



THE STUDY ON GREEN FINANCE AWARENESS AMONG LECTURERS IN POLITEKNIK UNGKU OMAR

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ABSTRACT

Green finance has become a critical mechanism for addressing environmental challenges through sustainable economic development. As climate concerns grow, digital tools are giving green finance an advance. Fintech innovations are making sustainable investments easier to understand, quicker to access and open to more people empowering communities to build a better tomorrow. This study investigates the intersection of digital transformation, Fintech and green finance in terms of lecturers' awareness and perception at Politeknik Ungku Omar, Malaysia. The main objectives were to assess the level of green finance awareness, evaluate the influence of digital transformation and examine the role of Fintech in promoting sustainability. A quantitative research design was employed involving a structured questionnaire distributed to 100 lecturers across various departments. Data collection covered demographic details, awareness of green finance, perceptions of digital transformation and the role of Fintech in sustainability. Descriptive statistics, reliability testing and correlation analysis were conducted using Statistical software. The findings revealed high awareness of green finance, positive perception of digital transformation in finance and strong belief in Fintech's role in sustainability. Cronbach's alpha values indicated high reliability. Significant positive correlations were observed between awareness, digital transformation and Fintech involvement, affirming the integrated role of digital tools in promoting sustainable financial practices. These

findings can guide strategic planning for educational, financial and governmental institutions obligated to building environmentally responsible and digitally forward-looking economies.

Keywords: Fintech innovation, green finance, digital transformation, sustainability

INTRODUCTION

Waqaf, The global financial system is capable as an important transition toward sustainability enhancing through by increasing concerns over climate change and environmental degradation (Zaid et al., 2025; Tarigan et al., 2022). One of the key mechanisms supporting this transition is green finance. Green finance, which encompasses financial investments in sustainable development projects, is recognized as a vital mechanism for achieving environmental goals (Ahmad et al., 2024). It means putting money into projects that support sustainability and care for the environment. At the same time the rise of digital tools and Fintech has improved how financial services work faster, easier to understand and open to more people. Simultaneously, the digital transformation of the financial industry facilitated by Fintech has reshaped how financial services are delivered, making them more inclusive, efficient and transparent (Jafri et al., 2025; RSIS International, 2024). These changes in going green and using new technology have created new ways to connect money systems with helping the environment.

Fintech innovations such as blockchain, artificial intelligence (AI) and digital banking have emerged as key enablers of green finance by enhancing the monitoring, traceability and evaluation of sustainable investments (Zaid et al., 2025; ResearchGate, 2022). These technologies not only support the mobilization of green capital but also reduce information asymmetries in sustainable finance markets (SpringerLink, 2025; Khan & Sadiq, 2021). In Malaysia, supportive regulatory frameworks such as the Bank Negara Malaysia Fintech Sandbox and the digital banking initiative have played a critical role in accelerating Fintech adoption (Alam, 2021; IslamicMarkets.com, 2024). Digital transformation involves the adoption of digital technologies to improve business processes, customer experiences, and service delivery. In the financial sector, digital transformation has led to increased automation, data-driven decision-making and digital service platforms (Deloitte, 2021).

Unfortunately, despite the global momentum around green finance and Fintech there still a lack of understanding about how these developments are recognized in the Malaysian academic context (Hizam et al., 2021; Owoc et al.,

2021). Specifically, the level of awareness and preparedness among educators in Malaysia show an important role in shaping future professionals has not been sufficiently explored. As technological competence and awareness among educators are crucial for shaping future financial professionals, a deeper understanding of their role in promoting sustainable digital finance is urgently needed (Indrawati & Rahmi, 2021; Chong et al., 2023). According to existing literature, green finance covers wide range of financial activities aimed at supporting environmentally sustainable outcomes, such as investments in renewable energy, energy efficiency and pollution control (World Bank, 2022). Financial instruments like green bonds, ESG (Environmental, Social, Governance) funds and sustainability-linked loans are increasingly being used to channel resources toward projects that mitigate climate risks and promote ecological balance. These instruments are critical in mobilizing both public and private capital for sustainable development. As the urgency to combat climate change increases, the importance of green finance continues to grow across all sectors of the economy.

New digital changes in finance have made eco-friendly money practices work better and grow more easily. Fintech technologies such as blockchain, artificial intelligence, mobile banking and crowdfunding have significantly improved the traceability, efficiency and inclusiveness of financial transactions (OECD, 2023; Deloitte, 2021). These tools help keep track of eco-friendly investments and make it easier for more people to get funding, especially for small or local green projects. For example, blockchain ensures transparency in green bond issuance while digital aids in analysing ESG data to guide responsible investment decisions. These new ideas could bring big changes to how eco-friendly finance works in the future.

Despite the rapid progress in financial technology and digital innovation, little research has focused on how Malaysian educators perceive their role in advancing green finance through these tools. The level of awareness, understanding and readiness among academic professionals in Malaysia remains underexplored (Thye, 2021; Yadav & Banerji, 2023). Without sufficient engagement from educators, the integration of green finance and digital innovation into education may be slow, hindering national goals related to digital economy growth and sustainable development (Tarigan et al., 2022; Ahmad et al., 2024). These gap presents a challenge for policymakers and institutions working to bring sustainable finance ideas into classrooms and real-world practices. It shows we need local studies to find out how ready, aware and open academicians in academic institutions are. This study explores the insights and

perspectives of academicians at Politeknik Ungku Omar aiming to address the gap in understanding on how academicians engage with sustainable finance and digital innovation. Specifically, the research objectives are to assess awareness of green finance, to evaluate the influence of digital transformation on green finance and to examine the role of Fintech in supporting sustainable finance initiatives. These results will assist shape lessons, influence policies and strengthen sustainable financial knowledge across Malaysia's education system.

This study contributes to the growing literature on sustainable finance in three important ways. First, it extends existing research on green finance by examining the combined influence of digital transformation and FinTech on green finance awareness among educators in Malaysia, a context that remains underexplored. Second, the study contributes theoretically by applying the Technology Acceptance Model (TAM) within the sustainable finance domain, demonstrating how technology-related factors influence awareness of environmentally responsible financial practices. Third, the study provides practical implications for higher education institutions, policymakers, and financial regulators by highlighting the importance of integrating digital finance and sustainability education into academic curricula. The findings support Malaysia's aspirations towards sustainable economic development and digital transformation.

Conceptual Framework and Theoretical Foundation

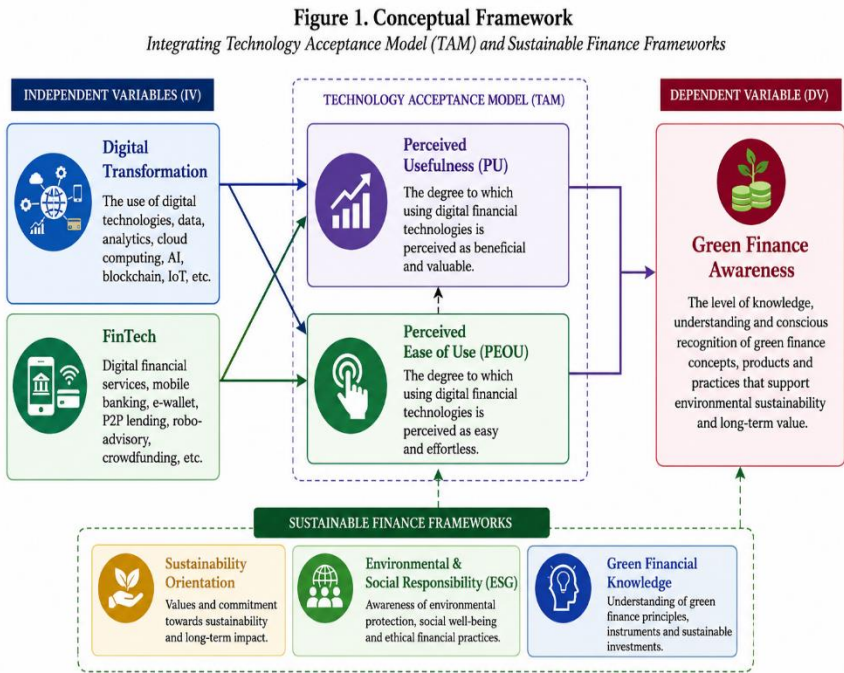
This study is grounded in the Technology Acceptance Model (TAM) proposed by Davis (1989), which explains how individuals' acceptance of technology influences their attitudes and behavioral intentions toward technology usage. Within the context of this study, digital transformation and FinTech represent technological innovations that can enhance awareness and acceptance of green finance practices among educators.

Additionally, the study is supported by the concept of Sustainable Finance Frameworks, which emphasizes the integration of environmental, social, and governance (ESG) considerations into financial decision-making. Green finance serves as a mechanism for achieving sustainable development goals through investments that promote environmental protection and social well-being.

Digital transformation improves accessibility, transparency, and efficiency of financial information, while FinTech innovations facilitate sustainable financial transactions and investments. Therefore, both factors are

expected to positively influence awareness and perceptions of green finance among lecturers.

Conceptual Framework



METHODOLOGY

This study is based on quantitative research and was conducted by distribution questionnaires to investigate the relationship between digital transformation, Fintech and green finance awareness among lecturers. A descriptive survey approach was used to gather primary data. The target population comprises lecturers at Politeknik Ungku Omar. A total of 100 respondents purposive sampling were employed because the study aimed to obtain responses from lecturers who possess basic knowledge and exposure to finance, sustainability, and digital technology concepts. Lecturers are considered suitable respondents because they play an important role in disseminating knowledge and influencing future professionals. The selection of participants from different academic departments also ensured diversity of perspectives regarding green finance and digital transformation. A structured questionnaire was developed and divided into four sections. Section A refers to Demographic profile (age, gender,

department, years of experience), section B for Awareness of green finance, section C for Perception of digital transformation in finance and Section D refers to Understanding of Fintech and its sustainability impact.

Responses were documented on a 5-point Likert scale ranging from 1 that indicates strongly disagree to 5 which is strongly agree. The questionnaire was distributed electronically using institutional emails and online forms. Participation was voluntary and decent approval was obtained from the institutions research committee. Data were analysed using statistical software. Descriptive statistics (mean, standard deviation, frequency) were used to summarize respondent characteristics and response trends. Inferential statistics including correlation and regression analysis were used to determine relationships between digital transformation, Fintech and green finance awareness. Participants were informed about the objectives of the study and assured of the confidentiality of their responses. Informed consent was obtained to participation.

DESCRIPTIVE STATISTICS

Table 1: Demographic Profile of Respondents

Variable	Category
Gender	Male
	Female
Age	Below 30
	31–40
	41–50
	Above 50
Department	Commerce
	General Studies
	Engineering
	Information Technology
	Others
Teaching Experience	Less than 5 years
	5–10 years
	11–15 years
	More than 15 years
Familiarity of Green Finance	Yes
	No

Table 1 shows the demographic characteristics of the respondents who participated in the study conducted at Politeknik Ungku Omar. Understanding these variables provides valuable context for interpreting the perspectives shared by lecturers on sustainable finance and digital innovation.

Gender

The gender distribution was nearly balanced, with respondents identifying as either male or female. This variable helps determine if gender plays a role in the levels of awareness or perception related to green finance and Fintech.

Age

Respondents were grouped into four age categories. Below 30 young lecturers, likely early in their careers and for 31–40 in mid-career educators then 41–50 closely for senior lecturers with more experience and above 50 suitable for veteran educators with extensive teaching and institutional exposure. Age is useful in analysing generational differences in technology use and sustainability awareness. This classification allows for generational analysis, helping explore whether younger or older lecturers differ in their engagement with digital finance and sustainability practices.

Department

Participants represented various academic departments including Commerce, General Studies, Engineering, Information Technology, and Others. This identifies the academic discipline the respondents are affiliated with. For Commerce to have direct knowledge of finance-related topics, next is General Studies which covers broad subject areas with interdisciplinary exposure, for Engineering it may focus on technical innovation and sustainability in design, then Information Technology where its strong foundation in digital tools and Fintech and Others refers to any department not specifically listed (e.g., hospitality, sciences). Departmental affiliation is important for assessing the disciplinary background that may influence familiarity with financial concepts, digital tools or sustainability-focused curricula.

Teaching Experience

The range of teaching experience was categorized as: This measure how long respondents have been teaching: Less than 5 years reflect for newer lecturers, possibly more adaptable to change. Next is 5–10 years refers to moderately experienced, balancing tradition with innovation and 11–15 years for more

experienced educators with deeper institutional understanding and finally more than 15 years which highly experienced and potentially influential in shaping curriculum. Teaching tenure offers insight into the depth of pedagogical experience and openness to integrating new ideas such as green finance and Fintech into academic settings.

Familiarity of Green Finance

Respondents were asked whether they had heard of green finance, with options being Yes or No. This variable reflects the baseline awareness among lecturers regarding sustainable financial practices and serves as an indicator of potential readiness to include such topics in teaching and curriculum development. The indication for Yes which reflect respondents who have heard of green finance, indicating existing exposure and for No for those unfamiliar with the term, possibly needing more resources or training.

RESULTS

Table 1 illustrate the demographic profile of the 100 lecturers surveyed at Politeknik Ungku Omar reveals a balanced gender representation, with slightly more females (52%) than males (48%). Most respondents are in their prime working years between 31 and 50 years old (72%) and bring considerable teaching experience, with 68% having taught for 5 to 15 years. The largest departmental group comes from Commerce (35%) followed by General Studies (25%), suggesting a strong foundation in business and interdisciplinary perspectives. Notably, 83% of participants have heard of green finance indicating broad awareness of ecofriendly financial practices. This combination of experience, departmental diversity and familiarity with green finance positions these lecturers as key contributors to shaping sustainable financial education. Their insights are expected to inform curriculum improvements and support Malaysia's move toward greener and more inclusive financial systems.

The results demonstrate that lecturers at Politeknik Ungku Omar acquire strong awareness and highly positive perceptions of both digital transformation and Fintech as drivers of green finance. The significant correlations among all three variables affirm that these elements are interlinked and collectively support sustainability efforts in the financial sector.



Figure 1: Demographic Profile of Respondents

RELIABILITY TEST (CRONBACH'S ALPHA)

Table 2 shows the reliability test of Cronbach's Alpha by ensure the accuracy and dependability of the research tool, a reliability analysis using Cronbach's Alpha was conducted across the three main sections of the survey. Each section consisted of five items designed to measure specific constructs related to sustainable finance and digital transformation. All three sections achieved Cronbach's Alpha values above 0.80, indicating strong internal consistency. The Awareness of Green Finance and Perception of Digital Transformation sections demonstrated good reliability, while the Role of Fintech section achieved excellent reliability. These findings confirm that the survey items are well-constructed and consistently measure respondents' views, making the instrument suitable for exploring educators' insights on sustainable finance and the use of digital tools in higher education. The results are summarized below.

Table 2: Reliability Test (Cronbach's Alpha)

Section	No. of Items	Cronbach's Alpha	Reliability
Awareness of Green Finance	5	0.812	Good
Perception of Digital Transformation	5	0.844	Good

Role of Fintech in Driving Sustainability	5	0.871	Excellent
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DESCRIPTIVE STATISTICS FOR MAIN VARIABLES

Table 3 represent the results from the survey show high overall awareness and positive attitudes toward sustainable finance and digital innovation among the respondents, Awareness of Green Finance ($M = 4.12$, $SD = 0.56$). Respondents show high awareness of green finance, with the average score above 4 on a 5-point scale. The standard deviation of 0.56 suggests a moderate level of agreement, meaning most respondents are well informed but there is some variation in responses. For Digital Transformation in Finance ($M = 4.28$, $SD = 0.49$) this variable received the highest mean score, indicating a very positive perception of how digital tools are shaping financial practices. The low standard deviation shows that responses were fairly consistent, suggesting strong shared views. Next Role of Fintech in Sustainability ($M = 4.22$, $SD = 0.52$) this results reflect a positive perception of how Fintech supports environmental goals. A slightly higher standard deviation here indicates some diversity in opinion, but overall agreement on Fintech's beneficial role. These findings suggest that respondents are not only familiar with green finance and digital tools but also optimistic about how technology particularly Fintech can support sustainable financial initiatives. It was supported from the survey that a majority of respondents not only demonstrated high awareness of green finance but also showed strong agreement on the transformative role of digital tools, especially Fintech. These insights suggest that both knowledge and optimism toward digital-driven sustainability are well established within the respondent.

Table 3: Descriptive Statistics for Main Variables

Variable	Mean (M)	Std. Deviation (SD)	Interpretation
Awareness of Green Finance	4.12	0.56	High awareness
Digital Transformation in Finance	4.28	0.49	Positive perception
Role of Fintech in Sustainability	4.22	0.52	Positive perception

Discussion for objective 1: Assess Green Finance Awareness.

The high awareness level suggests that lecturers are increasingly exposed to sustainability-related financial concepts. This finding supports Ahmad et al. (2024), who reported growing awareness of sustainable finance among educated professionals.

Discussion for objective 2: Evaluate Influence of Digital Transformation.

The strong relationship between digital transformation and green finance awareness indicates that digital technologies facilitate greater access to sustainability-related information and financial services.

Discussion for objective 3: Examine Role of FinTech.

The positive perception of FinTech demonstrates that lecturers recognize the role of technological innovation in supporting sustainable financial ecosystems.

These findings suggest that respondents are not only familiar with green finance and digital tools but also optimistic about how technology, particularly Fintech, can support sustainable financial initiatives. It was supported from the survey that most respondents not only demonstrated high awareness of green finance but also showed strong agreement on the transformative role of digital tools, especially Fintech. These insights suggest that both knowledge and optimism toward digital-driven sustainability are well established within the respondents.

CORRELATION ANALYSIS

Figure 4 illustrate the correlation analysis of overall mean score for our main variables which are digital transformation in finance, Fintech in sustainability and awareness in green finance. The first objective of the study was to assess the awareness of green finance among lecturers at Politeknik Ungku Omar. The findings indicate a high level of awareness with a mean score of 4.12 and a standard deviation of 0.56. Additionally, 83% of respondents confirmed that they had heard of the term “green finance” suggesting that most lecturers are familiar with the concept and its relevance to sustainability. The reliability analysis for this section yielded a Cronbach’s Alpha of 0.812, indicating good internal consistency of the awareness scale. These results suggest that educators possess a strong foundational understanding of green finance positioning them well to incorporate sustainable finance concepts into teaching and discourse within higher education.

The second objective focused on evaluating the influence of digital transformation on the future of green finance. The results showed a very positive perception among respondents, with a high mean score of 4.28 and a standard deviation of 0.49. The reliability test for this section demonstrated strong internal consistency (Cronbach's Alpha = 0.844). Furthermore, correlation analysis revealed a strong positive relationship between digital transformation and awareness of green finance ($r = 0.651$, $p < 0.01$). This suggests that lecturers see digital transformation notably through tools such as online platforms, data systems and automation as a catalyst for improving the transparency, efficiency and accessibility of sustainable financial services. These perceptions support the idea that digital transformation is instrumental in scaling up green finance efforts across sectors.

The third objective to examine the role of Fintech in supporting sustainable finance initiatives. The mean results showed score of 4.22 and a standard deviation of 0.52 which indicating a positive perception of Fintech's contribution to sustainability. The Cronbach's Alpha of 0.871 showed that the reliability of this section was excellent reflecting a high level of agreement among respondents. For Correlation analysis showed the significance of Fintech is strong positive relationships with both awareness of green finance ($r = 0.682$) and digital transformation ($r = 0.703$) for all significant at the 0.01 level. These findings indicate that lecturers recognize the potential of Fintech tools such as blockchain for transaction transparency, e-wallets for paperless operations and crowd funding platforms for financing environmental projects as important components in driving sustainable finance forward. The results highlight the attached role of awareness, digital innovation and Fintech in fostering a sustainable financial future within educational and institutional contexts.

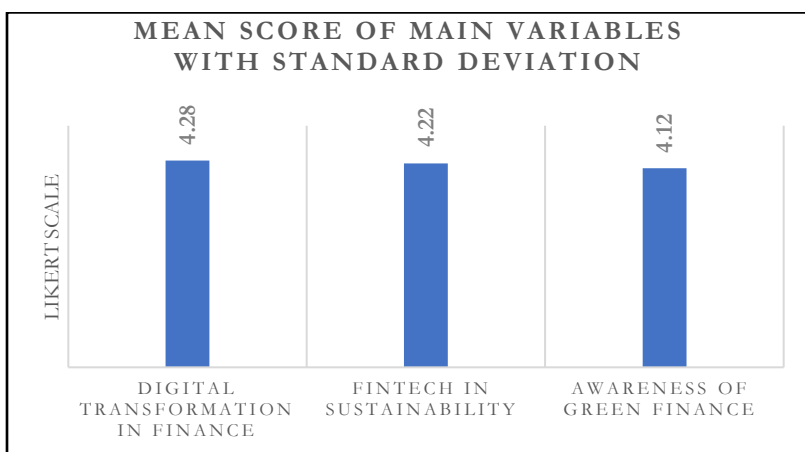


Figure 4: Correlation Analysis of overall mean score

DISCUSSION

This study focuses on three main objectives revealing understanding into the integration of sustainability and digital innovation within Malaysia's educational landscape. Firstly, the findings show a high level of awareness of green finance among lecturers at Politeknik Ungku Omar suggesting that educators are well positioned to promote sustainable finance concepts within academic environments. Secondly, the positive perceptions of digital transformation focused enhancing the efficiency, accessibility and transparency of financial services that support green initiatives. This suggests that digital tools are widely recognized as main factors in the advancement of green finance. Lastly, the study accepted the strong belief in Fintech's potential to support sustainable finance through technologies such as blockchain, mobile banking and crowdfunding platforms. Collectively these findings highlight the readiness and willingness of academic professionals to contribute to sustainable financial development through education and advancement. Encouraging these areas within academic institutions will not only strengthen financial literacy but also foster a generation of professionals capable of driving Malaysia's green economy forward. The findings are consistent with the principles of Islamic finance, which emphasize social responsibility, environmental stewardship, and sustainable economic development. The positive perceptions of digital transformation and FinTech suggest opportunities for integrating technology into Islamic social finance mechanisms such as digital zakat collection, waqf management platforms, and sustainable Islamic investment products (Shaban & Omoush, 2026). These

initiatives support the achievement of Maqasid al-Shariah and Malaysia's sustainable development agenda.

LIMITATIONS AND FUTURE RESEARCH

This study has several limitations. First, the respondents were limited to lecturers from a single institution, namely Politeknik Ungku Omar, which may affect the generalizability of the findings. Second, the use of purposive sampling may introduce selection bias as respondents were chosen based on specific characteristics. Third, the study relied on self-reported perceptions which may be subject to response bias.

Future research should involve multiple higher education institutions across Malaysia and include larger sample sizes to improve external validity. Furthermore, future studies should investigate the role of Islamic social finance instruments such as zakat, waqf, and Islamic green sukuk in promoting sustainable development.

CONCLUSION

This study shows that Higher education institutions should embed green finance topics across relevant courses especially in commerce, economics and sustainability programs to prepare students with the knowledge and skills needed for Malaysia's green transition. Professional development programs should be introduced to assist lecturers stay up to date with emerging digital tools such as blockchain, mobile banking and crowdfunding ensuring they can effectively teach and apply these innovations. Universities and polytechnics should create clear strategies that strengthen the adoption of sustainable financial practices, supported by digital platforms that make implementation practical and scalable. Academic institutions should partner with Fintech companies, sustainability consultants and government bodies to create hands on learning experiences and policy relevant research projects.

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