

The Impact of Digital Financial Literacy on Fintech Adoption among Students in Hanoi

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Abstract

This paper aims to investigate the impact of digital financial literacy on the adoption of financial technology (Fintech) among secondary and tertiary students in Hanoi, Vietnam. Integrating theoretical frameworks such as Unified Theory of Acceptance and Use of Technology (UTAUT2) and the Theory of Planned Behavior (TPB), this study explores the influence of various factors - including performance expectancy, risk perception, subjective norms, perceived behavioral control, convenience, security, personal motivation, financial attitude, and financial behavior - on the intention and actual use of Fintech. Based on empirical findings, the authors propose recommendations to enhance digital financial literacy among students, highlighting its pivotal role in expanding access to and adoption of modern financial services.

Keywords: Digital financial literacy, Financial literacy, Fintech, Perceived behavioral control, Subjective norm.

1. Introduction

In the context of an accelerating digital transformation - particularly within the finance and banking sectors - it is essential to understand young people’s awareness and competencies in digital financial literacy to foster a sustainable and inclusive financial ecosystem. Fintech services such as e-wallets, digital banking, online investing, and peer-to-peer lending are increasingly prevalent in Vietnam, especially among urban youth like students. However, the safe and effective usage of such services requires a solid foundation in financial knowledge - especially digital financial literacy, which encompasses personal financial management, information security, risk assessment, and safe technological practices. Although students are tech-savvy and adaptable, they typically lack experience and comprehensive financial understanding, making them prone to mistakes when using digital financial products. This study aims to clarify the role of digital financial literacy in shaping and influencing Fintech usage behavior among students in Hanoi. It assesses students’ understanding of digital financial concepts, tools, and applications, and examines the relationship between their level of digital financial literacy and their usage behavior of various Fintech services: e-wallets, digital banking, online investing platforms, P2P lending, and personal expense management apps. The study then demonstrates the impact of this literacy on Fintech adoption decisions, considering moderating variables like age, field of study, and prior experience with technology. Finally, based on its findings, the authors offer recommendations for strengthening digital financial literacy among students in Hanoi and guide educational policies appropriate for the digital age.

2. Research Overview

Amid rapid digital transformation, Fintech plays an increasingly crucial role in socio-economic life. For youth, who readily adopt technology, Fintech offers numerous conveniences in personal finance management, payments, saving, and investment. However, Fintech usage is not only shaped by technology and consumption habits but is also significantly influenced by users’ digital financial literacy. Nguyen Nam Hai (2021) applied the UTAUT2 model using data from 250 customers in Hochiminh city to identify drivers of Fintech adoption: effort expectancy, performance expectancy, social influence, facilitating conditions, hedonic motivation, and price value. Dao My Hang et al. (2018) focused on determinants of Fintech usage in the payment sector in Vietnam, noting positive effects of behavioral perception and convenience on Fintech intentions. Tran Thi Thanh Huyen (2021) utilized UTAUT to analyze Fintech adoption, highlighting behavioral perceptions, convenience, and social influence. To Minh Thu (2022) emphasized that enhancing digital financial knowledge is key to achieving inclusive finance amid digital advancements.

Phung Thai Minh Trang (2023) surveyed 1.180 Vietnamese university students and found that digital financial literacy directly and indirectly influences Fintech adoption intentions, mediated by Fintech attitudes and perceived behavioral control.

Trinh Thi Phan Lan & Pham Thi Hue (2023) asserted that risk and benefit perceptions are critical determinants of Fintech usage among Hanoi youth.

3. Theoretical Foundations

The Organization for Economic Cooperation and Development (OECD), based on the definition of "financial literacy" has incorporated questions about behavior, attitudes, and understanding to measure financial knowledge. Although there is no universally accepted term worldwide, the OECD has piloted this approach together with the term "global financial knowledge". The OECD believes that digital financial literacy is understood as a combination of basic financial understanding and the ability to use digital tools to make effective financial decisions.

According to Hogarthe (2002), financial literacy refers to the ways people manage their finances in terms of personal budgeting, saving, investment, and financial planning; financial knowledge or financial understanding is determined by personal experience, professional knowledge, and individual needs, and it positively influences individual participation in the financial services market.

Schngen (1996) defined financial literacy as "the ability to make informed judgments and effective decisions regarding the use and management of money."

Meanwhile, Roy Morgan Research (1993) explained the term as follows: "having knowledge and confidence in saving, spending, financial planning, and the measurement of financial literacy must reflect the financial situation of the individual. Financial literacy should only be considered when examined in relation to each person's specific needs and financial situation rather than in regard to all financial tools or services, as among them, there are ones that some individuals may not need and do not demand".

Remund (2010) stated that "Financial literacy is a measure of the degree to which one understands fundamental financial concepts and has the ability and confidence to manage personal finances through informed short-term decisions, long-term financial planning, while also living responsibly and being concerned about life and changes in economic conditions".

For the purpose of assessment, "Financial knowledge" is defined as "a combination of awareness, understanding, skills, attitude, and behavior necessary to make sound financial decisions and ultimately achieve personal financial well-being" (Mahdzan and Tabiani, 2013). This definition asserts that financial literacy is not only knowledge per se but also includes attitudes, behaviors, and other related skills. It emphasizes the importance of decision-making - the application of knowledge and skills in practical processes - and shows that the desired impact should be financial improvement at the national level.

Digital financial literacy is defined as the understanding and ability to apply digital tools, platforms, and financial services into real-life practice.

Financial literacy is reflected through:

- Financial knowledge: understanding basic financial concepts, recognizing financial products & services, basic financial skills (making payments, opening accounts).
- Financial Behavior: daily money management, financial planning, seeking financial advisory services...
- Financial Skills: literacy, numeracy.
- Attitudes influencing financial decisions: saving, lending, confidence in retirement planning.

In Vietnam, although Fintech is rapidly developing, general financial literacy - especially digital finance - remains limited. A report by Standard & Poor's showed that Vietnam only scored 24 in financial literacy, ranking 118 out of 144 countries. This reality shows that most people, including students, are not adequately equipped with the knowledge to use financial technology services effectively and safely.

In reality, students are the group that frequently uses platforms such as e-wallets, digital banking or personal finance management tools. However, this usage is mostly experiential or trend-based, rather than based on a clear understanding of the operation, benefits, and risks of such services. This entails many potential dangers in making poor financial decisions, losing spending control, or falling victim to digital fraud.

Based on the above situation, a survey was conducted among students in Hanoi to assess the relationship between digital financial literacy and the use of Fintech. The survey results are expected to provide a more comprehensive view of the role of financial education in the digital age, while also suggesting appropriate directions for training and raising digital financial literacy in schools and society.

4. Model and Methods Research

4.1. Model and Hypotheses

This study is based on the Theory of Planned Behavior (TPB) by Ajzen (1991) and the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) developed by Venkatesh et al (2022). These models have been widely applied in consumer behavior research related to new technologies, in which product understanding – specifically digital financial literacy – plays a crucial role in shaping intention and behavior in using financial technologies.

Digital financial literacy is the understanding of digital financial products and services and the perception of risks associated with their use (Morgan & Trinh, 2019). This knowledge originates from Goal-Framing Theory (Lindenberg & Steg, 2007). According to this theory, goal framing refers to the way individuals process information and act based on their goals. In relation to the decision to use fintech services, digital financial literacy helps individuals identify their goals of achieving benefits and act rationally and efficiently (Kumar et al., 2023).

H: Digital financial literacy influences students' intention to use Fintech.

Financial attitude refers to individuals' emotions and perspectives regarding financial matters, which directly affect their behavior and subsequent decision-making (Rai et al., 2019). According to Khuc The Anh (2020), a person who values short-term financial benefits more than long-term accumulation tends to rarely consider

investing, setting aside funds for emergencies, or making long-term financial plans. In a study on spending habits among Asian students, Shahryar and Tan (2014) concluded that the influence of attitude on financial literacy is very clear.

H₂: Financial attitude has an impact on students' intention to use Fintech.

In addition to the factor of financial literacy, recent studies have expanded models for evaluating fintech usage behavior by incorporating factors from the TPB (Ajzen, 1991). Among these, subjective norms refer to individuals' perceptions of social expectations, including influence from friends, family, or the community, which have been shown to play an important role in shaping intentions and behaviors related to fintech use. According to research by Lee (2009) and Alam et al. (2019), if users perceive that using fintech is positively viewed by society, they will be more inclined to accept and use these services regardless of their current level of financial knowledge.

H₃: Subjective norms affect students' intention to use Fintech.

H₄: Perceived behavioral control affects students' intention to use Fintech.

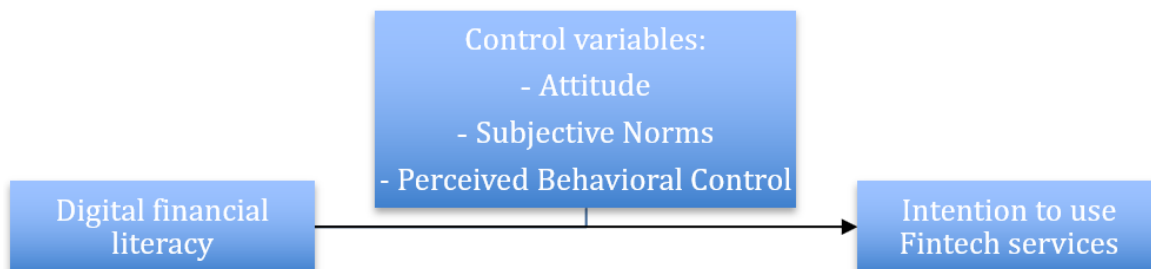


Figure 1.
Research Model.

4.2. Measurement of Variables

The research model consists of four variables (see Figure 1), including one independent variable and three control variables.

- Independent variable: Digital financial literacy (DFL) is measured through four questions adapted from Prasad et al. (2018), Morgan & Trinh (2019), and Setiawan et al. (2022).
- Control variables: Financial Attitude (FAT), Subjective Norms (NOR), and Perceived Behavioral Control (PBC) are derived from Liñán & Chen (2009) and Phung (2023), using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).
- Dependent variable: Intention to use Fintech services (IUF) is derived from Liñán & Chen (2009) and Phung (2023), using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4.3. Research Method and Data

The research model is tested through primary data collected from high school and university students in Hanoi from March to May 2025. The formulation of hypotheses and model not only contributes to clarifying the role of digital financial literacy in the financial behavior of young people but also highlights the factors that promote access to financial technology in the context of digital transformation in Vietnam.

Data was collected through an online survey using the “Google Forms” platform. The target respondents were high school and university students in Hanoi, Vietnam. The survey was conducted from March 2025 to May 2025. The questionnaire was distributed to students via Facebook, Zalo, and Email. The number of valid observations used in this study is 180.

Three methods are used to test the hypotheses and other regression relationships, including Structural Equation Modeling (SEM), Binary Logit, and Ordinary Least Squares (OLS). The software used includes SPSS and AMOS. In addition, tests conducted include reliability testing of the scale (Cronbach’s Alpha), Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA).

5. Research Results

5.1. Descriptive Statistics

Descriptive statistics of the survey participants (N = 180) are presented in Table 1. Among them, males accounted for 34% and females 66%. The age group from 18 to 20 accounted for 37%, followed by the age group from 21 to 22 (28%), 22 to 23 (23%), and from 24 and above (12%). Most of the respondents were university students. Overall, students had a relatively good average level of Digital Financial Literacy (DFL) (Mean = 3.42). Students also demonstrated a positive Financial Attitude (FAT) (Mean = 4.45), good Perceived Behavioral Control (PBC) (Mean = 4.42), and a relatively high level of Subjective Norms (NOR) (Mean = 3.51). The Intention to use Fintech services (IUF) was also quite high (Mean = 3.78).

Table 1. Descriptive Statistics.

Scale	Minimum	Maximum	Mean	Median	Standard Deviation
DFL	1	5	3,42	3,25	0,89
PBC	1	5	4,42	4,67	0,63
FAT	1	5	4,45	4,75	0,61
NOR	1	5	3,51	3,67	0,94
IUF	1	5	3,78	4,00	0,78

5.2. Reliability Testing of Measurement Scale

Table 2 presents the results of reliability testing for five measurement scales, including: Intention to Use Fintech Services (IUF), Digital Financial Literacy (DFL), Subjective Norms (NOR), Perceived Behavioral Control (PBC), and Financial Attitude (FAT). The results indicate that all scales have a Cronbach’s Alpha coefficient greater than 0.7. Specifically, IUF has a coefficient of 0.867; PBC (0.749); FAT (0.854); NOR (0.825); and DFL (0.874). According to Hair et al. (2014), all five scales were eligible for testing and exploratory factor analysis.

Table 2. Reliability Testing of Measurement Scales.

Observed Variable	Scale mean if Item Deleted	Scale variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Intention to Use Fintech Services (IUF): Cronbach’s Alpha = 0.867				
IUF 1	7.764	2.857	0.801	0.864
IUF 2	7.737	2.384	0.716	0.838
IUF 3	7.563	2.046	0.777	0.850
IUF 4	7.413	2.541	0.728	0.811
2. Digital Financial Literacy (DFL): Cronbach’s Alpha= 0.874				
DFL 1	11.157	7.069	0.601	0.789
DFL 2	11.205	7.701	0.628	0.777
DFL 3	11.484	7.461	0.669	0.858
DFL 4	11.452	7.336	0.665	0.860
3. Subjective Norms (NOR): Cronbach’s Alpha= 0.825				
NOR 1	7.276	5.820	0.794	0.740
NOR 2	7.322	5.037	0.772	0.741
NOR 3	7.300	5.086	0.778	0.814
NOR 4	7.454	5.970	0.762	0.711
4. Perceived Behavioral Control (PBC): Cronbach’s Alpha= 0.749				
PBC 1	8.413	1.265	0.686	0.744
PBC 2	8.471	1.492	0.654	0.745
PBC 3	8.487	1.519	0.779	0.741
PBC 4	8.483	1.733	0.734	0.742
5. Financial Attitude (FAT): Cronbach’s Alpha= 0.854				
FAT 1	13.815	3.941	0.752	0.831
FAT 2	13.665	3.593	0.748	0.847
FAT 3	13.753	3.619	0.783	0.830
FAT 4	13.807	3.204	0.752	0.843

Table 3. Exploratory Factor Analysis (EFA).

Variable	Component					Communalities Item Deleted
	1	2	3	4	5	
DFL2	0,834					0,789
DFL1	0,809					0,778
DFL3	0,800					0,741
DFL4	0,729					0,706
FAT 3		0,858				0,780
FAT 2		0,848				0,714
FAT 4		0,800				0,694
FAT 1		0,797				0,604
NOR 2			0,858			0,791
NOR 4			0,852			0,803
NOR 3			0,852			0,663
NOR 1			0,782			0,737
PBC1				0,821		0,734
PBC3				0,805		0,658
PBC2				0,782		0,762
PBC4				0,765		0,646
IUF 2					0,813	0,695
IUF 1					0,765	0,737
IUF 3					0,745	0,734
IUF 4					0,744	0,658
First Eigenvalues	5,660	2,798	1,574	1,202	1,061	
Total variance %	33,296	16,459	9,260	7,068	6,239	72,321

Note: KMO and Bartlett's Test: Kaiser-Meyer-Olkin Measure: 0, 875; Chi-Square: 8144; df = 136, p: 0,000; Extraction method: Principal Component Analysis. Rotation method: Varimax with Kaiser Normalization.

5.3. Exploratory Factor Analysis (EFA)

The paper conducted an exploratory factor analysis (EFA) on five scales with 16 original variables (see Table 3). The results show these variables grouped into five factors: FAT (4 items), DFL (4 items), NOR (4 items), PBT (4 items), and IUF (4 items). All factor loadings exceed 0.5, and all original items are retained. Communalities for all items are above 0.5. The total variance explained by the first five eigenvalues is 72.321%.

5.3.1. Confirmatory Factor Analysis (CFA)

The study continued to test the confirmatory factors Analysis (CFA) through testing the correlation coefficient, convergence and discrimination presented in Table 4. The scales all met the CFA testing standards such as the composite reliability coefficient (CR) was greater than 0.7. Specifically, the intention to use fintech (IUF) had a CR coefficient of 0.798; digital financial literacy (DFL) (0.894); Financial attitude (FAT) (0.889); Subjective norm (NOR) (0.843) and Perceived behavioral control (PBC) (0.796). In addition, related to the convergence test, the results showed that all 5 scales had an average variance extracted (AVE) greater than 0.5. Testing discrimination, the results also presented that all 5 scales had the maximum individual variance (MSV) smaller than AVE.

In summary, based on the model fit criteria (Hair et al., 2014), all five scales met the specified criteria; thus, they were eligible to conduct a structural equation modeling (SEM) test.

Table 4. CFA Results.

Scale	CR	AVE	MSV	Correlation coefficient				
				1	2	3	4	5
1. IUF	0,798	0,587	0,371	0,764				
2. DFL	0,894	0,556	0,371	0,609	0,776			
3. FAT	0,889	0,629	0,371	0,409	0,230	0,817		
4. NOR	0,843	0,668	0,255	0,505	0,411	0,281	0,739	
5. PBC	0,796	0,571	0,371	0,324	0,189	0,609	0,228	0,765

Note: CR: composite correlation; AVE: average variance extracted; MSV: maximum individual variance

5.3.2. Analysis of Factors Affecting the Intention to use Fintech Services (IUF)

The study examined the factors affecting the intention to use fintech services. The results are presented in Table 5. Four models and three methods were used: structural linear model, binary logit and multivariate regression. Models 1-3 only tested 4 factors including digital financial literacy and 3 motivational factors in the theory of planned behavior. Model 4, in addition to the 4 factors as in model 3, tested demographic factors. Model (2) used the binary logit method. In which, knowledge was coded with 0 being below average knowledge and 1 being above average knowledge.

The results showed that knowledge had a positive influence on intention with all 4 models and 3 methods. Specifically, Model (1), the coefficient of 0.484*** between Digital Financial Literacy (DFL) and Intention to use fintech (IUF) means that when knowledge increases by 1 unit, intention increases by 48.4%. Similarly, Models (3) and (4) also show that Digital Financial Literacy (DFL) has a positive impact on Intention to use fintech (IUF) at 0.312*** and 0.235*** respectively. Model (2) with the Binary Logit method shows a coefficient of 1.046***, meaning that students with higher than average Digital Financial Literacy have higher Intention to use fintech (IUF) than students with below average knowledge.

Regarding the three control factors, the results show that Financial Attitude (FAT) has a direct impact on Intention to use fintech (IUF) (see the coefficient of 0.024*** with a significance level of 99%). However, Subjective Norm (NOR) has a direct impact on Intention to use fintech (IUF) with a coefficient of 0.018***. In contrast, Perceived behavioral control (PBC) has no direct effect on Intention to use fintech (IUF).

Table 5. Factors Affecting Fintech Usage Intention (IUF).

	SEM (1)	Binary Logit (2)	OLS (3)	OLS (4)
DFL (Digital financial literacy)	0,484*** (11,143)		0,312*** (13,593)	0,235*** (10,324)
DFL = 1		1,046*** (53,314)		
FAT (Financial Attitude)	0,24*** (4,620)		0,213*** (6,118)	0,219*** (5,731)
FAT = 1		0,823*** (29,451)		
NOR (Subjective Norms)	0,18*** (6,843)		0,182*** (8,582)	0,193*** (8,991)
NOR = 1		0,865*** (37,625)		
PBC (Perceived Behavioral Control)	0,067 (1,42)		0,087** (2,311)	0,053 (1,451)
PBC = 1		0,185 (1,423)		
Gender (Male = 1)				-0,045 (-1,03)
Block number		-1,541***	0,684***	0,581***
R²/R² adjustable	0,516	0,241	0,372	0,420
Chi-square coefficient/ -2 Log likelihood /Changed F coefficient	314	1183,54	145,681	68,078***
Degrees of freedom	122	1	4	10

Note: ***: p<1%; **: p<5%; *: p<10%. Dependent variable: intention to use fintech services (YDINH). Model fit SEM: Chi-square = 312.144; Df = 122; p = 0.000; GFI = 0.965; TLI = 0.972; RMSEA = 0.039.

The study found the influence of digital financial literacy on the intention to use fintech services. Therefore, three hypotheses H1, H2, H3 were accepted and hypothesis H4 was rejected.

The results of the study are consistent with the goal-setting theory (Lindenberg & Steg, 2007) and the TPB (Ajzen, 1991; Fishbein & Ajzen, 1975). The results imply that digital financial literacy helps individuals to clearly define goals (that is, the intention to use fintech services), and the higher the digital financial literacy, the higher the intention to use fintech services.

Some studies in the world such as have found a relationship between financial knowledge and financial decisions in India (Kumar et al., 2023). Household knowledge in India (Prasad et al., 2018) and Indonesia (Setiawan et al., 2022). Therefore, the results of the study in Vietnam contribute to the diverse theoretical repertoire of knowledge across countries.

6. Policy Implications

From the research results, the research team proposes of recommendations to improve digital financial literacy and promote safe and effective financial technology use among students.

First, the State and relevant agencies need to clearly identify digital financial knowledge as an indispensable part of comprehensive digital capacity of citizens in the 4.0 era. Improving digital financial literacy for young people not only serves the goal of financial inclusion, but also helps young people make reasonable financial decisions, limit financial risks, increase the ability to save and invest responsibly. Therefore, relevant ministries such as the Ministry of Education and Training, the Ministry of Finance, the State Bank, etc. need to integrate digital financial education content into high school and university curricula in the form of formal subjects or extracurricular activities. Teaching should not only stop at basic financial theory, but also expand to practical skills such as using e-wallets, assessing security when making online transactions, and identifying financial fraud risks, thereby helping students improve their ability to make financial decisions in the digital environment.

Second, schools and educational institutions need to proactively coordinate with Fintech businesses and banks to organize talk shows, seminars, competitions or practical experience workshop series. These activities not only arouse interest but also increase interaction and apply financial knowledge into practice, thereby creating motivation to learn and forming positive financial habits among young people. The content should aim to foster positive financial behaviors such as budget planning, smart consumption, personal credit control, and protection of personal financial information. This is especially necessary because many students today access financial technology through social networks and word of mouth, which can easily lead to emotional or unsafe decisions.

Third, local authorities and youth organizations can launch mass media campaigns on social networks, flyers, learning apps, etc. to spread the right awareness of digital finance and the habit of using financial technology safely. In particular, it is necessary to emphasize practical topics such as "how to effectively manage pocket money through digital applications", "distinguishing between investment and financial gambling", or "how to avoid online credit traps and black app loans". Communication campaigns need to disseminate knowledge about the risks of technology fraud, personal account security, and clearly explain the rights and obligations of fintech users, thereby helping young people be more proactive in evaluating and choosing reputable financial platforms.

Finally, students themselves need to be proactive in raising awareness and self-studying about personal finance through reputable online documents and courses. Setting simple financial goals such as creating an emergency fund, saving to buy books, or tracking daily expenses through an application will be the first step in building a solid foundation for sustainable financial behavior in the future. Young people should also know how to create a personal budget, record expenses, evaluate their level of fintech usage, and thereby adjust their financial behavior accordingly. Self-study through online documents, open courses, and financial simulation applications is also essential to master modern financial tools. At the same time, young people need to learn how to self-assess the safety of financial applications, not follow virtual investment trends, and be aware of the risks when sharing personal financial information online.

7. Conclusion

However, this study still has some limitations in terms of scope and survey subjects. Due to time and practical conditions, the survey was mainly conducted in Hanoi, with the number of samples ensuring analysis but not enough to generalize to all more than 2 million students nationwide. In addition, the study has not analyzed in depth the differences in fintech usage behavior according to demographic variables such as gender, region, family income, type of school or major. These are factors that can significantly affect the level of access and application of financial technology, and therefore should be included in subsequent studies. In the future, it is necessary to expand the scale of the survey, increase the application of more advanced analytical models such as SEM or PLS-SEM to assess the relationship between factors affecting fintech usage behavior more comprehensively. From there, policy and educational recommendations can be more tailored to specific groups of young people in the context of increasingly deep digitalization in Vietnam

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