Reflection: Education and Pedagogical Insights

The Implementation of Financial Technology in Improving Digital Financial Understanding Among Accounting Students in South-East Asia with Technology Acceptance Model Approach

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ABSTRACT

This research analyzes the impact of FinTech Implementation on the digital financial understanding of accounting students in Southeast Asia using Technology Acceptance Model (TAM) approach. Novelty of this research is to develop a new measurement by adding new dimensions to the Financial Technology Implementation and Digital Finance Understanding variables. This study employs a quantitative approach with qualitative support, using PLS-SEM. The quantitative approach is used to analyze relationships between variables, while the qualitative method provides deeper insights into students' experiences with FinTech adoption. Population in this study are accounting students in Southeast Asia, particularly in Indonesia, Malaysia, Singapore, Thailand, Brunei Darussalam, and Philippines. Purposive sampling is used to select students from universities with accounting programs and targets 320 respondents. The implementation of Financial Technology (FinTech) significantly enhances Digital Financial Understanding (DFU) by improving financial literacy, accessibility, and user engagement with digital financial services. The dimensions that are novelty in this study, namely Adoption Intention (X5), Actual Usage (X6), Regulatory Awareness (X7), Digital Financial Behavior (Y4), Regulatory and Consumer Protection Awareness (Y5) have been successfully measured well and become variables that support expansion tests. Future research should examine how FinTech engagement influences financial understanding over an extended period.

Keywords: Financial Technology Implementation; Digital Financial Understanding; Technology Acceptance Model

Field: Education; Accounting; Technology; Economics; Behavioral Finance

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SDG's: No Poverty (1); Quality Education (4); Gender Equality (5); Decent Work and Economic Growth (8); Industry, Innovation, and Infrastructure (9); Partnerships for the Goals (17)

INTRODUCTION

The rapid advancement of digital technology has significantly influenced the financial sector, leading to the emergence of Financial Technology (FinTech) as a crucial component in modern financial systems. FinTech innovations (Fransisca et al., 2025), such as digital banking, mobile payment systems, blockchain, and artificial intelligence-driven financial advisory services (Nyoto et al., 2023; Renaldo, Suyono, et al., 2023), are reshaping how individuals and businesses interact with financial services. As Southeast Asia experiences a digital revolution in its financial sector (Junaedi et al., 2024; Junaedi, Renaldo, Yovita, Veronica, & Jahrizal, 2023), the need for a workforce equipped with digital financial literacy is more pressing than ever (Purwati et al., 2023).

Accounting students (Renaldo et al., 2022), as future financial professionals, must develop a comprehensive understanding of digital financial systems to remain competitive in an increasingly digitalized economy (Hutahuruk et al., 2024). However, research suggests that many students still lack adequate knowledge and exposure to FinTech applications, hindering their ability to adapt to evolving industry demands. This study seeks to investigate how FinTech can enhance digital financial literacy among accounting students in Southeast Asia (Junaedi et al., 2025), bridging the gap between academic knowledge and practical financial applications.

Several key phenomena underscore the importance of this study:

1. Rapid Growth of FinTech in Southeast Asia

   The region has seen an exponential rise in digital banking, e-wallets, and peer-to-peer lending platforms, driven by increasing internet penetration and smartphone usage. Countries such as Indonesia, Singapore, and Malaysia are leading FinTech adoption, yet financial literacy among students remains inconsistent.

2. Digital Financial Literacy Gap

   Despite the increasing adoption of FinTech, many accounting students lack adequate exposure to digital financial tools. Traditional accounting curricula often do not cover emerging financial technologies, leading to a mismatch between academic training and industry needs.

3. The Need for Industry-Academia Alignment

   Employers in the financial sector seek graduates who are proficient in FinTech applications, yet universities have been slow to integrate FinTech-related subjects into accounting programs. There is a growing demand for educational institutions to incorporate digital financial education to prepare students for future job markets.

This study introduces a unique perspective by:

1. Focusing on Southeast Asian Accounting Students. While many studies examine FinTech adoption at a general level, this research specifically targets accounting students, who will play a critical role in financial decision-making in the future.
2. Bridging the Gap Between Academic Knowledge and Industry Demands. Unlike traditional studies that focus on theoretical financial literacy, this research explores practical applications of FinTech in accounting education.
3. Proposing a FinTech-Based Learning Framework. The study aims to provide recommendations on how FinTech tools, such as mobile banking, blockchain accounting, and AI-driven financial analysis, can be integrated into accounting curricula.
4. Develop a new measurement by adding 3 new dimensions to the Financial Technology Implementation variable and 2 new dimensions to Digital Finance Understanding variable.

The primary objectives of this study are:

1. To analyze the impact of FinTech Implementation on the digital financial understanding of accounting students in Southeast Asia.
2. To identify the key challenges faced by students in adopting FinTech applications.
3. To explore the role of universities in enhancing FinTech education within accounting programs.
4. To provide recommendations for integrating FinTech-related courses into accounting curricula to better align with industry demands.

LITERATURE REVIEW

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) by Davis (1989) serves as the theoretical foundation for this study. TAM explains how users adopt and use technology, emphasizing two key factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Suhardjo et al., 2024). In the context of FinTech adoption among accounting students, TAM provides a framework for understanding their willingness to embrace digital financial tools.

- Perceived Usefulness (PU): Students are more likely to adopt FinTech if they believe it enhances their financial literacy and career prospects.

- Perceived Ease of Use (PEOU): The simpler and more user-friendly a FinTech application is, the higher the likelihood of student adoption.

By applying TAM, this study examines how accounting students' perceptions influence their willingness to integrate FinTech into their learning processes and financial decision-making.

FinTech and Digital Financial Literacy

Digital financial literacy refers to the ability to effectively use digital financial services, including mobile banking, digital payments, and blockchain technology. Studies show that FinTech innovations contribute significantly to improving financial literacy, particularly in regions with limited access to traditional financial services (Lusardi & Mitchell, 2017). In Southeast Asia, where mobile banking and e-wallets are widely used, FinTech has become an essential tool for fostering financial inclusion (KPMG, 2021).

FinTech Adoption Among Accounting Students

Accounting students must develop digital financial competencies to remain relevant in the job market. According to Zhang et al. (2022), FinTech knowledge is now a required skill for financial professionals, yet many universities do not fully integrate FinTech into their curricula. Research by Chuen & Teo (2018) suggests that experiential learning, such as using real-world FinTech applications in classroom settings, enhances students' practical knowledge.

Barriers to FinTech Adoption in Education

Despite the benefits, several challenges hinder FinTech adoption among students:

- Lack of Awareness – Many students are unfamiliar with emerging FinTech innovations and their applications.
- Limited Curriculum Integration – Traditional accounting programs focus on conventional financial principles rather than digital finance.
- Perceived Complexity – Some students find FinTech tools difficult to use due to a lack of proper training.

Bridging the Gap: The Role of Universities

To bridge this gap, universities must:

- Integrate FinTech-focused courses into accounting curricula.
- Provide practical training on blockchain, AI-driven financial analysis, and digital payments.
- Encourage collaborations with FinTech companies for hands-on learning experiences.

Hypothesis

H_1: Financial Technology Implementation improves Digital Financial Understanding

Research Framework

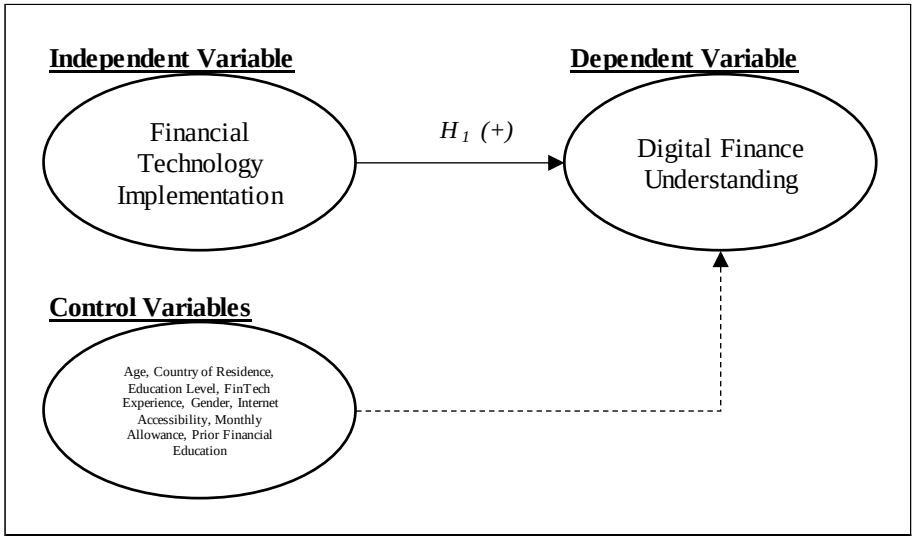

Figure 1. Research Framework

METHODOLOGY

Research Approach

This study employs a quantitative approach with qualitative support (Creswell & Creswell, 2018; Sekaran & Bougie, 2016), using Structural Equation Modeling (SEM) with PLS (Partial Least Square) or PLS-SEM as the primary analytical method (Mairia et al., 2021). The quantitative approach is used to analyze relationships between variables, while the qualitative method (Syahputra et al., 2023) provides deeper insights into students' experiences with FinTech adoption (Renaldo et al., 2021).

Research Design

The study follows an explanatory research design, aiming to examine how FinTech influences digital financial understanding among accounting students in Southeast Asia (Lumbantoruan et al., 2021). It tests the relationships between variables derived from the Technology Acceptance Model (TAM), including Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and FinTech Adoption (FA).

Population and Sample

Population in this study are accounting students in Southeast Asia, particularly in Indonesia, Malaysia, Singapore, Thailand, Brunei Darussalam, and Philippines. Purposive sampling is used to select students from universities with accounting programs that integrate digital finance or FinTech-related courses (Juprizon et al., 2022). The study targets 320 respondents, following the recommended sample size for SEM analysis (Hair et al., 2019) with 24 indicators with 8 control variables.

Data Collection Methods

For quantitative data (survey questionnaire), a structured questionnaire is distributed online to collect responses from students. The questionnaire consists of Likert-scale questions (1–6), measuring students' perceptions of FinTech usefulness, ease of use, and its impact on financial literacy. The questionnaire is adapted from previous studies on TAM and FinTech adoption.

For qualitative data (interviews & Focus Group Discussions - FGDs), semi-structured interviews with lecturers and industry professionals to gain insights into curriculum integration challenges. FGDs with selected students to understand their experiences using FinTech in financial learning.

Variable Operationalization

Table 1. Variable Operationalization

Variable	Dimension	Indicator	Source
Financial Technology Implementation (X)	Perceived Usefulness (X1)	FinTech improves financial decision-making	(T. Chandra et al., 2024)
		FinTech enhances efficiency in financial transactions	
	Perceived Ease of Use (X2)	FinTech platforms are user-friendly	(He et al., 2018)
		FinTech applications require minimal effort to learn	
	Security and Trust (X3)	Users feel confident in FinTech security measures	(Syed et al., 2022)
		FinTech providers ensure data privacy protection	
	Financial Technology Literacy (X4)	Understanding of digital financial products and services	(Widyastuti & Hermanto, 2022)
		Ability to evaluate financial risks in digital transactions	
	Adoption Intention (X5)	Willingness to use FinTech in daily financial activities	Novelty
		Preference for FinTech over traditional banking methods	
	Actual Usage (X6)	Frequency of FinTech application usage	Novelty
		Types of FinTech services used (e-wallets, digital lending, etc.)	
	Regulatory Awareness (X7)	Awareness of government regulations regarding FinTech	Novelty
		Understanding of consumer protection laws in FinTech transactions	
Digital Finance Understanding (Y)	Knowledge of Digital Financial Services (Y1)	Awareness of different types of digital financial services (e-wallets, mobile banking, digital lending)	(Diener & Špaček, 2021)
		Understanding of digital payment methods and transactions	
	Digital Financial Literacy (Y2)	Ability to interpret digital financial statements and reports	(Panos & Wilson, 2020)
		Understanding of financial concepts such as interest rates, inflation, and digital investments	
	Risk Awareness in Digital Finance (Y3)	Awareness of cybersecurity risks in digital transactions	(Alojail & Khan, 2023)
		Understanding of fraud prevention and online financial security measures	
	Digital Financial Behavior (Y4)	Frequency of using digital financial platforms (e.g., e-wallets, robo-advisors, cryptocurrency)	Novelty
		Responsible financial management through digital tools (e.g., budgeting apps, automated savings)	
	Regulatory and Consumer Protection Awareness (Y5)	Understanding of government policies and regulations on digital finance	Novelty
		Awareness of consumer protection rights in digital financial services	

All main variable measurements in the questionnaire use a Likert scale of 1-6 (interval scale). For control variables, this research use Age, Country of Residence, Education Level, FinTech Experience, Gender,

Internet Accessibility, Monthly Allowance, and Prior Financial Education. For Age, older students may have different levels of experience with FinTech compared to younger students (measured by actual age). For Country of Residence, differences in regulatory environments and digital financial infrastructure across Southeast Asian countries may affect FinTech adoption (1 = Indonesia, 2 = Malaysia, 3 = Singapore, 4 = Thailand, 5 = Philipines, and 6 = Brunei Darussalam). For education level, undergraduate and postgraduate accounting students may exhibit different financial literacy levels (1 = Diploma, 2 = Bachelor, 3 = Master, and 4 = Doctoral). For FinTech Experience, students who have used FinTech services for a longer period may have greater familiarity with digital finance concepts (1 = less than 3 years, 2 = 4 – 6 years, 3 = 7 – 9 years, and 4 = more than 10 years).

For Gender, males and females may have varying levels of digital finance understanding and FinTech adoption behavior (1 = male, 2= female). For Internet Accessibility, availability and quality of internet access can influence the usage of digital financial services (1 = Bad, 2 = Good, and 3 = Best). For Monthly Allowance, higher income students may use more FinTech services compared to those with lower financial resources (1 = under USD 150, 2 = USD 151-300, 3 = USD 301-450, 4 = USD 451-600, 5 = USD 601-750, 6 = > USD 750). For Prior Financial Education, students who have taken finance-related courses may have better digital financial understanding (1 = No course, 2 = Have taken course).

Data Analysis Technique

Descriptive statistics are used to summarize demographic information and respondents' general perceptions (Lind et al., 2018). For validity and reliability tests, we used Confirmatory Factor Analysis (CFA) to ensure construct validity and Cronbach's Alpha to measure the reliability of survey items (S. Chandra et al., 2023).

Structural Equation Modeling (SEM) with PLS-SEM:

- Measurement Model Assessment: Indicator Reliability (Outer Loadings > 0.70), Internal Consistency Reliability (Composite Reliability > 0.70), Convergent Validity (AVE > 0.50), Discriminant Validity (HTMT < 0.85).
- Structural Model Assessment: Collinearity Issues (VIF < 5.0), Coefficient of Determination (R^2) – Indicates explanatory power, Effect Size (f^2) – Measures impact strength, Predictive Relevance (Q^2) – Assesses model's predictive capability.
- Model Fit Assessment: SRMR (Standardized Root Mean Square Residual) < 0.08, NFI (Normed Fit Index) > 0.90.

Hypothesis Testing

The hypothesis is accepted if the alpha value is less than 10% ($\alpha < 0.10$) (Panjaitan et al., 2024).

Expansion Testing

Expansion test is used to measure how well the influence between novelty dimensions in research. Dimensions will be used as variables to see which dimensions provide the best influence in the research model.

Ethical Considerations

Informed consent is obtained from participants before data collection. Data is anonymized and stored securely to protect respondents' privacy. The research follows ethical guidelines set by universities and academic institutions.

RESULTS AND DISCUSSION

Result

Descriptive Statistics

Table 2. Descriptive Statistics

Name	Mean	Median	Mode	Scale min	Scale max	Standard deviation	Excess kurtosis	Skewness	Cramér-von Mises p value
X1.1	4.478	4.000	4.000	2.000	6.000	0.596	0.191	-0.048	0.000
X1.2	4.513	5.000	5.000	3.000	6.000	0.591	-0.441	0.043	0.000
X1	4.495	4.500	4.500	3.000	6.000	0.485	0.294	0.101	0.000
X2.1	4.516	5.000	5.000	3.000	6.000	0.607	-0.325	-0.186	0.000
X2.2	4.562	5.000	5.000	3.000	6.000	0.567	-0.529	-0.248	0.000

Name	Mean	Median	Mode	Scale min	Scale max	Standard deviation	Excess kurtosis	Skewness	Cramér-von Mises p value
X2	4.539	4.500	4.500	3.000	6.000	0.465	0.490	-0.273	0.000
X3.1	4.522	5.000	5.000	2.000	6.000	0.575	0.192	-0.432	0.000
X3.2	4.531	5.000	5.000	3.000	6.000	0.575	-0.579	0.026	0.000
X3	4.527	4.500	4.500	3.000	6.000	0.437	0.537	-0.103	0.000
X4.1	4.522	5.000	5.000	3.000	6.000	0.570	-0.629	0.016	0.000
X4.2	4.531	5.000	5.000	3.000	6.000	0.553	-0.767	-0.292	0.000
X4	4.527	4.500	4.500	3.000	6.000	0.442	0.288	-0.159	0.000
X5.1	4.503	4.000	4.000	2.000	6.000	0.617	0.227	-0.052	0.000
X5.2	4.537	5.000	5.000	3.000	6.000	0.580	-0.537	0.046	0.000
X5	4.520	4.500	4.500	3.000	6.000	0.478	0.198	0.113	0.000
X6.1	4.509	4.000	4.000	3.000	6.000	0.612	-0.338	0.292	0.000
X6.2	4.559	5.000	5.000	3.000	6.000	0.567	-0.582	-0.132	0.000
X6	4.534	4.500	4.500	3.500	6.000	0.470	0.264	0.271	0.000
X7.1	4.509	5.000	5.000	2.000	6.000	0.612	0.230	-0.118	0.000
X7.2	4.541	5.000	5.000	3.000	6.000	0.601	-0.403	0.104	0.000
X7	4.525	4.500	4.500	3.000	6.000	0.477	0.924	0.225	0.000
Y1.1	4.519	5.000	5.000	3.000	6.000	0.642	-0.231	0.001	0.000
Y1.2	4.500	4.000	4.000	2.000	6.000	0.680	0.147	0.060	0.000
Y1	4.509	4.500	4.500	3.000	6.000	0.536	0.806	0.222	0.000
Y2.1	4.513	5.000	5.000	3.000	6.000	0.652	-0.213	-0.046	0.000
Y2.2	4.494	4.000	4.000	3.000	6.000	0.622	-0.276	0.102	0.000
Y2	4.503	4.500	4.500	3.000	6.000	0.520	0.549	0.038	0.000
Y3.1	4.522	5.000	5.000	2.000	6.000	0.642	0.249	-0.224	0.000
Y3.2	4.513	4.000	4.000	3.000	6.000	0.627	-0.276	0.143	0.000
Y3	4.517	4.500	4.500	3.000	6.000	0.508	0.589	0.003	0.000
Y4.1	4.525	5.000	5.000	3.000	6.000	0.637	-0.243	0.015	0.000
Y4.2	4.562	5.000	5.000	2.000	6.000	0.663	0.283	-0.263	0.000
Y4	4.544	4.500	4.500	3.000	6.000	0.539	0.686	0.111	0.000
Y5.1	4.550	5.000	5.000	3.000	6.000	0.584	-0.465	-0.054	0.000
Y5.2	4.544	5.000	5.000	3.000	6.000	0.641	-0.246	0.050	0.000
Y5	4.547	4.500	4.500	3.000	6.000	0.493	0.614	0.145	0.000
C1	21.837	20.000	18.000	18.000	48.000	4.979	7.316	2.497	0.000
C2	2.469	2.000	1.000	1.000	6.000	1.360	-0.656	0.583	0.000
C3	1.869	2.000	2.000	1.000	4.000	0.603	2.927	0.838	0.000
C4	1.659	2.000	1.000	1.000	4.000	0.762	0.150	0.919	0.000
C5	1.459	1.000	1.000	1.000	2.000	0.498	-1.986	0.164	0.000
C6	2.100	2.000	3.000	1.000	3.000	0.819	-1.491	-0.187	0.000
C7	1.953	2.000	2.000	1.000	6.000	1.004	1.974	1.324	0.000
C8	1.472	1.000	1.000	1.000	2.000	0.499	-2.000	0.113	0.000

Source: Processed data, 2025

Based on the calculation of respondents' responses from X1.1 to Y5, it has an average range of good intervals. For Age (C1) an average of 21-22 years, Country of Residence (C2) is dominated by Indonesia, Education Level (C3) is dominated by Bachelor, Fintech Experience (C4) is dominated by less than 3 years, gender (C5) dominated by men, internet accessibility (C6) dominated USD 151-300 per month, and Prior Financial Education (C8) are dominated by no financial course.

Measurement Model Assessment

Table 3. Indicator Validity

Indicators	Outer loadings	Indicators	Outer loadings
X1 <- FinTech Implementation	0.717	C1 <- Age	1.000
X2 <- FinTech Implementation	0.741	C2 <- Country of Residence	1.000
X3 <- FinTech Implementation	0.682	C3 <- Education Level	1.000
X4 <- FinTech Implementation	0.700	C4 <- FinTech Experience	1.000
X5 <- FinTech Implementation	0.717	C5 <- Gender	1.000
X6 <- FinTech Implementation	0.667	C6 <- Internet Accessibility	1.000
X7 <- FinTech Implementation	0.720	C7 <- Monthly Allowance	1.000
		C8 <- Prior Financial Education	1.000

Indicators	Outer loadings	Indicators	Outer loadings
Y1 <- DigFin Understanding	0.780		
Y2 <- DigFin Understanding	0.785		
Y3 <- DigFin Understanding	0.776		
Y4 <- DigFin Understanding	0.752		
Y5 <- DigFin Understanding	0.739		

Source: Processed data, 2025

Based on the results of the validity indicator testing, it appears that all indicators both in the independent, dependent, and control variables have an outer loadings value above 0.7. This means that it meets the requirements of construct validity and can be continued to the next analysis stage.

Table 4. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
DigFin Understanding	0.824	0.825	0.877	0.587
FinTech Implementation	0.833	0.834	0.875	0.499

Source: Processed data, 2025

Based on the results of reliability testing using Cronbach's Alpha, Rho_a, and Rho_C already have a value above 0.7. Then the AVE value of all variables is above 0.5 even though the Financial Technology Implementation variable is still at 0.499 (this condition is still acceptable). This means that the construct validity and reliability requirements have been met and can be continued to the next analysis stage.

Table 5. Discriminant Validity

	C1	C2	C3	C4	C5	C6	C7	C8	DigFin Understanding	FinTech Implementation
C1										
C2	0.024									
C3	0.488	0.028								
C4	0.197	0.021	0.161							
C5	0.016	0.000	0.028	0.116						
C6	0.074	0.087	0.037	0.086	0.005					
C7	0.680	0.057	0.284	0.167	0.118	0.040				
C8	0.064	0.045	0.043	0.038	0.017	0.016	0.063			
DigFin Understanding	0.119	0.056	0.103	0.046	0.039	0.063	0.091	0.033		
FinTech Implementation	0.125	0.055	0.093	0.058	0.037	0.082	0.084	0.070	1.043	

Source: Processed data, 2025

Based on the results of discriminant validity testing, almost all HTMT criteria are already below 0.85. Although some variables exceed that value, but because the value of reliability and construct validity still meets the criteria, this can still be understood and can be continued to the next stage of analysis.

Structural Model Assessment

Table 6. Multicollinearity Test

	VIF
FinTech Implementation -> DigFin Understanding	1.017
C1 - Age -> DigFin Understanding	2.312
C2 - Country of Residence -> DigFin Understanding	1.017
C3 - Education Level -> DigFin Understanding	1.342
C4 - FinTech Experience -> DigFin Understanding	1.073
C5 - Gender -> DigFin Understanding	1.037
C6 - Internet Accessibility -> DigFin Understanding	1.020
C7 - Monthly Allowance -> DigFin Understanding	1.922
C8 - Prior Financial Education -> DigFin Understanding	1.016

Source: Processed data, 2025

Based on the results of multicollinearity testing, all VIF values are below 5. This means that the research model is free from multicollinearity problems and can be continued to the next analysis stage.

Table 7. Determination Coefficient Test

	R-square	R-square adjusted
DigFin Understanding	0.752	0.745

Source: Processed data, 2025

The R-Square Adjusted value shows 0.745 which means below 74.5% changes to Digital Finance Understanding are influenced by Financial Technology Implementation, Age, Country of Residence, Education Level, Fintech Experience, Gender, Internet Accessibility, Monthly Allowance, and Prior Financial Education. While the remaining 25.5% is influenced by other factors outside the research model.

Table 8. f-square Test

	f-square	Result
FinTech Implementation -> DigFin Understanding	2.951	Strong
C1 - Age -> DigFin Understanding	0.001	Very weak
C2 - Country of Residence -> DigFin Understanding	0.000	Very weak
C3 - Education Level -> DigFin Understanding	0.001	Very weak
C4 - FinTech Experience -> DigFin Understanding	0.000	Very weak
C5 - Gender -> DigFin Understanding	0.003	Very weak
C6 - Internet Accessibility -> DigFin Understanding	0.001	Very weak
C7 - Monthly Allowance -> DigFin Understanding	0.004	Very weak
C8 - Prior Financial Education -> DigFin Understanding	0.000	Very weak

Note: < 0.02 is very weak, 0.02-0.15 is weak, 0.15-0.35 is moderate, and > 0.35 is strong

Source: Processed data, 2025

F-Square testing shows that the Financial Technology Implementation has the strongest effect of the whole variable. While all control variables have a very weak effect on digital finance understanding. From this F-Square analysis is also a consideration whether the model can be continued to the next stage and the results show it can be continued.

In calculating predictive relevance (Q^2), it is obtained based on the following calculations:

$$Q^2 = 1 – (1 – 0.752) = 0.752$$

This indicates that the model in this study possesses a significant predictive capability, as it effectively explains 75.2% of the information within the research data.

Model Fit Assessment

Table 9. Model Fit

	Saturated model	Estimated model
SRMR	0.048	0.048
d_ULS	0.482	0.487
d_G	0.176	0.177
Chi-square	290.156	291.653
NFI	0.860	0.860

Source: Processed data, 2025

The model fit test shows an SRMR value below 0.08 which means it is good. The d_ULS (Unweighted Least Squares Discrepancy) value is used to detect structural errors in the model (without considering the weight of the latent variables) showing a small value which means the better the model fits the data (the model fits the data). The d_G (Geodesic Discrepancy) value measures the model's inconsistency with the Geodesic Distance approach, which considers the weight of the latent variables. d_G analysis is more sensitive than d_ULS, especially in models with many complex relationships and the smaller the d_G value, the better the model fits the data (the model has a good fit with the data).

The Chi-square value is required to be small and this has also met the criteria. Finally, the NFI value must be close to 1. The results of the study showed a value of 0.860 which is almost close to the value of 1 (marginal fit). Therefore, the fit assessment model has been met and can be continued to the next stage of analysis.

Hypothesis Test

Table 10. Hypothesis Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values (1-tailed)	Result
FinTech Implementation -> DigFin Understanding	0.863	0.863	0.019	44.263	0.000	Accepted
C1 - Age -> DigFin Understanding	0.026	0.026	0.040	0.643	0.260	
C2 - Country of Residence -> DigFin Understanding	0.005	0.005	0.030	0.165	0.434	
C3 - Education Level -> DigFin Understanding	-0.020	-0.019	0.033	0.603	0.273	
C4 - FinTech Experience -> DigFin Understanding	0.003	0.002	0.028	0.095	0.462	
C5 - Gender -> DigFin Understanding	0.057	0.057	0.057	1.003	0.158	
C6 - Internet Accessibility -> DigFin Understanding	0.018	0.018	0.030	0.592	0.277	
C7 - Monthly Allowance -> DigFin Understanding	-0.046	-0.046	0.041	1.140	0.127	
C8 - Prior Financial Education -> DigFin Understanding	0.016	0.015	0.056	0.288	0.387	

Source: Processed data, 2025

The test shows that Financial Technology Implementation improves Digital Finance Understanding. This supports H1 mentioned earlier. As for the control variables, none of them are significant.

Expansion Test

Table 11. Expansion Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values (1-tailed)	Result
X1 -> Y1	0.087	0.083	0.054	1.609	0.054	Accepted
X1 -> Y2	0.082	0.082	0.054	1.528	0.063	Accepted
X1 -> Y3	0.248	0.246	0.057	4.350	0.000	Accepted
X1 -> Y4	0.161	0.164	0.053	3.058	0.001	Accepted
X1 -> Y5	0.089	0.093	0.057	1.570	0.058	Accepted
X2 -> Y1	0.197	0.198	0.052	3.773	0.000	Accepted
X2 -> Y2	0.171	0.172	0.050	3.426	0.000	Accepted
X2 -> Y3	0.044	0.043	0.053	0.828	0.204	Rejected
X2 -> Y4	0.246	0.247	0.054	4.542	0.000	Accepted
X2 -> Y5	0.244	0.244	0.055	4.476	0.000	Accepted
X3 -> Y1	0.067	0.069	0.053	1.282	0.100	Rejected
X3 -> Y2	0.255	0.255	0.053	4.766	0.000	Accepted
X3 -> Y3	0.052	0.054	0.050	1.050	0.147	Rejected
X3 -> Y4	0.227	0.225	0.048	4.724	0.000	Accepted
X3 -> Y5	0.134	0.130	0.058	2.322	0.010	Accepted
X4 -> Y1	0.113	0.112	0.050	2.251	0.012	Accepted
X4 -> Y2	0.050	0.049	0.055	0.922	0.178	Rejected
X4 -> Y3	0.161	0.162	0.051	3.163	0.001	Accepted
X4 -> Y4	-0.020	-0.019	0.055	0.371	0.355	Rejected
X4 -> Y5	0.080	0.079	0.055	1.448	0.074	Accepted
X5 -> Y1	0.154	0.152	0.053	2.875	0.002	Accepted
X5 -> Y2	0.117	0.116	0.052	2.269	0.012	Accepted
X5 -> Y3	0.141	0.140	0.052	2.697	0.004	Accepted
X5 -> Y4	0.092	0.091	0.053	1.742	0.041	Accepted
X5 -> Y5	0.079	0.080	0.056	1.410	0.079	Accepted
X6 -> Y1	0.246	0.249	0.050	4.934	0.000	Accepted
X6 -> Y2	0.098	0.099	0.048	2.060	0.020	Accepted
X6 -> Y3	0.199	0.202	0.049	4.021	0.000	Accepted
X6 -> Y4	0.065	0.062	0.050	1.306	0.096	Accepted
X6 -> Y5	0.160	0.159	0.059	2.705	0.003	Accepted
X7 -> Y1	0.075	0.077	0.060	1.258	0.104	Rejected
X7 -> Y2	0.154	0.154	0.053	2.892	0.002	Accepted
X7 -> Y3	0.122	0.120	0.052	2.358	0.009	Accepted
X7 -> Y4	0.173	0.175	0.050	3.441	0.000	Accepted
X7 -> Y5	0.107	0.105	0.059	1.805	0.036	Accepted
C1 - Age -> Y1	-0.003	-0.004	0.062	0.047	0.481	
C1 - Age -> Y2	0.018	0.018	0.061	0.296	0.384	
C1 - Age -> Y3	0.063	0.065	0.066	0.956	0.170	
C1 - Age -> Y4	-0.024	-0.022	0.066	0.359	0.360	
C1 - Age -> Y5	0.019	0.020	0.074	0.252	0.401	
C2 - Country of Residence -> Y1	0.015	0.016	0.043	0.342	0.366	

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values (1-tailed)	Result
C2 - Country of Residence -> Y2	0.025	0.026	0.045	0.560	0.288	
C2 - Country of Residence -> Y3	0.001	0.001	0.041	0.031	0.488	
C2 - Country of Residence -> Y4	0.006	0.006	0.045	0.133	0.447	
C2 - Country of Residence -> Y5	-0.011	-0.012	0.048	0.235	0.407	
C3 - Education Level -> Y1	-0.029	-0.028	0.047	0.624	0.266	
C3 - Education Level -> Y2	-0.021	-0.022	0.048	0.435	0.332	
C3 - Education Level -> Y3	0.017	0.020	0.050	0.346	0.365	
C3 - Education Level -> Y4	-0.075	-0.074	0.051	1.485	0.069	
C3 - Education Level -> Y5	0.017	0.016	0.048	0.351	0.363	
C4 - FinTech Experience -> Y1	-0.018	-0.017	0.049	0.361	0.359	
C4 - FinTech Experience -> Y2	0.010	0.008	0.041	0.237	0.406	
C4 - FinTech Experience -> Y3	-0.055	-0.054	0.043	1.276	0.101	
C4 - FinTech Experience -> Y4	0.046	0.045	0.042	1.114	0.133	
C4 - FinTech Experience -> Y5	0.050	0.051	0.049	1.033	0.151	
C5 - Gender -> Y1	-0.037	-0.037	0.085	0.429	0.334	
C5 - Gender -> Y2	0.021	0.020	0.088	0.238	0.406	
C5 - Gender -> Y3	0.135	0.134	0.083	1.626	0.052	
C5 - Gender -> Y4	0.030	0.032	0.086	0.352	0.362	
C5 - Gender -> Y5	0.040	0.042	0.090	0.440	0.330	
C6 - Internet Accessibility -> Y1	-0.018	-0.018	0.046	0.384	0.350	
C6 - Internet Accessibility -> Y2	0.002	0.002	0.045	0.041	0.484	
C6 - Internet Accessibility -> Y3	0.051	0.050	0.042	1.213	0.113	
C6 - Internet Accessibility -> Y4	-0.039	-0.038	0.043	0.911	0.181	
C6 - Internet Accessibility -> Y5	0.045	0.047	0.048	0.951	0.171	
C7 - Monthly Allowance -> Y1	0.009	0.010	0.060	0.157	0.437	
C7 - Monthly Allowance -> Y2	-0.053	-0.052	0.055	0.969	0.166	
C7 - Monthly Allowance -> Y3	-0.129	-0.132	0.057	2.243	0.012	
C7 - Monthly Allowance -> Y4	0.040	0.040	0.060	0.665	0.253	
C7 - Monthly Allowance -> Y5	-0.039	-0.040	0.068	0.579	0.281	
C8 - Prior Financial Education -> Y1	-0.065	-0.065	0.088	0.734	0.231	
C8 - Prior Financial Education -> Y2	0.061	0.060	0.087	0.703	0.241	
C8 - Prior Financial Education -> Y3	-0.015	-0.019	0.084	0.179	0.429	
C8 - Prior Financial Education -> Y4	0.135	0.133	0.083	1.638	0.051	
C8 - Prior Financial Education -> Y5	-0.045	-0.045	0.090	0.503	0.307	

Source: Processed data, 2025

Expansion testing shows that most dimensions show significant results. There are 29 test dimensions that have a significant effect and 6 dimensions that do not have a significant effect. Of the five independent variables, there are Perceived Usefulness (X1), Adoption Intention (X5), and Actual Usage (X6) showing the best results because they have a significant effect on the dependent variable. Of these three dimensions, Actual Usage is the best dimension because it has the best t-value of the entire model.

Table 12. Determination Coefficient Expansion Test

	R-square	R-square adjusted	Explanation
Y1	0.461	0.434	
Y2	0.453	0.426	
Y3	0.497	0.473	Best Model
Y4	0.496	0.471	
Y5	0.417	0.388	

Source: Processed data, 2025

The coefficient of determination test in the expansion test shows that Risk Awareness in Digital Finance (Y3) has the highest adjusted R-square value. This shows that Risk Awareness in Digital Finance has a good dimension in the research model.

From the results of the expansion test, it can be seen that the dimensions that are novelty, namely Adoption Intention (X5), Actual Usage (X6), Regulatory Awareness (X7), Digital Financial Behavior (Y4), Regulatory and Consumer Protection Awareness (Y5) provide good results because they provide a significant influence and provide a good model.

Discussion

Financial Technology Implementation improves Digital Financial Understanding

The implementation of Financial Technology (FinTech) plays a crucial role in enhancing Digital Financial Understanding (DFU) by increasing financial literacy, accessibility, and user engagement with digital financial services. FinTech platforms (e.g., digital banking apps, investment platforms, robo-advisors) provide real-time financial insights and educational resources (Junaedi, Renaldo, Yovita, Veronica, & Sudarno, 2023). Mobile apps like PayPal, Wise, and Robinhood offer interactive financial tools, which help users better understand savings, investments, and transactions. Gamification elements in FinTech apps (e.g., rewards for financial education) encourage learning. Users gain hands-on experience, leading to better financial decision-making and deeper financial understanding (González-Prida et al., 2025).

This results in line with Technology Acceptance Model theory. Perceived Usefulness (PU) → Enhances Financial Knowledge and Decision-Making. FinTech applications (e.g., mobile banking, digital wallets, robo-advisors) provide real-time financial insights, budgeting tools, and automated savings, helping users make informed decisions. Users recognize the benefits of FinTech in improving financial literacy, leading to higher digital financial understanding (DFU). Example: A student using an investment app like Robinhood or eToro learns about market trends, risk assessment, and portfolio management (Renaldo, Junaedi, et al., 2023), enhancing financial knowledge.

Perceived Ease of Use (PEU) → Increases Digital Financial Confidence. User-friendly FinTech apps with intuitive interfaces, automated features, and educational tools reduce barriers to adoption (Sharma et al., 2024). When users find FinTech easy to use, they engage more frequently, enhancing their financial skills and digital literacy. Example: A small business owner using a digital wallet like PayPal or Stripe finds it simple to track transactions, improving financial understanding without requiring deep financial expertise.

Attitude Toward Use → Builds Positive Perception of Digital Finance. Trust and positive experiences with FinTech platforms lead to greater willingness to adopt digital financial tools (Wijaya et al., 2020). Users develop confidence in managing digital transactions, leading to better DFU over time. Example: Individuals using biometric authentication in banking apps become more familiar with digital security measures, strengthening their understanding of online financial protection.

Behavioral Intention to Use → Encourages Repeated Exposure to Financial Tools. Users who perceive FinTech as useful and easy to use are more likely to engage in digital financial activities, such as online banking, investing, or budgeting (Setiawan et al., 2021). Repeated interaction with FinTech fosters habit formation and deeper financial knowledge. Example: Someone who starts with simple digital payments (e.g., Google Pay) may later explore crypto investments or peer-to-peer lending, increasing financial exposure.

Control Variable Explanation

While factors like age, country of residence, education level, FinTech experience, gender, internet accessibility, monthly allowance, and prior financial education may influence digital financial understanding (DFU), they do not directly improve it for several reasons:

1. Demographics Indicate Exposure, Not Comprehension

   Having access to FinTech or financial education does not guarantee understanding. Individuals may be exposed to financial tools but lack practical application or engagement, leading to limited learning.

2. Knowledge Acquisition Depends on Active Use, Not Background

   Digital finance understanding improves through continuous usage and experience, not just demographic traits. Example: Two individuals with the same education level may have vastly different DFU depending on their actual interaction with financial technology.

3. Cognitive and Behavioral Factors Play a Bigger Role

   Motivation, financial literacy efforts, and user experience with FinTech drive learning more than static demographics. Example: Someone with higher FinTech experience may still struggle with digital finance if they lack interest or engagement.

4. Internet Accessibility Alone Does Not Ensure Learning

   While access to FinTech platforms is necessary, understanding digital finance requires active engagement, critical thinking, and financial decision-making skills.

Age is often considered a factor in financial literacy and technology adoption, but it does not directly improve digital financial understanding. Instead, it influences exposure, preferences, and adaptability, while actual DFU depends more on engagement, experience, and willingness to learn rather than age alone. Younger generations (Gen Z & Millennials) may be more familiar with digital financial tools because they grew up with technology, but this does not mean they fully understand financial risks, digital investments, or security issues. Older generations (Gen X & Baby Boomers) may have more financial experience, but they often face barriers in adopting digital finance, such as trust issues, lack of digital literacy, or fear of online fraud. Example: A 22-year-old may use mobile banking daily but may not understand interest rates, investment strategies, or credit scoring. A 50-year-old may have a solid understanding of financial planning but struggle with digital payment platforms or crypto transactions.

While a person's country of residence can shape their access to financial technology and regulatory environment, it does not directly improve digital financial understanding. DFU is primarily driven by individual engagement, education, and experience with digital finance tools, rather than the country itself. Some countries have highly developed financial technology ecosystems (e.g., Singapore, Malaysia), while others are still developing digital finance infrastructure. However, just living in a country with advanced FinTech does not guarantee that individuals fully understand or effectively use digital financial tools. Example: A person in Singapore (where digital banking is widespread) may still lack knowledge of investment strategies, risk management, or fraud prevention, despite easy access to FinTech services. Meanwhile, someone in Indonesia who actively engages with digital finance tools, studies financial literacy, and invests online may have better DFU than someone in a more developed financial system.

While a higher education level may provide better critical thinking and analytical skills, it does not directly lead to better digital financial understanding. DFU depends more on practical experience, financial literacy training, and engagement with digital financial tools rather than formal education alone. Formal education (high school, university, or higher degrees) does not always include financial literacy or digital finance training. Many highly educated individuals struggle with managing their finances, understanding investment risks, or using digital banking securely. Example: A person with a PhD in engineering may have advanced analytical skills but still lack knowledge about budgeting, credit management, or digital investments. A high school graduate who actively learns about digital finance, trading, and online banking could have better DFU than a master's degree holder who ignores these topics.

While experience with financial technology (FinTech) can increase familiarity with digital financial tools, it does not automatically translate into better financial understanding. DFU requires critical thinking, financial literacy, and responsible decision-making, not just frequent use of FinTech applications. Many people frequently use mobile banking, e-wallets, or digital investment apps without fully understanding how they work. Just because someone makes online transactions regularly does not mean they grasp financial risks, budgeting, or investment principles. Example: A person who often uses e-wallets like PayPal or Venmo may still lack knowledge about transaction fees, interest rates, or cybersecurity risks. Many young people trade cryptocurrency on apps like Binance or Coinbase without understanding market volatility, risk management, or taxation.

While gender may influence financial behavior, preferences, or risk-taking tendencies, it does not directly determine a person's digital financial understanding (DFU). DFU is shaped by education, financial literacy, FinTech engagement, and personal financial experience, rather than gender itself. Both men and women can have strong or weak financial understanding, depending on their education and financial exposure. DFU is not an inherent trait of any gender but is learned through experience, training, and financial decision-making. Example: A male business graduate may have high DFU due to formal training, but so might a female self-taught investor who actively learns about personal finance and investments. A person's access to financial education and digital financial tools matters more than their gender.

While internet accessibility enables access to financial technology (FinTech) platforms and digital financial resources, it does not automatically improve Digital Financial Understanding (DFU). Understanding digital finance requires financial literacy, critical thinking, and informed decision-making, not just internet availability. Just because someone has access to the internet does not mean they actively seek financial education or understand financial concepts. Many people use the internet for entertainment, social media, or basic transactions without deepening their financial knowledge. Example: A person with high-speed internet may use digital banking for transfers but still lack knowledge about interest rates, savings strategies, or investment risks. Many individuals with internet access engage in online trading but fail to understand market trends, leading to poor financial decisions.

Having a higher or lower monthly allowance does not automatically lead to better Digital Financial Understanding (DFU). While financial resources can provide opportunities to engage with financial technology (FinTech), understanding digital finance depends on financial literacy, decision-making skills, and experience,

not on how much money one receives each month. Having a larger monthly allowance does not guarantee that an individual learns or understands financial concepts. DFU is about how money is managed, not how much is received. Example: A student with a high allowance may spend recklessly on shopping and entertainment without budgeting or saving, leading to poor financial habits. A student with a low allowance who carefully manages expenses, tracks spending, and learns about investments may develop better DFU.

While prior financial education provides foundational knowledge about money management, budgeting, and financial concepts, it does not automatically translate into better Digital Financial Understanding (DFU). DFU involves the ability to apply financial knowledge in digital contexts, which requires continuous learning, experience with financial technology (FinTech), and adaptability to digital financial innovations. Many financial education programs focus on basic financial literacy (e.g., savings, loans, budgeting) but do not cover digital finance tools like e-wallets, cryptocurrency, online investing, or digital lending platforms.DFU requires more than just theoretical financial knowledge—it requires hands-on experience with digital financial tools. Example: A person who took a financial management course in college may understand budgeting but still struggle to use digital banking apps, e-wallets, or online investments effectively. Someone without formal financial education but who actively engages in digital transactions, investments, and FinTech platforms may have better DFU.

CONCLUSION

Conclusion

The implementation of Financial Technology (FinTech) significantly enhances Digital Financial Understanding (DFU) by improving financial literacy, accessibility, and user engagement with digital financial services. FinTech platforms, such as digital banking apps, investment platforms, and robo-advisors, provide real-time financial insights, interactive financial tools, and educational resources. The Technology Acceptance Model (TAM) explains this process, where Perceived Usefulness (PU) enhances financial knowledge and decision-making, Perceived Ease of Use (PEU) increases digital financial confidence, Attitude Toward Use builds a positive perception of digital finance, and Behavioral Intention to Use encourages repeated exposure to financial tools. Control variables like age, education level, internet accessibility, and prior financial education influence exposure but do not directly improve DFU without active engagement.

The dimensions that are novelty in this study, namely Adoption Intention (X5), Actual Usage (X6), Regulatory Awareness (X7), Digital Financial Behavior (Y4), Regulatory and Consumer Protection Awareness (Y5) have been successfully measured well and become variables that support expansion tests. This shows that these dimensions can be used and developed in further research.

Implication

For Individuals: Users should actively engage with FinTech tools and leverage their educational features to enhance financial literacy and decision-making skills. **For Financial Institutions**: Banks and FinTech companies should integrate more interactive learning tools, gamification, and personalized financial insights to enhance user engagement. **For Policymakers:** Governments and financial regulators should promote digital financial education programs, ensuring that digital financial tools are accessible and effectively utilized by all demographics. **For Educators:** Universities and training institutions should incorporate practical FinTech learning modules into financial literacy curricula to bridge the gap between theoretical knowledge and digital financial applications.

Limitation

This study acknowledges that factors such as age, gender, education, and country of residence influence FinTech adoption but do not directly improve DFU without active engagement. Many insights are based on self-reported behaviors and perceptions, which may introduce bias. The study primarily focuses on existing FinTech platforms and does not deeply explore emerging innovations like blockchain-based finance or decentralized finance (DeFi). The analysis mainly considers short-term user engagement and does not assess long-term financial behavior changes.

Recommendation

Governments and financial institutions should launch targeted digital financial literacy campaigns to improve financial decision-making. Developers should focus on simplifying interfaces, ensuring accessibility for users with low digital literacy, and integrating multilingual support. Educational institutions should incorporate practical training on digital finance, including risk management and cybersecurity awareness. AI-

driven financial education tools should be developed to provide personalized financial guidance based on user behavior and needs.

Future Research

Future research should examine how FinTech engagement influences financial understanding over an extended period. Investigate how different socio-economic factors impact digital financial literacy in emerging economies. Analyze how artificial intelligence (AI) and machine learning can personalize digital financial learning experiences. Study the role of cognitive biases and financial behavior in digital finance adoption. Explore how trust, security measures, and digital fraud prevention impact user confidence and DFU.

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