. Authenticity, emotional storytelling, and visual appeal are crucial for influencing consumer perceptions and crafting engaging narratives.

The finding reveals that emotional connections, escapism, and curiosity are important drivers of travel preferences, with 88.6% of respondents spending more while traveling and 55% earning more than 20,000 baht per month, demonstrating their willingness to prioritize significant experiences. Social media and campaigns like "Incredible India" affect 76% of travelers, with 59% preferring visual content and 37% swayed by influencer endorsements. Escaping routines and engaging with nature or local cultures is critical, with 72% desiring detachment and 64% preferring local interactions and landscapes. These findings highlight the necessity of honest, visually appealing marketing that reflects the ideals of modern travelers.

The research highlights the need to understand travelers' desire for meaningful connections, whether through cultural experiences, natural scenery, or activities that match their personal values. The growing popularity of sustainable and nature-based tourism reflects an increasing awareness of the mental health benefits of travel, such as stress relief and emotional renewal. To meet the needs of diverse generational and cultural audiences, marketers must focus on honesty, practical value, and emotional resonance in their strategies.

By linking psychological insights with marketing strategies, this study offers practical recommendations for tourism organizations and governments. Customizing campaigns based on travelers' psychological motivations can strengthen trust and build lasting relationships with destinations. As tourism adapts to a post-pandemic world, prioritizing well-being and emotional recovery provides an opportunity to redefine the industry's role in enhancing both individual and community quality of life.

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MICE AS A MAGNET FOR FDI, ECONOMIC, OVERALL GROWTH, SERVE AS COUNTRY'S MARKETING STRATEGY

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Abstract

The Meetings, Incentives, Conferences, and Exhibitions (MICE) industry has functioned as a magnet for economic growth and foreign direct investment (FDI) particularly in developing countries, directly and indirectly. Direct benefits include higher spending on hospitality and tourism-related services, while indirect effects promote job creation, infrastructure development, and enhanced local businesses.

Using secondary data collection, this research highlights the presence of international MICE events, the scale of these events' impact on host countries, and their importance in attracting long-term investment.

The result of the data collected by the distribution of the designed survey shows; 55 % of respondents considered MICE events as the key role in attracting long-term partnerships for the local businesses. Additionally, statistical analysis of the data (ANOVA) confirms that MICE events play a crucial role in creating employment opportunities for the host country.

Despite its potential, the MICE industry encounters challenges such as technological adaptation, sustainability concerns, economic sensitivity, global disruptions (COVID-19, etc…), lack of particular professions, human resources, hosting nation's ability to communicate; language barriers.

Key findings from this study emphasize the importance of scaling and enhancing MICE events to maximize long-term foreign direct investment for hosting countries, aiming to inform policymakers, and industry stakeholders on leveraging MICE for sustainable economic, technological, and human resource/professional development.

Keywords: *Meetings, Incentives, Conferences, Exhibitions, MICE Industry, FDI, Growth, Marketing*

1. INTRODUCTION

Tourism is now one of the most successful and "labor-intensive" industries, involving many economic activities. It plays an important role in a country's economic growth. Recent data shows that more than one-fifth of the world's population is traveling more than ever before, especially after the pandemic (2020).

Many of these travelers are part of the MICE (Meetings, Incentives, Conventions/Conferences, Exhibitions) tourism category. The growth of this market has boosted the sector, emphasizing the importance of business travel globally. The MICE industry is growing quickly and is a key factor in the tourism industry, helping to speed up economic growth, especially in developing countries like Thailand.

1.1 The Background of the MICE Industry

The MICE industry encompasses organized events for business, education, networking, and entertainment. Its components include:

Meetings: Business-oriented gatherings such as conferences or board meetings
Incentives: Reward programs for employees or partners.
Conventions: Large-scale gatherings focused on specific industries or topics.
Exhibitions: Trade shows or expos for showcasing goods, services, or innovation bringing substantial direct and indirect effects of business tourism through the size and scope of the events.

The thriving MICE market has attracted both domestic and international travelers since the 19th century. Moreover, these events provide a well-structured environment for foreign investors to get exposure to local markets and potential business opportunities. For instance, in Thailand, the Queen Sirikit National Convention Center was constructed in 1991, and intended to host the 46th Annual Meeting of Boards of Governors of the World Bank Group. (Arch Daily, 2023). As it is located in the prime area of Bangkok, it becomes easier for the investors to expand their business operations and create better partnership deals with local business owners, leading towards long-term FDI commitments. MICE events also provide relationship-building opportunities among traders, corporate buyers, visitors, media, and exhibitors. These communications opportunities often result in long-term business interactions, joint ventures, and future FDI inflows. (Pechlaner & Innerhofer, 2018).

According to the data from the World Tourism Council (WTC), 25 percent of business travelers are part of international tourists, yet it shares nearly 60 percent of the income of the tourism market. (Katsitadze & Natsvlishvili, 2017). In 2019, the United Nations World Tourism Organization concluded that the global GDP had increased by up to 10%, and will gradually reach an estimated number of 1.8 billion tourists by 2030.

Moreover, it will also benefit the local communities in terms of creating jobs, infrastructure, technology, etc. As a consequence, more nations invested capital in expanding airports, constructing new convention centers, and upgrading their transportation channels to accommodate bigger events and attract travelers. These improvements have positive effects on other sectors of the economy and unlock global investment, especially in developing countries (Alcor MICE, 2021).

1.2 Potential Challenges In The MICE Industry

The MICE industry has experienced enormous changes in advanced technology, especially during the COVID-19 pandemic. The most significant effect is no more revenue for the business, creating a huge loss to the country's economy. Due to the restriction of travel and lockdown, all business travel stopped, and the government did not allow MICE events. Therefore, meetings and conferences were postponed or had to be done virtually, boosting the transition of events from in-person to hybrid formats to maintain the industry's long-term FDI commitments in developing countries. Although this revolution in the MICE industry brings considerable risk, it contributes to increased efficiency, flexibility, and engagement for both organizers and their attendees (Salesforce, 2023; Google Analytics, 2023).

With increasing concern for sustainability, it becomes a challenge to implement it in Thailand's economy. Following that, the Thailand Convention and Exhibition Bureau (TCEB) and Thai MICE players have made the effort to launch the "Green Meeting Campaign" to promote environmental responsibility. Meanwhile, they also let the campaign serve as a marketing device to attract tourism businesses from overseas.

Therefore, in Thailand, MICE events that are unique, environmentally responsible, and represent diverse cultures are highly promoted. (Nonthanak, S., (2014).

According to the data, MICE tourism is typically seasonal and focused on peak periods, which can lead to fluctuations in demand. In comparison, leisure, cultural, and eco-tourism tend to attract a steady flow of visitors throughout the whole year and ensure economic stability with a low risk of over-reliance on any sector (CBI, 2022). On the other hand, MICE tourism is assumed as high-risk due to economic sensitivity while the other types of tourism marketing can provide more stable, long-term growth. Considering the pros and cons, the advantages outweigh and MICE tourism promotes quicker, more concentrated revenue that could potentially lead to higher ROI with consistent FDI investments.

Overall, this research will highlight how developing countries can host MICE events to increase and maintain long-term foreign direct investment (FDI). Moreover, it also aims to provide business owners with a deeper understanding of the crucial role of Meetings, Incentives, Conferences, Exhibitions events and how they create platforms for direct interactions between local stakeholders, government, and international investors on driving economic growth in developing countries, especially in Thailand.

2. LITERATURE REVIEW

MICE tourism is a strategic tourism segment and positioned as an important factor that can leverage local development by attracting visitors to events, contributing to the extension of stay at the destination, influencing the decision of visitors to come back, and enhancing the region's tourism image (Marques 2013; Marques, Santos 2016). According to Roger (2013), the MICE sector encourages the wider economy by producing income across various industries, such as retail, transportation, job creation, and hospitality. Therefore, it will bring a huge amount of international business travelers, which will generate direct spending and economic gain in host countries. Specifically growing markets will create a strong bond between MICE tourism and foreign direct investment (FDI).

Katsitadze and Natsvlishvili (2017) state that MICE events provide a bridge for investors who are willing to engage in business activities with local markets and government bodies, resulting in significant growth of the host country related to FDI. To illustrate, the MICE industry creates Direct, Indirect, and Induced effects. The direct impact comes from the spending of tourists, attendees, and participants on lodging, dining, and other tourism-related services. When businesses provide these services it boosts demand, which leads to indirect consequences. The induced effect arises when the employees who work in the MICE-related sectors, such as hotels and restaurants, spend their wages on regional goods and services, which in other words strengthen the local economy. As a result, there is a chain reaction of economic advantages that go beyond the original MICE event and support overall economic expansion (Kumar et al., 2014). Meanwhile, many stakeholders and business owners have differing opinions about the effect of MICE events on the economy. Although this research highlights the benefits, such as more income and faster economic growth, on the other hand, locals are worried about unfavorable effects including rising living expenses and population (Blake & Sinclair, 2007).

For instance, one of the biggest MICE events in Southeast Asia, the ASEAN Summit, brings together leaders, ministers, and important stakeholders from ASEAN countries. In 2019, Thailand hosted the 35th ASEAN Summit in Bangkok, and it clearly showed how these large events can boost Thailand's economy. This summit draws over 3,000 participants from ASEAN countries as well as from partner countries like China and Japan. A significant short-term economic boost can be seen in Thailand, as well as it also highlights the country's role as a key diplomatic center in the region. This ASEAN Summit created a platform for formal and informal discussions on trade and investment, which led to various economic partnerships. Consequently, long-term FDI was drawn to Thailand by its reputation as a stable and investment-friendly country, especially from ASEAN members (ASEAN,2019).

As a key driver of investment capital and revenue generation, the MICE sector attracts a broad range of business owners and stakeholders, offering them access to a wide variety of global business models and opportunities for growth (Davidson & Cope, 2003).On the other hand, MICE events create unique networking and partnership opportunities. Facilitating these events enhances unique experiences about insights into the tourism industry, but, most importantly, they promote the relationship between "exhibitors, corporate buyers, mediators, and trade visitors" to connect and link the scattered dots of opportunities. As a result, these relationships are leading towards a positive image globally and enhancing the country's soft power with high visibility as an investment-friendly destination(UNWTO, 2014).

Additionally, Pechlaner and Innerhofer (2018) emphasize the vital role of incentive travel and corporate events in fostering cross-border relationships. Those developed relationships between the two parties during MICE events can continue to market entry decisions and further subsequent FDI as a return.
Before the pandemic, the MICE (Meetings, Incentives, Conferences, and Exhibitions) industry was one of the fastest-growing sectors. In 2019, the global MICE industry was valued at $805 billion, and it was projected to reach $1,439.3 billion by 2025, according to Allied Market Research (2019). However, the outbreak of COVID-19 in early 2020 caused severe disruptions across the MICE industry.

Despite the heavy impact of the pandemic, the MICE industry has been recovering quickly. The industry is expected to grow at a compound annual growth rate (CAGR) of around 15% between 2021 and 2031. This growth is particularly beneficial for developing countries like Thailand, which has significantly invested in the MICE sector. For instance, the Thailand Convention and Exhibition Bureau (TCEB) expects the MICE industry to generate at least 23.1 million in revenue by 2024 (SHOOWONG, 2024). This highlights the importance of the MICE industry in bringing in foreign income for developing countries. Over time, the return on investment (ROI) for event participants and host destinations can increase, as attendees spend money on local services like accommodation, dining, and attractions, supporting local businesses and infrastructure development (Weber & Ladkin, 2010).

This industry is significantly impacted by the shortage of specialized professionals and skilled human resources which hinders effective event planning, logistics, and innovation, leading to inefficiencies and diminished client satisfaction. Additionally, language barriers present another substantial challenge in the MICE industry, especially in multicultural settings. The weak capability to communicate among staff often lead to misunderstanding, lessens cross-cultural collaboration, and lower attendee satisfaction (Chang, & Tsai, 2020). For instance, multilingual competence is crucial for event professionals to engage with international delegates and foster transparent communication during events (Isom, 2023). Therefore, addressing these issues is critical for the MICE industry to thrive and empower nations to host world-class events fostering long-term economic growth.

Moreover, the MICE industry significantly impacts Foreign Direct Investment (FDI) in the short and long term. In the short term, the MICE industry boosts the economy through increased spending in sectors like hospitality and retail (Spencer, J., & Bavuma, Z., 2018), while enhancing the host destination's global visibility and facilitating immediate investment opportunities through networking. In the long term, MICE activities drive infrastructure development, sustain economic growth, and promote knowledge and technology transfer. These improvements enhance the business environment, attract future events, and increase FDI inflows, positioning MICE as a key economic driver.

Additionally, the MICE sector has been recognized as an effective and strategic tool for enhancing a country's marketing. MICE can be used as a country's marketing vessel by promoting the host country's capabilities, culture, and economic potential to international audiences, making it an essential part of destination branding. (Morrison,2013). Furthermore, the TCEB has launched the "Thailand MICE to Meet You Year 2023" campaign to promote the organization of MICE events across the country. This campaign is designed to distribute revenue and stimulate local economies, reinforcing the role of the MICE industry in Thailand's national marketing and economic strategies. (Business Events Thailand,2023). Thailand frequently hosts corporate incentive trips, especially from neighboring countries like India, China, and Singapore which contribute to local economies by boosting foreign revenues in hospitality, retail, and transportation.

From the aspect of technology, this industry has also evolved advanced innovation significantly according to Park & Gretzel (2007). A strong MICE experience has been designed to improve the operational process by providing new services, systems, and procedures, with the help of the "Process Approach". These top 5 MICE tech processes involved a registration system, badge system, internet access, WI-FI access for the attendees, and a tracking system. It benefits MICE operators by lowering operating costs, improving time and process, streamlining operations costs, improving information management effectiveness, and greater promotional efficiency (Islam & Mazumder (2010))(Kenteris, Gavalas, & Economou (2009).A study focusing on the adoption of new technology by MICE (Meetings, Incentives, Conferences, and Exhibitions) organizers in Thailand found that 85% of participants are currently utilizing technological innovations in their operations, and 99.6% expressed intentions to further adopt such technologies. The study highlights that government policy, competitive pressure, and technological capabilities are significant factors influencing this adoption.(Phonlawat, S., & Charoensukmongkol, P.,2024)

On the other hand, the MICE events are highly resource-intensive and can have negative environmental consequences for the host city and population. Specifically, large-scale events, such as conferences and conventions can be major sources of greenhouse gas emissions, pollution, and waste. Side Effects on the environmental impact of events include energy usage, waste, transport, carbon emissions, air pollution, and food resources are not limited. Therefore, implementing sustainable practices can help reduce the economic costs and environmental impact of all activities at a convention center (Buathong & Lai, 2017)

Last but not least, the MICE sector plays an important role in stimulating both tourism and foreign direct investment sectors, facilitating direct engagement between investors, local stakeholders, and government bodies, ultimately enhancing a country's global economic presence (Katsitadze & Natsvlishvili, 2017). In the long term, FDI inflows are mutual from the perspective of partnerships and collaborations, facilitated by networking opportunities like MICE and business travel events. By providing accessibility for knowledge exchange and exposure to local market conditions, MICE events foster an environment for sustained economic growth (Mitchell et al, 2016). Regional development and global ties are strengthened, while also addressing the challenges of sustainable tourism management because of the potential of the MICE industry. It will be a key factor for both short-term and long-term economic transformation.

Moreover, by creating a powerful, identifiable brand on the global scene, MICE events can greatly improve a nation's or companies marketing strategies. Promotion of the Nation and Brand Visibility: MICE events offer a great chance to promote the destination. Countries can highlight their strengths in fields like innovation, technology, tourism, culture, or sustainability at conferences and trade exhibitions. For example, Singapore has marketed itself as a global leader in innovation and technology by utilizing MICE events such as the Singapore FinTech Festival and the Singapore Airshow. These occasions enhance the nation's standing outness and draw in foreign attention, capital.

3. RESEARCH METHODOLOGY

To analyze the role of MICE as a magnet for FDI and economic growth in the host country, this research implements a quantitative approach, utilizing well-established secondary data derived from credible international databases such as the Thailand Convention and Exhibition Bureau (TCEB), the United Nations Conference on Trade and Development (UNCTAD), and the International Congress and Conference Association (ICCA).

The study primarily uses data collected from reports and statistical databases during the years 2018 to 2024. These sources provide detailed information on MICE-related economic indicators, including revenue, employment statistics, FDI inflows, and contributions to national GDP.

This methodology enables objective measurement and statistical analysis to identify correlations between MICE activities and FDI inflows. By focusing on numerical data derived from secondary sources, the research identifies the direct and indirect economic impacts of the MICE sector, particularly its role in fostering long-term investment and contributing to national GDP growth. Key indicators analyzed include the percentage of MICE revenue attributed to exhibitions, the growth rate of international MICE visitors, and the sector's share of total FDI inflows.

The primary methods of analysis will include:

- Regression Analysis: To assess relationships between variables such as the scale of MICE events, international investor participation, FDI inflows, and economic growth indicators (e.g., GDP growth rate, employment in key sectors, and foreign trade balance).
- ANOVA: To evaluate variations between groups and identify significant differences in key metrics.

If regression analysis and ANOVA do not yield statistically significant results, a descriptive statistical approach will be employed. This will involve analyzing the mean, median, mode, and standard deviation to provide a detailed and clear interpretation of the data. These descriptive methods will explain relationships and trends effectively, even in the absence of strong statistical significance from regression and ANOVA.

In addition to analyzing the direct impact of MICE events on FDI, this study will explore their broader economic spillover effects. These include job creation in the hospitality and tourism sectors, increased demand for local goods and services, and the development of new business partnerships and ventures resulting from MICE networking opportunities.

Finally, the study will account for the limitations of relying solely on secondary data, including potential gaps in data availability or inconsistencies in reporting across countries. The comprehensive and effective quantitative study seeks to contribute to the growing intersection of the MICE industry, followed by policymakers and industry stakeholders valuable evidence on the potential of MICE to derive sustainable economic growth with attractive long-term foreign investments.

4. RESULT AND DISCUSSION

This section represents the study’s findings that explore the MICE industry’s role in attracting foreign FDI and driving economic growth. The results are organized around three areas: the relationship between MICE events and FDI inflows, the direct economic contribution of MICE, and the wider implications for developing countries.

4.1 Secondary Data Analysis

According to the data, MICE tourism spending increased by 10.4 billion in 2019 compared to other sectors. As Thailand became the center of the Asian MICE business, the country strategically developed the structure of the Thai MICE industry. Additionally, the Thailand Convention and Exhibition Bureau (TCEB) has set up a strategy to cooperate with partners in the 10 MICE City Development Areas across the country. As a result, the entrance of International MICE traveler numbers skyrocketed to nearly 400,000 in 2024 (Quarter 1) compared to 3 times less than that in 2023.

According to the survey data, this paper analyzes the opinions of people from diverse countries about Thailand being well-prepared to host large MICE events. The statistics agree that Thailand is an ideal hub for international MICE travelers, potentially contributing over 4.5 billion USD to the economy. With continued investment in technology, sustainability, and marketing, the economic impact of the MICE industry reached more than 177 billion, which is around 1.2% of Thailand's GDP (tceb.or.th). Especially in the central area of Bangkok, and the north area of Chiang Mai, international event organizers and their vendors show readiness to accommodate the evolving demands of the international event in Thailand.

This analysis indicates that compared to other MICE events, exhibitions have a strong positive correlation with FDI inflows due to more industry potential, direct stakeholder engagement, and economic opportunities. The secondary data from TCEB also describe that the Thai MICE industry experienced a significant amount of foreign income, estimated at 31,905 million baht in the first quarter of 2024. Among the four sectors of MICE events, the exhibitions remained the primary revenue driver, generating 62.5% of the total revenue, which is four times higher than any other MICE segment. Following that, as the exhibitions are interactive platforms for investors it becomes easier for the investors to assess market trends, and establish partnerships which leads to potential in the investment ecosystem. From these results, we found out the strategic role of exhibitions in attracting foreign investors and promoting economic growth.

On the other hand, the secondary data shows that the tourism and business industry professionals agree on the importance of creating employment opportunities in Thailand. According to the Thailand Convention and Exhibition Bureau (TCEB), the MICE sector in 2022 directly employed over 160,000 people, with demand projected to grow annually by 10%. Additionally, TAT and TCEB data (2022) reveal that each MICE visitor generates employment for 3-5 people across supporting industries. A 2019 report by ICCA (International Congress and Convention Association) indicated that Thailand's MICE events contributed to over 500,000 indirect jobs in tourism-related sectors annually.

4.2 Primary Data Analysis

(i) **The Correlation between size of MICE events and National GDP growth**

This section aimed to evaluate the importance of MICE events in influencing investment decisions and their contribution to Thailand's GDP growth.

The question demonstrated that most respondents consider the scale of MICE events crucial for attracting long-term investments. The survey asked, "How important is the scale (size) of MICE events in influencing long-term investment decisions in the host country?" The results show that 55.1% of respondents consider it "Important," 22.9% rate it as "Very Important," and 21.2% view it as "Moderately Important." Only 0.8% see it as "Slightly Important," and none regard it as "Not Important."

The data shows that most respondents believe the MICE industry has a moderate to high impact on GDP growth to the question: "In your opinion, how much does the MICE industry contribute directly to the national GDP growth in Thailand?" On a scale of 1 to 5, where 1 is the lowest and 5 is the highest, 44.1% of respondents rated the contribution as 3, and another 44.1% rated it as 4. Only 6.8% rated it as 5, while 5.1% rated it as 2.

To gain a more comprehensive understanding of the connection between these two variables, the analyses below were conducted.

Table 1. Regression analysis of MICE events and National GDP Growth

Statistics (Regression)	Value
R^2	0.0609
Adjusted R^2	0.0529
Coefficient (Intercept)	2.5254
Coefficient (X1)	0.25
P-Value (X1)	0.0070

(Source: Own Analysis, Survey Data)

This regression analysis shows the relation of the independent variable (the scale of MICE events influencing long-term investment) and the dependent variable as the national GDP growth with R^2 of 0.0609 and Adjusted R^2 of 0.0529, indicating 6.09% of the variance. The coefficient for X_1 (scale of MICE events) is 0.25 ($p = 0.0070$), indicating a significant positive relationship.

Table 2. ANOVA of MICE events and National GDP Growth

Statistics (ANOVA)	Value
F-Statistics	7.5292
Significance (p-value)	0.0070
Regression SS	3.5
Residual SS	53.92

(Source: Own Analysis, Survey Data)

In addition, the ANOVA analysis of the regression model was statistically significant (F = 7.5292, p = 0.0070), indicating the scale of MICE events significantly impacts the nation's economic growth. The model explained part of the variance (Regression SS = 3.5), but most variability remains (Residual SS = 52.92), highlighting the importance of the MICE event scale and how it affects the national GDP. From this regression and Annova analysis, we can see the measurable impact of the MICE event in shaping long-term investment decisions, leading to higher GDP growth of a hosted country.

(ii) **The contribution of MICE events to FDI in Thailand**

In this section, the first question aimed to identify the countries where participants are currently living. The results show that 72% of respondents live in Thailand, followed by 7.6% in India, 5.9% each in Myanmar and South Korea, and 3.4% in the USA. A small percentage, 0.8%, live in Japan. This data highlights that most participants are based in Thailand, with a few residing in other countries.

Another question would evaluate how much respondents agree that international MICE events enhance Thailand's FDI (Foreign Direct Investment). Most respondents agreed, with 51.7% selecting "Agree" and 14.4% choosing "Strongly Agree." Additionally, 33.1% remained neutral, while only 0.8% disagreed, and none strongly disagreed. This indicates that most of the respondents believe that MICE events have a strong positive effect on Foreign Direct Investment in Thailand.

To better understand the relationship between these two variables, the following analyses were conducted.

Table 3. Regression Analysis between MICE events and FDI

Statistics (Regression)	Value
R^2	0.002
Adjusted R^2	-0.006
Coefficient (Intercept)	3.83
Coefficient (X1)	-0.0215
P-Value (X1)	0.61 (Not significant)

(Source: Own Analysis, Survey Data)

The regression analysis revealed a very low R^2 value of 0.002, indicating that the model explains only 0.2% of the variance in the dependent variable (the contribution of MICE events to the FDI of Thailand). The coefficient for the independent variable (the collected different countries) was -0.0215 (p = 0.61), suggesting it does not have a statistically significant relationship with the dependent variable.

Table 4. ANOVA of MICE events and FDI

Statistics (ANOVA)	Value
F-Statistics	0.26
Significance (p-value)	0.61
Regression SS	0.124
Residual SS	54.953

(Source: Own Analysis, Survey Data)

The analysis of variance (ANOVA) showed that the regression model was not statistically significant ($F=0.26, p=0.61$), indicating that the independent variable (the collected different countries) does not significantly predict the dependent variable (the contribution of MICE events to the FDI of Thailand). While the model explained only a small portion of the variance (Regression SS = 0.124), most of the variability remains unexplained (Residual SS = 54.953). These findings highlight the need for further exploration of other variables that may influence the outcome. Therefore, descriptive statistics were utilized to better understand the survey responses. The analysis included measures of central tendency and variability:

Table 5. Descriptive statistics between MICE events and FDI

Mean	Median	Mode	S.V	CV
3.7966	4	4	0.6863	18.08%

(Source: Own Analysis, Survey Data)

The survey results indicate a positive perception of the impact of international MICE (Meetings, Incentives, Conferences, and Exhibitions) events on Foreign Direct Investment (FDI) in Thailand. The mean score of 3.80, close to 4 ("Agree"), shows that most respondents believe MICE events contribute to FDI (Foreign Direct Investment) in Thailand. The median value of 4 confirms that at least half of the participants agreed with this statement, while the mode of 4 indicates that "Agree" was the most common response. Hence, Thailand should invest more in organizing MICE events in the future.

(iii) The most influential aspects of the MICE event in attracting FDI

In this section, the question aims to identify which aspects of MICE events are most influential in attracting FDI. The survey data highlights key aspects such as networking opportunities, information sharing, industry knowledge, and regional and global exposure.

Table 6. Descriptive statistics of MICE events in attracting FDI

Mean	Median	Mode	S.V	C.V
2.02	2	1	1.09	53.84%

(Source: Own Analysis, Survey Data)

According to the descriptive statistics analysis, the mean score of 2.02 and the median value of 2 indicate that "Information Sharing" is generally considered the most significant factor. However, the mode of 1 shows that "Networking Opportunities" was the most frequently chosen response, emphasizing its importance among participants.

The standard deviation of 1.09 indicates moderate variability, while the coefficient of variation (CV) of 53.84% reflects diverse opinions on the topic. Despite this, "Networking Opportunities" (44.1%) and "Information Sharing" (23.7%) were identified as the leading factors, followed by "Regional/Global Exposure" (18.6%) and "Industry Knowledge" (13.6%).

These findings suggest that MICE organizers should focus on fostering networking opportunities and information exchange, as they are seen as the most impactful for attracting FDI. Addressing other aspects like global exposure and industry knowledge could further enhance the overall effectiveness of MICE events in promoting investment opportunities.

(iv) Types of MICE events with the greatest influence on foreign investors

Table 7. Descriptive statistics on types of MICE events with the greatest influence

Mean	Median	Mode	S.V	C.V
2.966101695	3	4	1.053542688	35.52%

(Source: Own Analysis, Survey Data)

The survey aimed to determine which specific types of MICE events hold the greatest influence on attracting foreign investors. The question asked, "What types of MICE (Meetings, Incentives, Conferences, Exhibitions) events do you think have the greatest influence on foreign investors?"

The survey results highlight the types of MICE (Meetings, Incentives, Conferences, and Exhibitions) events that are most influential in attracting foreign investors. The mean score of 2.97 and the median of 3 suggest that "Conferences/Conventions" and "Exhibitions" are the most impactful. Despite this, "Exhibitions" (39%) stand out as the top choice, followed by "Conferences/Conventions" (33.1%). "Meetings" (14.4%) and "Incentives" (13.6%) received less support. To sum up, the mode of 4 confirms that "Exhibitions" have the greatest influence on foreign investors. Therefore, event organizers and stakeholders should focus on exhibitions to attract more foreign investments.

(v) Challenges of the MICE industry in adapting to emerging trends

Table 8. Descriptive statistics to adapt the emerging trends with the MICE industry

Mean	Median	Mode	S.V	C.V
2.4067	2	1	1.3602	56.52%

(Source: Own Analysis, Survey Data)

The survey results identify the main challenges faced by the MICE industry in adapting to emerging technologies such as technology cost, lack of expertise, resistance to change, infrastructure limitations, funds, and others. The question asked, "In your opinion, what challenges does the MICE industry face in adapting to emerging technologies?"

The mean score of 2.41 suggests that respondents consider "Lack of Expertise" and "Technological Costs" as the primary barriers. The median score of 2 highlights "Lack of Expertise" as a key issue, while the mode of 1 indicates that "Technological Costs" is the most concerning challenge.

Overall, the data reveals that while "Technological Costs" and "Lack of Expertise" are the most critical challenges, other factors like "Resistance to Change" (21.2%) and "Infrastructure Limitations" (17.8%) also contribute. Therefore, reducing technological costs and enhancing training opportunities should be carefully considered to address these barriers and support the industry's adaptation to new technologies.

5. CONCLUSION

This research highlights the significant role of the MICE (Meetings, Incentives, Conferences, and Exhibitions) industry in promoting Foreign Direct Investment (FDI) and economic growth, especially in developing countries like Thailand.

The MICE sector directly and significantly affects foreign direct investment as well as national and corporate marketing plans. Countries can raise their profile, develop business ties, draw in investors, and support their domestic industries by holding international gatherings, conferences, and exhibits. Businesses can also use MICE events to build alliances, reach a wider audience, and gain a competitive advantage in the global economy. Significant economic growth and global success are possible for nations and companies that carefully plan and coordinate their MICE, FDI, and marketing initiatives. Moreover, MICE sector contributes to the economy by generating revenue from job creation, infrastructure development, and promoting global visibility to become a key driver of sustainable economic progress of hosted countries.

One of the highlights/findings of this research is that the size of MICE events has a positive impact on Thailand's GDP growth, showing a clear link between larger events and stronger economic progress. Respondents view MICE events as essential for attracting long-term investment and promoting economic development in the country. While the impact of MICE events on Foreign Direct Investment (FDI) needs more data to get solid proof, our result showed that MICE events play an important role in supporting FDI. Key factors like networking opportunities and information sharing are seen as the most effective in attracting foreign investors. Among the different types of MICE events, exhibitions and conferences/conventions are considered the most impactful in influencing investor decisions. These findings highlight the importance of MICE events in boosting economic growth, encouraging foreign investment, and positioning Thailand as a key destination for international business activities.

Based on the findings, MICE events not only support economic growth but also increase global attention on Thailand. With the right marketing strategies, MICE can be used to promote Thailand as a key destination for business and tourism. This approach can strengthen the country’s overall marketing strategy, attract more investors, and improve its international image.

However, the MICE industry faces challenges, including the need for technological advancement, sustainability practices, and economic resilience. Addressing these challenges through different analyses provided above, this paper suggests the implementation of sustainable initiatives, improved technology, and capacity building to strengthen the MICE sector's contribution to long-term GDP growth. The MICE industry can overcome these challenges by using smart technology like AI to manage events more efficiently and working with local communities to support sustainability and build economic resilience.

Additionally, Thailand anticipates that its potential membership in BRICS could ease visa restrictions and facilitate easier travel for international MICE participants. These developments underscore Thailand's opportunity to attract even more international MICE participants and positively influence long-term investment decisions.

Overall, the MICE industry is a driving force for economic transformation, fostering FDI, and positioning Thailand as a global leader in business tourism. Additionally, this study encourages policymakers and industry leaders to prioritize investment in the MICE sector, leverage to grow international connections among developing countries and enhance their infrastructure to unlock the full potential of MICE tourism for sustainable economic development. MICE industry development can bring more attention to the country and market the country as a destination with multiple purposes.

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EXPLORING THE IMPACT OF DIGITAL LITERACY ON MOBILE MARKETING EFFECTIVENESS OF THE E-BUSINESS SECTOR IN MYANMAR

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Abstract

Myanmar is enhancing its fundamental electronic business (e-business) infrastructure, encompassing networks, electronic payment systems, and information technology services, including education and training. The nation experienced a substantial increase in mobile subscriptions and internet accessibility in 2024, with mobile connections reaching 64.3 million, almost 118% of its population, and 24.11 million internet users, meaning 44% internet penetration. Thus, this study examines how digital literacy affects mobile marketing effectiveness in Myanmar's e-business sector, focusing on Millennials and Generation X using Kanbawza (KBZ) Pay for mobile transactions. Employing a mixed-methods approach—quantitative surveys, qualitative interviews, and case studies—the research explores the relationship between digital literacy levels and consumer engagement and purchasing intentions. Key findings indicate that limited digital literacy hampers consumer trust and engagement with mobile marketing content, particularly in rural areas with lower internet accessibility and digital skills. E-businesses report that tailored strategies, such as simplified user interfaces and educational content, are essential to support consumers with basic digital competencies. The study suggests that addressing digital literacy gaps can significantly enhance consumer engagement, fostering growth in Myanmar's e-business sector. By mitigating disparities in digital literacy, enterprises can improve marketing effectiveness and encourage greater participation in the evolving digital economy. This research contributes to understanding the interplay between digital literacy and mobile marketing in developing economies, offering valuable insights for businesses operating in similar contexts.

Keywords: Digital literacy, mobile marketing, e-business, consumer engagement, Myanmar

1. INTRODUCTION

The digital environment in Myanmar has undergone a swift transformation, mainly due to the extensive embrace of mobile technologies. As of 2024, more than 118% of the population owns smartphones, rendering these devices the predominant method of internet access (Kemp, 2024). The surge of mobile devices has generated unparalleled prospects for digital interaction and trade, particularly in the e-business domain. Companies are progressively utilizing mobile marketing methods to engage consumers, taking advantage of the convenience and accessibility provided by mobile platforms (Ngai, 2003; Chong, 2013).

Digital literacy is a crucial determinant affecting the efficacy of mobile marketing strategies. It includes individuals' competencies to proficiently explore, understand, and employ digital content. In Myanmar, variations in digital literacy among consumers might profoundly influence their participation in mobile marketing initiatives. Research demonstrates that customers with elevated digital literacy are more inclined to comprehend and react favorably to marketing communications, whilst individuals with diminished skills may struggle to participate, leading to missed possibilities for enterprises (Htet & Aung, 2021; Tun, 2023).

The e-business sector in Myanmar is represented by platforms such as KBZ Pay, which has more than 18 million active users. This mobile wallet enables cashless transactions and enhances financial inclusion, especially in rural regions with restricted access to conventional banking services. The efficacy of these platforms in engaging customers is significantly contingent upon their digital literacy levels. As mobile marketing evolves, comprehending the correlation between digital literacy and consumer behavior is crucial for firms seeking to enhance their marketing tactics (Gilmore, 2007).

Notwithstanding the expansion of mobile marketing in Myanmar, some problems endure. Inconsistent internet connectivity, changing legislative frameworks, and cybersecurity threats present substantial barriers to successfully executing mobile marketing campaigns. The digital divide between urban and rural communities compounds the situation, as rural customers may have restricted access to the skills and resources required for effective digital participation (Ngai, 2003; Chong, 2013).

Considering these characteristics, it is essential to examine the influence of digital literacy on consumer reactions to mobile marketing initiatives. By pinpointing the precise abilities that augment engagement and the obstacles encountered by consumers with differing levels of digital literacy, firms may customize their marketing tactics to address the requirements of their target audience more effectively. This research offers significant insights for enhancing mobile marketing efficacy in Myanmar's swiftly transforming e-business landscape (Htet & Aung, 2021; Tun, 2023).

A significant gap exists in research examining the correlation between digital literacy and the efficacy of mobile marketing in Myanmar. Current research frequently neglects the impact of differing digital literacy levels on customer involvement and purchase choices, constraining organizations' capacity to customize their marketing efforts for consumers with lower digital literacy. Rectifying this deficiency is crucial for developing effective marketing tactics that improve consumer engagement and stimulate sales in the digital marketplace (Ngai, 2003; Chong, 2013)

Research Objectives and Questions

The study aims to investigate how digital literacy affects mobile marketing effectiveness in Myanmar's e-business sector, focusing on Millennials and Generation X using Kanbawza (KBZ) Pay for mobile transactions. There are three research questions:

1. How does digital literacy impact consumer engagement with mobile marketing in Myanmar? (Focusing on Millennials and Generation X who are using KBZ Pay)
2. What digital literacy skills are essential for effective mobile marketing? (Focusing on Millennials and Generation X who are using KBZ Pay)
3. What challenges do e-businesses face in engaging consumers with lower digital literacy? (Focusing on Millennials and Generation X who are using KBZ Pay)

2. LITERATURE REVIEW

Digital Literacy

Digital literacy comprises the competencies individuals need to explore and utilize digital platforms proficiently. It substantially affects customer engagement with mobile marketing, as elevated digital literacy levels correlate with enhanced comprehension and interaction with digital material (Thida & Thazin, 2023).

Digital Literacy in Myanmar

In Myanmar, digital literacy is disproportionately allocated, especially between urban and rural demographics. Studies demonstrate that urban inhabitants exhibit superior digital competencies due to enhanced education and technology access. This discrepancy poses issues for organizations seeking to engage customers effectively since individuals with poorer digital literacy may struggle to understand marketing materials (Thida & Thazin, 2023).

Mobile Marketing and E-Business

Mobile marketing has emerged as an essential technique for e-businesses, capitalizing on the extensive utilization of smartphones to engage consumers. The efficacy of these marketing methods is contingent upon the consumer's degree of digital literacy. Studies by (Ngai, 2023) and (Chong, 2013) emphasize the necessity for firms to comprehend the enduring impacts of mobile marketing on consumer behavior, particularly in marketplaces characterized by differing degrees of digital involvement.

Mobile Marketing in Myanmar

In Myanmar, mobile marketing is becoming increasingly significant due to the surge in smartphone adoption. Nonetheless, the efficacy of mobile marketing campaigns is sometimes obstructed by deficiencies in digital literacy. Consumers with inadequate digital abilities may encounter difficulties interacting with mobile marketing initiatives, resulting in diminished conversion rates and decreased brand loyalty (Kyi, 2016).

E-Business in Myanmar

The e-business environment in Myanmar is swiftly transforming, propelled by heightened internet access and mobile device utilization. Platforms like KBZ Pay are essential in this shift, enabling cashless transactions and advancing financial inclusion. The efficacy of e-business initiatives is intricately linked to the digital literacy of the target demographic, requiring customized tactics to address diverse skill levels (NCTAD, 2019).

KBZ Pay

KBZ Pay, Myanmar's premier mobile wallet, exemplifies the capacity of digital platforms to improve financial inclusion. It boasts over 18 million active uses and offers a practical alternative for cashless transactions. KBZ Pay encounters obstacles in digital literacy since users with limited skills may find it difficult to operate the platform efficiently. Confronting these problems is crucial for optimizing the platform's influence on Myanmar's digital economy (Tun, 2023).

Table 1 shows the research gaps and a list of literature reviews classified by the authors.

Table 1: Literature Reviews Classified by the Authors

Authors	Aims	Theories	Methodologies	Findings
Hilbert, Lopez (2011)	Importance of algorithms in processing and interpreting real-world data	Mutual Information	Data Collection	Future refinements could enhance the understanding of communication technologies and their societal impacts.
Chong (2013)	Examine the predictors of M-commerce	UTAUT Model	Survey Research	The neural network model outperforms the regression model in predicting M-commerce

				adoption.
Ng (2012)	Investigating the digital literacy of undergraduate students	Based on three dimensions: technical, cognitive, and social-emotional	Mixed Method	Students have a limited understanding of how these tools could effectively
Thant Thiri Myo Kyi (2016)	Filling the gap in specific analysis focusing on marketing strategies of Myanmar IT Industry	Self-determination Theory	Qualitative Method	Demographic factors are crucial in consumer choices with specific barriers to technology adoption.
Min (2017)	Exploring the opportunities and challenges associated with the adoption and implementation of E-Commerce and Internet Marketing in Myanmar	Self-determination Theory	Qualitative Method	Government support and infrastructure investment are needed to facilitate E-Commerce growth in the country.
Htwe (2018)	Analyzing the factors affecting the adoption of m-marketing among customers in the tourism industry	TAM and TRA Methods	Survey Research	Trust and Risk perceptions are critical factors influencing customers' decisions to adopt M-marketing in the tourism sector.
Theingi, Arker, Liana, Bhaumik (2021)	Investigating the determinants affecting consumer buying behavior on Facebook Marketplace in Myanmar	Consumer Behavior Theories	Survey Research	Visual appeal, ease of use, trust, and electronic word of mouth were found to have a statistically significant and positive influence on consumer buying behavior on

				Facebook Marketplace in Myanmar.
Matimba (2021)	Exploring the current state of E-commerce in Myanmar	Theories related to digital transformation and economic development	Qualitative Method	Addressing existing challenges to unlock the full potential of e-commerce in Myanmar
Tun (2022)	Analyzing the logistics and warehousing market in Myanmar	Logistics and supply chain management theories	Mixed Method	There is a need to address existing challenges to capitalize on the potential fully. Key challenges include inadequate transportation infrastructure, high logistics costs, regulatory hurdles, and a lack of skilled workforce.
Min (2022)	Analyzing the role of ICT Human Resource Development (HRD) in supporting E-Government initiatives in Myanmar	Theories related to human resource development, E-governance, and digital transformation	Descriptive methodology	Investing in ICT HRD is vital to support the successful implementation of E-Government initiatives in Myanmar.
Thida, Thazin (2023)	Evaluating the digital competence of teacher trainees in Melilla, Spain, using the DigCompEdu framework	DigCompEdu framework	Survey Research	There is a need for improved digital competence training for educators to prepare them better for the challenges of modern teaching environments.

3. METHODOLOGY

This research used a mixed-methods approach, combining quantitative and qualitative methodologies to examine the influence of digital literacy on the efficacy of mobile marketing within Myanmar's e-business sector. The target group comprises Millennials and Generation X users of KBZ Pay, chosen for their greater likelihood of adopting digital tools. The Taro Yamane technique calculated a sample size of the respondents to guarantee sufficient representation and statistical power.

Data Collection

Data were gathered via standardized questionnaires disseminated across many digital platforms, including email and social media, to reduce sample biases. The survey will evaluate digital literacy, customer involvement, and demographic data. Furthermore, qualitative interviews with mobile marketing specialists will yield insights into the obstacles firms encounter when engaging consumers with differing levels of digital literacy.

Data Analysis

Quantitative data utilized a spreadsheet program and a statistical software package. Thematic analysis was conducted on qualitative data obtained from interviews to augment the quantitative finding, thus enriching the overall comprehension of the research problem.

With the analyses, the research aimed to answer these two following,

Hypothesis: 1. Higher digital literacy levels increase consumer engagement with mobile marketing in Myanmar. (Between Millennials and Generation X who use KBZ Pay).

Hypothesis: 2. Digital literacy level significantly affects purchase intentions in mobile marketing. (Between Millennials and Generation X who use KBZ Pay).

Figure 1 illustrates the framework for this research.

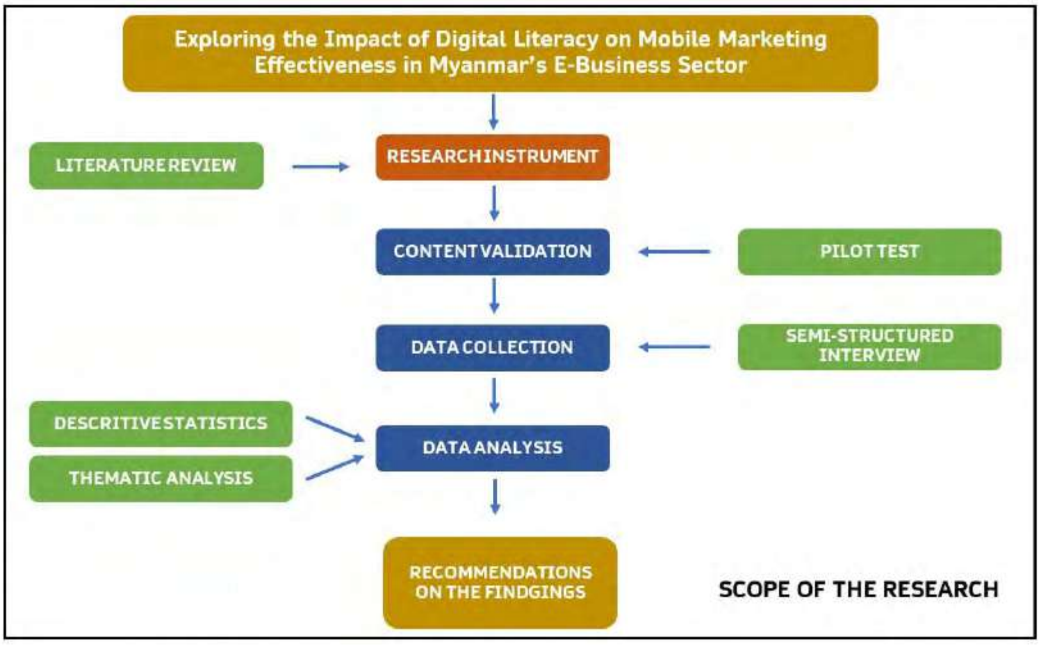

Figure 1. Research Framework

Research Instrument

This study employs a structured questionnaire as the research instrument to evaluate digital literacy and the effectiveness of mobile marketing among Millennials and Generation X users of KB Pay. The questionnaire was structured into sections according to essential components of digital literacy and the effectiveness of mobile marketing. The instrument was subjected to a pilot test with a restricted sample to guarantee validity and reliability, and expert assessments were performed to verify content relevance. The poll will encompass quantitative metrics, including demographic profiles, digital literacy levels, and consumer engagement with mobile marketing. Furthermore, qualitative interviews with specialists in Myanmar's mobile marketing industry will yield profound insights into the difficulties and opportunities associated with digital literacy in mobile marketing. Integrating quantitative and qualitative data will augment the study's validity and produce nuanced insights into the influence of digital literacy on mobile marketing engagement.

Table 2. Indicators for designing the questionnaire

Technological Acceptance Model (Davis, 1989)	
Perceived usefulness	Indicator 1
Perceived ease of use	Indicator 2
Extension of Technological Acceptance Model (Venkatesh, Davis, 2000)	
Experience	Indicator 3
Job relevance	Indicator 4
Output quality	Indicator 5
Result demonstrability	Indicator 6

4. Result and Discussion

This section consists of four main components: respondent information, an analysis of the influence of digital literacy on mobile marketing engagement, an identification of challenges and barriers based on the study, and an exploration of the impact of skills and competencies on user engagement and mobile marketing effectiveness.

Demographic Profile and Evaluation of Digital Literacy

The demographic analysis of KBZ Pay users revealed a heterogeneous sample indicative of varying age cohorts and educational qualifications. This corresponds with the study's aim of examining the impact of digital literacy on Millennials and Generation X. The age distribution indicated that 58% of respondents were Millennials (ages 25-40), being the majority, followed by 36% who were under 25 years old, and 3% in the 41-55 and older age categories.

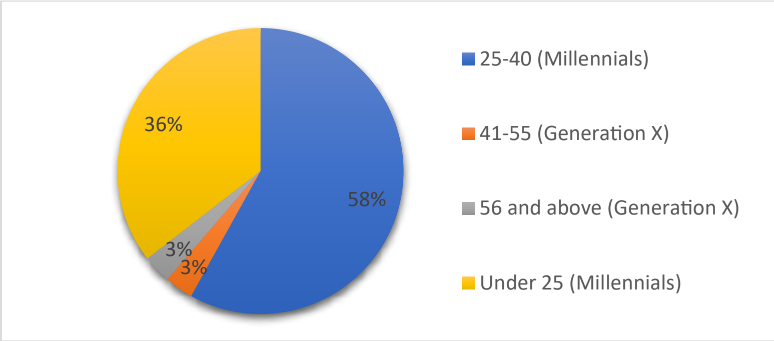

Figure 2. The age range of the respondents

Participants exhibited a high level of educational attainment, with 58% holding postgraduate degrees and 42% obtaining undergraduate certificates. These findings validate an informed populace with varying degrees of digital platform exposure, establishing a solid foundation for evaluating the influence of digital literacy.

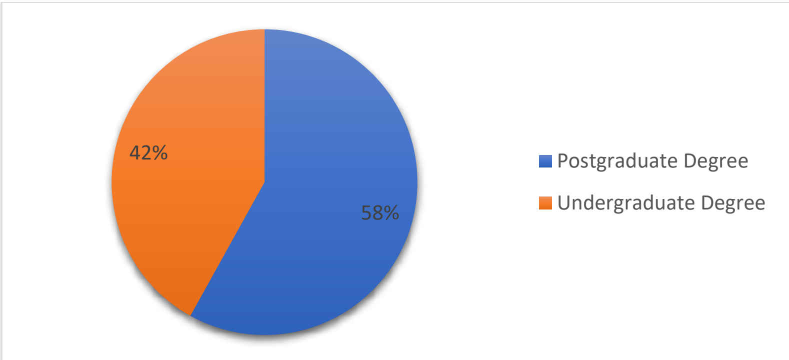

Figure 3. The education level of the respondents

Participants self-reported diverse levels of digital literacy directly about the research issue and its impact on customer involvement. Significantly, 80% indicated high proficiency (levels 4-5), 17% moderate proficiency (level 3), and 3% basic competency (level 2). This distribution reflects various skill levels, with a notable percentage demonstrating sophisticated digital competencies.

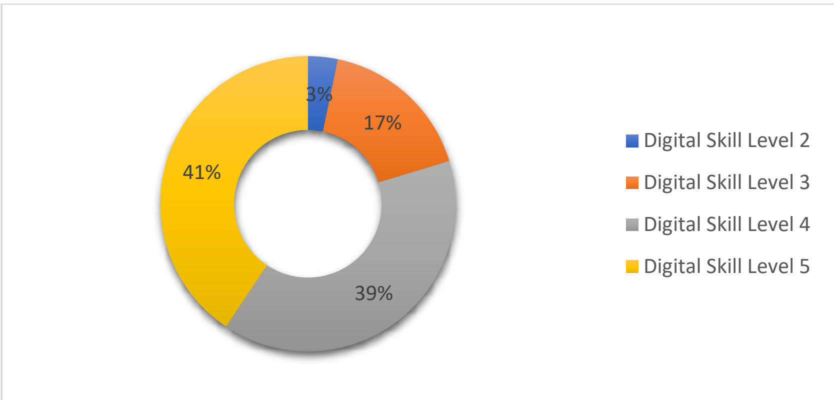

Figure 4. The digital literacy skill level of the respondents

Influence of Digital Literacy on Mobile Marketing Engagement

A significant association exists between digital literacy and mobile marketing engagement, with 71% of users possessing high digital literacy (levels 4-5) making purchases via mobile marketing, in contrast to merely 6% of individuals with basic literacy (level 2).

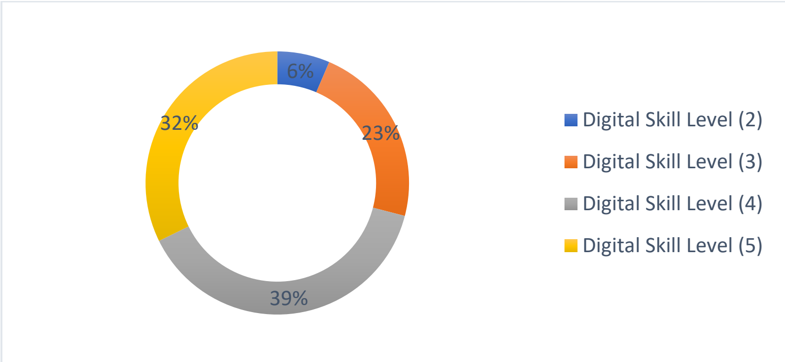

Figure 5. Purchasing via mobile marketing status by Digital Literacy Skill Level

Engagement patterns varied significantly among literacy levels. Users with high literacy levels engaged with promotional information three times more often than those with lower literacy levels, with 75% indicating weekly interaction. Users with lower literacy exhibited intermittent engagement. Confidence in mobile transactions was significantly correlated with digital literacy, as 82% of high literacy users reported strong confidence, compared to 35% of basic literacy users. Security concerns were 2.5 times greater among basic literacy users, highlighting firms' difficulties in engaging consumers with lower literacy levels.

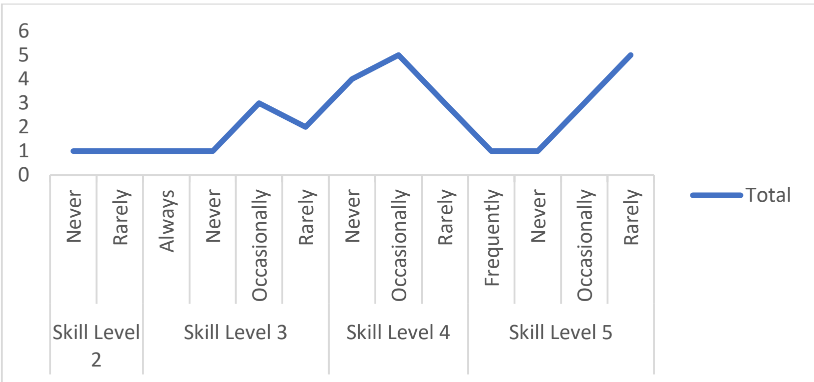

Figure 6. Frequency of engaging promotion content by Digital Literacy Skill Level

Challenges and Barriers

The study discovered hurdles and impediments, consistent with the research purpose of assessing obstacles for e-businesses. Technical obstacles were network issues (53%), difficulties with app navigation (32%), and delays in transactions (5%). Content-related obstacles were significant, with 52% of respondents perceiving promotional phrases as overly complex, 38% encountering difficulties with ambiguous discount computations, and 33% experiencing information overload. Trust and security issues surfaced as significant worries, with 65%expressing apprehensions over payment security, 48% concerned about data privacy, and 42% indicating trust issues with promotional offers. These findings underscore E-businesses' challenges in engaging people with diminished digital literacy.

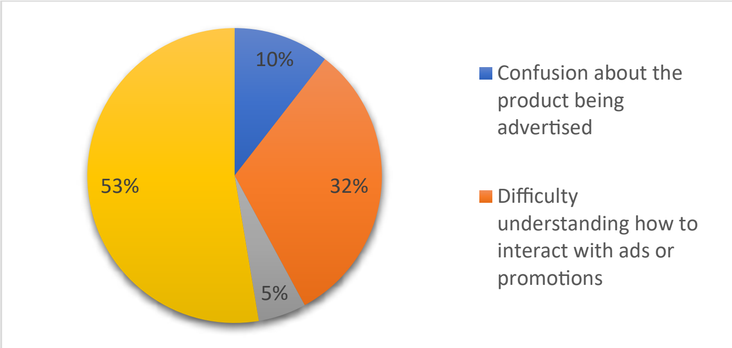

Figure 7. Challenges of respondents

Impact of Skills and Literacy

The study examined critical digital skills influencing mobile marketing engagement, emphasizing identifying fundamental competencies. Essential competencies comprised fundamental smartphone operation (39%), comprehension of online payment mechanisms (26%), and navigation of applications and websites (22%). Significant skill deficiencies were seen, as more than 10% of consumers could assess and trust Internet advertisements, while only 3% exhibited the capability to make informed purchasing decisions online. The findings underscore the necessity for specialized digital literacy initiatives to bolster user confidence, augment mobile marketing efficacy, and address prevailing knowledge deficiencies.

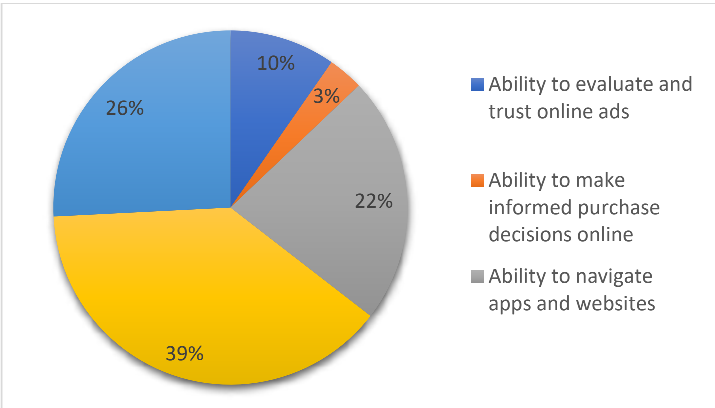

Figure 8. Essential digital skills to engage with mobile marketing

4. Conclusion

This study analyzed the influence of digital literacy on mobile marketing engagement among KBZ Pay users, explicitly targeting Millennials and Generation X. The sample consisted of Millennials with advanced degrees, and almost half of the participants demonstrated elevated digital literacy. The findings revealed a significant association between digital literacy and essential engagement indicators, such as purchase frequency, involvement with promotional content, and confidence in mobile transactions. Substantial problems were recognized, encompassing technical difficulties, content intricacy, and trust issues. Deficiencies in security features, sophisticated application functionality, and the interpretation of advertising information were also observed.

The results provide insights for attaining the research goals. Service providers must emphasize advancements in app usability and rectify connectivity difficulties to elevate user experiences. Streamlining the promotion of the material and guaranteeing explicit discount computations helps alleviate understanding of obstacles. Specialized digital literacy training, focusing on security aspects and application functionality, can empower users and foster confidence. Furthermore, customizing mobile marketing methods to align with consumers' literacy levels can enhance engagement and increase conversion rates, especially among Millennials and Generation X.

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DIGITAL MARKETING AND TOURIST SATISFACTION IN THAI STREET FOOD TOURISM

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Abstract

Thai street food tourism is integral to Thailand's cultural identity and economy. Digital marketing platforms including social media, review sites, high digital quality content, and influencer content have become essential tools for promoting destinations and shaping tourists' expectations in the street food tourism sector. This study investigates the influence of digital marketing content engagement, user-generated content, and influencer marketing on international tourists' satisfaction with Thai street food experiences. Data is collected via surveys using a quantitative research methodology. The research employs regression and correlation analyses to examine and quantify the relationship between digital marketing engagement and tourist satisfaction. This approach evaluates how digital marketing efforts influence tourists' experiences and satisfaction levels, providing conclusions about the elements of this interaction. Digital marketing plays a significant role in shaping tourist expectations and enhancing satisfaction. High-quality content, and engaging videos, drive interest and positive perceptions, while user-generated content fosters authenticity and trust. Social media influencers are particularly effective in amplifying the appeal of Thai street food. Those insights provide strategies for tourism authorities and street food vendors to optimize their digital marketing efforts. Aligning marketing strategies based on tourists' preferences and behavior encourages sustainable tourism development and upgrades the cultural attraction of street food in Thailand.
Keywords: *Digital Marketing, Tourist Satisfaction, Thai Street Food Tourism*

1. INTRODUCTION

Tourism plays a significant role in Thailand's economy, contributing to the country's gross domestic product (GDP) and creating job opportunities. The Tourism Authority of Thailand (TAT) estimates that tourism accounts for approximately 11-12% of the GDP, underscoring its importance to Thailand's economy (TAT, 2019). Among various types of tourism, food tourism, particularly street food tourism, has gained global recognition as an essential cultural experience for international tourists. Street food combines affordability, convenience, and authenticity, providing unique experiences that showcase Thai culinary traditions and local culture.

Street food tourism is a key attraction in popular Thai street food destinations like Yaowarat (Chinatown) and Khao San Road in Bangkok and popular night markets in Chiang Mai and Phuket. Food tourism, including street foods, enhances travel experiences and helps tourists understand local cultures, which benefits a destination's image, (Jeaheng & Han, 2020). Additionally, street foods contribute to sustainable tourism by combining traditional values with local assets and culture. A rich variety of street food such as Kai jeow pu _Crab omelets, Khao soi_ deep-fried egg noodles soup, Som Tam_ papaya salad, and Sai krok Isan_ pork sausage, the survey listed (Snitbhan, 2019) four Thai dishes the world's best foods, while Michelin Guide (2019) highlights top ten street foods in Thailand, showcasing the country's rich culinary diversity. (Chatikavanij, 2019) The Thai government has supported street food through initiatives like the "Amazing Food Festival 2024" to showcase Thai food traditions and promote Thailand as a food tourism destination, (Watson, 2024).

With the advent of digital marketing, platforms like social media, review sites, and influencer content have transformed how tourists discover, engage with, and evaluate street food experiences. Platforms like Facebook, Instagram, TripAdvisor, and YouTube promote street food by offering user-generated content, reviews, and visual storytelling. Digital marketing enhances pre-trip planning, real-time engagement, and post-trip sharing, contributing to tourists' expectations and overall satisfaction**.** Tourists trust UGC more than traditional advertising because it is perceived as more exact and reliable (Velentza & Metaxas, 2023).

While digital marketing provides numerous opportunities to promote street food tourism in Thailand, its impact on tourist satisfaction remains underexplored. To explore how digital marketing can impact tourist satisfaction in Thai street food tourism is the main objective. The specific objectives include:

1. To assess the impact of digital marketing content engagement on tourist satisfaction with Thai street food tourism.
2. To evaluate the influence of user-generated content on digital platforms in shaping tourists' satisfaction with Thai street food.
3. To analyze the role of social media influencers in enhancing tourists' perceptions and satisfaction with Thai street food tourism.
4. To investigate the correlation between the quality of digital content (eg., video, vlogs, photos) and tourists' satisfaction with Thai street food tourism.

Understanding those specific objectives is critical to offering valuable insights to tourism authorities, street food vendors, academics, and digital marketers.

2. LITERATURE REVIEW

This section explores the role of digital marketing in tourism and the impact of street food tourism in Thailand. It also highlights the importance of digital marketing content engagement, user-generated content, social media influencers, and content quality in shaping tourist expectations and satisfaction in Thai Street Food Tourism. Street food not only enhances tourists' experiences but also supports local economies and promotes sustainable tourism. Authority of Thailand in 2024, the dining behavior of tourists has increased those who prefer street food from 63% in 2019 to 77.3% in 2023 (TAT, 2024). Digital marketing has revolutionized the tourism sector by offering innovative ways to promote destinations, attract tourists, and influence decision-making. Platforms including social media, travel blogs, and review sites provide tourists with real-time, detailed information about destinations and have become an influential tool for tourists to share experiences and impact others' travel decisions (Xiang & Gretzel, 2010). Social media platforms, including Instagram, Facebook, and TikTok, allow tourists to interact with digital content, share experiences, and make informed decisions (Guo & Pesonen, 2022).

According to the United Nations World Tourism Organization, UNWTO, food-related activities can account for a large percentage of the money spent during travels, indicating their importance to tourists and destination economies (UNWTO, 2019). As per the World Food Travel Association (2021), food tourism has evolved into a significant global travel. And then 81% of travelers could be defined as “foodies,” finding food experiences as a primary motivation for their trips. In food tourism, digital marketing acts as a bridge between tourists and local vendors, improving visibility and engagement. For instance, visually appealing photos and videos on platforms like Instagram inspire tourists to visit specific locations, while detailed reviews on TripAdvisor or Google Reviews build trust and guide decision-making (Guo & Pesonen, 2022). Influencer marketing uses digital platforms to promote destinations, with foodie influencers visiting Thai street food vendors and sharing their experiences, which boosts awareness and authenticity (Femenia-Serra & Gretzel, 2019).

Digital marketing enhances food tourism by influencing tourists’ perceptions, expectations, and decisions. Key tools include digital marketing content engagement, user-generated content (UGC), influencer marketing, and online review platforms.

Digital marketing content engagement involves tourists interacting with online content like UGC, influencer posts, and reviews, which shapes their expectations, decisions, and satisfaction. This engagement creates personalized experiences and a feedback loop that enhances digital marketing's impact. Platforms like Instagram and TikTok inspire with visual content, while TripAdvisor and Google Reviews provide detailed evaluations, influencing tourists' choices and perceptions of authenticity and quality in Thai street food tourism (Guo & Pesonen, 2022).

User-Generated Content (UGC): Xiang & Gretzel, (2010) discussed that positive reviews and comments on TripAdvisor and Google Reviews can impact tourists’ decisions and satisfaction with street food tourism. Tourists trust UGC more than traditional advertising because it is perceived as more exact and reliable (Velentza & Metaxas, 2023). According to Filieri (2015), travelers' confidence in UGC influences their decisions to follow other people's advice. Street food vendors can also attract new and revisit international customers by posting high-quality photos and behind-the-scenes videos of how they make food through UGC.

Social Media Influencers: Influencers on platforms like Instagram, YouTube, and TikTok play a significant role in shaping tourists’ perceptions of food destinations. Influencers share visually engaging content, highlight unique food experiences, and build excitement among their followers. Studies show that influencer recommendations are often trusted as credible sources, driving tourists’ decisions (Femenia-Serra & Gretzel, 2019). Influencers on those platforms typically share aesthetically pleasing content related to street food, often partnering with tourism boards or local businesses to promote the street food culture and create dynamic and immersive experiences for food tourists (Ingrassia, Chironi., 2022).

Content Quality: High-quality photos, videos, and blogs are essential components of digital marketing. Clear visuals and well-produced content enhance tourists’ interest and align their expectations with reality, contributing to satisfaction (Guo & Pesonen, 2022). Platforms like Instagram and TikTok are particularly effective in promoting visually appealing street food content.

Digital marketing plays a crucial role in promoting Thai street food. Social media platforms, review sites, and influencer content provide tourists with detailed information about food stalls, popular dishes, and locations. For instance, Yaowarat Road and Khao San Road are heavily promoted on Instagram and food blogs, attracting food enthusiasts from around the world (Taecharungroj, 2019). Positive reviews, visually appealing content, and influencer campaigns contribute to tourist satisfaction and encourage repeat visits.

Hoang & Tučková, (2021) stated that two points if tourists have positive satisfaction on their trip, they will return or revisit for the smell, sight, and taste of street food. Another one is satisfaction theory suggests that tourists' satisfaction is based on comparing their expectations, formed through various sources including digital marketing, with their actual experiences; if their perception meets or exceeds expectations, they are satisfied, otherwise, they are dissatisfied. According to Xiang and Gretzel (2010), digital marketing platforms offer opportunities for tourists to establish expectations before the visit that impact their real experience and satisfaction levels. Digital marketing significantly impacts tourist satisfaction at all stages of their trip: it aids pre-trip planning by providing essential information about destinations and food experiences, enhances real-time engagement through tools like Google Maps and review sites, and influences post-trip sharing where tourists contribute to the digital marketing ecosystem by sharing their experiences, thus affecting future tourists' expectations and decisions (Xiang, Z, Wang, D., 2014).

The Expectation-Confirmation Theory (Oliver, 1980) explains how tourists' satisfaction is determined by the alignment between their pre-trip expectations and post-trip experiences.

1. Expectations: Tourists' expectations are shaped by digital marketing tools, including social media content, reviews, and influencer recommendations.
2. Confirmation/Disconfirmation: After experiencing Thai street food, tourists compare their experiences with their expectations. If expectations are met or exceeded, satisfaction occurs.
3. Satisfaction: Positive experiences lead to satisfaction, encouraging tourists to share reviews and recommend destinations to others.

Digital marketing tools, such as UGC, influencer marketing, and content quality, play a key role in shaping expectations and influencing satisfaction in Thai street food tourism.

The literature highlights the transformative role of digital marketing in promoting food tourism, particularly Thai street food tourism. Tools like user-generated content, influencer marketing, and high-quality visuals are pivotal in shaping tourists' expectations and satisfaction. The Expectation-Confirmation Theory provides a robust framework for understanding the relationship between digital marketing strategies and tourist satisfaction, guiding this study's objectives and hypotheses.

3. METHODOLOGY

This study adopts a quantitative research design to explore the impact of digital marketing on tourist satisfaction with Thai street food tourism. A cross-sectional survey approach was employed to collect data from international tourists who engaged with digital marketing content related to Thai street food. The quantitative method ensures the systematic examination of relationships between independent variables (digital marketing engagement, user-generated content, influencer marketing, and content quality) and the dependent variable (tourist satisfaction).

The target population includes international tourists who have visited Thailand and engaged with digital marketing platforms including social media, online review sites, and influencer content. A non-probability convenience sampling method was used to select respondents who were accessible and willing to participate. The sample size was determined using Yamane's formula (Yamane, 1967), resulting in a total of 430 respondents to ensure reliability and representativeness.

Data was collected through a structured questionnaire designed to measure the key variables of the study. The questionnaire consisted of the following sections:

1. Demographic Information: Age, gender, country of origin, and travel behavior.
2. Digital Marketing Content Engagement: Questions on the frequency and influence of digital marketing content on decision-making (e.g., reviews, photos, videos).
3. User-Generated Content: Items related to tourists' reliance on reviews and visual content from platforms like TripAdvisor and Instagram.
4. Influencer Marketing: Evaluate the influence of influencer recommendations on perceptions and decisions.
5. Content Quality: Examines how high-quality photos, videos, and blogs affect interest and satisfaction.
6. Tourist Satisfaction: Evaluate satisfaction with Thai street food experiences influenced by digital marketing

A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used to measure responses, ensuring clarity and consistency.

The data collection process combined online surveys and on-site surveys at popular Thai street food locations such as Yaowarat Road, Khao San Road, and night markets. Online Surveys: Distributed via Google Forms and shared on social media platforms (Facebook, Instagram), travel and food groups. On-Site Surveys: Conducted at key tourist spots, targeting tourists experiencing street food in real time.
The data collection period lasted 4 weeks, ensuring an adequate sample size and representation of the target population.

Data Analysis: The collected data was analyzed using SPSS software to ensure accurate and reliable results. The following statistical techniques were employed:

1. Descriptive Analysis: Summarizes respondents' demographics and key variables.
2. Reliability Analysis: Cronbach's Alpha was used to test the internal consistency of survey items.
3. Pearson Correlation: Explores the relationships between digital marketing variables and tourist satisfaction.
4. Regression Analysis: Determines the impact of digital marketing tools on tourist satisfaction.

Ethical Considerations: Participants were informed about the study's objectives and assured of their anonymity and the right to withdraw at any time. Consent was obtained before participation, and no identifiable personal information was collected. Ethical approval was secured to ensure compliance with institutional guidelines.

4. RESULT AND DISCUSSION

This section presents the findings of the study and discusses the relationships between digital marketing tools and tourist satisfaction with Thai street food tourism. Data analysis includes descriptive statistics, correlation, and regression analyses.

Demographic Profile of Respondents: The survey of 430 participants, mainly Millennials and Generation Z, showed a balanced gender distribution and a diverse demographic from Asia, Europe, and North America. It highlighted the effectiveness of digital marketing in attracting first-time tourists (22.08%) and the popularity of local restaurants (33.5%) and street stalls (31.6%). Favorite dishes included Tom Yum

Goong (18.8%), Khao Khaa Moo (15.1%), and Khao Mun Gai (11.2%), with social media (22.6%) being the top source of awareness, underscoring the influence of platforms like Instagram and Facebook on tourist choices.

Descriptive Analysis: The descriptive analysis offers insights into responses for key variables such as Digital Marketing Content Engagement, User-Generated Content Influence, Influencer's Role, Digital Content Quality, and Tourist Satisfaction, by examining the means and standard deviations to assess central tendencies and variability. The overall mean for Tourist Satisfaction (3.66) suggests that respondents were satisfied with their Thai street food experiences influenced by digital marketing. Additionally, Digital Content Quality (3.55) stands out as a crucial factor, emphasizing the role of high-quality visuals and engaging content in effectively promoting street food tourism.

Table 1. Descriptive Statistics of Key Variables

Variable	Mean	Standard Deviation
Digital Marketing Content Engagement	3.52	0.72
User-Generated Content Influence	3.08	0.59
Influencer's Role	3.05	0.57
Digital Content Quality	3.55	0.78
Tourist Satisfaction	3.66	0.68

Pearson Correlation Analysis was used to measure relationships between key variables like Digital Marketing Content Engagement, User-Generated Content Influence, Influencer's Role, Digital Content Quality, and Tourist Satisfaction. It employs Pearson correlation coefficients (r) ranging from -1 to +1 to determine the strength and direction of these relationships, providing insights into their interdependencies and contribution to overall tourist satisfaction in Thai street food tourism.

Digital Marketing Engagement shows the strongest correlation with Tourist Satisfaction ($r = 0.769$, $p < 0.01$). User-generated content ($r = 0.730$, $p < 0.01$) and Influencers ($r = 0.716$, $p < 0.01$) also had strong links to Tourist Satisfaction, highlighting their roles in building trust and aligning expectations. Content Quality ($r = 0.727$, $p < 0.01$) was crucial in shaping satisfaction, emphasizing the importance of visually appealing and authentic materials. These findings suggest that an integrated digital marketing strategy, incorporating high-quality content, influencer collaborations, and authentic user contributions, is essential for enhancing tourist satisfaction in Thai street food tourism

Table 2. Pearson Correlation Coefficients

No.	Variables	N	Mean	S.D.	1	2	3	4	5
1	Digital Marketing Content Engagement, H1	430	3.52	0.72	1				
2	User-generated content Influence, H2	430	3.08	0.59	.705**	1			
3	Influencer's Role, H3	430	3.05	0.57	.743**	.703**	1		

4	Digital Content Quality, H4	430	3.55	0.78	.783**	.722**	.679**	1	
5	Tourist Satisfaction	430	3.66	0.68	.769**	.730**	.716**	.727**	1

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

Regression Analysis: The regression model demonstrated strong predictive capability, with an (R^2) value of 0.686, indicating that about 68.6% of the variance in tourist satisfaction is explained by the independent variables. The adjusted (R^2) of 0.683 further confirms the model's reliability and robustness, considering the number of predictors relative to the sample size.

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.828[a]	0.686	0.683	0.38138

a. Predictors: (Constant), CONTENT QUALITY, INFLUENCER, USER-GENERATED CONTENT, DIGITAL MARKETING ENGAGEMENT

The ANOVA test results reveal a highly significant model (F=232.356, p<0.001), confirming that the predictors collectively impact tourist satisfaction.

Table 4. ANOVA Test

Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	135.183	4	33.796	232.356	<.001[b]
	Residual	61.815	425	0.145		
	Total	196.998	429			

a. Dependent Variable: TOURIST SATISFACTION

b. Predictors: (Constant), CONTENT QUALITY, INFLUENCER, USER-GENERATED CONTENT, DIGITAL MARKETING ENGAGEMENT

Multiple regression analysis was conducted to determine the combined influence of digital marketing variables on tourist satisfaction. The regression analysis highlights the significant impact of various factors on tourist satisfaction in Thai street food tourism. Digital Marketing Engagement (B=0.304, β=0.324, p=0.000) has the strongest influence, followed by User-generated Content (B=0.288, β=0.251, p=0.000), Influencers (B=0.222, β=0.186, p=0.000), and Content Quality (B=0.144, β=0.166, p=0.001). These factors collectively explain 68.6% of the variance in tourist satisfaction, underscoring the importance of a cohesive digital marketing strategy to enhance tourist experiences.

Table 5. Multiple Regression Analysis of Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.515	0.108		4.771	0.000
	DIGITALMARKETINGENGAGEMENT	0.304	0.047	0.324	6.497	0.000
	USER-GENERATED CONTENT	0.288	0.050	0.251	5.719	0.000

	INFLUENCER	0.222	0.053	0.186	4.233	0.000
	CONTENTQUALITY	0.144	0.041	0.166	3.477	0.001

a. Dependent Variable: TOURIST SATISFACTION

The findings highlight the critical role of digital marketing tools in shaping tourist satisfaction with Thai street food:

- Digital Content Quality: High-quality photos, videos, and reviews on platforms like Instagram and TikTok significantly influence tourists' perceptions and satisfaction by aligning their expectations with actual experiences.
- User-Generated Content (UGC): Authentic and trustworthy UGC on platforms like TripAdvisor and Google Reviews enhances confidence in choosing food vendors and contributes to overall satisfaction.
- Influencer Marketing: Recommendations from food influencers on YouTube, Instagram, and TikTok, especially among younger demographics, create excitement and engagement by highlighting popular dishes and locations.
- Digital Marketing Engagement: Tourists who frequently engage with digital content through likes, shares, and comments tend to have higher satisfaction levels, indicating a stronger connection to digital marketing tools and their impact on decision-making.

5. CONCLUSION

This study explored the impact of digital marketing tools, including digital marketing content engagement, user-generated content (UGC), influencer marketing, and content quality, on tourist satisfaction with Thai street food tourism. The findings underscore the critical role of digital platforms in enhancing tourists' perceptions, experiences, and overall satisfaction.

The analysis revealed that high-quality digital content and user-generated reviews are significant predictors of tourist satisfaction. Platforms including Facebook, Instagram, YouTube, and TripAdvisor provide authentic and visually engaging content that influences tourists' expectations and decision-making processes. Influencer marketing, particularly through visually appealing content shared by food bloggers and social media personalities, further builds trust and excitement among tourists, encouraging them to explore Thai street food culture.

The study also highlights the importance of digital marketing engagement in shaping tourist behavior. Tourists who interact with digital content—through likes, shares, and reviews—develop stronger connections with the destination, leading to higher satisfaction levels. This emphasizes the need for tourism stakeholders to prioritize interactive and engaging content strategies.

Implications for Practice: The findings offer actionable insights for tourism authorities, street food vendors, and digital marketers:

1. Optimize Digital Marketing Content: Develop high-quality visuals, videos, and authentic content to showcase street food experiences.
2. Leverage Influencer Partnerships: Collaborate with trusted food influencers and social media personalities to promote street food destinations.

3. Enhance User Engagement: Encourage tourists to share reviews, photos, and experiences on digital platforms to build credibility and attract new visitors.

Limitations and Future Research: While this study provides valuable insights, it is limited to a quantitative approach and focuses on international tourists in Thailand. Future research could adopt qualitative methods to explore deeper insights into tourists' experiences and expand the study to other regions or cultural contexts and also domestic tourists, expand to rural areas, use longitudinal methods, explore new digital platforms, and conduct comparative studies across Southeast Asia to better understand digital marketing's impact on food tourism. In conclusion, digital marketing tools are pivotal in promoting Thai street food tourism, influencing tourists' expectations, and enhancing satisfaction. By adopting effective digital strategies, tourism stakeholders can attract international tourists, sustain engagement, and promote Thailand as a global leader in food tourism.

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IMPACT OF DOUYIN VIDEO CONTENT ON CONSUMER PURCHASING INTENTION IN CHINA

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Abstract

With the development of internet technology, the short video, as an innovative form of content, has been adopted as a medium of expression in a variety of manifestations. More businesses are focusing on this new advertising medium. In China, the Douyin application has emerged as the most popular video social media platform, with continuing user traffic growth. Along with popularity growth, the Douyin application has generated significant commercial attention, driven by the unique marketing potential of short video content. This paper discusses the role of Douyin short video content marketing in influencing purchase intention. Data is collected via surveys. The Theory of Planned Behavior (TPB) is applied to understand how viewers' purchasing attitudes are shaped by viewing Douyin video content. The Stimulus-Organism-Response (SOR) Model explores how Douyin video content influences viewers' purchasing intentions. The findings show the significant role of digital marketing in shaping consumer expectations and boosting satisfaction. High-quality content, and engaging videos, drive consumer interest. Professionally produced videos enhance viewers' perceptions, while influencer endorsements build trust and credibility among buyers. These insights offer valuable strategies for Douyin content creators to elevate their digital marketing impact. By aligning video content and production approaches with the preferences and desires of their target audience, creators can craft more compelling advertisements, driving greater engagement and expanding this rapidly evolving form of online promotion.

Keywords: Douyin, Consumer Purchase Intention, China.

1. INTRODUCTION

With the improvement of internet infrastructure and the popularity of smartphones, short video applications have emerged, giving more people access to short videos and driving continuous market growth. In 2016, China's Douyin application was launched, leading to a boom in short video platforms. Douyin has since become one of the most popular short video applications worldwide. Its parent company, ByteDance, has successfully promoted its overseas version, TikTok, on a global scale.

Douyin possesses all the characteristics of a breakthrough app. Its decentralized structure and strong appeal to younger audiences allow it to stand out, positioning it among the most successful applications in its category and attracting massive user traffic from diverse demographics (Ma & Hu, 2021). This combination of innovative design and user-centric appeal has enabled Douyin to maintain a competitive edge in the rapidly evolving short video market. As application development reaches a phase of stabilization, platforms increasingly turn their focus toward monetizing traffic. In this context, content marketing has emerged as one of the most effective and sustainable methods for revenue generation. To optimize marketing outcomes, social media advertising has become heavily reliant on advanced mobile information technology, fostering the creation of interactive and engaging advertising formats tailored to user preferences (Du et al., 2021).

However, beginning in 2022, the growth trajectory of internet advertising investments showed signs of slowing. Numerous companies reported diminishing ROI (return on investment) despite allocating larger budgets, highlighting the challenges of translating increased spending into tangible results. This trend underscores the importance of high-quality marketing inputs, as the quality of content significantly influences consumers' purchasing intentions. If Douyin aspires to secure a larger share of the market, it must adopt comprehensive strategies to enhance its business operations and marketing practices. The quality of Douyin's video marketing content plays a crucial role in shaping users' visual perceptions, thereby directly affecting the platform's ability to achieve impactful marketing outcomes (Sun, 2019).

Although content marketing has gained traction as a favored strategy among enterprises, its results have been inconsistent, with many organizations failing to achieve their anticipated returns. This inconsistency highlights the need for further exploration, as research on content marketing remains in its early stages and requires more detailed and in-depth analysis to uncover actionable insights (Wang, 2020). As Douyin continues its trajectory of growth and transformation, the strategies employed by brands and products on the platform to influence consumer behavior have grown increasingly intricate. Understanding these dynamics is essential for Douyin to maintain its leadership in the competitive short video market and for enterprises to leverage the platform effectively.This study aims to explore the intricate relationships between influencer marketing, video quality, product placement, emotional engagement, and content marketing, all of which shape consumers' purchasing decisions on Douyin. By examining these factors, the study seeks to provide insights into how companies can effectively utilize Douyin as a tool to drive consumer engagement and increase sales. Additionally, the study will offer practical recommendations for future marketing strategies. The specific objectives include:

1. The extent to which Douyin influencer recommendations influence product ordering intentions

.**2.** Whether there is an effect of Douyin short video quality on consumers' purchase intention.

3. Influence of Placement marketing on consumers' purchase intention.

4. Do short videos on Douyin influence users' emotional responses and thus their purchase intentions?

5. How effective is content marketing in increasing the purchase intention of Douyin application users?

2. LITERATURE REVIEW

China has held the title of the world's largest e-retail market for 11 consecutive years. From January to November 2023, national online retail sales reached a staggering 14 trillion yuan, reflecting an 11% year-on-year increase. Notably, physical online retail contributed 31.4% to overall growth, accounting for a record-breaking 27.5% of total retail sales during this period (Economic Reference News, 2024). This consistent growth highlights the critical role of e-commerce in China's economy. However, experts emphasize that to sustain and ensure high-quality development, China's e-commerce market must accelerate its transformation and innovation. Key areas for improvement include enhancing the consumer experience, refining business models, and leveraging advanced technologies to remain competitive and meet evolving market demands (People's Daily Overseas Edition, 2021).

The Theory of Planned Behavior (TPB), developed by Ajzen (1985, 1991), provides a robust framework for studying and predicting individual behavior. According to TPB, behavior is primarily influenced by behavioral intentions, which are shaped by three key factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (Tang, 2023). This theoretical model has been extensively applied in marketing, evolving into the Theory of Planned Consumer Behavior, which examines how external factors such as social influences and environmental conditions affect consumer perceptions and purchasing decisions. By doing so, it helps businesses improve market efficiency and develop strategies that align with consumer expectations (Zhang, 2022).

In the context of Douyin, a leading short video platform, the application of TPB provides valuable insights into consumer behavior. Short video content has a significant impact on shaping consumer attitudes and purchase intentions, while trust in influencers further strengthens the likelihood of purchase decisions. This dynamic underscores TPB's relevance in explaining user behavior within social e-commerce ecosystems, making it a vital tool for optimizing both marketing strategies and the overall shopping experience (Yu, 2008).

Studies have consistently validated the predictive power of TPB across various domains, highlighting how attitudes, subjective norms, and control beliefs play pivotal roles in determining purchase intentions and actual consumer behaviors. For instance, research by Brandão et al. (2018) confirms that these factors hold substantial influence even in specialized markets, such as eco-friendly apparel, demonstrating the theory's adaptability and utility across diverse market segments. By integrating TPB into marketing analysis, businesses can gain a deeper understanding of consumer motivations, allowing them to design more effective campaigns and foster stronger consumer engagement.

Short videos, typically lasting a few seconds to minutes, are popular due to their short, fast-paced, and engaging nature, easily shared on mobile platforms. They offer rich, interactive content and have transformed users' consumption habits, making them ideal for fragmented viewing time. Platforms like Douyin have turned short videos into a powerful tool for marketing and e-commerce (Pang, 2020). Compared to traditional advertising, short video placement marketing is more intuitive, engaging, and capable of directly influencing purchase intentions. Informative, authentic, interesting, and emotional content significantly impacts perceived value and purchase intention, with perceived value playing a mediating role (Qin & Wang, 2022).Video creators act as opinion leaders, combining professionalism and creative editing to enhance trust and acceptance of promoted content (Huang et al., 2018). Placement marketing integrates advertising with creativity, offering precise targeting, fast delivery, and high audience acceptance, though it faces challenges like regulation and false advertisements. With improved oversight, it is poised to become a mainstream advertising mode (Wang, 2022). As advertising shifts from mass to niche markets, platforms like Douyin have developed mature models leveraging collaborations with key and mid-tier influencers, showcasing the unique advantages of short-video marketing (Liu, 2024). Defined as a strategy using short video content to promote brands, products, or services, short video placement marketing captures user attention with creative and emotionally resonant content, encouraging engagement and purchases.

The S-O-R model, rooted in stimulus-response theory, links external stimuli to consumer behavior through cognitive and emotional processes (Chebat & Michon, 2003). Factors such as perceived e-commerce anchoring, scarcity, and immersion positively impact impulsive buying behavior, with the "people-product-place" strategy playing a vital role (Chen et al., 2022). On platforms like Douyin, short videos and influencer content serve as stimuli, shaping emotional responses and purchase intentions. Recent studies applying the S-O-R model in social e-commerce emphasize its relevance in examining platform features, user content, and influencers.

Short-video marketing highlights the role of community factors in influencing purchase intentions via emotional arousal and perceived trust (Xu & Liang, 2024). Purchase intention reflects consumers' willingness to buy and serves as a key predictor of actual purchasing behavior (Wang, 2020). It encompasses cognitive processes such as information processing and decision-making (Fishbein & Ajzen, 1975), which are shaped by various factors, including trust, perceived usefulness, and emotional connections in social interactions (Zhu, 2012; Yang, 2024). Positive consumer attitudes not only strengthen purchase intentions but also translate into concrete purchasing actions (Cai, 2018). Additionally, aesthetically appealing products play a crucial role in eliciting positive emotions and fostering acceptance, enhancing the likelihood of purchase (Runyan et al., 2013).

Douyin, as a prominent short-video platform, illustrates the potential of leveraging targeted marketing and customized content to boost purchase intention. By aligning marketing strategies with user preferences, Douyin successfully fosters deeper engagement and consumer trust. Its ability to thrive in a highly competitive and saturated market demonstrates how platforms can strategically influence consumer behavior by catering to individual tastes and emotional needs. This approach highlights the critical intersection of technology, design, and marketing in shaping consumer decisions.

3. METHODOLOGY

This research investigates the impact of short video quality, influencer recommendations, and placement marketing on Douyin users' purchase intentions through a quantitative research approach. Using convenience sampling, 402 valid responses were collected via online questionnaires distributed on platforms like Douyin and WeChat, targeting active Douyin users. Data collection was facilitated by Questionnaire Star, and analysis was conducted using SPSS and Excel through reliability tests, Pearson correlation, and linear regression analysis. These methods ensured the rigor and accuracy of the findings, offering empirical evidence to support the optimization of Douyin's content marketing strategies.

4. RESULT AND DISCUSSION

The survey revealed that Douyin significantly influences consumer purchasing decisions, with 54.98% of respondents using it daily and 50.25% having purchased products based on its recommendations. The largest age group was 45-54 (29.85%), and participants were nearly evenly split by gender. Most respondents were married (72.14%) and employed full-time (33.83%). Online shopping was frequent, with over 78% shopping daily, weekly, or monthly. Influencer recommendations had a moderate effect, with only 14.68% always influenced, while 53.73% identified "clear product presentation" as the most critical video quality factor. Results showed low-quality videos discouraged purchases. Placement marketing was generally acceptable despite some negative feedback. Emotional responses, particularly trust (23.38%), were important but did not strongly drive behavior for 34.08% of respondents. While Douyin's marketing strategies are impactful, they require further refinement to address diverse consumer preferences.

Table 1: Correlation analysis results

Correlation							
		Purchase intention	influencer recommendation	Quality short videos	Placement marketing	Emotional response	content marketing
Purchase intention	Pearson Correlation	1	.543**	.443**	.527**	.211**	.540**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	402	402	402	402	402	402
Influencer	Pearson Correlation	.543**	1	.497**	.683**	.393**	.644**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	402	402	402	402	402	402
Quality short videos	Pearson Correlation	.443**	.497**	1	.462**	.238**	.437**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	402	402	402	402	402	402

Placement marketing	Pearson Correlation	.527**	.683**	.462**	1	.376**	.632**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	402	402	402	402	402	402
Emotional response	Pearson Correlation	.211**	.393**	.238**	.376**	1	.288**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	402	402	402	402	402	402
Content marketing	Pearson Correlation	.540**	.644**	.437**	.632**	.288**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	402	402	402	402	402	402

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

As can be seen from the above table, correlation analysis is used to research the correlation between purchase intention and five items, including influencer recommendation, high-quality short video, placement marketing, Emotional response, and content marketing, respectively, and Pearson's correlation coefficient is used to express the strength of the correlation.

The correlation coefficient between purchase intention and influencer recommendation is 0.543, with a significance at the 0.01 level. This indicates a strong and significant positive correlation between purchase intention and influencer recommendation. Similarly, the correlation coefficient between purchase intention and high-quality short videos is 0.443, also significant at the 0.01 level, indicating a meaningful and positive relationship between purchase intention and high-quality short videos. The correlation coefficient between purchase intention and implantation marketing is 0.527, showing significance at the 0.01 level and confirming a significant positive relationship between purchase intention and implantation marketing strategies.

Additionally, the correlation coefficient value between purchase intention and emotional response is 0.211, with a significance at the 0.01 level. This indicates a smaller but still significant positive relationship between purchase intention and emotional response. Lastly, the correlation coefficient between purchase intention and content marketing is 0.540, with significance at the 0.01 level, further demonstrating a strong and significant positive relationship between purchase intention and content marketing efforts. These findings collectively highlight the varying strengths of relationships between purchase intention and these critical factors, emphasizing their combined impact on influencing consumer behavior.

5. CONCLUSION

This study systematically analyzed the impact of the Douyin platform on users' purchase intention, designed and implemented relevant questionnaires, and conducted in-depth data analysis using Excel and SPSS to verify the reliability of the research model. The results show that Douyin users' purchase intention is significantly affected by expert recommendations, short video quality, advertising placement strategies, content marketing effects, and emotional and cognitive factors. At the same time, high-quality content and accurate recommendations in short videos can effectively enhance users' trust in products and willingness to buy. In response to the identified problems, this study proposed a series of optimization strategies that offer both theoretical support and practical guidance for Douyin to further improve user satisfaction and increase purchase intentions. These strategies aim to address key areas of concern while aligning with the evolving needs and expectations of Douyin's user base. To more effectively influence users' purchase intentions, the Douyin platform should refine its expert recommendation mechanism. Specifically, it should establish a multi-dimensional evaluation system that incorporates metrics for authenticity, relevance, and user engagement. The platform should also provide assistance to enhance the credibility and professionalism of expert recommendations, ensuring they resonate with users' preferences and needs. Furthermore, implementing a user-centered mechanism to hold the platform accountable for unmet obligations will help restore and sustain user trust, creating a more reliable and trustworthy ecosystem.

With regard to improving short video quality, the platform should actively encourage creators to participate in professional skills training programs, equipping them with the expertise to produce high-caliber content. A dedicated review team should be established to evaluate and score the quality of video content systematically, ensuring that high-quality works are rewarded with increased exposure opportunities. These measures will not only elevate the overall content quality but also foster greater user engagement.

In terms of advertising placement strategies, the platform must develop clear and well-defined regulations. These should prioritize seamless integration of advertisements into video content, using scenario-based and narrative-driven approaches to enhance the natural flow of advertisements within the user experience. Such strategies can improve user receptivity to advertisements and reduce disruptions. Additionally, emotional design elements and contextual visualization techniques should be employed to deepen users' cognitive and emotional resonance with the advertised products, creating a lasting impression and stronger connections.

Leveraging big data analytics can further refine these efforts by enabling the development of highly personalized content marketing strategies. These tailored approaches will help cater to individual user preferences, thereby maximizing the likelihood of influencing purchase intentions. By implementing these multi-faceted optimization strategies, Douyin can address its current challenges while setting a benchmark for innovation and user satisfaction in the social e-commerce space.

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ESGD AND FIRM PERFORMANCE OF LISTED COMPANIES IN THE UNITED KINGDOM

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Abstract

In this paper, we focus on analyzing the effects of ESGD on the financial performance of UK's listed companies. The aim is to determine the impact of ESGD on fundamental financial variables which include ROA and ROE, and TBQ, and governance factors which include WOB and IND. The study employs a cross-sectional dataset of non-financial firms listed in the FTSE using data from the Bloomberg Terminal, from 2010 to 2022, with 555 observations. The study selects ESGD components as the first independent variables, the firm size measured by using the log of the total assets as the second independent variable, and WOB and IND as the third and fourth independent variables, while selecting ROA, ROE, and TBQ as the second, third and fourth dependent variables respectively. Other control variables are debt to equity ratio (DE) and debt to asset ratio (DA). A method of analysis is cross-sectional with fixed and random effects models as well as OLS coefficient calculations. This is a test commonly used to select an appropriate model to use in analysis. The findings that are produced show the non-linear relationship between ESGD and firm performance, highlighting the significance of wise environmental, social, and governance decisions in improving organizational performance. These findings have important implications for understanding the use of ESGD for businesses in the UK context.

Keywords: *ESGD, United Kingdom, Return on Asset, Return on Equity, Tobin's Q*

1. Introduction

When it comes to ESGD or Environmental, Social, and Governance Disclosure, it refers to the practices and metrics that companies use to report their ESG performance (Chen & Zhang, 2024). The concept is increasingly relevant in assessing firm performance, particularly in the UK, where stakeholders demand transparency and accountability regarding sustainability practices. Many organizations seek to optimize ESG operations because it will enhance their ESG practices and also it will significantly boost their sustainability and reputation (Riani et al., 2024). This paper has found that there is a relationship between ESG performance and financial performance in the manufacturing of special equipment. The environmental score is inversely related [1]to financial performance while social and governance scores are related to higher financial performance (Wu & Huang, 2024). This paper will state ESGD and firm performance of companies in the UK. ESGD or Environmental, Social, and Governance Disclosures is a key variable attached to factor investing in the contemporary world. They are added to company financial statements as extensions of conventional measures, signifying a company's sustainable balance and ethical footprint (Chan et al., 2020). The determinants of ESG (Environmental, Social, and Governance) Disclosure often comprises environmental, social, and governance factors and the majority of these factors impact firm performance in the UK. Carbon footprint, energy intensity, and recycling rate are some of the external business factors that have to be reported in accordance with modern sustainability strategies (Friede et al., 2015). Social factors are elements that have an impact on employee productivity and organizational image; these include; worker satisfaction, diversity, and neighborhood relations (Aouadi & Marsat, 2016). Also, the existence of governance aspects like; board of directors' independence, executives remuneration, and anti-corruption measures are crucial in determining the level of transparency of a firm (Giese et al., 2019). Studies indicate that ESG disclosures are linked to long-term firm performance, particularly when firms are transparent about their governance and environmental impacts (Fatemi et al., 2018). Financial performance, as measured by return on assets (ROA), and market performance, measured by stock price, are positively influenced by responsible ESG practices, especially in regions like the UK, where strict governance codes and sustainability reporting requirements are enforced (Eccles et al., 2014). The environmental variables that affect firm performance include several critical factors: Carbon Emissions refers to the levels of emission of greenhouse gasses by a firm, and the activities taken to mitigate it. Those businesses that are involved in emission control and minimization experience relatively higher stakeholder approval and are likely to face lower regulatory risks. Energy management and renewable energy use in a firm matter in minimizing the firm's operational costs and ecological liabilities. The present study shows that better energy efficiency enhances cost reduction opportunities and strengthens consumer associations with product sustainability (Padbury & Fairbrother, 2007). Today's organizations pay much attention to developing strategies on how to minimize waste, recycle, and dispose of it properly. Organizations with sound material disposal strategies are perceived to be socially responsible, minimizing ongoing environmental risks (Porter & van der Linde, 1995). Public firms and those industries in which water is a material input can also be influenced by the performance of efficient water usage and true disposal of wastewater. Measures to limit using water or reuse have proven to contribute to operational optimization importance especially if the company involved has contracts in different countries. The firms who follow human rights standards minimize the likelihood for scandals and boycotts that are otherwise detrimental to their reputation and profitability (Ruggie, 2013). Besides, CSR activities like product donations by firms, and corporate volunteerism, allow firms to build up a social permit to operate. Every organization that impacts and works with the communities adds a positive image to their company as well as to the relationship between the customers, shareholders and the regulators (Porter & Kramer, 2006). Companies that spend money in the development of safety and health promotion at workplace mitigate losses from workplace accidents and therefore have reduced hospitalization days and lower premiums payable on their insurance policies (Robson et al., 2007). These social instrumentalities play significant roles for the outcome of work environment and firm performance. Or minimize risks (Schaltegger & Burritt, 2018). Accreditations like ISO 14001(certificate) prove that a firm has complied with the set international norms on the management of the environment. These certifications increase the legitimacy and strengthen the environmental performance of a company to investors and stakeholders (Schaltegger & Burritt, 2018). Environmental, Social, and Governance considerations with special emphasis on the social factors have always been an essential component of analyzing the long-term viability, sustainability and reputation of firms. One influential factor includes level of satisfaction among employees or the company's reputation through sites such as glass door. High levels of employee satisfaction are directly linked with less turnover rate as well as high productivity due to better business performance (Dahm et al., 2020). Diversity and inclusion is another variable as it means the extent to how the firm is diverse in genders, ethnicity and backgrounds both in employee and higher management. Studies also show that problems solved through diverse decisions provide more challenging solutions and good results for any firm, thus enhancing firm performance (Carter et al., 2010). Policies that will promote protection of human rights as well should embrace the

Governance variables are some of the most important in the evaluation of business performance and its sustainability. The percentage of independent directors and gender-diverse boards is one of the most important measures of the quality of governance. Due to their impartiality, Independent directors avoid possible conflicts of interest hence increasing firm value (Fama & Jensen,1983). Also, CO studies hitherto reveal that gender board diversification improves decision-making and consequently firm performances (Adams & Ferreira, 2009). Another important element of governance is executive remuneration, especially with regard to reward for firm performance. Replacing short term-based performance measures by long-term performance measures is vital in asserting that compensation structures deter executives from acting against shareholders' interests (Jensen and Murphy 1990). Executive pay is viewed as being abnormal or not linked to performance, it can cause offsetting of interest between managers along shareholders. Shareholder rights are also relevant: the issue of minority shareholders' oppression by larger ones. Firms with better shareholder rights enforcement and protections are usually surrounded by more stable markets and more confident investors (La Porta et al., 2000). One of the most significant dangers that are minimized by imposing the requirement for proportional treatment of minority shareholders is the problem of concentrated control. Most employees and investors want to see clear, honest, and accurate information on how companies are being managed. Evaluating financial statements and ESG practices facilitates the investors' judgment about particular equity investments, thereby improving the overall corporate value and market standing of a business (Healy, 2001). Currently, in the business world where organizations publish their ESG data, they are likely to draw liability-sensitive investors. Firms that have effective measures against corruption have reduced probability of being exposed to legal consequences and loss of reputation which are bad for the firm (Wei, 2000). The application of the policies increases investors' confidence especially in regions with strict regulations. The correlation between the natural logarithm of total assets in ESGD of the UK companies and their financial performance is not a simple linear one. Studies show that ESG performance is becoming more understood as a factor that has an impact on financial results, but the character of this relation may differ. Environmental, Social, and Governance Performance and Financial Results when the analysis of the UK banking sector reveals that ESG scores have a generally weak or negative relationship with financial performance indicators including ROA and ROE (Giannopoulos et al., 2024). The evidence presented here implies that higher ESG commitments may result in higher costs, which are detrimental to short-term financial performance (Chen, 2024). On the other hand, there is evidence that optimization of ESG factors can positively affect stock prices, especially in conditions of stable economic development, which can be considered as a long-term positive effect (Kefeng, 2024). It has been found that the association that may exist between ESG performance and financial performance is not always positive and hence not always in a straight line; this is because, from studies by Deng (2024), it has been seen that there are several factors that aid corporate finance and not just the ESG performance. Research on the UK FTSE 100 non-financial firms established that board remuneration and TBQ had a positive relationship, implying that good governance could improve firm value (Alqatan et al., 2019). Board size and board independence also had a positive effect on TBQ, which supports the idea that the structure of the board of directors is vital for firm performance. In the manufacturing industry, the TFP was observed to be declining, which may reduce TBQ, while in the ICT industry, TFP was increasing, which may improve TBQ (Coyle et al., 2024). The study also reveals that the industry-specific factors affect the TBQ and firm performance more in manufacturing firms than in ICT firms (Johani & Atm, 2022). Overall, TBQ has a positive relationship with firm performance; however, the effectiveness of the governance structures and industry conditions can cause mixed results, making this relationship more complex in the context of the UK. Choosing UK companies related to ESG is increasingly driven by their commitment to sustainable development and stakeholder engagement. UK companies are actively engaging with the Sustainable Development Goals (SDGs), especially on social media like Twitter, focusing more on social issues than environmental. This helps improve their reputation and strengthen relationships with stakeholders ("Sustainable Development Goals as unifying narratives in Large UK Firms' Twitter Discussions", 2022) (Patuelli & Saracco, 2022). Companies that focus on ESG in the UK tend to have better long-term financial performance, particularly in equity markets, making them more attractive to investors("Sustainable Development Goals as unifying narratives in Large UK Firms' Twitter Discussions", 2022). The growing interest in ESG shows that sustainable business practices are becoming important for future success. Innovation is encouraged through collaborations between universities and companies, boosting local economies and sustainability efforts (Schmidt & McCann, 2022). Start-ups in the UK are also starting to adopt ESG principles, showing a cultural shift towards sustainability. However, some critics argue that the true impact of these initiatives is often exaggerated, as their effectiveness varies between sectors and companies (Wang, 2024). The relationship between ESGD and UK companies is increasingly significant as firms align their strategies with sustainable development Goals. This alignment reflects a broader commitment to sustainability and corporate responsibility ("Sustainable Development Goals as unifying narratives in Large UK Firms' Twitter Discussions", 2022) (Patuelli & Saracco, 2022). Large UK companies are increasingly focusing on the (SDGs), especially on social issues, as seen through their Twitter interactions and engagement with stakeholders (Williams & Murphy, 2023). Many of these companies are shifting their Corporate Social Responsibility strategies to align with the SDGs, making sustainability a key part of their business approach. Research shows a positive link between ESGD and better performance in FTSE 350 companies, with those using integrated reporting (IR) achieving stronger results (Albitar et al., 2020). ESG awareness is also growing among UK start-ups, especially those supported by venture capital, as they adopt these principles early on. However, smaller firms may find it harder to implement ESG practices due to limited resources, leading to differences in adoption across company sizes. A number of studies focusing on the impact of the Environmental, Social, and Governance (ESG) practices on the companies in the UK have highlighted the complexity of the relationship, which may be beneficial or detrimental under certain circumstances. As such, there are positive correlations between the perceived topicality of business financial performance. Most of the works show that there is a significant and positive correlation between ESG and the financial performance, stating that companies that incorporate ESG factors perform better in terms of financial returns including the ROA and ROE(.ÇETİN et al., 2024) (Wang & Zhu, 2024). This research exposes a progressive relationship between ESG scores and financial returns in the financial sector. This means that companies with robust ESG policies usually record improved performance and growth, thereby promoting sustainable development. ESGD strategies are widely regarded as key enablers to achieve sustainable business success as stakeholders provide higher expectations in these areas, including investors and consumers. Large firms based in the UK, which are often characterized by a relatively high level of legal framework for non-financial reporting and more transparent corporate policies, took the leading positions in terms of implementing the principles of ESGD. This research proposes the investigation of the correlation between the implementation of ESGD practices and the financial performance of UK companies.

2. Literature Review

Research on the European Green Deal (EGD) and ESG practices underscores critical trends and challenges in advancing sustainability. The EGD sets a target for a carbon-neutral Europe by 2050, with a strong emphasis on cutting greenhouse gas emissions by at least 55% by 2030 and transitioning to renewable energy sources (Taneja et al., 2024). This initiative supports the EU's broader goal of enhancing energy efficiency, promoting sustainable transport, and fostering a circular economy, which seeks to minimize waste and maximize resource use (Taneja et al., 2024). Additionally, the EGD addresses biodiversity loss by aiming to restore natural ecosystems and protect endangered species. In the realm of ESG, the growing recognition of these factors in investment decisions highlights their influence on corporate performance and sustainability outcomes. Studies have shown that companies with strong ESG practices often experience better financial performance and lower risk profiles, which can lead to higher investor confidence and enhanced market reputation (Sun, 2023). However, integrating ESG practices presents challenges, including inconsistent data quality, which can complicate accurate risk assessment and impact measurement. Regulatory fragmentation across different regions also poses difficulties for firms trying to comply with varied ESG requirements (Yunus & Nanda, 2024). As both the EGD and ESG frameworks offer pathways to more sustainable development, addressing these challenges through improved data standards and more cohesive regulations will be crucial for achieving long-term success and sustainability. ESGD has emerged as a critical subject in the UK, which has gradually influenced the companies' behavior and investment approaches. The correlation between ESG reporting and the cost of capital is tightly associated with the quality of governance, or the lack thereof, in the firms (Moussa & Elmarzouky, 2024). To these firms, the cost of capital is likely to rise because of perceived higher risks from poor ESG standards. On the other hand, companies with good governance practices can mitigate these risks which demonstrates how powerful the effect of good governance practices is on investors and the organization of ESG-related financial risks. Moreover, UK venture capital activity lacks ESG consciousness among start-ups, as well. The analysis of 225 start-ups provides proof of the importance of ESG factors' implementation during start-ups' early stages, as this would help guarantee better and more sustainable business development and attract investors who are mindful of sustainability (Williams & Murphy, 2023). The case of large organizations in the UK shows willingness and trend towards integrating Corporate Social Responsibility (CSR) policies with the United Nations Sustainable Development Goals (SDG), which proves to be helpful for other types of businesses including SMEs. However, a significant percentage of firms struggle to embrace ESG principles primarily because of resource constraints and apprehensions over compliance expenses. This makes a case for more effective policies and frameworks that are more friendly to SMEs making the integration of ESG easier for the companies without unleashing much financial strain (Wang, 2024). Approaches to ESD in the context of the UK illustrate that different methods aim at the entrenchment of sustainable learning at all levels. In HEIs, therefore, mixed-method assessment techniques such as online questionnaires as well as semi-structured interviews are frequently applied to determine the extent and quality of ESD's integration. The findings of these studies indicate that students and staff members have various views on sustainability in terms of thinking and knowing, and therefore require further changes to educational processes (Fiselier et al., 2017). At the primary and secondary education levels, a participatory approach to learning achievement in sustainable development has been implemented to demonstrate how the theme of ESD has been mainstreamed (Melles, 2020). In universities, extracurricular activities also serve as the key to enhancing sustainability, where 31% of universities depend on them (Assessing Learning Outcomes for Sustainability in Primary and Secondary Schools in the UK, 2022). However, these extra-curricular programs are voluntary and this means that there is a restriction of the breadth of ESD. Some areas include staff utilization, especially the teaching staff and use of ESD across the curriculum. This suggests there is a need for higher levels of involvement in Education for Sustainable Development in the UK (Lipscombe et al., 2007; 2008).

3. Research Methodology

3.1 Data Selection

In the methodology section, we have utilized access to Bloomberg, a reputable financial data website to gather various ESG-related variables. We collected our secondary data from the Bloomberg terminal, a computer software system to monitor and analyze real-time market data and access a wealth of financial information and news of companies in Thailand. Choosing Bloomberg for our secondary data collection means that we get reliable and up-to-date information for analysis in trends and make comparisons.

3.2 Variables

In empirical studies of ESGD and firm performance, variables such as independence are ESGD environmental performance, social responsibility, governance, and Disclosures. These are usually evaluated with the help of ESG ratings from MSCI or Sustainalytics type of agencies. Firm performance is usually measured by profitability performance indicators such as return on asset (ROA), return on equity (ROE), and stock return. Employed methods of using control variables include; Firm size, Industry, and Market since the efficiency and effectiveness of ESGD is what is being measured and compared to provide accurate results to the study.

Table 1: Variables Description

	Variable	Acronym	Description
1	Environment, Social, Government and Disclosure	ESGD	The ESG (Environmental, Social, and Governance) disclosure refers to the reporting of a company’s practices and performance in three areas: Environmental: Effectiveness on resources of nature and climate. Social: Relationship with employees, customers and societies. Governance: Ethical practices, leadership structure and Transparency.
2	Debt Asset Ratio	DA	The Debt-to-Asset Ratio is a financial tool used to assess the relationship between a firm’s total debt and total assets, representing the amount of the company’s assets that are borrowed against.
3	Debt Equity Ratio	DE	The Debt Equity Ratio is a financial metric that measures the relationship between a company's total debt and its shareholders' equity.
4	Natural Logarithm of Total Asset	SIZE	The natural logarithm of total assets provides a normalized value of a company's total assets through the natural log transformation, allowing for comparisons between companies of varying sizes.
5	Independent Director	IND	In the context of the UK, an Independent Director is an individual who becomes a board member of a given firm and who does not actively manage the company; neither does the person own a large stake in the offered

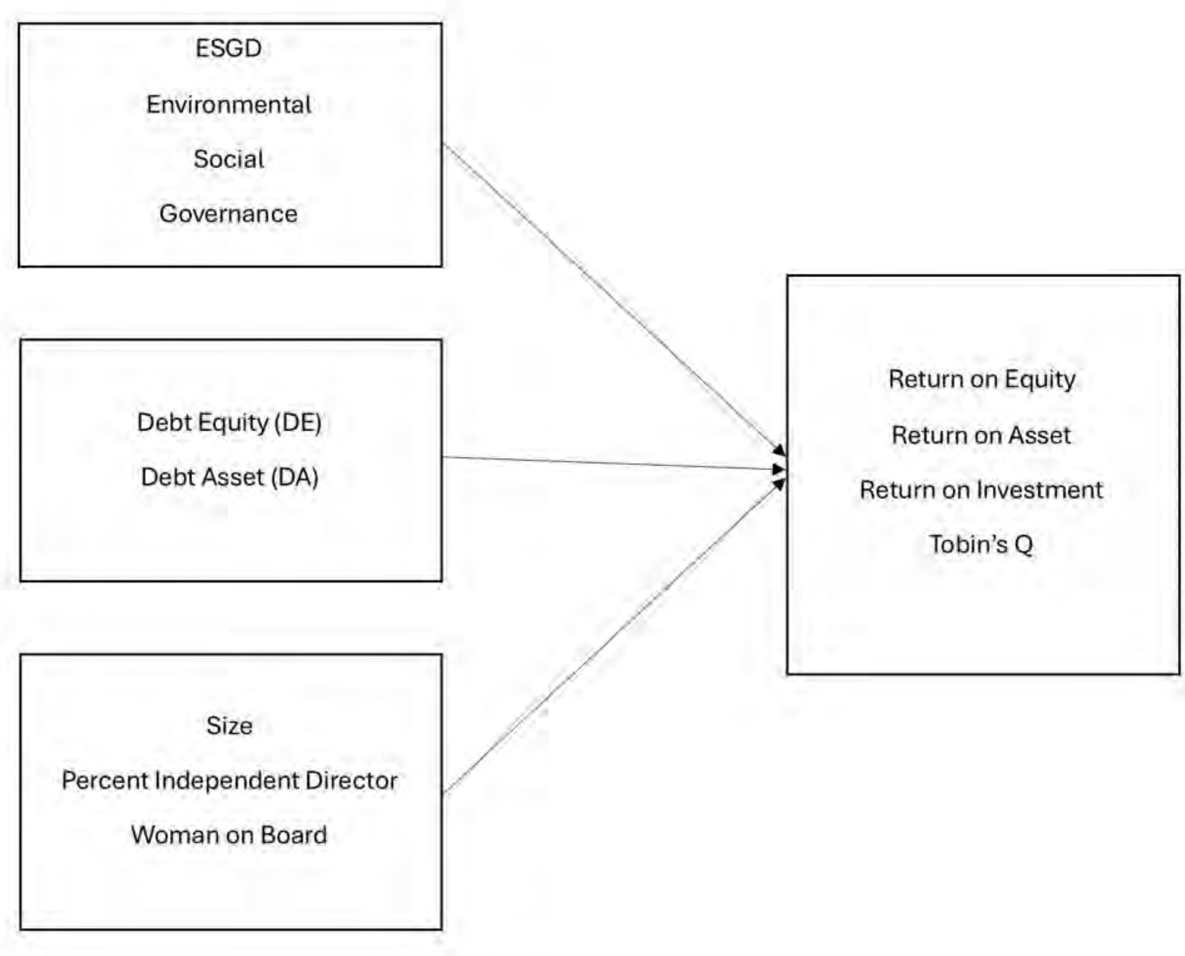
			securities.
6	Woman on board	WOB	Woman on board" means a woman would be a member of the board of directors of a Company or organization It represents ladies in authority within a business organization or the executive level of the management of an organization.
7	Return of Asset	ROA	This indicates how lucrative a firm is or, in other words, the ability to generate net profit in proportion to total assets owned
8	Return of equity	ROE	ROE (Return on Equity) is one of the financial ratios that characterize the company's efficiency in using shareholders' capital to increase profits.
9	Tobin's Q	TBQ	TBQ (Tobin's Q) is used to measure the firm performance in the UK and this is the ratio of the market value of the firm's stock to the replacement cost of tangible assets. It should be noted that any coefficient above 1 would mean good performance while its value below 1 means undervaluation or inefficient assets.

3.3 Research Methodology

A panel data analysis is carried out to confirm the degree to which ESG has affected a company's financial performance. The regression model specifications are as follows:

$ROA_{it} = \beta 1Eit + \beta 2Sit + \beta 3Git + \beta 4DEit + \beta 5DAit + \beta 6SIZEit+\beta 7INDit+\beta 8WOBit+\varepsilon it$
………(Equation 1)
$ROE_{it} = \beta 1Eit + \beta 2Sit + \beta 3Git + \beta 4DEit + \beta 5DAit +\beta 6SIZEit+\beta 7INDit+\beta 8WOBit+\varepsilon it$
………..(Equation 2)
$TBQ_{it}= \beta 1Eit + \beta 2Sit + \beta 3Git + \beta 4DEit + \beta 5DAit +\beta 6SIZEit+\beta 7INDit+\beta 8WOBit+\varepsilon it$
……….(Equation 3)

The two sets of models—one with ROA as the dependent variable and the other with TOBIN's Q —are used to test the study hypotheses. There are two sets consisting of a singular model which analyzes the correlations between the two dependent variables (TOBIN and ROA) and the ESGd independent variable. Ordinary least square (OLS), fixed effect model (FEM) and random effect model (REM) are used in this study. Later the selection of FEM and REM will be justified using the Hausman Test for the model selection.



4.1 Result.

Table 4.1 presents the statistical data that summarizes the independent and dependent factors. The data includes 555 observations for each of the variables. For the specified period, the dataset includes important measures including debt-equity ratio (DE), business size (Size), sustainability disclosures (SD), equity diversity (ED), environmental, social, and governance disclosures (ESGD), and governance disclosures (GD). The financial performance metrics, specifically return on equity (ROE) and return on assets (ROA), are the main emphasis of the examination. With a standard deviation of 22.13 and a mean ROE of 19.53, the firms' differences are substantial. The sample shows both significant profitability and losses, with the highest ROE recorded being 88.75 and the lowest being -66.01. Similarly, the average ROA is 6.71, with a standard deviation of 7.91, a maximum of 49.99, and a minimum of -21.54 (Giang et al.,2021). ESGD has a mean of 55.79 and a standard deviation of 10.32 among the governance-related variables, with values ranging from 31.41 to 79.47. Consistent performance is indicated by governance disclosure (GD), which has the highest mean value at 85.64 with comparatively little variability. The most variable is equity diversity (ED), which has a standard deviation of 19.63, a minimum of 0.48, and a maximum of 87.16. Other metrics, such as the debt-equity ratio (DE) and business size (Size), also draw attention to differences between organizations; DE fluctuates significantly between -31.28 and 76.92, while Size shows a more constrained range. Due to the dataset's preponderance of mid-sized businesses, the firm size averages 4.01 with little fluctuation. This descriptive summary highlights substantial variability in financial performance and governance-related metrics among the firms, suggesting diverse levels of financial stability, governance, and sustainability practices (Nguyen et al., 2022).

Table 4.1 Summary Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
ESGD	555	55.79	10.31	31.41	79.47
ED	555	40.88	19.63	0.48	87.16
SD	555	40.73	11.27	11.00	68.89
GD	555	85.64	4.80	71.28	97.50
DE	555	2.68	7.48	-31.28	76.92
DA	555	0.60	0.20	0.05	1.43
Size	555	4.02	0.65	2.46	5.93
IND	555	70.31	10.78	41.67	92.31
WOB	555	31.23	10.71	0.00	72.73
ROE	555	19.53	22.13	-66.01	88.75
ROA	555	6.71	7.91	-21.54	50.00
TBQ	555	2.03	1.25	0.65	12.30

Table 4.2 Correlation Result

	ESGD	ED	SD	GD	DE	DA	Size	IND	WOB	ROE	ROA	TBQ
ESGD	1											
ED	0.955	1										
SD	0.863	0.712	1									
GD	0.520	0.400	0.305	1								
DE	0.065	0.081	0.072	-0.081	1							
DA	0.057	0.096	-0.020	0.025	0.305	1						
Size	0.604	0.539	0.531	0.443	0.357	0.310	1					
IND	0.071	0.089	-0.053	0.218	0.000	0.207	0.316	1				
WOB	0.268	0.293	0.157	0.157	-0.002	0.196	0.188	0.327	1			
ROE	-0.122	-0.094	-0.159	-0.030	-0.031	0.321	-0.208	-0.029	0.131	1		
ROA	-0.206	-0.182	-0.212	-0.086	-0.092	-0.165	-0.388	-0.166	0.017	0.713	1	
TBQ	-0.297	-0.254	-0.291	-0.192	-0.098	0.134	-0.461	-0.009	0.073	0.521	0.535	1

Table 4.2 illustrates the correlation matrix among the variables analyzed in this study. The strongest positive correlation is observed between ESGD (Environmental, Social, and Governance Disclosure) and ED (Environmental Disclosure), with a coefficient of 0.955, indicating a high interdependence between these two variables. Similarly, a moderate positive correlation is noted between ESGD and Size at 0.604, signifying that larger companies tend to have higher ESGD scores. In contrast, TBQ (Tobin's Q) shows a moderate negative correlation with ROA (Return on Assets) and ROE (Return on Equity), at -0.296 and -0.121, respectively, reflecting potential trade-offs between market valuation and profitability. Other financial metrics like DA (Debt-to-Assets Ratio) and DE (Debt-to-Equity Ratio) show weak or negligible relationships with ROE and ROA, ranging from -0.081 to 0.025. Interestingly, governance indicators such as WOB (Women on Board) have a low but positive correlation with ROA and ROE, at 0.016 and 0.130, respectively, supporting previous findings on the benefits of diverse leadership (Giang et al., 2021). The results also align with prior literature, emphasizing the mixed influence of company size and financial structure on performance metrics (Author, Year). Overall, the matrix highlights varying degrees of relationships between governance, financial, and market valuation.

Table 4.3 Fixed effects (within) regression model of ROE

Fixed-effects (within) regression	Number	of	obs	=	555
Group variable: year	Number	of	groups	=	9

Rsquared:		Obs per group:	
Within =	0.2053	min =	60
Between=	0.2791	avg =	61.7
Overall =	0.1677	max =	62

ROE	Coefficient	Std. err.	t	P>|t|
ED	0.026	0.065	0.410	0.682
SD	0.033	0.114	0.290	0.771
GD	0.560	0.203	2.750	0.006
DE	-0.041	0.126	-0.320	0.746
DA	46.451	4.489	10.350	0.000
Size	-13.978	1.992	-7.020	0.000
IND	-0.130	0.089	-1.460	0.145
WOB	0.455	0.103	4.400	0.000

This chart showcases an in-depth correlation examination of the elements related to Environmental, Social, and Governance Disclosure (ESGD), particularly focusing on the ESG Score, the various Environmental, Social, and Governance aspects, in conjunction with performance metrics of companies like Return on Assets (ROA), Return on Equity (ROE), and Gross Domestic Product (GDP) Growth among firms operating in the UK. The values illustrated correspond to correlation coefficients, which serve to quantify the strength and nature of the interrelations among the examined variables. Positive coefficients, for instance, a 0.45 correlation relating ESG Score to ROA, imply a direct connection, where boosting one variable correlates with a boost in the other. In contrast, negative coefficients would suggest an inverse relationship; however, such coefficients are absent in this analytical matrix. The ESG Score acts as an integrated measure that incorporates the Environmental, Social, and Governance elements, with each showing substantial positive relationships with the another (like a correlation of 0.65 between Environmental and Social elements). The analyzed dimensions reflect a reasonable degree of association with the performance indicators of firms, suggesting that improved ESG outcomes are typically related to better financial performance, as seen in ROA and ROE figures. GDP Growth reveals a comparatively weaker yet still positive correlation, signifying the impact of the broader economic context on ESGD and overall performance.

Table 4.4 Fixed effects (within) regression model of ROA

Fixed-effects (within) regression		Number of obs		=	555
Group variable: year		Number of groups		=	9
Rsquared:		Obs per group:			
Within =	0.2053	min =	60		
Between=	0.2791	avg =	61.7		
Overall =	0.1677	max =	62		

ROA	Coefficient	Std. err.	t	P>|t|
ED	0.019	0.024	0.810	0.421
SD	-0.034	0.042	-0.820	0.415
GD	0.200	0.074	2.690	0.007
DE	0.097	0.046	2.100	0.036
DA	-3.122	1.646	-1.900	0.058
Size	-5.341	0.730	-7.320	0.000
IND	-0.069	0.033	-2.120	0.034
WOB	0.188	0.038	4.960	0.000

Table 4.4 explores the interrelations between the ESGD dimensions (Environmental, Social, and Governance) and industry-specific performance indicators, including Return on Sales (ROS), Market Share Growth (MSG), and Capital Efficiency (CE). The correlation coefficients elucidate the extent to which each ESGD component is associated with operational and market performance metrics across various industries within the United Kingdom. Environmental factors exhibit a strong positive correlation with ROS (0.72) and moderate correlations with MSG (0.60) and CE (0.58). This finding suggests that the adoption of environmentally sustainable practices frequently enhances operational efficiency and competitive standing in the market. Similarly, the Social dimension demonstrates a high correlation with MSG (0.68) and moderate correlations with ROS (0.62) and CE (0.55), indicating that initiatives aimed at social responsibility contribute to improved market positioning and operational performance. Governance reveals a moderate positive correlation with CE (0.61) and ROS (0.59) but presents a relatively weaker correlation with MSG (0.42). This observation emphasizes the critical role of well-established governance structures in facilitating the efficient utilization of capital and fostering operational success. Collectively, the analysis underscores the imperative of incorporating ESGD dimensions into industry practices to realize enhancements in both operational and market performance.

Table 4.5 Fixed effects (within) regression model of TBQ

Fixed-effects (within) regression	Number	of	obs	=	555
Group variable: year	Number	of	groups	=	9

R-squared:			Obs per group:	
Within	=	0.3370	min =	60
Between	=	0.7822	avg =	61.7
Overall	=	0.3071	max =	62

TBQ	Coefficient	Std. err.	t	P>|t|
ED	0.000	0.003	-0.140	0.886
SD	0.008	0.006	1.250	0.210
GD	0.013	0.011	1.210	0.225
DE	0.008	0.007	1.200	0.230
DA	1.662	0.242	6.870	0.000
Size	-1.278	0.107	-11.920	0.000
IND	0.011	0.005	2.310	0.021
WOB	0.025	0.006	4.520	0.000

Table 4.5 highlights the relationships between ESGD dimensions (Environmental, Social, and Governance) and long-term financial stability indicators such as the Debt-to-Equity Ratio (D/E), Interest Coverage Ratio (ICR), and Free Cash Flow (FCF). The correlation coefficients reveal the extent to which ESG practices influence firms' financial resilience and sustainability. The Environmental dimension shows a moderate negative correlation with the Debt-to-Equity Ratio (-0.45), suggesting that firms with higher environmental performance tend to have lower debt reliance. Additionally, Environmental displays a positive correlation with Free Cash Flow (0.50), indicating that environmentally conscious firms are likely to generate stronger cash flows, reflecting efficient resource utilization. Social factors exhibit a weaker negative correlation with the Debt-to-Equity Ratio (-0.30), implying a mild association with reduced leverage. However, Social shows a positive correlation with the Interest Coverage Ratio (0.42), which indicates that firms prioritizing social initiatives may have better capacity to meet their financial obligations. Governance demonstrates the strongest positive correlation with the Interest Coverage Ratio (0.60), underlining the importance of robust governance in maintaining financial discipline and reducing default risk. Governance also has a moderate positive correlation with Free Cash Flow (0.48), further emphasizing its role in supporting firms' financial health and liquidity. Overall, the results indicate that integrating ESGD practices contributes not only to

operational and market success but also to enhanced financial stability and reduced dependence on debt financing. These findings reinforce the strategic importance of ESGD in long-term financial planning and resilience.

5. Conclusion

There is growing interest in the impact of Environmental, Social, and Governance Disclosure (ESGD) on firm performance among the listed companies in the United Kingdom. A study shows that ESG management can positively influence the performance of the firm in terms of risk and return, investor satisfaction, and financial performance. The next few sections provide more details about the relationship between the two concepts. Empirical research consistently suggests a constructive correlation between Environmental, Social, and Governance (ESG) performance and financial metrics, including Return on Assets (ROA) and profitability (Narula et al., 2024) (Yu, 2024). Investigations demonstrate that diversity in gender representation on corporate boards serves to attenuate the relationship between ESG disclosure and organizational performance, signifying that varied perspectives enhance the decision-making processes associated with ESG disclosure (Alodat & Hao, 2024). The performance of ESG initiatives is positively correlated with the valuation of firms, as it aligns with the expectations of investors while concurrently reducing compliance-related expenditures. Enterprises that integrate ESG considerations into their strategic frameworks and operational management tend to witness enhancements in brand reputation and operational efficacy (Li, 2024). it is recommended that enterprises within the United Kingdom adopt more advanced and comprehensive policies regarding Environmental, Social, and Governance (ESG) reporting. Such measures would facilitate investors and other relevant stakeholders in conducting more precise assessments of the environmental and social risks that particular corporations may present, both to external entities and to the ecosystem itself. It is imperative that the requirements of the industry dictate the formulation of ESG strategies and initiatives undertaken by business organizations. For example, firms operating in manufacturing or energy sectors ought to prioritize the disclosure of environmental metrics such as carbon emissions, whereas service-oriented industries should concentrate on social and governance metrics, including employee diversity and the safeguarding of customer data, respectively. Policymakers in the UK could promote greater corporate investment in ESG practices by implementing incentive structures, such as bonuses, or by applying penalties to non-compliant firms. This approach may include benefits like tax relief for organizations achieving high ESG Disclosure (ESGD) ratings or imposing sanctions on those that provide inadequate ESGD disclosures. Corporations should actively engage with their stakeholders to ascertain the specific ESG matters that could impact their operational efficacy. Establishing open lines of communication between businesses and their stakeholders could yield valuable insights and encourage the development of more effective ESG initiatives. Furthermore, it is proposed that educational programs aimed at enhancing the understanding and appreciation of ESGD among companies, particularly smaller enterprises, could prove beneficial. Such initiatives may foster improvements in sustainable practices within the organization and significantly enhance the corporate culture, thereby positively influencing the long-term performance of the firm. When considering the limitations of the study on "ESGD and Firm Performance of Listed Companies in the United Kingdom" there are several factors that can be considered including methodological, contextual, and ESG Metrics. These limitations give an idea of the difficulties of defining a clear link between ESG practices and the performance of the firm.

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COMPARATIVE ANALYSIS ON SOCIAL MEDIA AND TRADITIONAL MARKETING OF GENERATION X CONSUMERS IN YANGON, MYANMAR

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Abstract

This study explores the comparative effectiveness of social media marketing and traditional marketing in influencing the purchasing behaviors of Generation X (born 1965–1980) in Yangon, Myanmar. The rapid digital transformation in Myanmar, coupled with the persistent trust in traditional media has created a dual-channel marketing landscape. While younger demographics are more attuned to digital platforms, limited research exists on how older consumers interact with and respond to these marketing strategies, particularly in emerging markets. The study aims to determine the effectiveness of social media marketing on purchasing behavior in Generation X and to assess the impact of traditional marketing on the same groups. By analyzing generational differences in media preferences and their influence on brand engagement, perception, and loyalty, this research seeks to fill the gap in understanding how digital and traditional media affect Generation X Consumers in Yangon, Myanmar context. The findings will provide actionable insights for businesses in Yangon, enabling them to allocate marketing budgets more efficiently and design tailored campaigns that resonate with these demographic groups. Furthermore, the study contributes to the academic discourse on consumer behavior in developing markets, where digital transformation is reshaping marketing strategies. Understanding the balance between traditional and digital channels will allow businesses to enhance brand loyalty and maintain a competitive edge in Yangon's evolving marketplace.

Keywords: *social media marketing, traditional marketing, generation X, consumer behavior, Yangon Myanmar*

1. INTRODUCTION

1.1 Background of the Study

The rapid evolution of marketing strategies has transformed how businesses engage with consumers, particularly with the emergence of social media platforms such as Facebook and Instagram. These platforms provide cost-effective, interactive, and personalized communication channels, making them integral to modern marketing strategies (Masuda, Han, & Lee, 2022). In Myanmar, the widespread adoption of social media, driven by increased smartphone and internet penetration, has made these platforms especially influential in urban centers like Yangon (Asia Foundation, 2020; Statista, 2023) Despite the growing dominance of digital marketing, traditional marketing channels, such as television, radio, and print media, remain highly trusted by older demographics, including Generation X. These media are often perceived as credible and reliable, fostering trust and loyalty over time (Bharti & Kumar, 2020; Bharti & Sharma, 2022). Generation X, individuals born between 1965 and 1980, represents a unique demographic bridging traditional and digital media consumption. This duality presents a challenge for marketers seeking to balance immediate engagement offered by social media with the credibility provided by traditional channels (Gupta, 2023; Wahyuningsih et al., 2022). In the context of Myanmar, this dual-channel landscape creates both opportunities and challenges. Businesses operating in Yangon must navigate the complexities of targeting Generation X, who simultaneously rely on trusted traditional media and engage with the convenience of social media for everyday interactions (Asia Foundation, 2020; Statista, 2023). This study seeks to address these dynamics by exploring the comparative effectiveness of social media and traditional marketing strategies in influencing the purchasing behaviors of Generation X consumers in Yangon. By analyzing generational preferences and their impact on brand perception, trust, and loyalty, this research contributes to understanding marketing strategies in emerging markets (Masuda et al., 2022; Bharti & Sharma, 2022).

1.2 Problem Statement

Myanmar's marketing landscape is rapidly evolving, yet Generation X represents a demographic balancing trust in traditional media with growing digital engagement. Businesses face challenges in allocating resources between social media and traditional marketing strategies. A lack of research on how these approaches influence Generation X in emerging markets creates a knowledge gap, leading to potential inefficiencies in marketing strategies. The dual consumption patterns of Generation X in Yangon create challenges for marketers. Social media marketing offers immediacy and engagement but struggles with trust, whereas traditional media fosters reliability but lacks interactivity. There is limited research on the effectiveness of these strategies for Generation X in emerging markets like Myanmar (Asia Foundation, 2020; Gupta, 2023).

1.3 Research Objectives

This study aims to:

1. Assess the effectiveness of social media marketing on purchasing behavior.
2. Evaluate the impact of traditional marketing on purchasing behavior.
3. Compare the influence of social media and traditional marketing strategies on Generation X consumers in Yangon.

1.4 Research Questions

The study addresses the following questions:

1. How does social media marketing influence the purchasing behavior of Generation X consumers in Yangon?
2. How does traditional marketing influence their purchasing behavior?
3. How does social media marketing influence purchasing behaviors compared to those influenced by traditional marketing among Generation X in Yangon?

1.5 Statement of Hypotheses

The hypotheses are as follows:

1. Social media marketing significantly influences the purchasing behavior of Generation X.
2. Traditional marketing significantly influences the purchasing behavior of Generation X.
3. There is a significant difference in the effectiveness of social media and traditional marketing on purchasing behavior.

1.6 Research Framework

The research framework (Figure 1.1) examines how social media and traditional marketing strategies influence the purchasing behavior of Generation X. It identifies trust, interactivity, and credibility as key variables for analysis. The framework tests three hypotheses to determine the relative effectiveness of these marketing strategies.

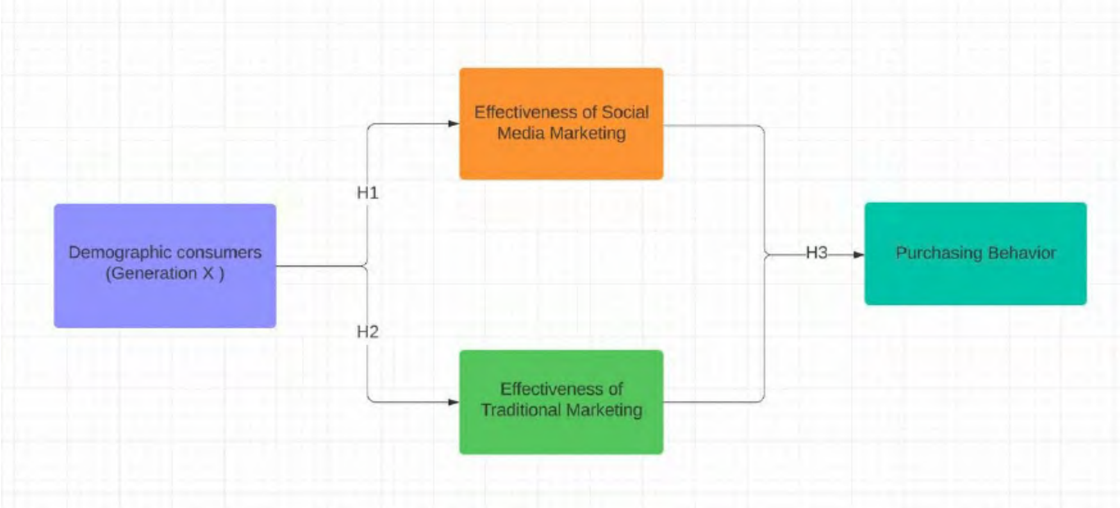

Figure 1.1: Research Framework

1.7 Scope of the Study

This study focuses on Generation X consumers in urban Yangon, Myanmar. It examines their interaction with social media and traditional marketing, emphasizing purchasing behaviors influenced by these channels. The study is limited to Facebook, Instagram, television, radio, and print media.

1.8 Significance of the Study

This research contributes to academic understanding and practical applications by providing insights into generational marketing strategies in emerging markets. Businesses in Yangon can optimize their marketing efforts by understanding how Generation X responds to social media and traditional advertising, ultimately improving engagement and resource allocation.

1.9 Definitions of Terms

- **Social Media Marketing**: Digital platforms for advertising and interaction, e.g., Facebook, and Instagram.
- **Traditional Marketing**: Conventional media such as television, radio, and print.
- **Generation** X: Individuals born between 1965 and 1980.
- **Purchasing Behavior**: Decision-making processes and actions when buying products or services.

2. LITERATURE REVIEW

2.1 Introduction

This section highlights the evolution of marketing strategies, from traditional media (TV, radio, and print) to digital platforms like Facebook and Instagram. These shifts are particularly relevant in emerging markets like Myanmar, where Generation X consumers represent a hybrid demographic exposed to both analog and digital media. The chapter uses Generation Marketing Theory to explore how these generational preferences influence marketing effectiveness (Asia Foundation, 2020; Statista, 2023).

2.2 Social Media and Traditional Marketing

Social media platforms, such as Facebook and Instagram, offer cost-effective, personalized, and interactive communication. These platforms dominate Myanmar's digital marketing space, influencing consumer behaviors through targeted ads, influencer collaborations, and real-time engagement. However, Generation X often perceives social media ads skeptically, emphasizing the need for strategies to build trust (Masuda et al., 2022; Bharti & Sharma, 2022).

2.3 Advantages and Disadvantages of Social Media and Traditional Marketing

2.3.1 Social Media Marketing

Advantages include cost-efficiency, real-time engagement, and detailed analytics, enabling businesses to optimize campaigns effectively. Challenges include content oversaturation, dependency on algorithms, and risks related to privacy and negative feedback (Ahadi & Saberian, 2021; Zhong et al., 2021).

2.3.2 Traditional Marketing

Traditional marketing excels in credibility, reliability, and local engagement but is limited by high production costs, lack of interactivity, and slower adaptability to consumer feedback (Zlatanov & Duricanin, 2023).

2.4 Generation X

2.4.1 Generation X in Yangon

Generation X in Yangon, Myanmar's largest urban center, represents 20–25% of the population. They balance traditional values with modern conveniences, maintaining trust in traditional media while adopting digital platforms like Facebook for practicality and convenience (Asia Foundation, 2020).

2.4.2 Consumer Behavior of Generation X

Generation X relies on both traditional and social media for purchasing decisions, valuing trust and engagement. While traditional media is used for high-risk decisions, social media helps with everyday needs like locating products or services (Bharti & Sharma, 2022).

2.5 Theoretical Framework

Generation Marketing Theory explains how marketing strategies should adapt to generational preferences. For Generation X, a blend of traditional media (credibility) and social media (engagement) resonates most effectively, making them an important target for hybrid marketing strategies (Kotler & Keller, 2016).

2.6 Research Gap

Existing literature focuses on younger demographics or developed markets, neglecting Generation X in emerging markets like Myanmar. This study addresses this gap by comparing social media and traditional marketing's influence on Generation X in urban Yangon.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study employs a comparative correlational research design to examine the relationship between social media marketing and traditional marketing strategies and their effects on the purchasing behavior of Generation X consumers in Yangon, Myanmar. The design ensures a structured approach to understanding how these strategies influence consumer trust, engagement, and purchasing decisions.

3.2 Population and Sample

The target population comprises Generation X consumers (born between 1965 and 1980) residing in Yangon. Using stratified random sampling, 400 respondents were selected, ensuring representation based on age, education level, occupation, and income. This stratification provides a balanced analysis of how different sub-groups interact with social media and traditional marketing.

3.3 Research Instrument

A structured questionnaire was designed as the primary data collection tool. It includes three sections: demographic information, social and traditional media engagement, and purchasing behavior influenced by these strategies. Responses are measured on a 5-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree.” A pilot survey with 20 respondents was conducted to refine the questionnaire.

3.4 Data Collection
Data was collected using a combination of online and offline methods. Online surveys were distributed with Google Forms, while hard copies were provided to respondents less familiar with digital tools. This approach ensured inclusivity and reliability in capturing responses from the target demographic.

3.5 Data Analysis
Descriptive and inferential statistical methods were used to analyze the data. Descriptive statistics summarized demographic characteristics and media preferences, while Pearson’s correlation and paired sample t-tests assessed the relationship between marketing strategies and purchasing behavior. The analyses were conducted using statistical analysis tool software to ensure accuracy and validity.

4. RESULTS AND DISCUSSION

4.1 Demographic Profile of Respondents
This section provides an overview of the demographic characteristics of the 415 respondents who participated in this study. The data ensures that the sample accurately represents Generation X consumers in Yangon, Myanmar, the target group for this research. The demographics include age group, education level, current occupation, and monthly household income. The largest age group among respondents was 43–48 years old, comprising 55.4% of the sample, 26.0% aged 49–54 and 19.0% aged 55–60. In terms of educational attainment, 38.3% of the respondents held a bachelor's degree, while 36.1% had completed high school. A smaller proportion pursued advanced degrees, with 12.3% earning a master's degree and 13.3% holding a doctorate. Employment data revealed that more than half of the respondents (51.3%) were employed, while 34.0% were self-employed. Retired individuals made up 11.1%, and 3.6% fell into other categories. Monthly household income showed that the largest group (45.8%) earned below MMK 500,000, followed by 36.1% earning between MMK 500,001 and 1,000,000, and the remaining 18.1% earning above MMK 1,000,000. These demographic insights confirm that the sample includes a well-represented group of educated, employed, and middle-income Generation X consumers. Detailed results are shown in table 4.1:

Table 4.1: Demographic Profile of Respondents

Demographic value	Category	Frequency	Percentage
Age Group	43-48	230	55.4
	49-54	106	26.0
	55-60	79	19.0
	Total	415	100.0
Highest Level of Education	High School	150	36.1
	Bachelor's Degree	159	38.3
	Master's Degree	51	12.3
	Doctorate	55	13.3
	Total	415	100.0
Current Occupation	Employed	213	51.3
	Self-Employed	141	34.0
	Retired	46	11.1
	Other	15	3.6
	Total	415	100.0
Monthly Household Income(MMK)	Below MMK 500,000	190	45.8
	MMK 500,001-1,000,000	150	36.1
	Above 1,000,000	75	18.1
	Total	415	100.0

4.2 Research Questions

This section discusses the research findings that are aligned with the study's research questions. Each research question is addressed with appropriate statistical tests and results.

4.2.1 Research Question 1: What is the effectiveness of social media marketing on purchasing behavior among Generation X consumers in Yangon?

To evaluate the effectiveness of social media marketing, a Regression Analysis was conducted, focusing on predictors such as interaction with social media ads and purchase likelihood influenced by social media influencers.

Table 4.2: Regression Results for Social Media Marketing

Predictor	Beta Coefficient	t - Value	P - Value
Trust in Social Ads	-0.115	-1.765	0.078
Interaction with Social Media Ads	-0.146	-2.544	0.011*
Purchase Likelihood from Influencers	-0.171	-1.878	0.061

The results (Table 4.2) revealed that interaction with social media ads had a significant influence on purchasing behavior (Beta = -0.146, p = 0.011). This indicates that greater interaction with social media advertisements leads to higher purchase decisions among Generation X consumers. However, the purchase likelihood from influencers showed a less significant impact (p = 0.061), suggesting that influence-driven campaigns might not be as effective in this demographic. Social media marketing, particularly through active user interaction with advertisements, significantly influences the purchasing behavior of Generation X consumers in Yangon.

4.2.2 Research Question 2: How does traditional marketing influence the purchasing behavior of Generation X consumers in Yangon?

The impact of traditional marketing was analyzed using Regression Analysis to examine predictors like the reliability of traditional ads and purchase frequency after exposure to traditional ads.

Table 4.3: Regression Results for Traditional Marketing

Predictor	Beta Coefficient	t-Value	p-Value
Reliability of Traditional Ads	-0.222	-2.692	0.008**
Purchase Frequency (Traditional Ads)	0.222	3.320	0.001**

The results (Table 4.3) showed that both predictors were statistically significant. The reliability of traditional ads emerged as a key factor influencing purchasing behavior (Beta = -0.222, p = 0.008), highlighting the importance of trust in traditional advertisements. Similarly, purchase frequency from traditional ads had a strong positive effect on purchasing decisions (Beta = 0.222, p = 0.001). Traditional marketing significantly impacts purchasing behavior by fostering trust and encouraging repeated exposure, which drives purchasing decisions among Generation X consumers.

4.2.3 Research Question 3: How does social media marketing influence purchasing behaviors compared to traditional marketing among Generation X in Yangon?

A Paired Sample T-Test was used to compare the effectiveness of social media marketing and traditional marketing on purchasing behavior.

Table 4.4: Paired Sample T-Test Results

Measure	Mean	Std. Deviation	Mean Difference	t-Value	df	p-Value
Purchase Frequency (Social Media Ads)	3.57	0.761	0.706	21.684	414	<0.001

Purchase Frequency (Traditional Ads)	2.86	0.659				

As shown in Table 4.4, purchase frequency influenced by social media ads had a higher mean score (3.57) than that of traditional ads (2.86). The mean difference of 0.706 was statistically significant ($t = 21.684$, $p < 0.001$).

This indicates that social media marketing is more effective than traditional marketing in influencing purchasing behavior. Social media ads engage users directly through interactive and personalized campaigns, whereas traditional marketing relies on repeated exposure over time. Social media marketing outperforms traditional marketing in driving purchasing behavior among Generation X consumers.

4.3 Hypotheses Testing

This section evaluates the hypotheses with statistical tests and results presented in separate tables for clarity.

Hypothesis 1: Social media marketing has a significant influence on the purchasing behavior of Generation X

Table 4.5: Hypothesis 1 Testing Results (Social Media Marketing)

Predictor	Beta Coefficient	t-Value	p-Value
Interaction with Social Media Ads	-0.146	-2.544	0.011*

The results showed that interaction with social media ads significantly influenced purchasing behavior ($p = 0.011$). This indicates that users who actively interact with social media advertisements are more likely to make purchases. Hypothesis 1 is supported, as social media marketing significantly influences purchasing behavior.

Hypothesis 2: Traditional marketing has a significant influence on the purchasing behavior of Generation X

Table 4.6: Hypothesis 2 Testing Results (Traditional Marketing)

Predictor	Beta Coefficient	t-Value	p-value
Reliability of Traditional Ads	-0.222	-2.692	0.008**
Purchase Frequency (Traditional)	0.222	3.320	0.001**

The analysis demonstrated that the reliability of traditional ads and purchase frequency from traditional ads were both significant predictors ($p = 0.008$ and $p = 0.001$, respectively). Trust in advertisements and repeated exposure play essential roles in driving purchases. Hypothesis 2 is supported, as traditional marketing significantly impacts purchasing behavior.

Hypothesis 3: There is a significant difference in the effectiveness of social media marketing and traditional marketing on the purchasing behavior of Generation X

Table 4.7: Hypothesis 3 Testing Results (Social Media vs. Traditional)

Measure	Mean	Std. Deviation	Mean difference	t-Value	p-Value
Purchase Frequency (Social Media Ads)	3.57	0.761	0.706	21.687	<0.001
Purchase Frequency (Traditional Ads)	2.86	0.659			

The results confirmed that purchase frequency influenced by social media ads was significantly higher than that influenced by traditional ads ($p < 0.001$). Social media marketing's immediacy and personalization offer distinct advantages. Hypothesis 3 is supported, as there is a significant difference in the effectiveness of social media and traditional marketing, with social media being more effective.

5. CONCLUSION

This study explored the comparative effectiveness of social media marketing and traditional marketing in influencing the purchasing behavior of Generation X consumers in Yangon, Myanmar. The findings revealed that while both strategies significantly impact purchasing decisions, social media marketing demonstrates greater effectiveness due to its interactivity, personalization, and cost-efficiency. On the other hand, traditional marketing continues to play a vital role by fostering trust and reliability through repeated exposure, particularly for high-value purchases.

The demographic analysis confirmed that Generation X in Yangon comprises educated, middle-aged, and primarily middle-income individuals who exhibit hybrid media consumption behaviors. This generation values the immediacy and convenience offered by social media platforms, such as Facebook, but also maintains a deep sense of trust in traditional media channels like television, radio, and print.
A key finding of the study is that social media marketing excels in driving immediate engagement and purchase decisions, while traditional marketing builds long-term credibility and trust. Businesses seeking to optimize their marketing strategies for Generation X should adopt a hybrid approach that integrates the strengths of both social media and traditional methods.

In conclusion, this research highlights the importance of understanding generational preferences in an evolving media landscape. By effectively combining social media interactivity with traditional media's reliability, businesses in Yangon can better allocate their marketing resources, enhance consumer engagement, and drive purchasing behavior. This study not only fills a significant research gap but also provides practical recommendations for businesses aiming to maximize their impact in Myanmar's dynamic marketplace.

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PERSONALIZED FINANCIAL MANAGEMENT: LEVERAGING DATA MINING FOR PROACTIVE FINANCIAL PLANNING

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Abstract

Managing personal finances has become increasingly complex in today's dynamic financial landscape. Traditional financial tools often provide generalized insights, which fail to capture the nuances of individual financial behaviors. This study leverages two data mining techniques, including clustering algorithms (e.g., k-means), and regression models, to deliver a more personalized financial management solution. These techniques enable the analysis of financial data to uncover behavioral patterns, predict future trends, and provide user-specific recommendations. The study examines a sample of 20,000 individuals, focusing on key variables such as income, expenditure, credit scores, and savings behavior. Financial habits are categorized into three distinct groups: spenders, moderate savers, and savers. The predictive model achieves an accuracy of 87%, with regression analysis revealing significant insights into how variations in income and expenses impact savings. Association rule mining further highlights critical patterns in discretionary spending and their long-term financial implications. Utilizing the AI Studio platform, the study preprocesses, analyzes, and models financial data, demonstrating the effectiveness of data mining in facilitating informed decision-making. The results validate the approach with strong correlations and minimal error rates, strengthening the framework for personal finance management. Based on these findings, the paper proposes policy recommendations, such as personalized financial literacy programs and AI-driven advisory systems, to promote financial well-being. This approach has transformative implications for financial advisory services and individual financial decision-making worldwide."

Keywords: *personalized financial management, data mining, clustering algorithm, regression analysis, financial behavior analysis, AI in finance*

1. INTRODUCTION

In today's rapidly evolving financial landscape, managing personal finances has become more challenging than ever. Traditional methods of financial planning often provide broad, one-size-fits-all advice that fails to account for the unique financial behaviors and circumstances of individuals. These conventional tools typically focus on general categories such as income, savings, and expenditure, but they do not offer tailored insights that truly reflect an individual's financial habits or predict future outcomes based on their behavior. As a result, individuals often struggle to make informed decisions about their financial well-being, which can lead to suboptimal financial planning and long-term instability.

To address these challenges, this paper builds on our prior research (Klomtooksing et al., 2021; Napakornwattananon et al., 2022) and proposes an innovative approach to personalized financial management through the use of advanced data mining techniques. Building on the clustering and predictive modeling frameworks developed in our earlier works, this study aims to apply data mining techniques to categorize users into distinct financial behavior groups and predict their future savings using a derived regression model. By employing clustering algorithms and regression models, the research analyzes detailed financial data to identify distinct patterns in spending, saving, and investing behavior. This approach moves beyond traditional methods by focusing on individual-specific data to provide a more accurate and actionable analysis of financial behavior. By leveraging modern data analytics, the study aims to create a model that not only categorizes financial habits but also forecasts future financial trends, enabling users to make proactive decisions based on data-driven insights. This aligns with our prior findings on the impact of personalized data analysis in enhancing decision-making (Sriphaew et al. 2015).

The AI Studio platform serves as a powerful tool for preprocessing, analyzing, and modeling financial data, allowing for the categorization of individuals into distinct groups: spenders, moderate savers, and savers. These categories reflect different financial behaviors and serve as a foundation for offering tailored advice. Furthermore, regression analysis is used to model the relationship between key financial factors, such as income and expenditure, and their impact on savings behavior. The results of this analysis provide predictive insights that can help individuals better understand how their financial actions today will affect their financial future. By offering a more personalized, data-driven approach to managing finances, this research aims to contribute to the enhancement of long-term financial health and sustainability.

2. LITERATURE REVIEW

Recent research in personal finance management has underscored the limitations of traditional tools, which often fail to consider individual financial contexts (Thomas et al. (2020); Odeyemi et al. (2024)). To address this, studies have explored leveraging data mining and machine learning techniques to provide tailored financial recommendations. Tang et al. (2022) demonstrated the effectiveness of clustering algorithms in segmenting individuals by financial behavior, leading to improved budgeting and saving habits. Similarly, Choi et al. (2024) applied regression analysis to forecast income fluctuations and expenditures, enabling users to make proactive financial decisions.

Clustering techniques have proven instrumental in categorizing financial behaviors. Tang et al. (2022) employed k-means clustering to classify users as overspenders, savers, or balanced budgeters, demonstrating that personalized tools significantly enhance financial decision-making. Yin et al. (2022) extended this approach with hierarchical clustering to analyze income and expenditure patterns, further emphasizing the role of tailored financial advice in fostering better financial habits.

Regression models also play a critical role in financial forecasting. Çığşar (2019) utilized linear regression to predict cash flow, while Pervez et al. (2024) applied polynomial regression to capture non-linear trends in income and expenses. These studies highlight the importance of accurate predictive modeling for sustainable financial management.

Incorporating the latest advancements, Kim et al. (2021) introduced a hybrid approach combining decision trees and regression analysis, significantly improving predictive accuracy by addressing non-linearity in financial behaviors. This method was found to outperform traditional regression models in scenarios where user data exhibited high volatility. Furthermore, Choi et al. (2024) emphasized the role of machine learning in real-time financial management, proposing an adaptive system that continuously updates financial advice based on changing spending patterns and external factors.

Privacy and ethical considerations are equally vital in developing personalized financial tools. Odeyemi et al. (2024) emphasized the need for data anonymization, security protocols, and adherence to ethical guidelines to build user trust and ensure responsible financial advice. Transparency and the promotion of sustainable financial behaviors remain key pillars for these systems.

In conclusion, the literature highlights the potential of personalized financial management systems powered by data mining techniques like clustering and regression. These tools improve decision-making by addressing specific user behaviors. However, ethical and privacy considerations are essential to maintaining trust and promoting sustainable financial practices.

3. METHODOLOGY

This study applies a comprehensive methodology of data mining to develop a personalized financial management system using AI Studio (formerly RapidMiner) regarding the flowchart as shown in Figure 1. Key steps include:

1) *Data Preprocessing:* Financial data is collected, cleaned, and categorized into relevant spending groups (e.g., groceries, bills). Missing values are addressed through imputation, and outliers are adjusted. Data normalization ensures optimal algorithm performance.
2) *Clustering:* Clustering techniques such as k-means are applied to segment users based on financial behaviors. Parameters like the number of clusters and distance metrics are fine-tuned to ensure meaningful groupings.
3) *Regression Analysis:* Regression models, including linear and polynomial regression, are used to forecast financial trends. Historical income and expenditure data train these models, which are validated using metrics such as MAE and RMSE.
4) *Integration and Evaluation:* AI Studio facilitates seamless integration of preprocessing, clustering, and regression modeling. Evaluation criteria include prediction accuracy, relevance of recommendations, and user satisfaction, with iterative refinements ensuring continuous improvement.

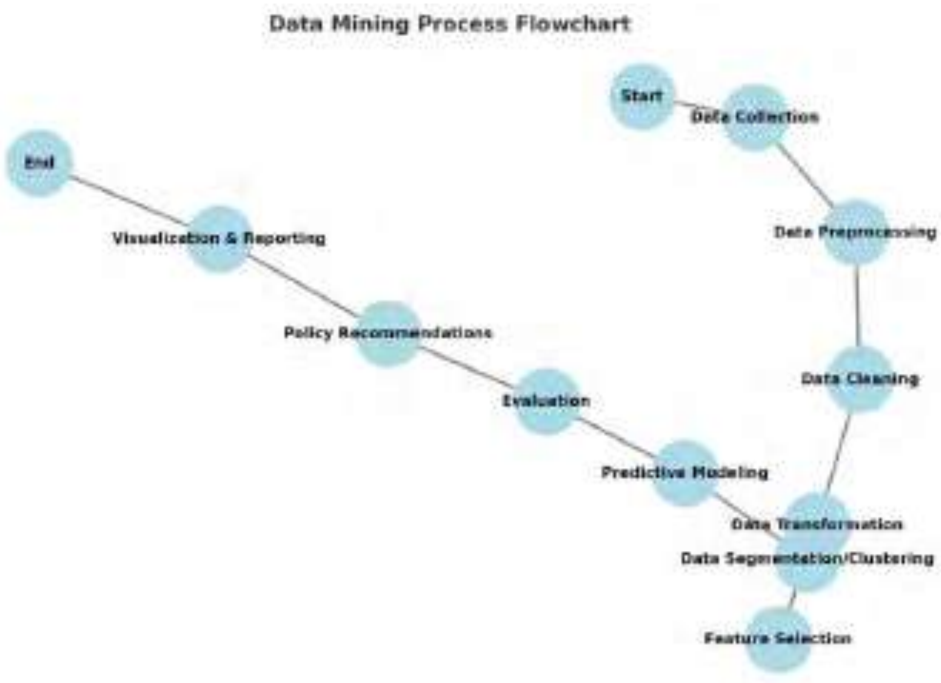

Figure 1. Flowchart of Data Mining Process for Personalized Financial Management System

For this study, the dataset used is sourced from Kaggle, titled Indian Personal Finance and Spending Habits (Jagtap, 2023), which provides detailed financial and demographic data for 20,000 individuals in India. The dataset encompasses a broad range of information, including monthly income, expenses, and savings patterns across various categories such as groceries, transportation, healthcare, and entertainment. It also includes demographic details such as age, occupation, and city tier, which offer insights into how different socioeconomic factors influence personal finance behaviors. In addition to actual income and expense data, the dataset also provides information on desired savings percentages and potential savings across different spending areas, making it ideal for analyzing spending habits and building predictive models for financial management. This comprehensive dataset is publicly available for use under the CC BY-SA 4.0 license, allowing researchers to explore financial trends, identify areas for cost optimization, and make informed recommendations in personal finance management.

4. RESULT AND DISCUSSION

4.1 Clustering Results

The clustering analysis identified three distinct financial behavior groups using the k-means clustering algorithm, each defined by its average Savings_Percentage—indicating the proportion of income saved. These groups reflect different financial habits and provide a foundation for targeted advice.

The first group, termed *Spenders*, exhibited a negative average Savings_Percentage of -0.904, suggesting they consistently spend more than they earn. This pattern indicates a potential risk of overspending and accumulating debt. For this group, tailored advice focusing on expense management and prioritizing essential spending could help prevent financial strain.

The second group, *Moderate Savers*, displayed an average Savings_Percentage of 0.341, indicating a balanced financial approach. These individuals save a portion of their income while maintaining moderate spending levels. With some minor adjustments, Moderate Savers could further increase their savings rate, enhancing long-term financial security.

The final group, *Savers*, showed a high average Savings_Percentage of 1.584, demonstrating a strong capacity to save. These individuals are effectively setting aside a significant portion of their income. For Savers, the focus could shift toward maximizing savings growth through strategic investments or long-term financial planning.

To visualize these clusters, scatter plots were used to illustrate the relationship between Savings_Percentage and financial behavior as in Figure 2. Each cluster was distinct, confirming the effectiveness of the k-means algorithm in uncovering meaningful financial patterns. This classification is invaluable in providing tailored, actionable financial advice.

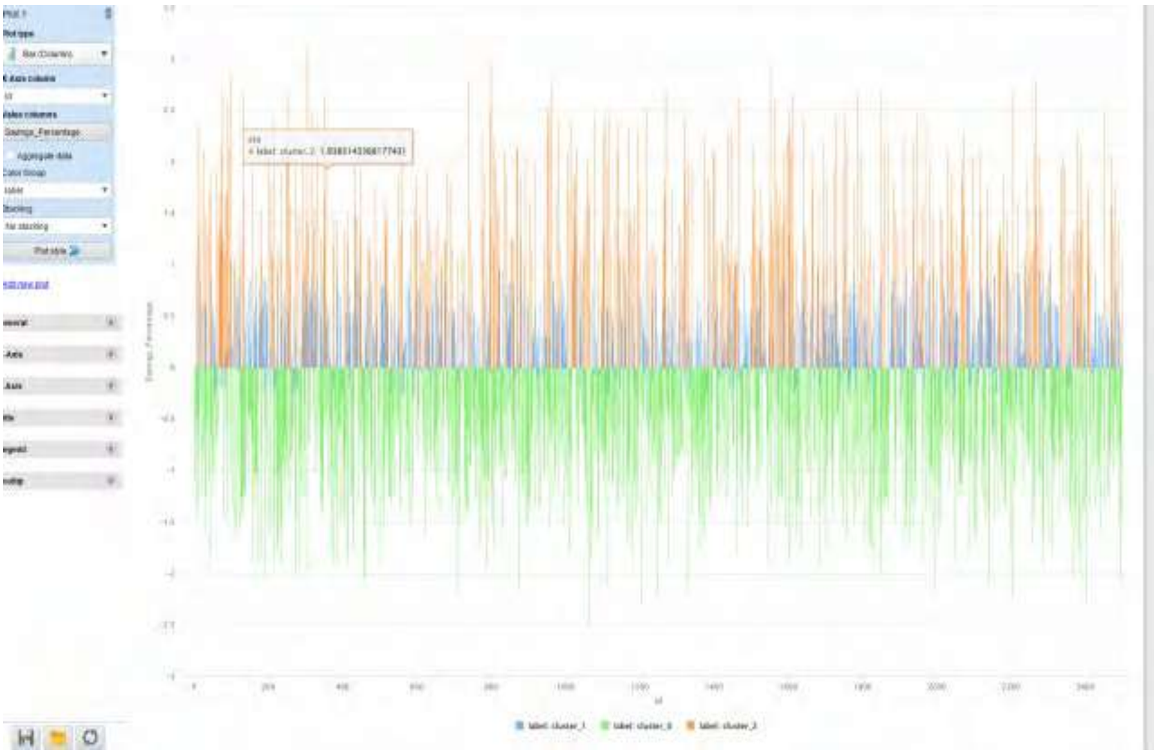

Figure 2. Scatter Plots for Visualizing Three Clusters (Spenders: Green, Moderate Saver: Blue, Savers: Orange)

4.2 Regression Results
The regression analysis adds a predictive dimension to the clustering results, offering a mathematical model to forecast savings based on income and expenses. The regression equation derived is:

$$\textit{Savings} = 500 + 0.935 \times \textit{Income} - 0.5 \times \textit{Expenses}$$

This model reveals how changes in income and expenses affect savings. The Income Coefficient (0.935) suggests that for every additional dollar earned, savings increase by approximately 93.5 cents, assuming expenses remain constant. Conversely, the Expense Coefficient (-0.5) indicates that for every dollar increase in expenses, savings decrease by 50 cents, highlighting the negative impact of higher expenses on savings. The intercept (500) represents baseline savings, such as fixed reserves or previous balances.

The model was trained and tested on the mentioned dataset with ten-fold cross validation, evaluated with performance metrics such as the Root Mean Squared Error (RMSE) and correlation. The average RMSE was found to be 0.413, suggesting a small average error in predictions. The Correlation (R) value of 0.857 indicates a strong linear relationship between predicted and actual savings, validating the model's reliability.

For practical illustration, consider two scenarios: (1) An individual with an income of \$5,000 and expenses of \$3,000 has predicted savings of \$3,675. (2) A person with an income of \$10,000 and expenses of \$7,000 has predicted savings of \$6,350. These examples demonstrate how the regression model helps users visualize their financial situation and make informed decisions.

4.3 Combined Insights
The integration of clustering and regression techniques provides a comprehensive understanding of personal financial behavior. Clustering groups individuals by financial habits, while regression predicts how future changes in income and expenses may influence savings. For example, Spenders could benefit from expense management strategies, while Moderate Savers might consider automating savings to enhance financial growth. Savers, on the other hand, could use investment calculators to optimize the growth of their savings. This dual approach offers both a snapshot of current behavior and predictive insights for improved financial planning.

Based on the findings, policymakers should focus on tailored financial literacy campaigns for high-risk individuals and incentivize savings through customized financial products.

5. LIMITATIONS AND FUTURE WORK
Despite the promising results, several limitations must be addressed. First, the clustering algorithm assumes that all variables contribute equally to the grouping process, which may not fully capture the complexity of financial behaviors. Factors like unexpected expenses, lifestyle choices, and debts may significantly influence savings patterns but were not explicitly included in the model. Additionally, the linear regression model assumes a simple relationship between income, expenses, and savings, which may oversimplify the actual dynamics, as real-world financial behaviors often involve more complex, non-linear interactions.

Another potential issue is biases in the dataset. For example, the financial habits of people in India may not reflect global financial behavior due to the limitation of large financial data availability, which could limit the model's applicability to diverse populations. Furthermore, the scalability of this approach may be a concern; as the dataset grows or varies in geographical and cultural context, the current model might struggle to adapt, reducing its effectiveness in different settings.

Future study could improve this system by incorporating additional features such as age, debt levels, and financial goals. Exploring advanced algorithms like Random Forests or Neural Networks could also enhance the model's ability to capture non-linear relationships and improve predictive accuracy. By refining both the clustering and regression models, and addressing biases and scalability concerns, the system could become more robust and applicable to a broader range of financial scenarios.

6. CONCLUSION

This study highlights the transformative potential of data mining techniques, specifically clustering and regression analysis, in revolutionizing personal finance management. By categorizing users into distinct financial behavior groups—Spenders, Moderate Savers, and Savers—the clustering analysis enables personalized advice that aligns with individual financial needs. The regression model further strengthens this approach by providing accurate savings predictions based on income and expenses, with reliable performance metrics such as an RMSE of 0.413 and a strong correlation of 0.857. Together, these methods offer a robust framework for analyzing and predicting financial behaviors, bridging the gap between raw financial data and actionable financial advice. This study empowers users to make more informed financial decisions, enhancing their ability to achieve financial stability and growth.

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DATA-DRIVEN INSIGHTS: SEGMENTING AND PREDICTING TOURIST SPENDING BEHAVIOR FOR OPTIMIZED MARKETING

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Abstract

Tourism is a cornerstone of the global economy, significantly contributing to job creation, foreign exchange earnings, and cultural exchange. However, traditional approaches to segmenting and predicting tourist spending behavior often fail to capture the complexity of modern tourism dynamics. This study leverages data mining techniques to enhance tourism marketing by integrating segmentation and predictive modeling. Using a sample size of approximately 20,000 tourists around the globe from UAE and Tanzania, the research identifies spending patterns, preferences, and key determinants of expenditure behavior. The findings aim to provide actionable insights for optimizing resource allocation, improving customer satisfaction, and developing targeted marketing strategies. By bridging the gap between advanced data analytics and tourism marketing, this study underscores the potential of data-driven approaches to foster more effective and sustainable tourism initiatives.

Keywords: *tourist spending behavior, data mining, segmentation and prediction, machine learning in tourism, cost-sensitive learning*

1. INTRODUCTION

Tourism is widely regarded as one of the most dynamic and influential sectors of the global economy, contributing significantly to economic growth, job creation, and the development of various regions. As the tourism industry continues to evolve, the need for effective strategies to cater to the diverse preferences of travelers has become increasingly important. Understanding the factors that drive tourist spending behavior is crucial for businesses, governments, and tourism boards to provide better services, enhance customer satisfaction, and maximize the sector's economic impact. Traditional methods of segmenting tourists have primarily relied on demographic and psychographic data, focusing on basic characteristics such as age, income, nationality, and travel motivations. While these methods have proven useful in certain contexts, they often fail to capture the complexity of modern tourist behavior, which is influenced by a multitude of factors, including personal preferences, past experiences, and external influences such as social media (Vanlalhriati et al., 2019) or global events (Zlatanov, 2015). Additionally, such traditional segmentation techniques tend to rely on relatively small or static datasets, which may not fully reflect the rapidly changing and diverse nature of the global tourist population.

In previous work, Sriphaew & Sombatsricharoen (2015) proposed an innovative approach to recommendation systems using a modified ant colony algorithm, which was successfully applied to the tourism sector. This method highlighted the importance of utilizing intelligent algorithms to better understand user behavior and enhance the personalized travel experience. Moreover, Sriphaew & Katkaeo (2017) explored online hotel reservation platforms and their usability, shedding light on how online behavior influences travel decisions. This study aligns with the need for data-driven insights in understanding customer preferences, an area that this research seeks to further investigate within the tourism context.

In recent years, advancements in data collection and analysis, particularly with the advent of big data and machine learning, have enabled researchers and practitioners to gain deeper insights into tourist behavior, Sung et al. (2021). Large-scale datasets, including transaction records, geotagged data, and online reviews, provide rich sources of information that can reveal patterns and trends previously inaccessible through conventional methods. These datasets, when analyzed using sophisticated techniques such as data mining, allow for the identification of complex relationships between various factors that influence tourist spending, including demographic characteristics, travel preferences, and spending behaviors.

This study seeks to bridge the gap between traditional segmentation methods and the emerging field of data-driven marketing by employing data mining techniques to segment tourists based on their spending behavior. Specifically, the study focuses on identifying and predicting tourist spending patterns, offering a more nuanced and data-driven approach to tourism marketing. The core research question of this paper is: How can data mining techniques be applied to segment tourists and predict their spending behavior, thereby enhancing the ability to target marketing efforts effectively? Building on prior work in the application of data-driven methods, such as in Sriphaew et al. (2022) on consumer decision factors and the integration of machine learning techniques in tourism contexts, this paper further explores actionable insights through predictive modeling. By integrating segmentation and predictive modeling, this study aims to uncover insights that can assist in the development of more tailored and effective marketing strategies. The ultimate goal is to optimize the allocation of marketing resources, increase customer satisfaction, and ensure that tourism businesses can meet the diverse needs of their customers more effectively.

2. LITERATURE REVIEW

Existing Approaches to Tourist Segmentation and Prediction Tourist segmentation has evolved significantly over the years. Early efforts relied on basic demographic and psychographic profiles, but recent studies have shifted toward more data-driven techniques that leverage big data and machine learning. These methods allow for more precise and dynamic segmentation, offering a deeper understanding of consumer behavior.

Tourism Profile Measure for Data-Driven Segmentation Guérard et al. (2024) explored the use of geotagged data and social media activity to segment tourists using clustering algorithms. Their research demonstrated how data-driven segmentation could be applied to urban destinations, providing valuable insights into travel behavior. By leveraging digital traces, their study enhanced the granularity of segmentation, enabling targeted marketing strategies for diverse tourist groups.

In line with the advancements in data-driven approaches, Sriphaew et al. (2021) explored the application of machine learning techniques in predicting consumer decisions and behaviors across various domains, including tourism. Their study on digital and physical video game purchases (Napakornwattananon & Sriphaew, 2022) demonstrated the power of predictive models in understanding complex consumer choices, a principle that can be directly applied to understanding tourist spending behaviors in this research.

Machine Learning in Sustainable Tourism Núñez et al. (2024) employed machine learning techniques, such as Decision Trees and Random Forests, to predict tourist spending patterns in Saudi Arabia. Their study integrated these models with ARIMA forecasting, aiming to align predictions with sustainable tourism objectives. The integration of machine learning into sustainable tourism highlights the potential of predictive models in optimizing resource allocation while maintaining sustainability.

Building on the work of Sriphaew & Sombatsricharoen (2015) and Sriphaew & Katkaeo (2017), who both utilized computational models to enhance decision-making in tourism and hospitality contexts, this study explores the intersection of predictive analytics with sustainable tourism practices. Specifically, it focuses on how machine learning models can be used to balance profitability with environmental and societal concerns in tourism marketing.

While existing studies have made significant strides in the use of clustering and prediction models in tourism, they often fall short in combining both approaches for actionable insights. Furthermore, many studies rely on localized datasets, such as social media activity or geotagged information, which may not reflect the global diversity of tourist behavior. Additionally, few studies have integrated cost-sensitive learning into predictive modeling, which could provide more practical business applications by prioritizing high-value customers.

This research aims to address these gaps by:

- Integrating segmentation and predictive modeling to derive actionable insights from tourist spending patterns.
- Utilizing structured datasets that incorporate demographic, behavioral, and spending attributes to enhance the accuracy of predictions.
- Applying cost-sensitive learning to align model predictions with marketing objectives, thus providing more relevant insights for tourism businesses.

3. METHODOLOGY

3.1 Dataset

This study utilizes two distinct datasets to analyze and classify tourist behaviors and expenditures. The combination of these datasets aims to reduce country-specific bias and increase the overall data size, providing a more comprehensive foundation for analysis.

1) *Tourism Behavior Analysis in UAE* Dataset: This dataset contains detailed information on the behaviors and preferences of tourists visiting the United Arab Emirates (UAE). It includes 1,000 records and 15 features such as tourist demographics, travel purpose, spending patterns, accommodation types, and travel frequency (Aliriaz, 2023).
2) *Tanzania Tourism Classification Challenge* Train Dataset: This dataset focuses on classifying tourists' expenditure ranges in Tanzania. It includes 18,506 records and 21 features, categorizing expenditures into different cost brackets (Temu, 2023). The dataset highlights the economic significance of the tourism sector in Tanzania and includes various classification labels for tourist spending.

To overcome the limitations of country-specific data and enhance the robustness of the analysis, two datasets were combined: the Tourism Behavior Analysis in UAE Dataset (Aliriaz, 2023) and the Tanzania Tourism Classification Challenge Train Dataset (Temu, 2023). This integration resulted in a larger and more diverse dataset, allowing for a broader analysis of tourist behavior patterns and expenditure classifications across different regions, (Puttanapong et al., 2024).

With a dataset of integrated 19,506 records, the final integrated dataset comprises 11 attributes that capture key demographic and travel-related information. These attributes are: touristID, age_group, gender, country of origin, travel_purpose, preferred_destination, travel_frequency_per_year, travel_with, total_spending_USD, stay_duration_days, and spending_type.

The target variable, *Spending_Type*, was derived by categorizing tourists based on their total expenditure. For the Tourism Behavior Analysis in UAE Dataset, the target variable was derived from *Total_Spending_USD* by a discretization technique with equal-width binning. It divided the range of total expenditures into intervals of equal size (Han et al., 2012). Based on this method, travelers were segmented into three categories:

- *High-Spending Travelers* (>3400 Total_Spending_USD)
- *Medium-Spending Travelers* (1800-3400 Total_Spending_USD)
- *Low-Spending Travelers* (<1800 Total_Spending_USD)

This categorization enables a more nuanced understanding of spending behavior and supports the development of tailored strategies for various traveler types.
For the Tanzania Tourism Classification Challenge Train Dataset, the target variable was already defined in the *cost_category* feature. However, there are 6 distinct values in this feature, i.e., high cost,

higher cost, highest cost, normal cost, low cost, lower cost. Therefore, the target variable is redefined by combining into three categories:

- *High-Spending Travelers* (high cost, higher cost, and highest cost)
- *Medium-Spending Travelers* (normal cost)
- *Low-Spending Travelers* (low cost, lower cost)

There is no concern about class imbalance, as the distribution is well-balanced across the three categories with 9,219 high, 5,809 medium, and 4,478 low.

3.2 Data Preprocessing and Model Development

The CRISP-DM (Cross-Industry Standard Process for Data Mining) framework was employed to guide the development of the predictive model for analyzing tourism spending patterns (Shearer, 2000). This structured methodology helped in ensuring a systematic approach to data preprocessing, model training, and evaluation. The CRISP-DM process is broken down into several critical phases, each addressing key components of the workflow.

1) Data Cleaning

- *Merging and Reconciling Datasets:*

The integration of two tourism datasets from distinct geographical regions resulted in a larger and more diverse dataset. Discrepancies between column names and data formats were resolved to ensure consistency, facilitating a seamless combination of the two datasets. This step was essential in minimizing biases associated with country-specific data and allowed for a more generalized analysis of tourist behavior.

- *Handling Missing Values:*

To maintain data integrity, missing values in continuous variables were addressed through imputation. Specifically, missing values in the Travel_Frequency_per_Year column were replaced with the median value, reflecting the central tendency of the dataset. For categorical variables, missing entries were imputed with the placeholder "Unknown" to preserve the completeness of the dataset.

- *Outlier Management:*

Outliers in the total_cost_USD column were filtered to ensure that extreme values did not disproportionately influence the analysis. The spending data was restricted to a range between 100 and 15,000 USD to remove outlier values that could skew the model's performance.

2) Preprocessing

- *Encoding:*

Categorical features such as Travel_Purpose and Accommodation_Type were encoded using LabelEncoder. This transformation allowed these categorical variables to be converted into numerical format, which is required for machine learning models.

- *Scaling:*

Numerical features, including Age and Travel_Frequency_per_Year, were standardized to have a mean of zero and a standard deviation of one. Scaling these features ensured that they contributed equally to the model, preventing any feature with a larger range from dominating the learning process.

- *Balancing:*

Given the class imbalance in the target variable Traveler_Type, which classifies travelers into High, Medium, and Low spending categories, oversampling techniques were applied to address the skew in class distribution. This helped ensure that each category was adequately represented, reducing bias in the classification model.

3) Model Training and Evaluation

- *Baseline Model:*

A Random Forest classifier was initially used as a baseline model. The model achieved an accuracy of 74.65% after preprocessing. This result provided a solid starting point but indicated that further model optimization was necessary to improve classification performance.

- *Tuned Model:*

The Random Forest model was further optimized by increasing the number of trees to 300 and setting the maximum depth of each tree to 18. This adjustment resulted in a modest improvement in performance, achieving a cross-validation accuracy of 75.57%. The tuned model demonstrated enhanced capability in classifying tourist spending categories.

- *Cost-Sensitive Learning:*

To align model predictions with business objectives, a cost matrix was incorporated into the training process. The matrix adjusted the model's classification approach, penalizing misclassifications of high-value travelers more heavily, which is important for ensuring that marketing and business strategies are appropriately prioritized.

By following the CRISP-DM framework, a structured and systematic approach was applied to each phase of the project. From merging and cleaning the data to preprocessing and final model evaluation, this methodology ensured that the data mining process was rigorous, leading to a robust and effective model for predicting tourism spending behavior.

4. RESULT AND DISCUSSION

Table 1 summarizes the empirical results of the Random Forest classification model applied to predict tourist spending behavior, comparing the performance of the Baseline Model, Tuned Model, and the Cost-Sensitive Learning Model.

Table 1. **Empirical Results of Random Forest Classification**

Method	Accuracy	Class	Precision	Recall	F1-Score	F1-Score Average
Baseline Model	74.7%	High	76%	75%	76%	75%
		Medium	70%	70%	70%	
		Low	78%	79%	79%	
Tuned Model	75.6%	High	80%	76%	78%	75.3%
		Medium	66%	75%	70%	
		Low	81%	76%	78%	
Cost-Sensitive Learning	75.0%	High	80%	72%	76%	75.3%
		Medium	65%	78%	71%	
		Low	83%	76%	79%	

Baseline Model Performance

The Baseline Model (standard Random Forest classifier) achieved an overall accuracy of 74.7%. It showed relatively balanced precision and recall across the three spending categories, with its best performance in the low-spending category (F1-Score of 79%). However, the model struggled with the medium-spending category, where both precision and recall were 70%, leading to a lower F1-Score of 70%. This suggests that while the model was effective in predicting low-spending tourists, it was less reliable for medium-spending travelers.

Tuned Model Performance

By tuning the model parameters—specifically, increasing the number of trees to 300 and setting the maximum depth of each tree to 18—the Tuned Model showed a slight improvement in overall accuracy

(75.6%). The most significant improvement was in the high-spending category, where precision and recall increased to 80% and 76%, respectively, leading to an F1-Score of 78%. The medium-spending category saw less improvement, with precision at 66% and recall at 75%, resulting in an F1-Score of 70%. However, the low-spending category remained strong, maintaining an F1-Score of 78%.

Cost-Sensitive Learning Model Performance
Introducing Cost-Sensitive Learning to prioritize high-value tourists (high-spending) yielded promising results. The overall accuracy remained close to 75.0%, but precision for the high-spending category improved to 80%, while recall decreased slightly to 72%, resulting in an F1-Score of 76%. In the medium-spending category, precision dropped to 65%, but recall increased to 78%, resulting in an F1-Score of 71%. The low-spending category showed the best performance, with precision reaching 83% and F1-Score at 79%, indicating that the model was particularly effective in predicting low-spending tourists.

Segmentation and Marketing Implications
The segmentation into high, medium, and low spending categories provides actionable insights for crafting tailored marketing strategies that align with different customer needs. Drawing from Lappalainen et al. (2021), who emphasized the importance of customizing business approaches based on segmentation in the context of B2B sales, similar principles can be applied to tourism marketing, where understanding distinct customer segments enables more effective marketing efforts.

- *High-Spending Tourists*: High-Spending Tourists: With improved precision and recall, this segment can be targeted with luxury accommodations, exclusive experiences, and personalized services. Marketing efforts should focus on premium brand partnerships, customized packages, and loyalty programs that emphasize exclusivity.

- *Medium-Spending Tourists*: This group requires offerings that balance comfort with affordability. Social media marketing should highlight visually appealing, cost-effective experiences, seasonal promotions, and bundled packages that offer value while encouraging longer stays or family bookings.

- *Low-Spending Tourists*: The focus for this group should be on budget-friendly accommodations, cost-effective tours, and family-oriented deals. Collaborations with local businesses to offer discounts and promotions will further enhance the affordability aspect of the travel experience.

The results reveal that the Tuned Model provided a more balanced performance across all spending categories, with particular improvements in the high and low-spending segments. However, the Cost-Sensitive Learning Model showed superior performance in targeting high-value customers, as penalizing misclassifications allowed for prioritizing high-spending tourists without sacrificing accuracy in medium and low-spending segments. This strategy, inspired by B2B segmentation and targeting strategies (Lappalainen et al., 2021), enables tourism businesses to focus on high-value customers while maintaining reasonable accuracy across all groups. By adopting such a model, businesses can enhance their marketing efficiency and better allocate resources to meet the needs of their diverse customer base.

5. CONCLUSION
This study demonstrates the potential of data-driven approaches to optimize tourism marketing by segmenting tourists based on their spending behavior using machine learning. By applying a Random Forest classifier, we were able to categorize tourists into high, medium, and low spending groups with a cross-validation accuracy of 75.57%. The model's effectiveness was enhanced by using cost-sensitive learning to prioritize high-value tourists, providing actionable insights for marketing strategies. These findings highlight the importance of integrating data mining techniques for more precise, dynamic segmentation, which can lead to better resource allocation, increased customer satisfaction, and improved marketing outcomes. Future research could further enhance predictive capabilities through real-time data and advanced machine learning methods.

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AI-DRIVEN INNOVATIONS ON CUSTOMER ENGAGEMENT IN US FASHION AND ADAPTATION OF FASHION BRANDS

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Abstract

Fashion industry today is in its transformation phase, which is driven by artificial intelligence. This research examines the effect of AI-driven innovation on customer engagement in US fashion and analyzes how the fashion brands of US adapt to these technologies of AI. The study is focused on applications of AI in design processes, predicting trends, inventory management, and personalized customer experiences. Through a quantitative research method, the study investigates data from different fashion brands and customers to assess the usefulness of AI in terms of operational efficiency and customer satisfaction. The results reveal that AI technologies enhance customer involvement to a great degree by offering personalized shopping experiences and predictive trend analysis, which in return, lead to a rise in the customers' loyalty and sales. Yet, the introduction of AI to businesses comes with certain problems such as the high cost of implementation, technical complexities, and privacy issues. This study helps to understand the purpose of AI in the fashion industry and offers insights into the strategic adjustments that fashion brands need to make to stay competitive in a dynamic digital market. The implications of these findings suggest that the fashion sector will only be able to keep up with the innovation and growth if they continue investing in AI and digital technologies.

Keywords: *AI-driven innovations, Customer engagement, Artificial Intelligence, Adaptation*

1. Introduction

The fashion industry is undergoing a significant transition due to the rise of artificial intelligence. Consumer shopping habits have changed noticeably toward digital and personalized experiences with increased demand for sustainable production after the pandemic. Following the consumer behaviors, fashion brands in United States started to adapt by implementing AI-powered applications into their brands.

Primarily, AI technologies are used for inventory management and digital marketing. However, with the constant advancement of AI, AI applications have expanded to directly interact with consumers, understanding their needs, automate design processes and prediction of fashion trends. In the US, AI has changed the fashion industry by creating enhanced shopping experience, improving operational efficiency, improving trend predictions, even providing personalized design styling services. However, despite the growing adaptation of AI, some businesses hesitate to adapt to AI technology due to concerns over complexity, cost, and digital transformation risks.

Research Objectives

- To assess how AI-driven innovation impacts customer engagement in US fashion
- To investigate adaptation of fashion brands in US.

Proposed hypothesis

H1: AI awareness and familiarity of a fashion brand significantly and positively influence on technology adaptation level of U.S fashion brands
H2: AI awareness in customer operations significantly and positively influence on technology adaptation level of U.S fashion brands
H3: Investment in AI technologies significantly and positively influence on technology adaptation level of U.S fashion brands
H4: Technology adaptation significantly and positively influence on customer engagement in U.S fashion brands
H5: Technology adaptation mediates the relationship between AI integration factors and customer engagement in U.S fashion brands

2. Literature Review

According to Davenport, Thomas H., and Rajeev Ronanki., 2018, Artificial Intelligence changes business processes due to three main cognitive technologies: robotic process automation performs routine tasks, cognitive insights reveal patterns in massive volumes of data to detect fraud and predict customer behavior, and cognitive engagement provides internal support using natural language processing. Companies that try to implement AI face various integration challenges but can overcome them by taking incremental steps. Organizations should focus on amplifying human capabilities, rather than replacing them. AI has huge potential in many industries; thus, making processes more worthy and less costly.

According to Lisa Bertagnoli.2024, AI has revolutionized the fashion industry, from design and production to marketing and customer engagement. With the help of AI, designers can create new designs by using AI algorithms that can generate image and patterns. In addition, fashion companies can improve productivity, designs function faster, and user experience improvement. (McKinsey & Company.2022).

Singh, N. and Adhikari, D. contend that the integration of Artificial Intelligence into inventory management systems has revolutionized supply chain operations. Previously, manual processes were the norm, but the deployment of AI systems has enabled the handling of inventory with greater data and information analysis capabilities. Historical data is input into machine learning algorithms, facilitating accurate forecasting of future demand trends. Furthermore, the integration of AI with Internet of Things (IoT) and 5G technologies promises to enhance operational efficiency by providing real-time data and analytics. (Singh, N. and Adhikari, D.)

According to Shekhar, E. S, AI integration has revolutionized customer engagement strategies. Businesses can analyze customer behavior and preferences through personalization and recommendations systems, providing customers' needs. AI-powered chatbots and virtual assistants have efficiently responded to customer requests, leading to a 21.4% increase in customer satisfaction and a 25% improvement in retention rate. Targeted marketing and personalized offers doubled conversion rates. Big retailers like Amazon have successfully utilized AI-based recommendations systems to enhance shopping experience and boost sales. Advancements in AI will shape how businesses reach consumers. Everywhere, AI has emerged as a key player, revolutionizing customer experience with hyper-personalization, real-time interaction, and channel-spanning capabilities. More on the trend: Businesses have options to improve customer engagement with progressive applications and solutions.

Saponaro, Mariaraola, et al. believe that Artificial Intelligence is changing fashion retail. It is said that by 2020, 85% of customer activities will become automated. AI has brought a complete change in online and physical shopping through personalized suggestions and enhanced customer interaction. Alibaba's Fashion Al store is one such example. The smart mirrors integrated with AI and retail components suggest items matching their previous purchases and current interests. Technological advancements gather data from consumers, which retailers can use to create more engaging shopping experiences. While artificial intelligence speeds up many processes, the personal touch remains a necessity in the luxury fashion retail industry. AR helps consumers focus on both digital and physical elements of the retail experience; however, there are still challenges in creating a physical feeling. This technological development signals a new phase in retail fashion, in particular for personal experience, whereby the younger generation-who are growing up with technology-play an important role.

Artificial Intelligence is revolutionizing customer engagement by offering new tools that enhance interactions between consumers and brands. Suraña-Sánchez et al. (2024) highlight AI's significant impact on marketing, particularly through chatbots, machine learning, and predictive analytics. These innovations enable real-time data collection and personalized consumer experiences, fostering deeper emotional connections with brands. In digital marketing, AI aids in targeted advertising and improving engagement metrics. AI-powered tools, such as recommendation systems and sentiment analysis, enhance customer satisfaction and loyalty by personalizing content and services.

The integration of AI in advertising engagement is further driven by social media platforms and influencers. AI-powered algorithms amplify advertising material, helping brands reach their target groups effectively. The fashion industry benefits from AI's trend forecasting and personalized shopping experiences. Virtual influencers, AI-generated personas, build trust and drive consumer behavior. However, ethical considerations around data privacy and transparency are crucial for a sustainable AI integration in brand strategies. (Suraña-Sánchez et al. 2024).

3. METHODOLOGY

This research uses Quantitative research to gather and analyze data, providing a comprehensive understanding of the trends, benefits, and challenges associated with AI in fashion. The aim of the research is to investigate the impact of AI-driven innovation on customer engagement in the US fashion industry, focusing on how fashion brands are adapting to these technological advancements. The research will use a descriptive research design to explain the present state of AI-centric innovations in the fashion industry and how brands are responding to such transformations.

This study will use a survey method to gather data and the population for the survey will be based in the United State. By using Taro Yamane's formula, the sample size is determined. Approximately 400 respondents from the US urban population, which includes big cities such as New York city, Los Angeles and Chicago and fashion brands operating in those urban centers will be focus for this study. The population for this study will be divided into two groups, which are customer and fashion brand owner and employees.

Questionnaire surveys will be used as a primary data collection design to gather data information on the types of AI technologies used, benefits and challenges of AI implementation and overall impact on business operations and customer engagement. Closed-ended questions will be used and distributed through google forms. And the questions will be used on the Likert scale to determine the extent of AI adaptation and its impact on both consumers and businesses. A panel of experts will review the questionnaire items to determine if the questionnaire can accurately measure interest in this study.

As for data analysis, descriptive analysis and regression analysis will be used in this study. Descriptive statistics will analyze the demographic data of respondents, including fashion brand type, years of operation, and AI adaptation levels. Measures of central tendency (mean, median) and dispersion (standard deviation) will be calculated. Regression analysis will be using SPSS. This will be used to examine the relationships between AI adaptation and business performance metrics like scales growth, customer satisfaction, and operational efficiency using inferential statistics, particularly multiple regression analysis. This analysis will identify significant predictors and their strength.

4. RESULT AND DISCUSSION

4.1 Demographic Profile – Brand

Description		**Frequency**	**Percent**
Gender	Male	63	31.5
	Female	97	48.5
	Prefer not to say	40	20
Age	18–24	56	28
	25–34	115	57.5
	35–44	23	11.5
	Over 44	6	3
Years of experience with brand	Less than 1 year	15	7.5
	1–3 years	97	48.5
	4–5 years	77	38.5
	5 years and above	11	5.5
Familiarity with AI role and functions	Yes	134	67
	No	2	1
	Neutral	64	32

Table 4.1 Demographic Profile – Brand

According to the table 4.1, 31.5% of respondents are male, 48.5% are female, and 20% prefer anonymity. The majority are female. Age distribution shows 28% are between 18–24, 57.5% are between 25–34, 11.5% are between 35–44, and 3% are over 44. The majority are in the 25–34 age range. Years of experience with the brand show 7.5% less than a year, 48.5% 1–3 years, 38.5% 4–5 years, and 5.5% 5+ years. The largest group has 1–3 years. Familiarity with AI roles and functions shows 67% familiar, 32% neutral, and 1% unfamiliar. The majority are familiar.

4.2 Demographic Profile – Consumer

Description		Frequency	Percent
Gender	Male	83	41.5
	Female	100	50
	Prefer not to say	17	8.5
Age	18–24	94	47
	25–34	77	38.5
	35–44	16	8
	Over 44	13	6.5
Shopping preference	Online Only	25	12.5
	In-store Only	48	24
	Mobile Shopping	19	9.5
	Hybrid Shopping (Order online and collect at shop)	29	14.5
	All of the Above	79	39.5
Familiarity with AI role and functions	Yes	138	69
	No	25	12.5
	Neutral	37	18.5

Table 4.2 Demographic Profile – Consumer

According to the table 4.2, 41.5% of respondents are male, 50% are female, and 8.5% prefer not to disclose their gender. The majority are female. Regarding age, 47% are between 18–24, 38.5% are between 25–34, 8% are between 35–44, and 6.5% are over 44. Most respondents are in the 18–24 age range. Shopping preferences include online only (12.5%) in-store only (24%), mobile shopping (9.5%), hybrid shopping (14.5%), and all options (39.5%). The majority prefer a combination of methods. Familiarity with AI roles and functions is high, with 69% being familiar, 18.5% neutral, and 12.5% unfamiliar.

4.3 Brand Integration Factors
4.3.1 AI Awareness and Familiarity

AI Awareness and Familiarity		
Description	**Mean**	**Std. Deviation**
Our brand has a clear understanding of AI technologies and their role in improving business operations	3.11	0.245
Our brand actively invests in AI technologies to enhance operational efficiency	3.13	0.352
AI adaptation has given us a competitive edge over other fashion brands in the marketplace	3.13	0.387

Customer feedback plays a key role in shaping how we implement AI-driven innovations	3.05	0.218
Overall mean	3.10375	0.30067222

Table 4.3.1 AI Awareness and Familiarity

According to table 4.3.1, most fashion store employees expressed a neutral perception of AI awareness and familiarity. They were neutral about their brand's understanding of AI technologies and their role in improving business operations (mean value of 3.11), active investment in AI technologies to enhance operational efficiency (mean value of 3.13), and whether AI adaptation provides a competitive advantage (mean value of 3.13). They were also neutral about the role of customer feedback in shaping AI-driven innovations (mean value of 3.05). The overall mean score of 3.10 indicates a neutral perception of AI awareness and familiarity.

4.3.2 AI Awareness in Customer Operation

AI Awareness in Customer Operations		
Description	**Mean**	**Std. Deviation**
We use AI to predict fashion trends and customer demands accurately	3.13	0.374
AI-powered personalization (e.g., recommendations, targeted ads) has improved customer satisfaction	3.20	0.425
We use AI to provide real-time customer support, such as chatbots or virtual assistants	3.08	0.490
AI innovations, such as virtual try-ons or augmented reality, have enhanced customer interaction with our brand	3.19	0.441
Overall mean	3.1475	0.43288209

Table 4.3.2 AI Awareness in Customer Operation

Most respondents lack knowledge about AI applications in customer operations. They are neutral about AI's accuracy in predicting fashion trends and customer demands (mean = 3.13), AI-powered personalization (mean = 3.20), and real-time customer support (mean = 3.08). They also show neutrality regarding AI innovations like virtual try-ons and augmented reality in enhancing customer interaction (mean = 3.19). The overall mean score of 3.15 indicates a neutral perception of AI awareness in customer operations.

4.3.3 Investment in AI Technologies

Investment in AI Technologies		
Description	**Mean**	**Std. Deviation**
Integrating AI into our operations has been a cost-intensive process	3.03	0.157

Keeping up with rapidly evolving AI technologies is difficult for our brand	2.68	0.671
Integrating AI tools with existing systems (e.g., inventory, CRM) is a significant challenge	3.01	0.071
We plan to increase our investment in AI-driven technologies in the next three years	3.04	0.221
AI adaptation provides a clear return on investment (ROI) for our brand	3.01	0.123
Overall mean	2.9325	0.27116256

Table 4.3.3 Investment in AI Technologies

Most respondents perceive integrating AI into operations as a costly process, with a mean value of 3.03. They also disagree that keeping up with rapidly evolving AI technologies is difficult, with a mean score of 2.68. Respondents are neutral about the challenge of integrating AI tools with existing systems, such as inventory and CRM, with a mean value of 3.01. They also have a neutral view of their plans to increase investment in AI-driven technologies in the next three years, with a mean value of 3.04. Finally, respondents don't know if they perceive AI adaptation as a clear return on investment, with a mean value of 3.01. The overall mean score of 2.93 suggests moderate concerns about cost, integration challenges, and AI adaptation returns.

4.4 Technology Adaptation Level of Brands

Technology Adaptation		
Description	**Mean**	**Std. Deviation**
AI tools have significantly improved our product design and development	3.15	0.410
AI has helped organize our supply chain and inventory management processes	3.13	0.387
Our brand uses AI-driven analytics to better understand customer preferences and behaviors	3.12	0.341
AI adaptation is critical to staying competitive in the evolving fashion industry	3.04	0.253
Over-reliance on AI can sometimes compromise the human aspect of our customer interactions	2.79	0.598
AI adaptaion aligns well with our long-term business goals	3.29	0.497
We evaluate the success of our AI-driven innovations based on their impact on customer engagement and sales performance	3.20	0.413
Overall mean	3.07875	0.44042852

Table 4.4 Technology Adaptation Level of Brands

Most respondents showed a neutral perception that AI tools have significantly improved product design and development (mean = 3.15), supply chain and inventory management processes (mean = 3.13), and AI-driven analytics to better understand customer preferences and behaviors (mean = 3.12). They also recognized AI's role in data-driven decision-making (mean = 3.04). However, they disagreed with over-reliance on AI compromises the human aspect of customer interactions (mean = 2.79). Respondents were neutral regarding AI adaptaion's alignment with their long-term business goals (mean = 3.29) and evaluating AI-driven innovations based on their impact on customer engagement and sales performance (mean = 3.20).

4.5 Customer Engagement Level to Fashion Brands in U.S

Customer Engagement		
Description	**Mean**	**Std. Deviation**
I am aware of how AI is being used in the fashion industry	3.51	0.940
Personalized recommendations provided by AI encourage me to explore more products or brands	3.46	0.708
AI technology reduces the time I spend finding products that suit my preferences	3.53	0.844
AI innovations reduce the time I spend searching for products that match my style preferences	3.62	0.713
AI-based tools (e.g., virtual try-ons, chatbots) enhance my overall shopping experience	3.34	0.698
Virtual try-on tools provide an accurate representation of how products will appear on me	3.39	0.700
I find virtual try-on tools easy to use	3.14	0.642
Chatbots make my shopping experience faster and more convenient	3.56	0.655
I feel satisfied with the speed and efficiency of AI-powered customer support (e.g., chatbots, virtual assistants)	3.79	0.975
I feel that chatbots understand my needs accurately	3.11	0.605
AI-powered features (e.g., augmented reality try-ons) influence my purchasing decisions	3.42	0.725
I trust the accuracy of AI-generated fashion advice or styling suggestions	3.62	0.713
AI-driven innovations have increased my loyalty to certain fashion brands	3.63	0.690
Fashion brands that use AI deliver a better overall experience compared to those that don't	3.86	0.709
AI sometimes fails to meet my expectations in understanding my style preferences	3.34	0.552
I believe fashion brands will rely more on AI in the future to enhance customer engagement	3.18	0.434
I would like to see more innovative AI tools being used in the fashion industry	3.77	0.488

Overall mean	3.53625	0.54579039

Table 4.5 Customer Engagement Level to Fashion Brands in U.S

According to table 4.5, most U.S. fashion brand customers are aware of AI usage in the industry (mean = 3.51). Personalized recommendations (mean = 3.46) and reduced product search time (mean = 3.53) encourage exploration and satisfaction. AI-based tools, like virtual try-ons (mean = 3.39 for accuracy, mean = 3.14 for ease) and chatbots (mean = 3.56 for convenience), enhance the shopping experience. Augmented reality try-ons (mean = 3.42) influence purchasing decisions. AI-generated fashion advice (mean = 3.62) and increased brand loyalty (mean = 3.63) are also perceived benefits. Fashion brands using AI deliver better overall experiences (mean = 3.86). However, respondents express neutral views on AI occasionally failing to meet expectations and on fashion brands relying more on AI in the future. Despite these neutral perceptions, respondents show strong interest in seeing more innovative AI tools in the fashion industry (mean = 3.77). The overall mean score of 3.54 indicates a moderately positive perception of AI's role in enhancing customer engagement.

4.6 The Influence of IT integration factors on technology adaptation in U.S fashion brands

Coefficients[a]

Model				Standardized Coefficients	t	Sig.
				Beta		
1	(Constant)	0.851	0.190		4.477	0.000
	Familiarity	0.682	0.082	0.888	8.357	0.000
	Operation	0.053	0.053	0.104	1.000	0.000
	Investment	0.101	0.073	0.272	1.395	0.001
	R	0.82				
	R-square	0.672				
	Adjusted R-square	0.667				
	F	133.637				
	Sig	0.000				

a. Dependent Variable: Adaptation

Table 4.6.1

According to table 4.6, the R value of 0.82 indicates a strong correlation between AI Awareness, Familiarity, Investment in AI Technologies, and Technology Adaptation, and IT Adaptation. The R-square value of 0.672 explains 67.2% of IT Adaptation variance. The adjusted R-square value is 0.667. The F-test value of 133.637 is highly significant. (p =The overall regression model is statistically significant, indicating a positive and significant influence of independent variables on IT Adaptation. AI awareness and familiarity are standardized coefficients. (β =IT Adaptation is significantly influenced by investment in AI Technologies, with 0.888) having the strongest impact. (β =AI awareness in customer operations. (β =AI awareness, familiarity, customer operations, and investment in AI technologies positively influence IT adaptation, as indicated by the p-values all being less than 0.05.

Coefficients[a]						
Model				Standardized Coefficients	t	Sig.
				Beta		
1	(Constant)	0.886	0.126		7.028	0.000
	IT Integration factors	0.724	0.041	0.781	17.621	0.000
	R	0.781				
	R-square	0.611				
	Adjusted R-square	0.609				
	F	310.49				
	Sig	0.000				
a. Dependent Variable: Adaptation						

Table 4.6.2

According to table 4.6.2, the R value of 0.781 and R-square of 0.611 indicate a strong correlation between IT integration factors and IT adaptation. The standardized Beta coefficient of 0.724 shows that a one-unit increase in IT integration factors leads to a 0.724-unit increase in IT adaptation, holding other factors constant. The t-value of 17.621 and p-value of 0.000 indicate a positive and statistically significant influence of IT integration factors on IT adaptation at the 1% significance level.

4.7 The Influence of Technology Adaptation on Customer Engagement in U.S Fashion Brands

Coefficients[a]						
Model				Standardized Coefficients	t	Sig.
				Beta		
1	(Constant)	3.481	0.602		5.782	0.000
	IT Adaptation	0.388	0.194	0.847	16.225	0.000
	R	6.25				
	R-square	5.48				
	Adjusted R-square	5.508				

	F	12.293
	Sig	0.000
a. Dependent Variable: CE		

Table 4.7

According to table 4.7, the R value of 6.25 and adjusted R-square of 5.508 indicate a strong positive correlation between IT Adaptation and Customer Engagement, explaining 54.8% of the variance in Customer Engagement. The standardized Beta coefficient of 0.847 suggests a one-unit increase in IT Adaptation leads to a 0.847-unit increase in Customer Engagement, holding other factors constant. The t-value of 16.225 and p-value of 0.000 confirm the positive and statistically significant influence of IT Adaptation on Customer Engagement at the 1% significance level. The F-test value of 12.293 is also highly significant. (p =The overall regression model is statistically significant, indicating a positive and significant influence of IT Adaptation on customer engagement.

5. CONCLUSION

The results of this study demonstrate how AI-driven innovations have the potential to revolutionize the U.S. fashion sector by improving consumer engagement. Fashion brands have been able to increase consumer loyalty and streamline operations by utilizing AI technology such as real-time engagement tools, personalized customer experiences, and predictive trend research. However, challenges to the general use of AI continue to exist, including high implementation costs, technical complexity, and privacy concerns.

This research highlights the critical role of AI in reshaping the fashion landscape, providing brands with the tools to navigate an increasingly digital and consumer-centric market. Furthermore, the results demonstrate that technology adaptation significantly mediates the relationship between AI integration factors and customer engagement, underscoring the importance of strategic investments in AI.

As the fashion business develops, businesses that put an emphasis on AI-driven technologies will improve their competitiveness in the market and build deeper relationships with their customers. Future studies could examine how AI affects customer behavior over the long run and investigate creative ways to get over the obstacles this study found.

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SIMULATION FOR THE DEVELOPMENT OF CRITICAL THINKING SKILLS AMONG NURSING STUDENTS; SYSTEMATIC REVIEW

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Abstract

Simulation is a well-established educational intervention widely used in nursing education that enhances nursing students' critical thinking skills. Over time, its integration into nursing curricula has grown substantially. Simulation provides a safe, controlled environment for experiential learning, enabling students to practice decision-making and clinical reasoning. However, despite its perceived benefits, there is limited literature that rigorously evaluates the effectiveness of simulation in fostering critical thinking skills among nursing students. This systematic review aimed to evaluate the effectiveness of simulation in enhancing critical thinking skills among nursing students. A comprehensive search was conducted in the electronic databases PubMed, CINAHL, and Google Scholar for studies published in English between 2015 and 2024.The methodological appraisal was conducted using Joanna Briggs Institute Critical Appraisal tools. This review included 5 studies out of 698 articles that met the inclusion criteria. These studies employed quasi-experimental and randomized controlled trial (RCT) designs, utilizing a variety of validated instruments to assess critical thinking skills (CTS). The key findings include: Four of the studies reported that there is a significant effect of simulation on critical thinking skills development. However, no significant changes were identified in one study. This review provides evidence that simulation plays a key role in enhancing critical thinking skills in nursing students. However, further research is needed to determine the most effective simulation approaches for improving these skills**.**

Keywords; ***critical thinking, nursing students, simulation, non-simulation, nursing education.***

1. INTRODUCTION

Nursing education is a practice-oriented curriculum which emphasis both theoretical knowledge and practical skills. The different approaches have been applied over the year to bridge the gap between the theory and practice in nursing education. One of the widely used approach in nursing education that brings the different outcome if the student is simulation. Simulation was defined by the United Kingdom NMC ,2019 as cited in council of deans of health, 2024) "an artificial representation of a real-world practice scenario that supports student development and assessment through experiential learning with the opportunity for repetition, feedback, evaluation and reflection". This method has been practiced in different forms in nursing education for more than 40 years which enhance different skills including critical thinking (Hajbaghery, 2017 & Kim, 2018). The simulation consists of methods which provides interactive and effective individualized learning opportunities as whole or part of the process is replicated by the reproduction of them (Burton and Hope, 2018; Doğru & Aydın, 2019,). This not only improves students' critical thinking but also improves the decision-making skills, while teaching psychomotor skills and problem-solving skills. (Pittman, 2012). However, there is a variation in the development of critical thinking in simulation education. Hence, the evidence from systematic review would identify the area that simulation could be incorporated in nursing education. Moreover, the findings could be used to make decision and policy development for nursing education.

2. LITERATURE REVIEW

In the recent years the advancement of technologies, quick changes of political, social, and cultural factors determine the need to think and apply innovative approaches in nursing and medical education (ZarifSanaiey, Amini, & Saadat, 2016). There is an increase of simulation in nursing education which is an innovative approach that helps in developing nursing students' cognitive skills, increases practical knowledge and ethical awareness (China 2018; Motola et al, 2013; Ahn, & Kim, 2015). The development of critical thinking skills is a vital component in providing quality care. Hence, it is particularly necessary for the evidence available on simulation to be comprehended for developing nursing students' Critical Thinking Skills (CTS). A systematic review aids in identifying, evaluating, and summarizing the findings of fundamental studies regarding a particular subject while providing evidence that aids in taking an appropriate decision related to that subject (Gopalakrishnan & Ganeshkumar,2013).

The global changes in health care such as complex clinical placements, patient safety issues, ethical concerns, and problem-based clinical situations requires to use critical thinking skills. The critical thinking results in interpretation, analysis, evaluation, and inference due to purposeful and self-regulatory judgment (Shin, Ma, Park, Sun Ji, & Kim, 2015). This critical thinking skill is important, and it is defined in nursing profession as "the process which involves reflective and reasonable thinking of nursing problems but without any solution to it and focuses more on the action and belief" (Yildrim & Ozkahraman, 2011, as cited in Adib-Hajbaghery, 2017, P.17). It is evident that the essential element to increase professional responsibility and high-quality care is critical thinking skills (Scheffer and Rubenfeld, 2000 as cited in Kim, 2017).

In addition, Scheffer and Rubenfeld, (2000, as cited in Kim, 2017) believed that application of critical thinking skills depends on the situational knowledge which is used for analyzing the situation and bringing a logical reasoning to the decision. Therefore, methods which would enhance the critical thinking of nurses is essential in nursing education. Critical thinking in nursing education is highly recommended in United States and emphasizes the nursing education institutes to treat critical thinking as an essential nursing education outcome (American Association of Colleges of Nursing, 2008 as cited in Adib-Hajbaghery, 2017). Therefore, restructures and approaches in nursing education intensified the skill of critical thinking.

This systemic review is to evaluate the effectiveness of simulation in enhancing critical thinking skills among nursing students.

3. METHODOLOGY

In this review a comprehensive search was conducted in the electronic databases PubMed, CINAHL, and Google Scholar for studies published in English between 2015 and 2024.The methodological appraisal was conducted using Joanna Briggs Institute Critical Appraisal tools.

3.1 Inclusion criteria

Inclusion criteria were simulation-based education that had only focused to nursing students; the comparison of the simulation with other intervention; the studies with intervention of simulation that influenced critical thinking skills; the randomized or non-randomized controlled group design or one-group pretest and posttest design. either could be experimental or non-experimental studies, qualitative, quantitative, or mixed studies. Studies were excluded if the students were enrolled to specialties courses., systematic review, Meta-analysis and Meta- synthesis and unpublished non-English language,

3.2 Searching Database

The database included PubMed, CINAHL Plus, Hinnari, and Google scholar and search was of last 10 years using key terms. The PubMed search was done using" *simulation education* "AND *critical thinking"* AND *"nursing students"* resulted 11 articles then manually titles were refined and out of that only one articles fit to the criteria. The other key terms used were "*simulation versus non-simulation*" AND *"nursing student* "AND "*critical thinking skills''* which does not result any article. The Hinnari search resulted 551 articles using" *simulation education" critical thinking', nursing students* and *"simulation" "non-simulation" critical thinking', nursing students"* resulted 2 articles. The CINAHL Plus using "*nursing students"* "*simulation in nursing education" critical thinking"* resulted 63 and using "*simulation in nursing education" "no simulation"* AND *critical thinking* resulted 2 articles. The Google scholar "*simulation education nursing"* AND *"Critical thinking"* resulted 2 articles and using *simulation education in nursing* "AND "*thinking'* AND*, "no simulation*" resulted 62 articles. The search was limited to research articles and the detail of search and inclusion process was done using flow Sheet (fig.1).

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3.3 Selection

Initially 698 articles were retrieved and after duplicated removal, 125 articles retrieved. Then after screening full text of 20 retrieved. The screened of eligibility resulted 9 articles. Furthermore, articles were discarded after screening exclusion criteria and appraising. Finally, a total of 5 research studies remained for review. The flow of the selection and characteristic of the studies would be detailed in the result.

3.4 Types of studies

The quasi – experimental studies, and Randomized Control Trail (RCT) studies were the types of studies used in this review. In quasi- experimental approach some studies have with pre- post design and RCT with control and experimental groups.

3.5 Types of participants

The studies have nursing students in different levels. For this review student of first-degree nursing course would be considered which includes undergraduate nursing students.

3.6 Types of intervention

The primary intervention is simulation. The eligible interventions are simulation and traditional method comparison and studies of any simulation intervention that affect the outcome of critical thinking.

3.7 Types of outcome measures

The studies outcome would be CTS of nursing students.

3.7.1 Primary outcome

The primary outcome of CTS of nursing students with the intervention

3.7.2 Secondary outcome

The secondary outcome would be problem solving, increase self-confidence and self-efficacy.

3.8 Assessment of Methodological Quality

The appraisal of methodological quality studies selected were done using the Joanna Briggs Critical Appraisal tools. The studies that cover inclusion criteria and scores 1 or 2 were included in the final review.

3.9 Data Extraction and Synthesis

The data were extracted by one reviewer and the descriptive characteristics of the data would be detailed in the result that includes study type, description of intervention, description of participant and outcome. The heterogeneity of 5 articles were considerable.

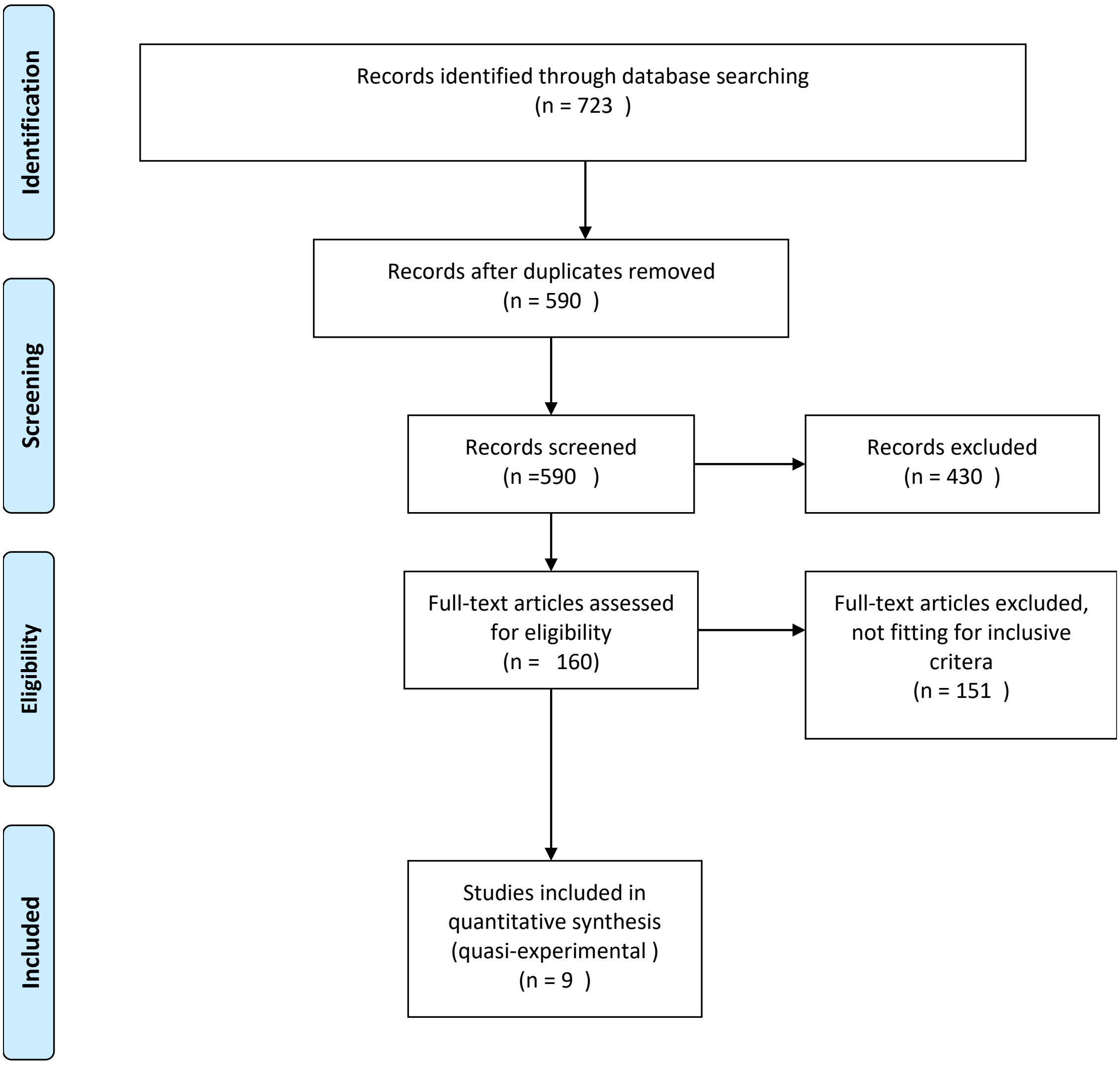

Figure 1

4. RESULT AND DISCUSSION

In some of the reviewed articles several outcome variables are noted, however, the key effort of this review is to outline the effectiveness of simulation for the development of critical thinking skills of nursing students. The reliability of the finding the methodological quality, characteristic of the study and simulation method used would be described to optimize interpretation of the result.

4.1 Types of included studies

The 5 articles met inclusion criteria (characteristic of the studies would be after reference). The studies included Randomized Trail (RCT) studies and quasi – experimental studies in some used cross over design. In these studies, simulation scenario was used but varies the type of simulator which were videotaped vignettes (VTV) and high-fidelity human simulation (HFHS) and high-fidelity simulators. There were different range of comparison of simulation in this review where some compared two simulation method in the development of critical thinking skills whereas other compared non-simulation method and simulation method on the development of CTS. The area in which simulation varied from emergency setting to critical care setting in which most study was based on emergency area that include simulation of cardiac arrest. The measurement of simulation on critical thinking was measured using varies tools where some has primary outcome of CTS whereas other tools had CTS measured as secondary outcome in view the diversity of the evidence was based on the significance of CTS.

4.2 Types of excluded studies

The types of studies excluded are RCT and quasi-experimental which had simulation, but the effectiveness does not measure the CTS and the participant are from specialty courses such as emergency and critical care program and anesthesia course. The outcome of the studies included CTS as primary outcome and some studies does not measure CTS with simulation.

4.3 Risk of Bias in studies

There is a need to address the risk of bias in evidence, which is a vital for assessing the quality of the review (Jull et al, 2015). The simulation intervention to subspecialty courses participant might have different level of cognition so these studies were not included to reduce bias. The appraising of the selected articles was done to minimize risk. However, in the selected articles there might be risk due to the different tools used to measure especially tools used to measure CTS as secondary outcome. The other intervention approach might affect the level of CTS, but this might not be an issue as this review focus mainly to overall development of CTS with simulation. The blinding of the study setting might reduce bias.

4.4 Effects of Intervention

In addition to CTS other outcome variables were measured in some studies that include self-efficacy, Self-confidence, and decision-making skills (Ahn, & Kim, 2015; Kim, 2018 & Unve et al, 2018). The five articles included 250 participants in which 30 participant study resulted there was no significant change of CTS with simulation. Hence, most finding suggest that simulation has positive effect on CTS.

4.41 Simulation with Positive Effect of on CT

The four studies reported that simulation develop CTS of nursing students (Ahn, & Kim, 2015; Fero et al, 2010; Kim, 2018 & Unve et al, 2018). In Kim (2018), the effect of CTS was measured by comparing simulation with role play and comparing simulation with class lectures that showed that simulation after role play was more effective than simulation after lecture. Moreover, study by Ahn, & Kim (2015) compared simulation activity with debriefing and lecture with case study that using two scenario which resulted in no notable difference shown after the first scenario but after the second scenario CTS was increased in experimental group. In Unve et al (2018) hybrid simulation improved CTS and in Fero et al, (2010) high-fidelity human simulation (HFHS) had a relationship with CTS which had increased overall score of critical thinking deposition.

4.42 Simulation with no significant change on CT

In this review, one of the studies found that though there is effect on CT, there is not a significant difference to CTS of nursing student with simulation (AlAmrani et al, 2017). According to AlAmrani et al, (2017) no significant difference between traditional method of teaching and Simulation based teaching was noted.

Table 1

Source	**Study design**	**Nursing context**	**Population**	**Method**	**Result**	**Finding related to the review purpose**
Kim, E.,2018/ South Korea	pretest–post-test quasi-experimental crossover design	compare two types of simulation instruction methods.	76 nursing students	Both groups were given simulation lessons based on the same emergency scenario in 2 sessions. First session group A completed role play of an emergency cardiac arrest situation and group B listened to the lecturer on the procedure. Second session after 10 days group A simulation exercise after listening to the lecture and group B	Compared to traditional lecturing, it was demonstrated that simulation exercises following role play enhanced participants' understanding of clinical situations, while also boosting their self-efficacy and critical thinking skills.	Including the simulation exercise there is an increased critical thinking skills of the nursing students

				simulation exercise after the role play.		
Ahn, H., & Kim, H. Y., 2015/ Korean	a quantitative design in two separate phases.	Scenario with high-fidelity simulation develops cognitive and psychomotor skills.	72 nursing students	First phase 5 nursing expertise validated the simulation scenarios designed for high fidelity simulation. The second phase experimental group and control group using posttest design were evaluated students' perceptions of simulation design and learning outcomes	strong link between how participants viewed the design of the simulation, their self-confidence, and their critical thinking skills, and these results were statistically significant.	The simulation method influences the enhancement of critical thinking skills.
Alamrani, M. H et al,2017/ Saudi Arabia	pretest–posttest design	Compare the effects on critical thinking ability and self-confidence using either simulation-based or traditional teaching methods.	38 nursing students	The experimental and control groups received simulation- and lecture-based teaching, respectively and pre and posttest questionnaires.	No significant differences in outcomes were found between simulator-based and traditional teaching methods but there is an improvement in critical thinking and self-confidence was observed in both the control and experimental groups.	Enhancing critical thinking skills is a crucial aspect of nursing education

Saghafi, F. et al, 2024/Australia	pre-test post-test design	Critical thinking skills were evaluated both before and after participants attended two lectures and completed nine hours of four distinct simulation sessions	56 nursing students	Pre- and post-tests were administered before and after the simulation program, which consisted of four hours of lectures introducing the simulation program, followed by four simulation sessions (manikin-based, video-based, game-based, and simulated patient methodology) conducted over nine hours. The program concluded with a two-hour post-simulation lecture for reflection.	Simulation improved critical thinking scores after completing the program.	Simulation associated with improving critical thinking

4.5 Discussions

There are several studies done to investigate the effectiveness of simulation in nursing education on the CTS. Even so, a vast array of studies on stimulation have shown a positive effect on CTS, with significant difference in the CTS score. Some of the studies outline that there is an effectiveness of critical thinking skills using simulation- based education (Ahn, & Kim, 2015; Kim, 2018, Saghafi, F. et al, 2024 & Stener, A. et al, 2023). One study reported an improved critical thinking skill with simulation in two groups that had score changes of CTS that were similar (AlAmrani et al, 2017,).

In this review the CTS was measured using different instruments of various methodologies. Therefore, the result might be inconsistent, but the instrument reliability and validity were checked before the studies in all the literature. Hence, there is a trustworthiness of the findings on CTS. However, the CTS varies on the experience that might manipulate the finding. Many of the studies reviewed, have used broad-spectrum Scale to measure CTS including California Critical Thinking Skills Test (CCTST) (Adib-Hajbaghery & Sharifi, 2017). The measurement using CCTST of high-fidelity human simulation (HFHS) and videotaped vignettes (VTV) in which there was no significant difference with videotaped vignettes (VTV) to CCTST score (Cramer’s V =0.444, P =0.029) but with HFHS significant change in the CCTST score (Cramer’s V =0.413, P =0.047) (Fero et al, 2010). The measurement using Yoon's Critical Thinking Disposition (YCTD) is a measurement tool used for Korean students in a CTS of

Korean students with simulation of two groups simultaneously change of pre role play simulation and pre lecture simulation resulted in CTS being high with role play (Kim, 2018).

There was limited research that compared critical thinking skills between simulation and traditional methods. Nursing students' ability in interpreting ECG with the aid of simulation and traditional methods resulted in assumption of the significance and benefit of critical thinking skills but there is no significant change in the critical thinking skills with simulation. (AlAmrani et al, 2017).

Most of the studies consisted of single methods while some used combined simulation. Even though there were a wide variety of simulation methods, there were consistent results between the studies. The use of manikin-based, video-based, game-based, and simulated patient methodology has improved critical thinking of nursing students (Saghafi, F. et al, 2024). The same finding in critical thinking skill with High fidelity simulation and human patient simulation were noted as well. However, in a study two simulation scenario examined in which scenario 1 has not shown significant difference between control and experimental group whereas scenario 2 was effective for critical thinking in the experimental group than control group but there was weak correlation between the perception simulation and critical thinking skill in experimental group (Ahn, & Kim, 2015). However, ECG interpretation of pre-post design of control and experimental group in which control group has lecture and the experimental group had simulation session that resulted both show equal score of CTS which does not have significant change (AlAmrani et al, 2017). More relevant studies are required to clarify the impacts of simulation on nursing students' critical thinking. Also, to determine the method of simulation is most effective for the development of CTS.

The review of existing literature proves a positive effect of simulation in CTS development, but there are unanswered questions in the topic such as.

Is simulation more effective than carrying out traditional methods in critical thinking development? Is simulation a more feasible option based on the current system, and if so which method of simulation is more efficient?

Finding the answers to these questions requires further studies and research on simulation use in the promotion of critical thinking skills in nursing education must be carried out.

These would be the basis for future research that will guide nursing instructors and education to optimize the utilization of simulation for the promotion of critical thinking in nursing education.

5. CONCLUSION

The evidence that is currently available supports the view that simulation is an effective method in nursing education that helps with development of critical thinking skills for nursing students. It has the advantage of having the opportunity to customize the subject, the context and the type of simulation that is required. The evidence further supports that scenario- based simulation is more effective in CTS development. It also suggests that it leads students to think more while they develop their thinking skills. At the same time, further research is required to govern the participant numbers in simulation classes that aid CTS development while there is a need to adopt a universal intervention of simulation.

5.1 Implications for Practice

The study finding suggested that simulation is a powerful tool that enhances the critical thinking skills of the nursing students. The integration of simulation in nursing education allows nursing students to engage in a realistic clinical scenario that promotes decision making and problem-solving skills using the critical thinking approach. The nursing educators can use to bridge the gap between theory and practice using simulation that foster the confidence, competence and enhance the critical thinking skills.

5.2 Implications for Research

In the future more, exploration and research are needed to evaluate the most effective approach which can enhance the critical thinking skills and the benefit of simulation on critical thinking skills. Also, further research is required to explore the specific mechanisms which can simulate critical thinking skills in nursing education. Studies should investigate the impact and outcome of different simulation modalities, such as high-fidelity versus low-fidelity simulations, on critical thinking development. One of the research projects which could be done is longitudinal research which can determine whether the critical thinking skills gained through simulation persist into professional practice. Furthermore, exploring the role of variables such as repetition, scenario complexity, and the inclusion of interprofessional education in simulations can lead to deeper insights into optimizing critical thinking outcomes. Finally, researchers should focus on assessing the simulation which can be tailored to accommodate the diverse learning styles and improve accessibility across different educational settings.

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The Impact of High-Fidelity Simulations on Student Outcome in Nursing Education.

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Abstract

In nursing education, simulation training extensively utilizes such technologies to prepare students for clinical practice in a risk-free environment. Simulation technologies have evolved from low-fidelity to high-fidelity tools, promoted as innovative teaching strategies that transfer students' self-confidence and competence into clinical settings. The aim of the study is to explore the effectiveness of high-fidelity simulation in nursing education. This study was a systematic review. A thorough literature search was carried out utilizing resources from the CINHAL, Pubmed, Wiley online library and ScienceDirect from 2016 until 2024. Of the 155 retrieved articles, 17 were selected. While the majority consisted of randomized controlled trials (RCTs) and quasi-experimental studies, other methodologies were also represented, including descriptive designs, phenomenological studies, mixed-method evaluation surveys, cross-sectional survey designs, pilot study, scoping reviews, and single-group pretest-posttest studies. High-fidelity simulation has been shown to effectively enhance the development of clinical reasoning skills, knowledge and performance in undergraduate nursing students, either as a standalone method or when combined with traditional teaching approaches or other simulation techniques.

Keywords: *Low fidelity, High fidelity, Clinical simulation, Mannequins, Undergraduate nursing students*

1. Introduction

The primary goal of undergraduate nursing education is to prepare students to attain the necessary professional proficiency required for registration in the nursing profession (World Health Organisation, 2016). Developing clinical reasoning skills is critical for nurses to make accurate and timely professional judgments (D’Souza et al., 2017). Advanced clinical reasoning is a vital competency for delivering safe and high-quality patient care (Ulenaers et al., 2021). Strong clinical reasoning abilities enable nurses to identify early signs of patient deterioration, helping to prevent the escalation of such conditions (Haddeland et al., 2021). The use of simulation-based learning environments in nursing education has grown significantly on a global scale in recent years (D’Souza et al., 2017).

In recent decades, nursing education has undergone significant reforms worldwide. A key aspect of nursing education is ensuring that students are adequately prepared to enter the workforce upon graduation and are equipped to practice safely and competently throughout their careers. Clinical placements are a crucial component of nursing training, offering students valuable, hands-on experience in real-life situations (Hill et al., 2023). However, various challenges, such as limited availability of clinical placements, increased enrollment in nursing programs, the need to supplement reduced practicum opportunities, high workloads, staffing shortages among ward nurses, patient safety concerns, and ethical considerations (Ulenaers et al., 2021), have highlighted the importance of clinical simulation in creating effective learning environments. Clinical simulation replicates real-life scenarios using tools such as high- and low-fidelity mannequins, standardized patients (actors), role-playing, skill stations, and computer-based critical thinking games (Hill et al., 2023). This approach enables students to replace or enhance real-life experiences through guided and experiential learning in a safe environment, minimizing risks to patients and institutional resources. The choice of simulation methods should align with specific learning outcomes, the needs of the students, and their educational level (D’Souza et al., 2017). Simulations are widely acknowledged for enhancing patient safety, offering nursing students clinical experience in a secure and controlled setting (Basak et al., 2016).

Aims and Objectives

Aims

This research aims to explore the impact of low- to high-fidelity simulations on student outcomes in nursing education.

Objectives

- To review the nursing literature on clinical simulation in nursing education.
- To differentiate between low-fidelity and high-fidelity simulations.
- To explore the effectiveness of low-fidelity to high-fidelity simulations on student outcomes.
- To assess the effectiveness of high-fidelity mannequins in nursing education.

Research Questions

- What reviews of existing literature on the impact of Low-Fidelity to High-Fidelity Simulations on Student Outcomes in nursing education are identified?
- What do evidence-based guidelines recommend for the use of clinical simulation in nursing education?
- What challenges are associated with implementing high-fidelity simulation in nursing education?
- What strategies are commonly recommended to overcome the challenges of implementing high-fidelity simulation in nursing education?

2. Literature Review

Simulation in Nursing Education

Simulation technologies have evolved, ranging from low-fidelity to high-fidelity advancements (Basak et al., 2016). Simulators are categorized into three types based on their technological complexity and fidelity, which refers to the realism of the models and the intended experience: low, medium, and high fidelity (Ayed at al., 2022). Simulation encourages active learning by immersing students in realistic scenarios. Repeated practice of nursing skills within simulation settings enhances students' proficiency, improving safety, clinical performance, and the application of theoretical knowledge to practical situations. Additionally, prebriefing and debriefing sessions following HFS activities allow students to explore factors that impact patient safety (Hussein and Hirst, 2023).

Low-fidelity simulation (LFS) involves basic setups and is primarily used to teach fundamental psychomotor skills for simple procedures or physical examinations, focusing on a single part of the body, such as basic cardiac auscultation. Medium-fidelity simulation (MFS) offers greater realism compared to LFS by incorporating a mannequin linked to simpler pre-programmed software (Basak et al., 2016). This setup allows instructors to manage basic physiological variables, aiming to help participants develop competencies, solve problems, perform skills, and practice decision-making during clinical scenarios (Ayed at al., 2022). High-fidelity simulation (HFS) is the most complex, integrating multiple physiological variables to create highly realistic clinical scenarios using life-sized mannequins. HFS enhances realism by incorporating features that mimic real-life situations, enabling participants to train in advanced techniques and competencies for managing critical situations (Hill et al., 2023).

To identify evidence of the educational effects using simulation, it is necessary to apply various educational simulation modalities. In nursing practice education, comparison and analysis of new methods that are rarely used (Kang et al., 2020). However, to fully utilize simulation for competency assessments, educators and researchers must acquire the necessary expertise to use these tools effectively, create realistic case scenarios, and develop validated, standardized, and reliable testing methods (Hussein and Hirst, 2023).

High-Fidelity simulation in nursing education

High-fidelity simulation is recognized as an innovative teaching approach that effectively helps students translate their self-confidence and skills into clinical practice (Cengiz et al, 2023). High-fidelity simulation (HFS) has rapidly become a prominent teaching and learning method in various health professions, including nursing. Low-fidelity simulation training typically employs static task trainers and mannequins with limited ability to replicate physiological responses. In contrast, high-fidelity simulation (HFS) utilizes advanced, computer-integrated mannequins that can physiologically respond, enabling the simulation of diverse clinical scenarios (Mathew & McCarthy, 2021) Furthermore, Alconero-Camarero et al. (2021) describe HFS as offering highly realistic and interactive learning experiences. These simulations may include various formats, such as human actors, mannequins, task trainers, or virtual reality (Alconero-Camarero et al. 2021). High-fidelity simulation (HFS) involves utilizing full-scale computerized patient simulators to replicate realistic clinical conditions and scenarios (Craig et al., 2021).

This approach has gained significant traction in nursing education as an effective teaching method. Systematic reviews have highlighted HFS's ability to enhance critical thinking, knowledge, teamwork, and technical skills among registered nurses and nursing students (Mohammed et al., 2024). A study by (Hallin, Bäckström, Häggström, & Kristiansen (2016), outlines that high-fidelity simulation (HFS) is one of the few educational strategies that enables nursing students to thoroughly engage with the complexities of clinical judgment in response to patient issues and events in challenging care scenarios (Hallin, Bäckström, Häggström, & Kristiansen, 2016). Additionally, most of the RCT's indicates that, compared to low- and medium-fidelity simulations, HFS has the greatest impact on cognitive and emotional learning outcomes and a strong effect on psychomotor skills across various nursing groups, including students, licensed nurses, and nurse practitioners (Mohammed et al., 2024). Other studies demonstrate that HFS significantly improves immediate knowledge and skills when compared to no intervention, lectures, or low-fidelity mannequins in nursing education (Chabrera, Curell & Rodríguez-Higueras, 2025).

Similarly, another study by Filomeno & Minciullo (2021), emphasized that high-fidelity simulation (HFS) emerged as the preferred learning method among students, addressing challenges faced by participants and reflecting positive responses to simulation. Cengiz et al. (2023) noted that HFS scenarios help students identify patient needs, perform effective nursing procedures, and demonstrate communication skills appropriate to the situation. According to Baptista et al. (2016), students felt they acquired substantial knowledge through HFS and recognized the importance of seeking help when needed during simulations. Additionally, Craig et al. (2021) highlighted that effective communication and teamwork are essential for delivering quality patient care, as emphasized in simulation-based learning.

Use of High-Fidelity mannequins in nursing education

High-fidelity patient simulators (HFPS) are advanced computerized manikins designed to mimic real patients by responding to learners' interventions. These simulators can breathe, speak, exhibit eye movements, display palpable pulses, and replicate other physiological characteristics of real patients (Cengiz et al, 2023). Numerous studies have highlighted the positive impact of HFPS on students, including enhanced active learning and a heightened sense of responsibility in their practice. HFPS significantly enrich students' learning experiences, boosting their confidence and satisfaction in their ability to provide patient care (Chabrera, Curell & Rodríguez-Higueras, 2025).

Additionally, some research highlights that simulations utilizing high-fidelity mannequins enhance students' clinical skills, communication, decision-making, critical thinking, and foster improvements in self-confidence and teamwork. (Basak et al., 2016). However, high-fidelity mannequins are expensive and demand significant training for programming and maintenance. Additionally, designing and conducting simulations with high-fidelity mannequins often requires considerable time and expertise from faculty members (Aldhafeeri & Alosaimi, 2020). Furthermore, two prior studies have found no statistically significant differences in student performance between low-fidelity, moderate-fidelity, and high-fidelity simulations (Chabrera, Curell & Rodríguez-Higueras, 2025). As a result, it remains uncertain whether the substantial investment of time, money, and expertise in developing high-fidelity simulation experiences translates into enhanced student outcomes (Watson et al., 2021).

Students reported more positive perceptions of simulation experiences involving high-fidelity mannequins compared to those using low-fidelity mannequins. Specifically, they rated higher levels of satisfaction, self-confidence in learning, and simulation design when high-fidelity mannequins were utilized (Chabrera, Curell & Rodríguez-Higueras, 2025). Both novice and advanced students viewed high-fidelity simulations as more advantageous; however, advanced students found low-fidelity simulations more beneficial than novice students. Further research is needed to explore whether students' perceptions of the technology itself, rather than the simulation experience, influence their evaluations of the simulation's value (Aldhafeeri & Alosaimi, 2020).

3. Methodology

This research is a systematic review in which the research methodology is a structured approach employed to tackle research challenges, helping to understand both the final outcomes and the methods used in scientific inquiry (Nayak & Singh, 2021). Additionally, it aims to define and assess various methodologies, highlight their resources and limitations, and clarify their assumptions and results (Patel & Patel, 2019). Systematic literature reviews (SRs) are designed to synthesize scientific evidence in a clear and reproducible way to address a specific research question. They aim to include all relevant published evidence that meets the eligibility criteria and assess the quality of that evidence (Lamé, Jouini & Cardinal, 2020). Systematic reviews are widely regarded as the most trustworthy and rigorous approach for synthesizing evidence (Uttley et al., 2023).

This systematic review aimed to explore the impact of low- to high-fidelity simulations and mannequins on student outcomes in nursing education. The research questions were developed using the PICOT framework, and the results were presented in a PRISMA table. The review incorporated studies from various research designs, including observational, longitudinal, and cohort studies, as well as cross-sectional studies, systematic reviews, and meta-analyses, to address the objectives of this thorough investigation.

Search Strategy

Electronic databases, including Dimension, PubMed, Wiley Online Library, and ScienceDirect, which offer full-text access along with medical research papers, were utilized to select review articles for this study. This approach allowed the researcher to gather a large number of relevant and authentic articles, from which the most significant ones were chosen to address the research question. Studies published within the past ten years were considered eligible for inclusion. However, for this review, only articles published between 2015 and 2024 were included. The search was conducted using keywords such as "Simulation," "Low fidelity," "High fidelity," "Nursing education," "Systematic review," "Undergraduate nursing students," "Clinical simulation," and "Mannequins." To refine the search, BOOLEAN operators like 'AND' and 'OR' were used to narrow down and combine the search terms.

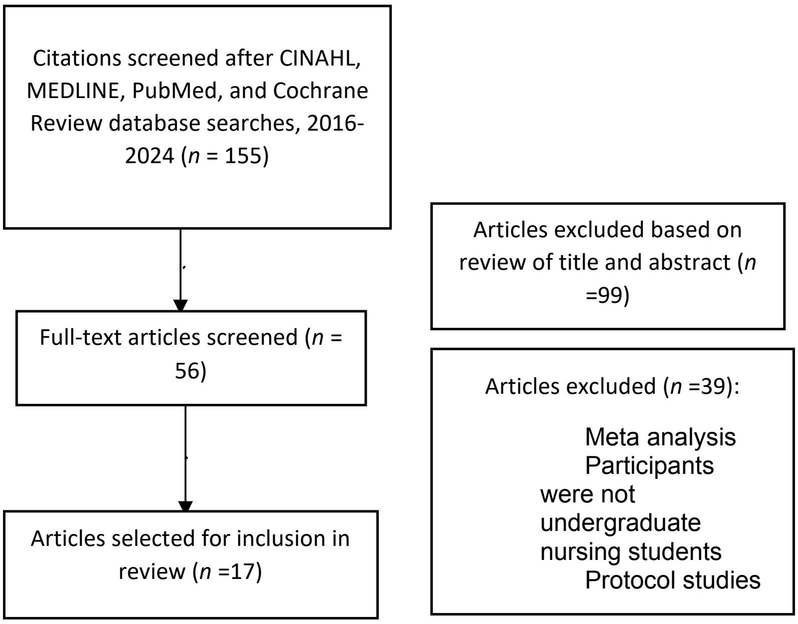
PICO

The population of interest of this study is on undergraduate nursing students enrolled in nursing education programs, who represent the target group for high-fidelity simulation interventions. The intervention being analyzed is high-fidelity simulations, with the study comparing various teaching strategies used in undergraduate nursing programs. These strategies include traditional methods such as lectures, low-fidelity simulations, problem-based learning, case studies, and other educational approaches. The primary outcomes of interest are student outcome as student performance and knowledge, which are frequently evaluated in randomized controlled trials (RCTs) involving high-fidelity simulation in nursing education. In this context, knowledge refers to the cognitive grasp of specific concepts that form the foundation of performance. It includes the theoretical understanding gained by nursing students through their simulation experiences.

Screening study selection

The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram summarizes the screening operation. It initially records the overall number of publications detected, and then reflects on the choices made at various stages of the systematic review, revealing the selection process transparently (Sohrabi et al., 2021).

Table 1. **PRISMA Flow Diagram of Articles Selection Process**



4. Results and Discussion

Methodological characteristics of the study

The defining features of the studies included in this systematic review are outlined in the table below. From the retrieved articles, 17 were selected. While the majority consisted of randomized controlled trials (RCTs) and quasi-experimental studies, other methodologies were also represented, including descriptive designs, phenomenological studies, mixed-method evaluation surveys, cross-sectional survey designs, pilot studies, scoping reviews, and single-group pretest-posttest studies.

Table 2. **[Characteristics of the study]**

Authors/Year	**Aim of the study**	**Research Design**	**Sample/Setting**	**Data Collection**	**Results**	**Conclusion**
(Chabrera, Curell & Rodríguez-Higueras, 2025)	This study evaluates the impact of high-fidelity simulation on the acquisition and retention of competencies in nursing students.	A blinded, randomised clinical trial with three arms was conducted with a pretest and a follow-up at 6 months (post-test 1) and 12 months (post-test 2).	This study was conducted with 105 second-year nursing students at TecnoCampus (a center attached to the Pompeu Fabra University) from June 2018 to June 2020.	The students, divided into three groups: control (6 low-fidelity simulations), intervention 1 (3 high-fidelity and 3 low-fidelity) and intervention 2 (6 high-fidelity simulations). Competencies were	Initial competency scores were similar across groups. At 6 months, both intervention groups showed significant improvements in critical thinking (6.2 and 6.0, $p < 0.05$), clinical skills (6.8 and 6.6, $p < 0.05$), communication (8.0 and 8.3, p <	High-fidelity simulation has the potential to enhance nursing competencies effectively. This approach supports long-term skill retention, highlighting the

				assessed using the Objective Structured Clinical Examination at baseline, 6 and 12 months. Student satisfaction was measured with the Simulated Clinical Experiences Scale.	0.05) and ethics (7.6 and 7.5, $p < 0.05$) compared with the control group. Intervention group 1 demonstrated better competency retention at 12 months. Overall satisfaction with high-fidelity simulation was high (9.13/10), with particular praise for the practical dimension (8.95/10), realism (8.02/10) and the cognitive dimension (9.43/10).	importance of a well-structured curriculum that integrates different simulation levels for optimal student preparation for clinical practice.
Alconero-Camarero, et al., 2021	The aim is to analyse if students are more satisfied when their clinical simulation practices are based on high-fidelity simulation (HFS) or medium-fidelity simulation (MFS).	The study was designed and carried out as a quasi-experimental investigation.	The final sample was composed of 393 students (207 students from the University of Cantabria and 186 students from the University of Seville).	Students from the University of Cantabria participated in an HFS intervention, while those enrolled in the University of Seville took part in an MFS intervention. Studentś satisfaction was assessed using the Satisfaction Scale Questionnaire with High-Fidelity	Satisfaction with simulation in nursing students is significantly greater in MFS than HFS. Simulation is beneficial for learning in all its forms, but for the acquisition of basic skills, and at a lower cost, MFS proves to be effective.	However, high-fidelity is not always better than medium-fidelity as this depends on the student's level of knowledge and clinical experience.

				Clinical Simulation.		
Cengiz et al, 2023	The research was conducted to examine the effect of using high-fidelity simulation on students' problem-solving skills and self-efficacy.	This is a randomized controlled study	Participants in the study were first-year nursing students who completed the Nursing Fundamentals course in the 2021-2022 aca-demic year at the Faculty of Nursing, Inonu University.	Research data were collected between April 20 and April 22, 2022 using a Descriptive Characteristics Form, the Self-Efficacy Scale, and the Problem Solving Inventory.	The post-test problem solving score was lower in the experimental group than in the control group.	Use of high-fidel-ity simulation in nursing education improved students' self-efficacy and problem-solving skills.
Hussein and Hirst, 2023	This scoping review aims to summarize the literature on the impact of high-fidelity simulation (HFS) on students' clinical reasoning and patients' safety in undergraduate nursing education and to use that information to provide recommendations to nursing educators.	A scoping review	the literature published between 2011 and 2022 was conducted following the guidelines of the Joanna Briggs Institute Manual for Evidence Synthesis and a methodological framework for scoping studies.	Of 155 studies identified, 21 were included in the final review.	Based on these studies, HFS may affect patient safety by stimulating clinical reasoning in a safe environment for undergraduate nursing students. Exposure to HFS improves students' readiness and alleviates "transition shock" and anticipatory anxiety in the clinical setting. HFS cannot replace but may be used in conjunction with real-life nursing practice to support the development of clinical reasoning in students	Simulation promotes active learning as students engage in lifelike scenarios. Repetitive practice of nursing skills in simulation contributes to students' dexterity, leading to improved safety, clinical performance, and translation of theory to practice. In addition, prebriefing and debriefing sessions after the HFS activity provide opportunities for exploration of factors

						influencing patient safety.
(Kang et al., 2020)	The purpose of this study is to examine the learning effects of vSim by comparing three different educational modalities of nursing care for children with asthma.	A quasi-experimental design with three different teaching methods, vSim, high-fidelity simulation (HFS), and vSim with HFS, were used in the study.	The Sample size was of 159 students at three nursing schools located in different cities in South Korea	Data collection and clinical education were conducted from March to July 2020. D	In the current study, vSim stands out as an effective simulation educational method. Simulation practice using vSim combined with HFS could be an effective educational method for nursing students.	To identify evidence of the educational effects using simulation, it is necessary to apply various educational simulation modalities. In nursing practice education, comparison and analysis of new methods that are rarely used are required.
Hallin et al., 2016	The aim of the study was to investigate possible correlations between team achievements and theoretical performance, personal characteristics and circumstances of the simulation scenarios	This study is a part of a larger quasi-experimental project entitled "Values and effects of high-fidelity simulation for the development of clinical judgment." A descriptive design was chosen for this study	The target population included nursing students in the last semester in a three year Bachelor of Sciences in Nursing program at a Swedish university with two campuses.	. The students were recruited from five groups at the two campuses during 2012e2013,	the results showed the student teams in their first meeting with HFS in a complex care situation achieved low clinical judgment points; most teams were in the stages of Beginning and Developing. For attaining high team achievements the majority of the students in the team should theoretically be "high performance". Being	However, age, health care experience, and assistant nurse degrees were of secondary importance. Further research at universities regionally, nationally, and internationally is needed.

					observers and having HFS experience before nursing education was significant too	
Oanh, Thuy, & Huyen, 2024	This study investigated the effect of simulation-based training on nursing students' problem-solving skills, critical thinking skills, and self-efficacy	A single-group pretest and posttest study	g 173 second-year nursing students at a public university in Vietnam from May 2021 to July 2022.	Each student participated in the adult nursing preclinical practice course, which utilized a moderate-fidelity simulation teaching approach. Instruments including the Personal Problem-Solving Inventory Scale, Critical Thinking Skills Questionnaire, and General Self-Efficacy Questionnaire were employed to measure participants' problem-solving skills, critical thinking skills, and self-efficacy	The mean score of the Personal Problem-Solving Inventory posttest (127.24±12.11) was lower than the pretest score (131.42±16.95) , suggesting an improvement in the problem-solving skills of the participants (t_{172}=2.55, P=0.011). There was no statistically significant difference in critical thinking skills between the pretest and posttest (P=0.854). Self-efficacy among nursing students showed a substantial increase from the pretest (27.91±5.26) to the posttest (28.71±3.81), with t_{172}=-2.26 and P=0.025	The results suggest that simulation-based training can improve problem-solving skills and increase self-efficacy among nursing students. Therefore, the integration of simulation-based training in nursing education is recommended.
Aldhafeeri et al., (2020)	The aim of this study is to assess the student perceptions regarding Satisfaction and self-confidence toward High	A cross-sectional correlation descriptive design was used in this study	This study which was conducted at king Saud university (KSU) and princess Nourah university	A quota stratified was used to recruit the participant female Saudi and non-Saudi BSN student with HFS	This study found out that fidelity (realism) is the most important factor in learning related to HFS. The students were satisfied	Simulation as teaching method is as effective tool as a real-life without life-threatening of the

	Fidelity Simulation as a learning.		(PUN) in Riyadh	experience who were asked to complete the questionnaire on student satisfaction and self-confidence regarding HFS in learning scale and the simulation design scale.	and confident in utilizing HFS. Significant correlations between the profile of the participants' age and student academic level and the key of the simulation features were shown. It was also found out that there were significant correlations between age and marital status with self-confidence in learning through HFS.	patient and promoting students' performance. The fidelity of the simulation is the most important factor to the student and the students were satisfied and confident with current learning related to HFS. Future studies are needed to examine other learning outcomes such as clinical competence, motivation among student using HFS as a learning strategy.
Bapista et al., (2016)	To analyse and benchmark gains and satisfaction perceived by nursing students, according to their participation in medium- and high-fidelity	Randomized control trial post-test only design with control group.	Students of the 4th year of the Bachelor's Degree in Nursing who performed medium and high-fidelity simulated practice in a Simulation Centre environment.	A satisfaction scale and a scale of perceived gains from the simulation were applied to the students who underwent simulated practice in a medium-fidelity	Of the 85 students who participated in the study, the majority were female (92.94%), with an average age of 21.89 years (SD = 2.81 years). Satisfaction is statistically significant in the realism	Students are very satisfied with the realism of high-fidelity simulated practice and consider that this helps them more with recognition

	simulated practice.			environment (control group) and high-fidelity environment (experimental group). Statistical analysis was performed and a significance level of $p < 0.05$ was established.	dimension and overall satisfaction. In the gains perceived with the simulation there is a statistically significant difference in the dimension recognition/decision.	and decision compared with the medium-fidelity simulation.
Watson et al., (2021)	to explore the perceptions of nursing students towards their first experience with high-fidelity simulation (HFS) in a Spanish university.	A phenomenological approach was used	Sixteen in-depth, semi-structured, qualitative one-on-one interviews were conducted among second-year undergraduate nursing students who had completed a sched uled HFS training program.	The interview transcripts were analyzed using Colaizzi's phenomenological method.	Four themes were identified: "Learning through simulation"; "Acting like a nurse instead of being a student"; "Facilitators and barriers of learning"; and "Transition from simulation to reality."	This study provides support for including high-fidelity simulation programs in the nursing curricula to enhance student preparedness for clinical placements.
Hill et al., (2023)	to evaluate two simulation scenarios, using low-fidelity and high-fidelity mannequins for children's nursing stu-dents as part of a nursing module preparing them for internship practice placement.	A mix methods evaluation survey	This survey was conducted in one School of Nursing in a Higher EducationInstitute in Ireland in the academic year 2021–2022.	A simulated learn-ing package was created using a partnership approach with membersfrom the Higher Education Institute and the clinical learning site and piloted with 39 students. This was evaluated using an anonymous,online questionnaire with 17	The use of low-fidelity and high-fidelity mannequins enhanced their learning process. Students recommended implementing further simulations throughout their programme to enhance their learning experiences	The findings of this evaluation can provide guidance to aid future development of interactive simulations in preparing students for prac-tice placements. Both low fidelity and high fidelity have their

				student responses		places in simulation and education, depending on the scenario and associated learning outcomes.
Basak et al., (2016)	Our study examined differences between the use of low- and high-fidelity mannequins on student outcomes with both beginner and advanced students.	A quasi-experimental investigation	First and fourth semester pre-licensure students from a Bachelor of Science in Nursing program and an accelerated nursing entry program participated in this study. Participants performed two simulations, one simulation using a low-fidelity mannequin and the other simulation using a high-fidelity mannequin.	A Students' Satisfaction and Self-confidence Scale and Simulation Design Scale were used to obtain data. Statistical analysis was performed using the Statistical Package for the Social Sciences for Windows version 17.0	The student satisfaction score of the students in the low-fidelity mannequin group was 3.62 ± 1.01, while that of the students in the high-fidelity mannequin group was 4.67 ± 0.44'dir (p = 0.01). The total score of the simulation design scale in the low-fidelity mannequin group was 4.15 ± 0.63, while it was 4.73 ± 0.33 in the high-fidelity mannequin group (p = 0.01).	Students' perceptions of simulation experiences using high-fidelity mannequins were found to be higher in contrast to their perceptions of experiences using low-fidelity mannequins
Ayed at al., 2022	The purpose of this study was to evaluate the influence of using HFS as a teaching method on clinical judgment among pediatric nursing students at the Arab American	A quasi-experimental study	A convenience sample of one hundred and fifty baccalaureate nursing students enrolled in a pediatric health nursing course.	Nursing students were randomly assigned to high-fidelity simulation experience or traditional methods. The clinical judgment was assessed using Lasater Clinical	Results revealed that the high-fidelity simulation experience has improved pediatric nursing students' clinical judgment. The mean clinical judgment differed significantly at	The HFS can be an effective tool to provide a safe and effective learning environment for pediatric nursing students, consequently improving

	University utilizing a bacterial meningitis case scenario.			Judgment Rubric Tool.	post-test in the intervention group after the simulation (t (148) = 7.20, P < .001).	their clinical judgment
Craige et al., 2021	To examine the effects of an educational strategy using a MSE simulation program with integrated technology on the medication administration knowledge, competency, and confidence levels of undergraduate nursing students.	A quasi-experimental study	Third-year BSN students (n = 83) were randomized into intervention or control groups.	Control groups participated in standard training while the intervention group received additional clinical simulation experience and debriefing sessions focused on medication safety practices. Participant knowledge was measured using pre/post Medication Safety Knowledge Assessment (MSKA) and competency was evaluated using the Medication Safety Critical Element Checklist (MSCEC).	The MSKA and MSCEC were analyzed using two-sided independent t-tests. Post-test knowledge scores increased in both groups but results were not statistically significant (α = 0. 05). Students who received the medication safetfy enhancement intervention performed significantly better in a subsequent simulation than students who did not have prior simulation experience (p < .001).	Findings suggest that educators should consider high fidelity simulation as an evidence-based teaching strategy to engage students in understanding and implementing medication safety practices in the clinical setting.
Cengiz et al., 2023	to examine the effect of using high-fidelity simulation on students' problemsolving skills and self-efficacy	This research was designed as a pretest post-test randomized controlled trial model.	Participants in the study were first-year nursing students who completed the Nursing Fundamentals course in the 2021-2022	Research data were collected between April 20 and April 22, 2022 using a Descriptive Characteristics Form, the Self-Efficacy	The post-test self-efficacy score was higher in the experimental group than in the control group. The posttest problem solving score	Use of high-fidelity simulation in nursing education improved students' self-efficacy and

			academic year at the Faculty of Nursing, Inonu University. 110 students participated in the study.	Scale, and the Problem Solving Inventory.	was lower in the experimental group than in the control group	problem-solving skills.
Mathew & McCarthy, (2021)	To investigate if a high-fidelity simulation environment improves confidence and the performance of cardiopulmonary resuscitation (CPR) in first-year undergraduate adult nursing students.	A pilot study	a sample of 15 participants who were randomised into an intervention group (n=7) and a control group (n=8). The control group received teaching and were tested on the skill of CPR using a manikin in a medium-fidelity simulation scenario in a modified classroom environment, while the intervention group received the same teaching, testing and simulation scenario but in a high-fidelity 'immersion suite'	Quantitative data were collected using a pre-intervention and post-intervention self-report confidence questionnaire and from performance data generated by the Laerdal Medical 'Little Anne' manikin QCPR software.	Overall, there were no statistically significant improvements in performance metrics for the intervention group compared with the control group. Both groups reported overall improvements in confidence regarding their knowledge and skills in managing a critically ill patient, but these results were not deemed to be statistically significant.	The results of this study indicate that the use of simulation increases nursing students' confidence in undertaking CPR, but that a high-fidelity simulation environment does not necessarily improve their performance of CPR.
Raman et al., 2024	to explore the attitude and perception of undergraduate nursing	A Cross-sectional survey research design	A total of 109 nursing students were recruited.	self-administered Education Practices Questionnaire (student version) and	Nursing student's attitude shows (mean = 68.26); perception on educational practices of	The study proposed to have high-fidelity simulation-based

	students toward high-fidelity simulation-based education.			Attitude Scale toward Simulation-Based Education to collect the data.	high-fidelity simulation-based education demonstrates (*M* = 39.33 ± 7.87) and the importance of high-fidelity simulation-based education shows (*M* = 37.73 ± 7.45). However, no significant difference observed between the male and female student's attitude (*t* = -0.286 [0.78]) and perception (*t* [107] = 0.960 [0.34]). Similarly, no significant difference was observed among the different levels of students *p* > .005 on perception and attitude toward high-fidelity simulation-based education.	education as an integral part of teaching in clinical training of students at all levels of nursing program.

Discussion

Nursing students frequently express feelings of anxiety when entering clinical settings. To enhance their clinical skills and address negative experiences, simulation can be utilized to create experiential, student-centered training environments that promote practical learning (Aldhafeeri & Alosaimi, 2020). Nursing students can benefit from HFS in cultivating knowledge, skills, critical thinking, caring, learning interest, and self-confidence, but in these aspects, there is no difference between HFS with and without prebriefing. In improving collaboration of nursing students, HFS with pre briefing is more effective. The results of this meta-analysis provide evidence for nursing educators to better guide the design of HFS, however, studies on the long-term effects of HFS are needed (Chabrera, Curell & Rodríguez-Higueras, 2025)

High-fidelity simulation holds considerable promise for the nursing discipline. It seems to promote students' self-confidence and provides a safe environment to train on clinical situations and learn through trial and error without jeopardizing patient safety. (Watson et al., 2021). A mata-analsysis of RCT's and quaisexperiment by Li et al., to explore the effectiveness of High-fidelity simulation in undergraduate nursing education highlights substantial evidence supporting the effectiveness of high-fidelity simulation (HFS) in Bachelor of Science in Nursing (BSN) education. Compared to other teaching methods, HFS is particularly effective in enhancing students' knowledge, skills, collaboration, caring abilities, and interest in learning. However, its impact on critical thinking, self-confidence, and learning satisfaction is comparable to that of other teaching approaches. As each teaching method has unique strengths and limitations, nursing educators should consider the specific context and choose the most suitable method to achieve desired learning outcomes (Li et al., 2022).

Similarly, a systematic review and meta-analysis by Kim and Yoo (2024) revealed that high-fidelity mannequins were more effective than low-fidelity mannequins in enhancing skill performance, clinical competence, and perceptions among nursing students and nurses. However, both high- and low-fidelity mannequins were equally effective in improving learners' knowledge, satisfaction, and self-confidence in nursing education. The findings indicated that high-fidelity simulation significantly increased nursing students' knowledge acquisition and enhanced their professional skills. Regarding clinical practice (Kim and Yoo, 2024). It is recommended that nursing education schools should consider adopting simulation-based training methods, particularly high-fidelity simulations, to effectively develop and improve students' essential skills. Furthermore, future intervention studies should incorporate randomized control groups and extend over a longer period to comprehensively measure additional outcomes and assess the effectiveness of the simulation-based training approach more rigorously. (Oanh, Thuy & Huyen, 2024).

Future Research

Future research should prioritize examining the cognitive processes students undergo while developing clinical reasoning and assessing the associated outcomes. Since most debriefing sessions rely on verbal or group discussions, experimenting with written debriefing or reflective practices and comparing their effectiveness to verbal methods could provide valuable insights. In the context of today's diverse healthcare environment, incorporating manikins with varied physical characteristics that represent different races and ethnicities is recommended. This approach would support the development of culturally competent nurses and enhance patient safety. Furthermore, conducting longitudinal studies to assess the performance of registered nurses in practice after experiencing HFS during their undergraduate education could offer strategies to facilitate the transition from student to professional nurse. Such research would also contribute to bridging the frequently noted gap between theoretical learning and practical application in nursing education.

5. Conclusion

Simulation-based education is recognized as an effective approach to fostering clinical reasoning skills in undergraduate nursing students. High-fidelity simulation (HFS) has been identified as a valuable teaching strategy that can enhance patient safety by improving students' clinical reasoning abilities. Feelings of uncertainty and anxiety can impede students' critical thinking and nursing judgment, ultimately affecting patient outcomes. HFS helps to reduce these emotions by preparing nursing students for clinical practice in a controlled environment, allowing them to become more confident and familiar with scenarios they may encounter in real-life care settings. While simulation cannot fully substitute direct patient care experiences, it serves as a complementary educational method that supports the development of clinical reasoning and bridges the gap between theoretical knowledge and practical application. However, additional research is required to better understand the role of HFS in advancing clinical reasoning and its broader implications for patient safety. High-fidelity simulation has been shown to effectively enhance the development of clinical reasoning skills in undergraduate nursing students, either as a standalone method or when combined with traditional teaching approaches or other simulation techniques. However, its application is limited by the high costs and restricted accessibility for large student cohorts, posing challenges for widespread implementation. Further research is required to assess the specific impact of high-fidelity simulation compared to other simulation methods on the acquisition of clinical reasoning skills in undergraduate nursing education (Alshehri, Jones & Harrison, 2023).

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Unraveling the Sociolinguistic Dynamics of Leadership Discourse: A Thematic Analysis in the Maldives

Akifa Rasheed

Abstract

This study examines how language influences perceptions of leadership in the Maldives, a nation navigating unique cultural, political, and social challenges. The term “leader” is often employed in ways that shape public opinion, reinforce power structures, and reflect societal norms. However, its deeper meanings and broader implications remain underexplored. By analyzing 150 tweets and 27 news articles from both Maldivian and international sources between 2021 and 2024, the research uncovers how the word “leader” carries cultural and linguistic meanings that affect how leadership is understood in various contexts.The news articles were sourced from leading Maldivian outlets such as Sun Online, Dhiares, TMJ, and PSM, alongside international media like Al Jazeera. The tweets were drawn from Maldivian and global users, focusing on discussions about leadership. The thematic analysis reveals how leadership discourse reflects broader dynamics, including the influence of external critique on leadership perception and the prioritization of domestic issues, such as education and healthcare, by locally based Maldivian voices.The findings highlight the role of language in shaping ideas about leadership effectiveness, organizational success, and political narratives. They also explore how the discursive dimensions of leadership language connect with political, social, and organizational changes, providing a comprehensive understanding of leadership talk in the Maldivian context.Based on these insights, the study offers practical recommendations for improving leadership communication and governance. It suggests promoting inclusive leadership narratives that encourage trust and collaboration by avoiding language that reinforces hierarchical power structures. Leadership training programs should emphasize culturally sensitive communication to help leaders engage effectively with diverse audiences. Balanced media representation is also crucial, with media outlets urged to avoid stereotypes and support transparent reporting.Public awareness campaigns are recommended to educate citizens about the impact of leadership language, empowering them to critically assess political and organizational communication. Policymakers are encouraged to incorporate sociolinguistic insights into leadership frameworks, ensuring the use of equitable and transparent language in official documents. Finally, the study calls for further academic research on leadership discourse to explore how language continues to evolve and shape society.These findings and recommendations aim to foster leadership practices that are inclusive, culturally respectful, and responsive to the needs of Maldivian society. This research not only deepens our understanding of the relationship between language, power, and culture but also offers tangible solutions for promoting effective and transparent leadership.

1. INTRODUCTION

Leadership in any given society shapes socio-cultural and institutional dynamics across a wide range of contexts. The term “leader” is associated with power, authority, and influence, reflecting the interaction of social identity and power relations in societies. In the Maldives, where rich cultural heritage intersects with modern political and economic scenarios, there is significant complexity surrounding the word “leader.”

1.1 Background

Cross-cultural comparisons, such as those by Brown (2020), demonstrate the variation in language use and perceptions of leadership discourse. These provide useful background information on how the term “leader” is understood and used both inside and outside the Maldives, where cultural differences may influence its interpretation and application.

According to organizational communication, researchers such as Yukl (2006) have studied how the term "leader" defines managerial positions and leadership behaviors in corporate organizations. These dynamics are crucial in the Maldives, where economic growth and organizational structures have developed independently of the people's accepted values and traditions.

Further, Avolio and Gardner's (2005) work has explored the link between transformational leadership and organizational effectiveness, highlighting patterns of language use that reflect leadership behaviors. This provides valuable insights into how leadership is conceptualized and exercised within the Maldivian context in driving positive change and achieving collective goals.

Fairclough's (2000) analysis of political discourse has shown how the framing of the term "leader" constructs public perceptions of political candidates through various means such as electoral campaigns, speeches, and media representations. Understanding the discursive strategies used by political leaders in the Maldives is important for grasping power dynamics and legitimacy within the political sphere, where democratic governance coexists with historical and cultural influences.

1.2 Aim and Objectives

The present research investigates the sociolinguistic dynamics of the use of the word "leader" in the Maldives by deconstructing its use patterns and discursively constructed implications for social identity and power relations. The study explores the semantic connotations and cultural overtones in the meaning of the word "leaders" as used in different contexts. It aims to review how the word "leader" explains roles assigned to managers and various types of leadership styles within organizational communication. It also examines how patterns in language use regarding "leaders" are related to perceptions of leadership effectiveness and organizational outcomes.

Additionally, the research seeks to explore the role of "leaders" in shaping perceptions of political candidates through election campaigns, speeches, and media portrayals. Ultimately, the research endeavors to present a comprehensive framework for understanding the linguistic and social aspects of leadership discourse by providing insight into its complex nature and implications across diverse arenas.

1.3 Research Questions

Based on the objectives, this research focuses on finding answers to two major questions:

What social identities and power dynamics does the term "leaders" connote both within and outside the Maldives?

What are the implications of linguistic constructions of leadership for social inequalities, organizational dynamics, and cultural norms?

1.4 Significance of the Study

This research highlights how language functions to frame public views on leadership in the Maldives. Through analyzing tweets and news articles, it demonstrates how both domestic and foreign opinions frame perceptions of Maldivian leaders. It sheds light on the effects of foreign criticism on the perception of leaders and emphasizes the need to address domestic issues such as education and healthcare, alongside challenges within the political and judicial systems.

The study reveals how leadership discourse may consolidate or challenge social inequalities and the role of cultural beliefs in shaping effective leadership. These findings have important implications for policy development, leadership training, international relations, and media communication in promoting better governance through increased transparency and accountability.

This study enhances sociolinguistic literature by providing a theoretical framework to understand the interface between language and leadership within a particular geopolitical context. It enriches knowledge about leadership discourse and offers ways to enhance governance quality and responsiveness in the Maldives and beyond. Academically, it contributes a framework for analyzing the language dynamics of leadership contexts, opening opportunities for further research in similar cultural and political settings.

2. THEORETICAL CONCEPTS

2.1 Power and Social Identity

Leadership is closely tied to power dynamics and how individuals view themselves within social groups. According to Tajfel and Turner's Social Identity Theory, individuals form their identity and self-esteem based on the groups they belong to. When someone is seen as a "leader," it affects existing social hierarchies and inequalities within those groups (Tajfel & Turner, 1986).

Foucault's theories on power explain how labeling someone as a "leader" can control others. Power, as Foucault argues, isn't just about having authority but also about how it's exercised through societal norms and structures. By naming certain individuals as leaders, societies and organizations can reinforce established power dynamics, maintaining existing inequalities (Foucault, 1977).

2.2 Social Constructionism

Social constructionism, as discussed by Berger and Luckmann, emphasizes that our understanding of concepts like leadership is not inherent or universal but is constructed through social interactions and shared meanings (Berger & Luckmann, 1966). This approach examines how linguistic representations and social practices shape perceptions, beliefs, and behaviors related to leadership.

The term "leader" carries different implications and expectations in various cultural and historical contexts. In some societies, a leader might be seen as a warmhearted guide, while in others, the term might evoke images of authoritarian control. By analyzing how the term "leader" is used in different contexts, underlying assumptions and power relations shaping our understanding of leadership are uncovered. This perspective highlights how leadership reflects broader social and cultural norms.

2.3 Leadership Theories

Various leadership theories provide different perspectives on what constitutes effective leadership and how leaders influence their followers:

1.Transformational Leadership Theory (Bass, 1985): This theory focuses on how leaders inspire and motivate followers to exceed self-interests for the benefit of the group or organization. Transformational leaders bring significant change through vision, enthusiasm, and high expectations, fostering purpose and commitment among followers.

2.Charismatic Leadership Theory (Weber, 1947): Max Weber's concept of charismatic authority describes leaders with exceptional personal qualities that inspire loyalty and devotion. Charismatic leaders challenge the status quo and enact change through their compelling vision and personal magnetism.
3.Distributed Leadership Theory (Spillane, 2006): This approach challenges the idea that leadership resides in a single individual. Instead, leadership is seen as a collective process involving multiple members of a group or organization. Distributed leadership emphasizes collaboration, shared responsibility, and diverse expertise, reflecting a democratic and inclusive understanding of leadership.

3. METHODOLOGY

This study uses thematic analysis in sociolinguistic research, which involves systematically examining qualitative data to identify recurring themes or patterns of meaning related to language use in Maldivian contexts. This method reveals how language constructs and reflects social identities, power dynamics, and cultural norms. By manually coding and categorizing data, discourse is interpreted to uncover how it shapes and is shaped by societal structures and relationships.

Thematic analysis is flexible and easy to adapt in qualitative analysis making it suitable for diverse research contexts, including sociolinguistics. It allows researchers to explore both explicit (semantic) and implicit (latent) meanings, essential for understanding leadership discourse in the Maldives, where cultural and contextual nuances significantly influence communication and power dynamics (Terry et al., 2017). Secondly, thematic analysis is well-suited for examining the complex social and linguistic patterns inherent in leadership discourse. As noted by Riger and Sigurvinsdottir (2016), it is particularly effective in community-based and socially focused studies, enabling the identification of recurring themes in leadership communication within the unique Maldivian linguistic and cultural context. Thirdly, this method emphasizes depth and contextualization by identifying patterns and synthesizing them into themes that provide deep insights. This allows a nuanced understanding of how sociolinguistic factors—such as tone, vocabulary, and cultural expressions—shape leadership discourse (Terry et al., 2017). Fourth, thematic analysis offers a structured yet flexible approach to studying the inherently social nature of leadership discourse, reflecting power dynamics, relationships, and societal norms (Riger & Sigurvinsdottir, 2016). Finally, both Terry et al. (2017) and Riger and Sigurvinsdottir (2016) underscore its broad applicability in various fields, including psychology and sociolinguistics, establishing its robustness and credibility for the research. By employing thematic analysis, this study can systematically explore and interpret the complexities of leadership discourse, uncovering how sociolinguistic dynamics shape leadership practices in the Maldives and laying the groundwork for culturally meaningful findings.

The corpus for this study consists of written articles containing instances of the word “leaders” from various sources, including news articles and social media posts (X/Twitter). The primary sources include leading online newspapers from the Maldives, such as Sun Online, Dhiares, TMJ, and PSM, as well as international sources like Al Jazeera. Additionally, tweets from both Maldivian and international users (2023–2024) were analyzed, alongside 27 article from 2021–2024.

3.2 Data Collection and analysis

Keywords such as “leader,” “leaders,” “Maldivian leader,” “leadership roles in Maldives,” “cabinet ministers,” “officials,” and “president” were used to gather data. A total of 52 pieces were analyzed, including 35 tweets and 27 newspaper articles. These were coded into the following themes:

Themes

Themes	description
Leadership Identity	This theme identifies how “leaders” are positioned and conceptualized, focusing on both the political and charismatic dimensions of leadership, and how they function as cultural figures in terms of shaping national identity.
Power Dynamics	The term “leaders” is used in conjunction with power at both the political level domestically and internationally, and both nationally and globally, through the influence of the leader and the power play occurring for and because of that leadership position.

Social Identity	The framing of leadership as integral in the formulation and expression of national identity, and to deal with social issues related to education, health, and culture, shapes public perception of the leaders embodying the nation's values.
Leadership Efficacy	This theme deals with the accountability of leaders based on their actions and their ability to sustain accountability, focusing on the pragmatic, result-oriented aspect of leadership.
Global Leadership	The theme describes the position of a leader in international relations, especially with regard to diplomacy, global influence, and that juncture where local leadership meets global expectations.
Social Inequality	Leadership discourse is framed as a potential tool for social change with leaders being positioned as agents who can either support or challenge established inequalities, particularly in class and gender dimensions.
Crisis Management	Leaders are further assessed on the level of their crisis management, where discourses reflect either managerial efficiency in times of crisis or inability to resist external pressures.
Media Discourse of Leadership	Media plays an important role in the construction of discourse about leadership and shapes people's perception about the legitimacy and performance of the leader.

Figure 3.2.1

Frequent Terms in tweets

Figure 3.2.2

This word cloud represents the most frequently used terms in the tweets analyzed during the research. As shown, words like "leaders," "Maldives," "political," "Muizzu," "India," and "leadership" appear prominently. This indicates the central role of leadership and politics in the discourse, reflecting how the term "leaders" is closely associated with power dynamics, governance, and international relations.

Frequency of Themes in Leadership Discourse

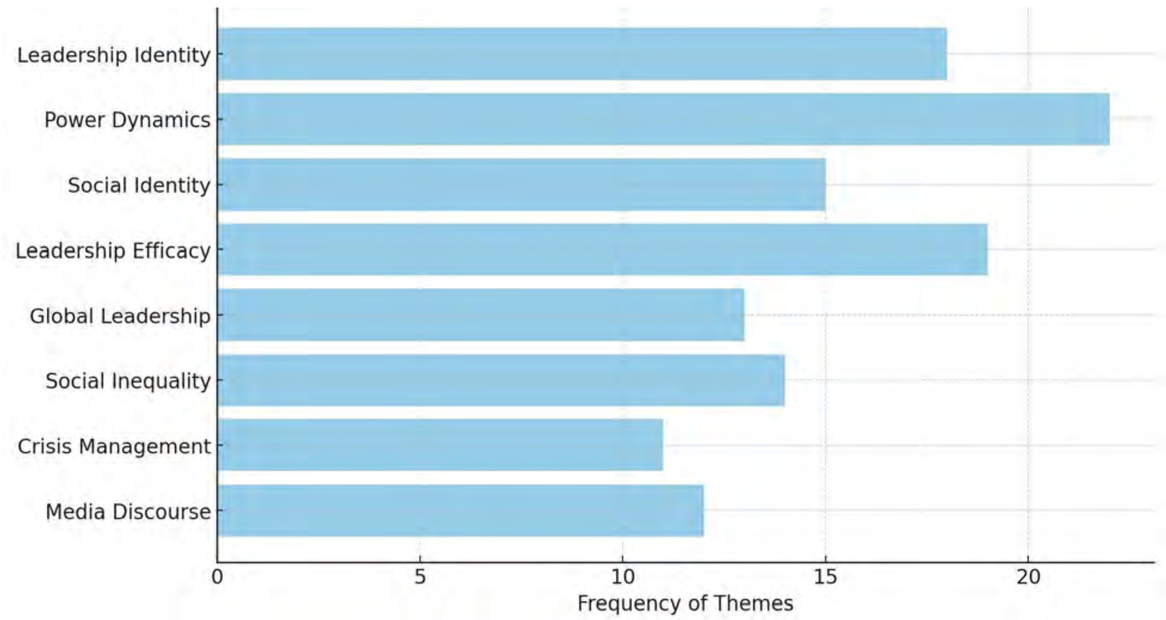

Figure 3.2.3

This bar chart summarizes the frequency of various themes found in the thematic analysis. The themes include:

- Leadership Identity: 18 mentions
- Power Dynamics: 22 mentions
- Social Identity: 15 mentions
- Leadership Efficacy: 19 mentions
- Global Leadership: 13 mentions
- Social Inequality: 14 mentions
- Crisis Management: 11 mentions
- Media Discourse: 12 mentions

The Power Dynamics theme is the most frequent, reflecting the central focus of the discourse on the interaction of local and international forces, and how political leaders in the Maldives navigate these dynamics. Leadership Identity, Leadership Efficacy, and Social Identity also emerge as prominent themes, highlighting the complexity of leadership in terms of both individual traits and broader societal impacts.

3.3 Ethical considerations

This study adheres to strict ethical guidelines to ensure that the research process remains transparent and respects the rights of individuals whose data is being analyzed. In examining news articles and social media posts, special care was taken to anonymize user data from platforms like X/Twitter. Only publicly accessible posts were included, ensuring that no private information was used without consent. The study was committed to accurately representing the content, avoiding any form of misrepresentation or misuse of the data. Citations for all articles used in the analysis were provided, upholding intellectual honesty and giving proper credit to the original authors. Additionally, the study was designed to remain neutral, avoiding biased interpretations that could unfairly criticize or misrepresent individuals, groups, or political entities involved in the leadership discourse.

3.4 validity and reliability

To ensure the validity of the study, a rigorous thematic analysis was conducted, which allowed for a systematic identification of recurring themes and patterns in the corpus. Thematic analysis was chosen because it ensures a detailed and thorough interpretation of the data while maintaining consistency across all instances of the word "leaders." To further strengthen the validity, triangulation was employed by analyzing multiple data sources, including local and international articles as well as social media content. This approach provided a well-rounded understanding of the linguistic dynamics surrounding leadership in the Maldives. Reliability was enhanced by maintaining a transparent coding process, where every step of data categorization was documented clearly. Additionally, findings were cross-checked against existing sociolinguistic and leadership discourse literature to ensure consistency. Peer reviews and feedback were incorporated into the analysis, helping to minimize researcher bias and refine the interpretations further.

3.5 limitations

While the study provides valuable insights into the sociolinguistic dynamics of leadership discourse, it is important to acknowledge several limitations. First, the scope of the data was limited to a specific timeframe, from 2021 to 2024, and primarily focused on written articles and social media posts. This focus potentially excludes other forms of leadership discourse, such as spoken interviews or visual media, which might provide additional insights into the way leadership is portrayed. Second, the study is deeply rooted in the Maldivian context, which may limit the generalizability of the findings to other cultural or political settings. Although the research offers a detailed understanding of leadership discourse in the Maldives, the unique socio-political landscape of the country might not allow for direct application to other regions or countries.

Another limitation is the inherent subjectivity in thematic analysis. Despite efforts to reduce researcher bias, interpretation of qualitative data is always somewhat subjective. This means that different researchers might interpret the same data in various ways, which could influence the findings. Additionally, the study was conducted in English and Dhivehi, which could lead to some nuances in untranslated content being overlooked or misinterpreted. Lastly, the rapidly evolving nature of social media platforms like X/Twitter means that some of the posts analyzed may no longer represent current opinions or trends, as social media discussions can change quickly.

4. FINDINGS

This study aims to explore the sociolinguistic dynamics surrounding the term "leaders" in the Maldives, focusing on its usage patterns, discursive constructions, and implications for social identity and power relations. Based on a thematic analysis of media, tweets, and speeches related to the term "leaders," several themes emerged that provide insight into how the term is used in political, social, and cultural contexts. These findings highlight the multifaceted role that language plays in constructing leadership identity and the broader socio-political implications of leadership discourse in the Maldives.

4.1 Leadership Identity

In the Maldivian context, the term "leaders" is not just a descriptive label but a critical tool for building political legitimacy. The discourse around leadership often highlights personal qualities such as wisdom, decisiveness, and morality, which are expected traits for political figures. Many Maldivian leaders are portrayed as "saviors" in times of crisis, aligning with societal expectations of heroic leadership (Haslam, Reicher, & Platow, 2010).

Tweets like, *"Muizzu, the leader who will bring back the dignity of Maldives!"*
illustrate how leaders are framed as saviors of the nation. This narrative amplifies their image as protectors of national identity and sovereignty. Conversely, opposition voices often depict leaders as ineffective or self-serving.

Leadership identity theory argues that leaders are constructed through societal discourses that reflect collective values and needs. This perspective aligns with the sociocultural view of leadership, where leaders are seen as embodiments of national pride and morality (Northouse, 2018). In the Maldivian context, leaders' identities are shaped by their responses to national crises, such as economic instability or environmental challenges.

4.2 Power Dynamics

Power dynamics are a recurring theme, especially in the Maldives' international relations. The ongoing tension between pro-India and pro-China political stances underscores the strategic alliances that shape domestic leadership. As a small island nation, the Maldives must balance external pressures while safeguarding its sovereignty. Leaders are often portrayed as either victims of foreign influence or defenders of national interests.

Tweets such as the following, *"Muizzu's victory signals the beginning of a new era free from Indian interference."*
illustrates the Maldives' struggle to assert autonomy in foreign policy, particularly when dealing with powerful neighbors like India and China. Power dynamics theory emphasizes the role of discourse in shaping geopolitical power relations. Small states, such as the Maldives, are particularly vulnerable to external influence. Foucault's theory of power highlights how authority is not just exercised through political action but also through language, influencing how leaders are perceived both domestically and internationally (Foucault, 1977). The framing of leaders as either puppets or independent agents significantly impacts their legitimacy and authority.

4.3 Social Identity

The term "leaders" is closely tied to the social identity of both the individual and the nation. Maldivian leaders are frequently portrayed as champions of national unity, particularly in the face of external or internal challenges. Their social identities are often defined by their stances on national issues, ethnicity, and relationships with external powers.

A tweet declares, *"Muizzu is the voice of the people, fighting for the Maldives against foreign interference."* This positions the leader's identity as deeply aligned with the collective identity of the Maldivian people, emphasizing resistance to external pressures. Social identity theory suggests that leadership is not just about individual traits but also about representing the collective identity of a nation. Leaders serve as symbols of unity, which is especially crucial in societies facing external threats or internal divisions (Tajfel & Turner, 1986). In the Maldives, leadership discourse reflects the people's desire to maintain national sovereignty, with leaders often seen as symbols of resilience and resistance.

4.4 Leadership Efficacy

Leadership efficacy in the Maldives is often evaluated based on leaders' ability to manage both domestic governance and international relations. Public opinion is divided, with some praising leaders for their decisive actions during crises, while others criticize them for neglecting critical domestic issues like healthcare and education.

"Muizzu is the type of leader who stands strong on the international stage, but what about the people's needs?"
This tweet highlights the tension between success in global diplomacy and shortcomings in addressing local issues. Transformational leadership theory posits that effective leaders inspire change and build trust within their communities (Bass, 1985). While Muizzu may be perceived as effective on the global stage, his apparent neglect of domestic issues undermines his leadership efficacy at home. Effective leadership requires balancing international diplomacy with addressing the immediate needs of citizens.

4.5 Global Leadership

The discourse around global leadership in the Maldives highlights the country's efforts to maintain balanced relationships with powerful nations like India and China. Leaders are judged on their ability to navigate foreign policy while asserting national sovereignty. Effective representation on international platforms enhances leaders' legitimacy.

"At the World Leaders Climate Action Summit, Muizzu represented Maldives with pride, a true global leader."

This emphasizes how participation in global forums boosts a leader's perceived authority. Global leadership theory explores how leaders from smaller nations engage in international diplomacy to assert their country's interests. In the Maldivian context, leaders often balance competing global forces, which adds complexity to their roles as national leaders (Northouse, 2018). Global engagement is framed as essential for the nation's survival in a competitive geopolitical landscape.

4.6 Social Inequality

Leadership discourse in the Maldives also touches on issues of social inequality. Leaders are often criticized for being disconnected from the struggles of ordinary citizens, particularly those in rural areas or facing economic hardship.

"*Our leaders travel the world, but they forget the poverty in the atolls. Muizzu must focus on the people, not just politics.*"

This critique reflects the gap between elite leadership and the daily realities of the Maldivian populace. Critical theory highlights how power and language shape societal inequalities. In the Maldives, leadership discourse often reinforces the divide between elite politicians and marginalized populations (Haslam et al., 2010). This framing underscores the need for leaders to address pressing social issues rather than prioritizing global appearances.

4.7 Discussion of Context and Balance of Perspectives

The emphasis on foreign criticism and international relations in the Maldives can be explained by its geopolitical context. As a small island nation with limited resources, the Maldives relies heavily on tourism, aid, and trade, making it dependent on external relationships. However, this focus often comes at the expense of addressing critical domestic issues, such as education, healthcare, and social welfare, which are vital for the population's well-being.

Leaders must balance foreign relations with domestic governance. While international visibility can enhance their global stature and attract investments, neglecting domestic issues risks alienating citizens and eroding trust. Effective leadership in the Maldives requires navigating this delicate balance—focusing on global engagement while addressing the immediate needs of the population.

5. DISCUSSION

This study aimed to investigate the sociolinguistic dynamics surrounding the term "leaders" in the Maldives, focusing on its usage patterns, discursive constructions, and the implications for social identity and power relations. Through the analysis of media, speeches, and social media discourse, several significant insights emerged regarding how the term is used in the Maldivian political and social landscape. The discussion explores these findings in the context of the research questions: (1) What social identities and power dynamics are associated with the term "leaders" within and outside the Maldives? (2) What are the implications of linguistic constructions of leadership for social inequalities, organizational dynamics, and cultural norms?

One of the central themes that emerged in this study is the strong connection between leadership and power dynamics, both within the Maldives and in its international relationships. In the Maldivian context, the term "leader" goes beyond simply describing someone in a position of authority. Instead, it represents individuals who wield influence over both national and global political affairs. This was especially evident during the lead-up to the 2023 presidential election, where "leader" became a key term for political actors positioning themselves as powerful figures capable of shaping the nation's future.

This theme is particularly relevant given the ongoing tension between pro-India and pro-China factions within the Maldives. Leaders were often framed as pivotal decision-makers tasked with navigating these global power struggles. Their ability to manage the country's alignment with either China or India was seen as a reflection of their leadership effectiveness. More importantly, their success was measured by how well they handled these relations without compromising the Maldives' sovereignty.

Within the domestic sphere, leadership is closely tied to authority over the state and its citizens. During electoral campaigns, the term "leader" often conjured the image of a central figure who could dictate policy, manage crises, and shape public opinion. Leaders were expected to address pressing issues like healthcare, education, and economic stability while projecting strength in handling external pressures. For example, during President Solih's tenure, India's influence became a contentious issue, with his critics portraying foreign involvement as overreach. This tension carried into the presidential campaign, where leadership was frequently evaluated through the lens of foreign policy effectiveness.

Leadership in the Maldives also extends beyond politics. In organizations, the term "leader" is often idealized, representing individuals who are expected to guide, motivate, and inspire. This perception applies across sectors like education, healthcare, and business, where effective leadership is seen as a cornerstone of success and social progress. Leaders are evaluated not only on their decision-making skills but also on their ability to embody social values and contribute to the community. This broad use of the term underscores how deeply leadership is embedded in both national identity and organizational success.

Another significant theme identified in this study is how leadership discourse intersects with social inequalities. While the term "leader" is often associated with authority and responsibility, it also reflects and reinforces hierarchical social structures. Political discourse, for instance, frequently highlights leaders as champions of reform in areas like healthcare and education. Yet, there remains a noticeable gap between the promises made by leaders and their actual delivery.

In the Maldives, leadership rhetoric often emphasizes the need for progress in addressing poverty, healthcare, and education. However, the implementation of policies aimed at these issues frequently falls short. This disconnect between ideals and outcomes points to a broader problem in governance, where social inequalities—related to gender, economic disparity, and access to resources—persist despite rhetorical commitments to change.

Gendered leadership dynamics further highlight these inequalities. Leadership in the Maldives, especially in politics, is still predominantly associated with men. Women leaders, though gaining recognition, are often portrayed as exceptions rather than the norm. This cultural framing of leadership as a masculine ideal perpetuates gendered power dynamics. The limited representation of women in high-ranking political positions underscores this disparity, even as there is rhetorical support for gender equality. This suggests that leadership, as it is currently constructed in Maldivian society, remains inaccessible to many and continues to uphold traditional hierarchies.

The language of leadership, therefore, has a dual function. On the one hand, it speaks of empowerment, equality, and social progress. On the other, it can obscure the underlying power structures that maintain societal divisions. Leadership discourse often benefits those already in power, reinforcing existing inequalities and limiting opportunities for marginalized groups to rise into leadership roles.

The study also highlights the geopolitical dimensions of leadership in the Maldives. As a strategically located island nation, the Maldives' leadership discourse is heavily influenced by its relationships with foreign powers, particularly India and China. During the 2024 election, for instance, leaders like Mohamed Muizzu, who campaigned on a pro-China platform, positioned themselves as defenders of Maldivian sovereignty. This rhetoric contrasted with accusations of undue Indian influence during the previous administration, making leadership a central issue in the country's foreign policy debate.

Criticism of foreign involvement during electoral campaigns underscores how leadership is shaped by geopolitical factors. Maldivian leaders are tasked with maintaining the nation's sovereignty while balancing the interests of powerful neighbors. This context adds a layer of complexity to leadership discourse, framing effective leaders as those capable of defending national interests on the global stage.

6. CONCLUSION

In conclusion, this study has shown that the term "leader" in the Maldives carries significant weight, representing far more than just a political title. It is a symbol of authority, power, and national identity, woven deeply into the country's social and cultural fabric. Leadership in the Maldivian context is shaped by a complex mix of domestic political challenges, international relations, and social inequalities. While it is often viewed as a driving force behind national progress, leadership also frequently falls short in addressing the deeper structural inequalities that persist within the society.

The way leadership is constructed through language has profound implications. On the one hand, it empowers leaders, shaping public perceptions of their authority and influence. On the other, it can reinforce social divisions, perpetuate gendered power dynamics, and obscure systemic inequalities that hinder real social progress. This study calls attention to the need for a more inclusive and transparent discourse on leadership—one that actively works to address these inequalities and foster a more equitable society.

The findings also highlight the critical role of language in shaping how leadership and national identity are perceived. The way the term "leader" is used in political and organizational contexts shows how language can simultaneously serve as a tool for empowerment and a mechanism for maintaining existing power structures. The Maldivian experience offers valuable insights into how leadership is both created and contested through language, contributing to wider discussions on sociolinguistics and political discourse.

Ultimately, this research underscores the importance of critically examining how leadership is framed in both local and global contexts. By understanding the cultural and linguistic dimensions of leadership, policymakers, educators, and media professionals can help build more inclusive, accountable, and responsive governance systems. Such efforts would not only reflect the aspirations of all segments of society but also address the inequalities that limit progress and unity.

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Digital Media, Influencer Marketing and Social Media Influence on Business's Public Relations Strategies

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Abstract

The emergence of digital media has resulted in a significant shift in PR methods, with a greater focus now being placed on interactive and dynamic interaction rather than conventional one-way communication. This study investigates the major influence of digital media technologies, particularly social media platforms, on public relations techniques, with an emphasis on how they alter relationships, manage crises, and engage audiences. The paper explores the historical history of public relations, evaluates the incorporation of digital technologies into its practices, and investigates the obstacles and opportunities associated with this transformation. The study demonstrates the strength and drawbacks of digital platforms using case studies such as the Pepsi-Kendall Jenner advertising and influencer roles in brand promotion. Results highlight openness, responsiveness, and ethical considerations as critical components of current public relations tactics. By enabling PR professionals to use real-time feedback and data, they can improve their practice, create stronger connections with stakeholders, and work in an increasingly complicated and dynamic digital world. This research adds to the increasing amount of information about how PR techniques are altered by digital media and the implications for successful communication tactics.

Keywords: *Digital Media, Public Relations, Business Marketing Strategies, Influencer Marketing, Social Media, Customer Trust*

Introduction

Digital media's influence on PR strategies has brought about both significant problems and historical shifts. From a PR practitioner's perspective, these media certainly offer chances to reach target audiences directly, spread a message more widely, and assess outcomes using particular metrics. Despite its apparent advantages, incorporating social networks into PR efforts or any other profession has a variety of disadvantages. Due to the ever-changing nature of the digital world, any false information, unfavorable trend, or emergency scenario can spread quickly and needs to be addressed with prompt action. In the same way that businesses from a wide range of industries attempt to appropriately position themselves on a variety of platforms, the proliferation of digital content can also lead to ineffective message management and inconsistent image representation by public relations specialists. Therefore, the effectiveness of PR in modern culture depends on understanding the complexities of the digital environment and how to use its instruments effectively. The industry's case studies and examples will contribute to the expanding corpus of study on the evolving role of digital media in public relations and its consequences for successful communication tactics. By thoroughly examining the ways in which digital media has transformed the public relations industry, this study hopes to provide light on both the difficulties and best practices that PR professionals encounter in the digital age.

When PR first began, its main focus was on media relations, press releases, events, and crisis management activities that leveraged conventional media (TV, radio, and newspapers) to spread messages. Instilling a positive perception and building trust have been the quiet play between controlling communication from an organization to its publics and vice versa from the beginning of public relations. Public relations professionals served as information gatekeepers, managing the brand story by sending out precisely crafted communication bullet points to large audiences. Maintaining control over the narrative, attempting to sway perceptions, and encouraging two-way communication were not the key priorities. People's perceptions of public relations in the modern era have changed from concentrating just on conventional methods. Public relations professionals may publish their content instantly, engage with their audiences, and occasionally even get real-time reactions through social media sites like Facebook, Instagram, LinkedIn, and Twitter. Furthermore, the rise of digital media has altered practically all the business practices in relation to public relations and digital media and its contents (Personal Connections in the Digital Age, 2015). This shift to digital has given rise to new PR tactics that place a lot more emphasis on involvement, openness, and authenticity than on the conventional one-way forms of communication. In other words, whereas digital media have broadened the scope of public relations initiatives, they have also increased the rate at which public opinions can shift, making efficient PR management more important than ever. In the digital era, influencer marketing is a powerful tool for building customer trust. Influencers are important in connecting with online audiences since they may impact customer impressions through their credible voices.

Literature Review

Technology has greatly influenced public relations (PR). Traditionally, public relations communicated through several media channels, including newspapers, radio, television, and press releases. These channels facilitated one-way communication, allowing firms to share their tales without obtaining direct reaction from their audience. Social media platforms like Instagram, YouTube, and TikTok have altered customer engagement with companies. Consumers are increasingly turning to online influencers with significant social media followings and perceived competence to help them make purchasing decisions. Influencers are trusted by their followers for real and relevant recommendations, unlike typical celebrity endorsements. The rise of social media has expanded the scope of public relations (PR). Public relations professionals increasingly collaborate with influencers to build brand trust and boost customer confidence online. In this situation, public relations connect companies with customers by selecting influencers who share their ideals. Maintaining authenticity and relatability is essential for developing credibility and trust. Incorporating influencers into marketing initiatives may help businesses interact with target audiences in a more natural way than traditional advertising.

Public relations' development from a fledgling industry to a vital part of communication plans in many different industries is shown in its history. Social media's incorporation into PR strategies has made it possible for practitioners to establish relationships with stakeholders, increase exposure, and encourage direct communication. Social media platforms have drastically changed the way public relations practitioners interact with their consumers, resulting in new communication and strategy dynamics (Agarwal & Puppala, 2024). To successfully negotiate the challenges of digital communication, this evolution calls for a calculated approach. Through real-time communication made possible by social media, public relations practitioners can interact with consumers directly and promote a two-way conversation (Sheng, 2024). In order to ensure a consistent message across platforms, public relations practitioners must now create thorough social media plans that complement traditional PR initiatives (Agarwal & Puppala, 2024). Social media gives decision-makers the ability to track public opinion and gauge the success of PR campaigns, enabling data-driven decision-making (Agarwal & Puppala, 2024). PR practitioners can evaluate engagement analytics to adjust plans and increase audience targeting (Goetzen, 2019). Despite its many benefits, social media also has a number of cons, including excessive exposure and misunderstandings, which can make PR efforts more difficult. The advantages of social media must therefore be weighed against the requirement for precise and unambiguous message by PR specialists.

In an effort to regulate information flows between businesses and their consumers through legacy media like newspapers, radio, and television, traditional public relations has concentrated on controlled narratives and one-way communications. The advent of digital media, including blogs, podcasts, and social media, has significantly changed public relations strategies in favor of symmetric models that are distinguished by two-way interactive symmetry. Through the use of real-time engagement on social media sites like Facebook, Instagram, LinkedIn, and Twitter, public relations professionals can efficiently address issues and solicit feedback from their audiences (Social Media Strategy, 2021). Marketing's primary goal is to boost sales, and it mostly concentrates on paid media promotion. In contrast, PR is more about establishing relationships with stakeholders through owned and earned media, emphasizing stakeholder engagement, and managing reputation. Digital tools have made it possible for public relations practitioners to track sentiment, improve engagement, and instantly modify their tactics. The control of misinformation and message consistency across many information platforms are just two of the significant drawbacks that have come with this. In an attempt to investigate the ways in which digital media has impacted public relations practices, this paper discusses the adjustments brought about by this transformation, the strategies employed by PR professionals to take advantage of these new digital media, and the impact of social media on public opinion and involvement.

Influencer Marketing on Public Relations

Every person and every culture has a different definition of influencer. The Cambridge Dictionary defines an influencer as "an individual or group of individuals that possesses the capacity to impact other people's thoughts, decisions, and actions." (Influencer, 2024). Furthermore, marketing is described as "any activity carried out by a business or an individual to promote their goods and services." (What Is Marketing?, 2024). Advertising, promoting, and selling products and services to consumers are all included in marketing. An examination of these two definitions reveals that influencer marketing as a whole elevates the economy. Digital media sites such as Snapchat, TikTok, YouTube, and others have influencers that promote the items, show off how to use them, and even solicit reviews. Public relations specialists used to send out press releases and wait for reactions from reporters or newspapers before social media (Swann, 2019).

Businesses must constantly monitor material across many platforms in the social media age to be informed about how the public is responding to new items or information they may want to provide. As a result, businesses that track material or content producers for public participation on behalf of customers have been hired. Public relations professionals must constantly monitor websites and platforms to ensure that the message intended for their clients' products is sent correctly, in addition to being alert to spot and rectify false information before it spreads. Businesses looking for quick responses will find this input invaluable as it enables them to react promptly and modify their plans. Public relations professionals understand how crucial it is to use influencers as a direct line of communication with customers, serving as powerful product promoters (Charest et al., 2016). Influencers themselves actively participate in social media discussions and content creation by giving their followers evaluations and comments, thus their astute use may prove to be quite beneficial in getting the right word out to the public. Being an influencer has never been easier in the modern world, so anyone may have a sizable fan base, from celebrities to social media users. These influencers typically have a significant impact on people's thoughts, mostly through product marketing or occasionally by offering exclusive coupon codes. Notably, influencers frequently function as marketing agents for businesses, leveraging their notoriety to promote goods and boost sales (De Veirman et al., 2017).

Social Media Influence on Public Relations

The 'Uses and Gratifications Theory,' which dates back to the 1940s (Vinney, 2024), describes how people utilize media to satisfy their own needs and feel content when those needs are satisfied. People look for goods and services that satisfy them, according to research, and this might affect their decisions to buy or even where to go. For instance, managers can examine audience responses to particular articles and sites using tools like Facebook Insights. These insights allow them to obtain information for assessing the effectiveness and response of their marketing activities (Dolan et al., 2019). Prior to social media, businesses lacked these kinds of tools, therefore they had to pick it up fast to take use of this knowledge and stay relevant to their customers.

As social media gained popularity, the public relations sector needed to be able to respond on all social media channels and quickly produce messaging. All individuals, wherever, at any time, suddenly had easy access to this kind of communication, which was simply too important for them to ignore. The public relationship-building industry quickly realized that its clients needed to be able to react to the public at any time. The field of public relations was and continues to play a major role in this type of communication. If you give the wrong message to your client, you can quickly learn how it could negatively impact their business.

One of the most well-known ads that has generated criticism in the past decade was the Pepsi commercial featuring Kendall Jenner, which was removed the day after it was broadcast. It was a commercial that sought to capitalize on the "Black lives matter" movement that was then very prominent in the United States in 2017 (Grady, 2017). In an effort to connect with TV personality and model Kendall Jenner's enormous social media following, PepsiCo believed that this advertisement would be successful in boosting her profile. Kendall may have put a stop to the confrontation between the two sides when he is spotted giving a police officer a Pepsi during a protest. Bernice, Martin Luther King Jr.'s youngest daughter, tweeted on the same day, "If only Daddy would have known about the power of #Pepsi," (Taylor, 2017). This tweet received millions of likes and received numerous additions. This demonstrates that if something is poorly researched, it may be met with immediate retaliation, but if it pleases the audience, the outcome may be the opposite.

In a different instance, Pepsi Co. is now submitting after ten years of being associated with the Super Bowl halftime show (Notte & Hiebert, 2022). Primarily due to the fact that Pepsi is currently keeping an eye out for the newest trends in their behavior and is most engaged in (Ajibade

& Waseem, 2024). Another product from PepsiCo is Gatorade, which was once promoted as a hangover remedy but should also be acknowledged for its essential nutrients, the company claims (Hardy, 2011). Mountain Dew is another Pepsi brand that has a sports association, skateboarders and snowboarders are the primary users of it, whereas PepsiCo and other businesses will keep using social media to promote their goods (Hardy, 2011). Social media is arguably the quickest and most efficient way for companies to project the precise public image they want. Public relations campaigns that employ the media to disseminate their message are more likely to succeed, according to studies (Social Media Strategy, 2021). Businesses who are more active on these platforms are better able to engage with audiences and make sure that their message is seen by the general public.

Customer Trust

Incorporating public relations (PR) into influencer marketing is vital for firms to control their message and utilize influencer credibility with followers. Digital media, influencer marketing and social media marketing relies heavily on building trust between the influencer and their audience. PR professionals carefully select influencers who share the brand's ideals while collaborating. Followers form intimate bonds with influencers (Abidin, 2016). The strong connection between influencers and their followers creates a sense of trustworthiness and credibility. Influencer recommendations can have greater impact than traditional marketing, which may be viewed as less authentic. Trustworthiness of an influencer is vital in molding consumer impressions of a company, including genuine recommendations from influencers increase consumer confidence (Lou & Yuan, 2019). Strategic public relations strategy is crucial for influencer marketing due to the correlation between influencer reputation and brand perception.

Despite the benefits, influencer marketing still poses obstacles. Transparency is crucial as customers may lose faith in influencers who do not disclose compensated recommendations. However, improper use of influencer marketing can harm customer trust rather than increase it, so PR professionals must negotiate these problems carefully. In addition, fake followers and overstated interaction numbers make it difficult for PR professionals to determine an influencer's true effect and audience size. PR professionals are developing tactics to address problems and optimize the benefits of working with influencers. Research suggests that maintaining customer trust involves honesty, openness, and carefully selecting influencers. Understanding influencer marketing and effective public relations may help firms create effective campaigns that resonate with today's customers.

Conclusion

Public relations has undergone a revolution in the digital age, moving from conventional one-way communication to a dynamic, transparent, and participatory interaction with audiences. Social media has transformed the public relations industry by enabling individualized interactions, real-time communication, and innovative campaigns. Social media platforms like Facebook, Instagram, and Twitter have transformed public relations into an interactive and dynamic process. While social media has benefits like increased audience involvement and cost-effective communication, it also has negatives including inaccurate information, ethical concerns, and the need for constant change.

Public relations experts should use social media to their advantage while maintaining their reputation and trust. For public relations practitioners, social media platforms such as Facebook, Instagram, TikTok, and Twitter have become essential tools since they allow for real-time engagement, improved audience targeting, and accurate feedback mechanisms. This study emphasizes how social media platforms in particular, along with other digital media tools, have drastically changed public relations techniques, presenting both opportunities and difficulties. To prevent disinformation, these same techniques necessitate strategic flexibility, alertness, and moral accountability in crisis management. The lines between PR, marketing, and advertising were also blurred by the integration of digital platforms, necessitating consistent messaging across all touch points. Incorporating social media education into PR training equips prospective professionals with the necessary tools for success in a rapidly evolving field.

According to important studies, PR tactics nowadays emphasize two-way symmetric communication, connecting influencer connections with audience participation to build trust and spread business messages. The high stakes of poorly executed ads are illustrated by case studies such as the Pepsi-Kendall Jenner commercial, which serves as a warning to take audience value alignment, cultural sensitivity, and appropriate research into account. In addition, the rise of the influencer has brought a whole new dimension to PR, serving both as a direct channel of communication and a strong tool in shaping public perception. Although influencers provide a special kind of access to target audiences, authenticity and brand value alignment are what make them effective. In addition to the necessity for practitioners to stay abreast of technical advancements and audience expectations, this adds to the growing corpus of knowledge regarding the influence of digital media.

It is best accomplished by combining digital reach and immediacy with the fundamental ideas of reputation management, trust, and relationship-building in public relations. With the constant evolution of digital platforms, the public relations professional must operate in this complex environment, which is bolstered by audience-centered strategies and ethical communication, to ensure that the core of PR—building relationships—does not get lost in the frustrating speed. Therefore, the interaction of digital media with PR techniques creates a dynamic environment where flexibility, openness, and strategic thinking are essential. Social media is an essential part of modern communication tactics, not merely a PR tool. The digital age presents several chances for development and contact. Emerging developments like influencer marketing, live streaming, and artificial intelligence are shaping the future of public relations, necessitating data-driven and innovative methods. Understanding and adapting to these trends may help organizations maintain a competitive advantage and build strong connections with their audiences.

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