

Education, Environment, and Digital Access to Financial Literacy through Self-Efficacy

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ABSTRACT

Purpose – This study aims to examine the influence of financial education, family environment, and digital access partially on students' financial literacy, by placing financial self-efficacy as a mediating variable.

Design/methodology/approach – This study employed a quantitative method with a survey approach through questionnaire distribution. Primary data were collected from the active student population in East Java. The sample was determined using the Lemeshow formula with a purposive sampling technique. Data analysis was conducted in stages using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method through SmartPLS software to test the outer model, inner model, and hypothesis testing via bootstrapping.

Finding/Results – The test results show that financial education has a positive and significant direct impact on students' financial literacy. Conversely, the direct influence of family environment and digital access was shown to be insignificant on students' financial literacy. The mediation pathway of financial self-efficacy was found to fail to bridge the influence of financial education, but was found to establish a significant indirect-only relationship of family environment and digital access on financial literacy.

Originality/Value – The main novelty of this study lies in the role of family environment and digital access, which were shown to have no direct role, but became very significant when intervened by the psychological mediator factor of financial self-efficacy. The main message of this study is that individual financial mental maturity is an indirect-only mediation prerequisite for successful financial literacy adoption in the digital era.

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1. Introduction

This study aims to examine the extent to which financial education, family environment, and ease of digital access partially influence students' financial literacy, by positioning financial self-efficacy as an intervening variable. Amidst the massive influence of current financial technology use (such as the ease of cashless transactions, digital investments, and the trap of paylater and online loans), students are often vulnerable to irrational consumer behavior (Dzidni et al., 2025; OJK, 2025; Deviana et al., 2025). Therefore, this study aims to reveal whether literacy, financial education, and family environment alone are sufficient to build good financial skills, or whether students also need psychological support in the form of confidence and financial self-efficacy so that they are able to utilize digital access wisely and avoid being trapped in the financial crisis of the modern era.

In terms of the influence of financial education on financial literacy, there are findings that state that financial education consistently has a positive and significant effect on financial literacy, both at the national and international levels (Kaiser et al., 2021; Gutter et al., 2010). However, financial material taught in the classroom is quickly forgotten by individuals (usually within two years) if it is not immediately applied to everyday financial decisions. Financial education interventions, especially those that are mandatory or brief, do not have a significant impact on long-term financial behavior or literacy. The decay effect is the primary cause (Fernandes et al., 2014).

Empirical evidence from previous research on students in Indonesia shows that financial education at both the family and university levels tends to be positively correlated with financial literacy (Kurniawan et al., 2022; Darmawan & Pratiwi, 2020). In addition, education about financial management in families and at universities also improves cognitive aspects and attitudes towards financial literacy (Widyawati, 2012). However, the results of this study are not always consistent with other studies which concluded that family financial education had a negative impact on the financial literacy of some students (Sarju & Sobandi, 2021; Defiansih, 2021). Other studies also show heterogeneity in the quality of family socialization in measuring financial literacy (Sarju & Sobandi, 2021; Defiansih, 2021).

The family environment is the primary source of financial socialization, significantly influencing a person's financial literacy. Compared with formal classroom learning, daily interactions at home, open communication about money, and parental role modeling have been shown to be far more effective in teaching children a deep understanding and skills in managing money (Hasan et al., 2025; Sharif et al., 2020; Gudmunson & Danes, 2011). However, other studies show that family circumstances don't always significantly impact children's financial literacy. This typically occurs when parents don't know much about finance or often refrain from discussing financial matters at home (usually considered taboo). As a result, children turn to outside sources for information, and their financial knowledge is shaped more by formal schooling, peer interactions, or independent experiences as they begin to manage their own finances (Shim et al., 2010a; Agnew & Cameron-Agnew, 2015).

Koskelainen et al. (2023) and Koskelainen et al., (2023) states that the way people access financial information and services has changed due to advances in digital technology. The more people have access to digital technologies, such as the internet, financial applications, and online education platforms, the greater their opportunities to improve their knowledge and ability to manage their own finances. According to this study, digitalization makes it possible to access financial information quickly and widely, which plays a significant role in improving financial literacy. Lo Prete, (2022) also found similar results, where the ability to

use digital technology and access to digital services were positively correlated with the level of financial expertise. Those who have access to and can use digital technology tend to make better financial decisions than those with limited access. This contrasts with the two previous findings, Pudín et al., (2024) and Lyons & Kass-Hanna, (2021) who found that digital literacy and better access do not always lead to increased financial capability. Research conducted in 34 provinces in Indonesia showed that digital literacy did not significantly impact the use of cashless payment systems. The results suggest that digital access alone is insufficient without the desire, understanding of financial products, and experience using digital financial services. In other words, they believe that digital access does not automatically improve financial literacy without supporting factors such as financial education, cognitive ability, and experience using digital financial services. These discrepancies in results indicate that the relationship between digital access and financial literacy still requires further research, considering mediating or moderating variables such as financial self-efficacy. This may explain why digital access has a significant impact in some studies, but not in others.

From a psychological perspective, studies on mediation relationships indicate that financial self-efficacy (FSE) is an important pathway connecting financial education/socialization with family financial education. Family financial education influences students' financial management behavior through FSE (Sari & Listiadi, 2021). In addition, FSE was also identified as being able to mediate the influence of family financial education on financial management behavior (I. G. A. Dewi, 2022). In terms of digital access, factor analysis on students found that the use of technology plays a role as a factor in shaping financial literacy (Rahmayani et al., 2022). Other researchers have also proven that technological advances and self-efficacy are positively correlated with students' financial behavior (in terms of investment), so that digital access has the potential to strengthen financial literacy through increasing FSE and utilizing digital financial information/services (Rahmayani et al., 2022; Lestari et al., 2023).

There are differences in the findings of previous research regarding the role of financial self-efficacy as a mediating variable. Research by Arvita & Mardiana, (2026) and Kartawinata et al., (2021) found that financial knowledge instilled through financial education has a positive and significant influence on financial management skills through financial self-efficacy. These results indicate that the better a person's financial education or knowledge, the better they can manage their own finances. Conversely, different results were found in research conducted by Sutarmi et al., (2026). While digital financial literacy increases financial self-efficacy, financial self-efficacy cannot moderate the relationship between digital financial literacy and digital financial inclusion. This means that increased digital skills or access does not necessarily result in better financial outcomes and greater financial confidence. Maulida H et al., (2021) also found similar results. They found that students' financial knowledge and financial behavior were not mediated by self-efficacy. Both results suggest that in the digital world, psychological factors such as financial independence are not always effective in directing the influence of digital access and knowledge on financial outcomes. Therefore, these studies can serve as an empirical basis for the hypothesis that digital access does not influence students' financial literacy through financial self-efficacy. However, the dependent variables in previous studies were different, so there is room for further research on students' financial literacy.

Regarding the influence of financial self-efficacy in mediating the influence of the family environment on financial literacy, several studies have shown mixed and inconsistent results, necessitating a more integrative model. Previous research has yielded conflicting findings on how financial independence plays a role in offsetting the influence of the family environment

on financial knowledge. Arifa & Setiyani, (2020) and Lestari & Hardini, (2026) who conducted research found that family financial education increases financial independence, which in turn influences financial management behavior. Furthermore, family financial education also influences financial management by increasing financial independence. Conversely, research conducted by Herawati et al., (2020) found that financial effectiveness alone cannot control the influence of family socioeconomic conditions on financial behavior. In addition, Dewi, (2022) also found that across all model paths, the mediating role of financial independence on the relationship between family financial education and financial behavior was not significant.

Previous research has shown that there are differences in how financial self-efficacy mediates the influence of digital access on financial knowledge and other financial-related issues. A study conducted by Wiharno et al., (2025) and Sharma et al., (2026) found that digital knowledge about finance improves financial health by increasing levels of financial self-efficacy. This suggests that financial self-efficacy is an important mediator. In contrast, research by Sutarmi et al., (2026) and Maulida H et al., (2021) shows that knowledge about digital finance increases financial self-efficacy, but financial self-efficacy cannot offset the impact of digital financial inclusion, so the indirect impact is not significant.

According to Albert Bandura's Social Cognitive Theory, self-efficacy is influenced by four main sources: mastery experience, social modeling, verbal persuasion, and physiological conditions or learning opportunities (Bandura, 1991). Before shaping students' financial self-efficacy (FSE), three external antecedents were specifically positioned as influencers of these sources in this study. First, financial education serves as a provider of organized learning opportunities and fosters understanding through financial management assignments through simulation activities in lectures. Second, the family environment contributes significantly through social modeling, meaning students can see how their parents set examples in managing money every day (through behavior), as well as through verbal persuasion (students can receive direct advice and open conversations about finances between parents and children). Third, digital access provides numerous learning opportunities in the modern era while reducing students' psychological (emotional) anxiety because fintech allows for transparent financial transactions and monitoring. Therefore, these three external components are essential requirements for fostering students' internal financial mental maturity.

The novelty of this research is demonstrated by examining the integrated role of financial education, family environment, and digital access on students' financial literacy through financial self-efficacy (FSE). Studies on family education and learning in higher education generally find a positive influence on financial literacy, but other evidence suggests that family influence is negative or insignificant in certain contexts. Therefore, including FSE as a mediating variable is expected to explain why educational/environmental exposure does not guarantee improved financial literacy, given that FSE has been shown to play a significant role in financial behavior models and serves as a mediator of family financial education. Another novelty is that by examining the effect of digital access on financial literacy through FSE, it is hoped that it will expand the literature, which has previously often placed technology without any psychological mediation role.

2. Literature Review & Hypothesis Development

2.1. Financial Education

International studies show that many young people approaching adulthood have low or uneven financial literacy, so they feel the need to be provided with financial education through

schools and universities (Lusardi & Mitchell, 2013; Lusardi, 2019; OECD, 2022). Studies focusing on college students show that higher financial literacy reflects better financial judgment among students. This suggests that financial literacy education can improve the quality of decision-making (Richardson et al., 2022; Lusardi & Mitchell, 2013; Lusardi, 2019). However, international study findings warn that formal educational interventions typically have little impact unless they focus on practice and are linked to decisions made in the real world (Oehler et al., 2017). Another finding shows that, in Italy, higher financial literacy and competence of students independently increase their interest in investing for retirement (Bongini & Cucinelli, 2019). Whereas evidence from Belgium suggests that financial literacy may lose its significance when sociodemographic factors are included in the model (Cecco & Estache, 2016). Other research shows that “informal” financial education, especially parental influence, can shape financial knowledge and behavior, which can complement their formal education (Chen & Cao, 2022; Robertson-Rose, 2019; Bongini & Cucinelli, 2019). These results lead to the following hypothesis:

H1: Financial education has a positive and significant influence on students' financial literacy.

2.2. Family Environment

International evidence suggests that families are the primary educators in financial matters, shaping students' financial literacy through educational and daily activities (Campenhout, 2015; Murugiah et al., 2023). Based on a US national survey and structural equation modeling, Zhao and Zhang concluded that financial socialization from parents is positively related to financial literacy and financial behavior and well-being of college students, where parental education also influences the quality of socialization (Murugiah et al., 2023). Complementing this, evidence from the Netherlands using within-family fixed effects shows that giving pocket money to children (aged 8–12 years) has a positive impact on the level of their financial knowledge formation (Binti et al., 2023). These results lead to the following hypothesis:

H2: Family environment has a positive and significant influence on students' financial literacy.

2.3. Digital Access

Recent studies increasingly emphasize students' financial literacy as being closely linked to digital access. This includes the ability to effectively use digital tools, particularly financial services and learning resources, which are increasingly shifting towards digital (Fundira et al., 2023; Amidjono et al., 2022). In Indonesia, young people who participated in Financial Life Skills showed that their readiness for the influence of the digital economy was still in the “developing” stage and was not supported by adequate financial literacy and digital skills (Amidjono et al., 2022). At the university level, survey evidence from South Korea shows that digital literacy is positively associated with entrepreneurial intentions and financial literacy. This suggests that digital competency can enhance financial knowledge and improve financial management skills among students (Kang et al., 2024). Furthermore, experimental research in primary education shows that digitally delivered instruction can improve children's financial knowledge compared to other groups, suggesting that digital access can directly enable increased mastery of financial literacy content (Fatimah et al., 2021). However, broader research on the digital divide warns that unequal access and entertainment-focused use can lead to inequalities in academic outcomes. These concerns may be related to financial learning delivered through digital platforms (Camerini et al., 2017; Fundira et al., 2023). These results lead to the following hypothesis:

H3: Digital access has a positive and significant influence on students' financial literacy.

2.4. Financial Education through Financial Self-Efficacy

Based on social cognitive theory, several primary and verified studies show that financial education interventions not only result in direct improvements in financial knowledge but can also enhance abilities that support financial literacy-related attitudes and skills. Empirical evidence from university samples suggests that financial education can improve both objective and subjective financial knowledge, and through causal mediation analysis, this effect largely operates through increased financial self-efficacy (Fan & Zhang, 2021; Velasco, 2022; White et al., 2021). Complementary quasi-experimental and longitudinal studies in countries such as India, Pakistan, and Canada have also found that financial literacy serves as a mediator between the role of education and financial literacy and behavior, with self-efficacy repeatedly identified as a supporter in this process (Goyal et al., 2023; Tran et al., 2023; Noor et al., 2022; Guo et al., 2026; Rothwell & Wu, 2019). These results lead to the following hypothesis:

H4: financial self-efficacy mediates the effect of financial education on financial literacy.

2.5. Family Environment through Financial Self-Efficacy

Several recent international studies state that financial self-efficacy (FSE) consistently mediates the influence of family environment on financial literacy. Based on social cognitive theory, family-based socialization such as teaching, discussion, and modeling parental behavior shapes an individual's self-confidence in managing money, which in turn facilitates the theory and application of financial knowledge. Primary and verified studies show that when a family has financial discussions or shows wise money management, FSE will increase and this will partly influence financial literacy. For example, recent research in a variety of settings shows that family financial socialization increases FSE, which then leads to higher financial knowledge, skills, and behavior, with some studies reporting statistically significant mediation effects through FSE (Kaur & Singh, 2024; April et al., 2024; Bai, 2023; Kurniasari et al., 2023). Trial evidence on college students and adults shows that financial teaching from parents or family can increase financial knowledge more objectively and subjectively, and most importantly can increase perceptions of self-efficacy, which mediates literacy outcomes and related financial behaviors (Rothwell & Wu, 2019; Lone & Bhat, 2022; Chutani et al., 2026). Further studies strengthen the FSE variable as a strong mediator in the relationship between education and literacy by emphasizing methodological rigor in which FSE measurement, study design, and cross-cultural validity can influence the magnitude of the mediation pathway effect (Gulati & Singh, 2024; Le et al., 2024). These results lead to the following hypothesis:

H5: Financial Self-Efficacy mediates the influence of Family Environment on Financial Literacy.

2.6. Digital Access through Financial Self-Efficacy

Financial self-efficacy (FSE) has emerged as an important psychological foundation in understanding how individuals engage with the financial system and develop their financial capabilities. Research shows that FSE, defined by Chinh et al., (2024) and Lone & Bhat, (2022) Financial literacy, defined as an individual's confidence in their ability to gather information and make effective financial decisions, serves as a significant mediating mechanism across various financial behavior pathways.

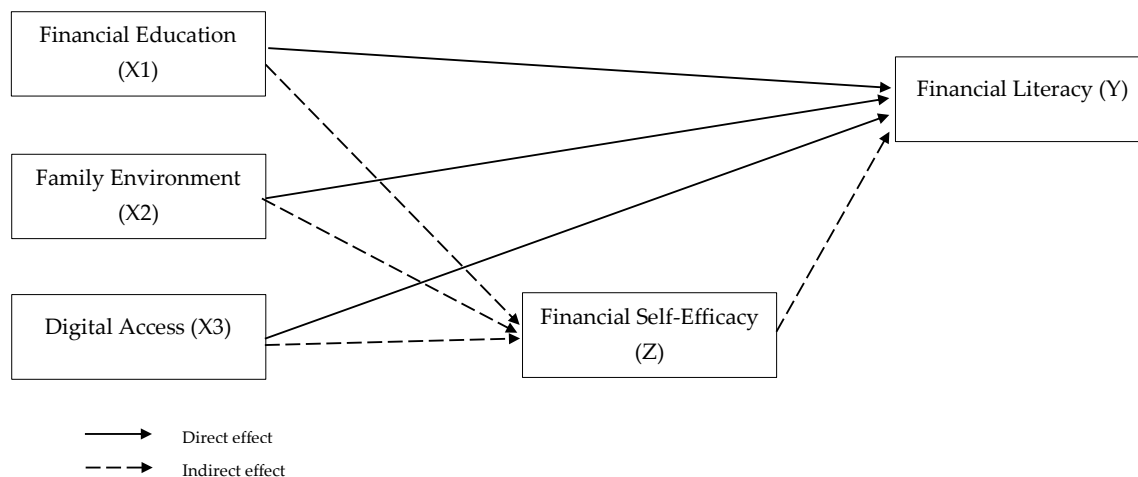
The relationship between digital access and financial literacy is increasingly mediated by financial self-efficacy. Studies show that increased access to digital financial services increases individuals' financial self-efficacy, which in turn influences their financial behavior and literacy outcomes (Mehraj et al., 2025; Anggraini et al., 2024). Specifically, the study found that financial inclusion, which includes access to digital financial platforms, significantly impacts

financial self-efficacy, suggesting that access to inclusive financial services can increase individuals' confidence in managing their finances (Anggraini et al., 2024). The model is supported by the finding that digital literacy and digital access have a positive impact on financial outcomes through increased self-ability mechanisms (Antwi et al., 2024; Nam et al., 2024).

The FSE's mediation role operates through regular engagement with various digital financial tools that can foster perceptions of usefulness and mastery (Chinh et al., 2024; Ho et al., 2026). Financial self-efficacy has been conceptualized as an individual's belief in their ability to gather the information necessary for effective financial decision-making, with key sources including access to information, experience, and emotional state (Chinh et al., 2024). The study also confirmed that users who are financially literate and have higher self-efficacy tend to be more interested in using digital financial services, including credit and payment platforms. Furthermore, other research has also shown that FSE partially mediates the relationship between financial literacy and financial well-being, with financial awareness having the most significant influence on financial self-efficacy among the dimensions of financial literacy (Antwi et al., 2024; Lone & Bhat, 2022). Other evidence also suggests that digital financial literacy serves as an important catalyst for increasing access to and engagement with digital financial products, so that confident individuals are more likely to manage their finances effectively (Antwi et al., 2024). These theoretical and empirical findings collectively support that financial self-efficacy serves as an important bridge connecting digital access to improve financial literacy outcomes. These results lead to the following hypothesis:

H6: Financial Self-Efficacy mediates the influence of Digital Access on Financial Literacy.

Figure 1. Conceptual Framework



This study positions Financial Self-Efficacy (FSE) as an internal psychological mediator that fosters financial literacy rather than the reverse. This positioning is grounded in Bandura's Social Cognitive Theory, which holds that self-efficacy beliefs are a primary determinant of the cognitive and motivational processes underlying learning. Specifically, self-efficacy is theorized to influence financial literacy not merely through overt behavior, but through its effect on motivation, effort, and persistence: students who believe they are capable of managing their finances are more likely to seek out, attend to, and persevere in processing complex financial information, which in turn deepens their cognitive understanding of concepts such as inflation, compound interest, and risk diversification. In this sense, FSE functions as the psychological precondition that mobilizes the effortful cognitive engagement

required for financial literacy to develop. The three external antecedents—financial education, family environment, and digital access—are theorized to shape FSE through Bandura's four sources of self-efficacy (mastery experience, social modeling, verbal persuasion, and the reduction of emotional arousal), thereby influencing financial literacy indirectly through this psychological channel. The researchers nonetheless acknowledge that, given the cross-sectional design, the possibility of reverse causality—whereby greater financial literacy reciprocally strengthens FSE—cannot be entirely ruled out. FSE is therefore treated as an initial psychological foundation that channels external influences toward improved cognitive financial literacy, while the reciprocal relationship is left for future longitudinal research to disentangle.

3. Methodology

This study uses a quantitative research method with a survey research type and data collection techniques using questionnaires. Primary data in this study were collected using questionnaires to students in the East Java region including the cities of Surabaya, Malang, Jember, Lumajang, and Gresik which in this study also became the population. Data collection was carried out for 2 months (June-July) 2026. The questionnaire was administered through Google Forms and distributed to students across the five target cities (Surabaya, Malang, Jember, Lumajang, and Gresik) using both online channels and in-person (offline) outreach. Respondent eligibility was screened based on the purposive criterion of being an active student, verified through each respondent's self-reported home institution (university) and faculty. Of the 249 questionnaires distributed, 246 valid responses were obtained after excluding 3 responses that were incomplete or did not meet the active-student criterion. The distribution of the 246 valid respondents across the five cities is presented in Table 2.

This study utilizes recent theoretical recommendations to separate measurement items thoroughly. This was done to avoid conceptual conflation and misclassification of the constructs of financial knowledge and financial independence. The Financial Literacy construct encompasses students' knowledge and cognitive abilities regarding key financial concepts such as insurance risk mitigation, inflation mechanisms, compound interest calculations, and portfolio diversification. The Financial Literacy variable eliminates all normative or subjective statements. In contrast, the Financial Self-Efficacy construct comprises students' cognitive beliefs and confidence in performing specific financial tasks, such as budgeting, dealing with unexpected expenses, analyzing financial products, and making investment decisions. Perceived ability, or the belief that one can do something, is not measured by the items on the Financial Self-Efficacy indicator. This instrument reconstruction ensures that the mediation effects tested in this model truly reflect students' internal psychological processes, not because the questions are worded similarly.

Table 1. Variable Statement

No	Variable	Indicator	Statement Items
1.	Financial Education	1. Formal Education Placement	1. I feel the need to take courses related to finance.
		2. Informal Training Attendance	2. I feel the need to attend seminars, webinars, or specialized training on financial planning or investment.
		3. Frequency of Learning	

	(Hastings et al., 2013)	3. Education from educational institutions enables me to re-explain financial concepts. 4. I feel that my formal education has equipped me with good financial management skills. 5. I feel that participating in financial literacy training held outside of campus will further enhance my financial knowledge. 6. I believe that frequently reading books, articles, or following financial education content on social media will improve my financial literacy. 7. By participating in financial communities or discussion forums, I will be able to make wiser financial decisions.
2. Family Environment	1. Parental Financial Modeling 2. Direct Financial Interaction/ Conversations 3. Financial Teachings (Shim et al., 2010b)	1. In my opinion, parents need to explain how to manage money well to their children. 2. Parents need to teach the importance of saving and managing expenses. 3. Parents need to provide education on managing expenses according to priorities. 4. Parents should be able to set a good example in managing family finances. 5. Discussions with parents about financial problems or plans prevent me from making wrong financial decisions. 6. Parents should trust their children to manage their own pocket money. 7. My family's economic situation contributes to improving my financial education and management.
3. Digital Access	1. Connectivity Quality 2. Device Ownership 3. Digital Skills / Competence (OECD, 2021)	1. Adequate digital devices (smartphone/laptop) make it easy for me to access financial services. 2. I have no difficulty using digital financial applications. 3. I feel the need to access financial education content via the internet or social media. 4. Using digital applications for payments or transfers is very convenient for students like me. 5. As a student, I must be able to distinguish between true and misleading digital financial information.

4. Financial Literacy	1. Financial Knowledge 2. Financial Behavior 3. Financial Attitude (OECD, 2020)	1. I understand that general price increases can reduce the purchasing power of money. 2. I understand that high inflation rates directly reduce the real value of my savings if the savings interest is lower than inflation. 3. I know how to calculate compound interest on savings or long-term investments. 4. I must consider the potential lost profit (opportunity cost) if my money is not invested now. 5. I understand that the current value of money is different from the future value of money. 6. I feel I must be able to manage my income and expenses well. 7. I feel I should set aside some of my pocket money for investment. 8. I objectively understand that the primary function of insurance is to transfer the risk of financial loss, not to seek profit. 9. I understand the concept of portfolio diversification, which is dividing funds into various assets to minimize the risk of loss
5. . Financial Self-Efficacy	1. Confidence in Budgeting 2. Resilience in Financial Crisis 3. Confidence in Financial Decisions 4. Goal Achievement Confidence (Lown, 2011)	1. I feel the need to control my monthly expenses. 2. I should set aside pocket money for specific financial goals. 3. I am confident in being able to handle and find financial solutions independently when faced with unexpected emergency expenses. 4. Identifying the source of financial problems is the first step to take when experiencing financial difficulties. 5. Planning, discipline, and analyzing long-term goals will result in sound financial decisions. 6. Managing future finances requires high discipline, careful planning, and consistency. 7. I am very confident in my ability to consistently create and stick to a monthly budget.

Source: Data processed in 2026

Determination of the number of respondent samples used the Lemeshow formula with a confidence level of 95%, a 5% error, and a prevalence of 20%, so that a minimum sample size of 246 respondents was obtained.

$$n = \frac{Z^2 \cdot P(1 - P)}{E^2}$$
$$n = \frac{1,96^2 \cdot 0,2(1 - 0,2)}{0,05^2} = 245,8$$

For populations with unknown specificity, the Lemeshow formula was used to determine the minimum sample size for this study, which resulted in a minimum threshold of 246 participants. To confirm the adequacy of this sample size for the structural model, an a priori statistical power analysis was conducted following (Cohen, 1992). Because the Financial Literacy construct (Y) receives the largest number of predictors in the model (four: X1, X2, X3, and Z), the analysis was based on four predictors, a medium effect size ($f^2 = 0.15$), a significance level of 0.05, and a statistical power of 0.80. Under these conditions, the minimum required sample size was 85 respondents. Since the final sample of 246 respondents substantially exceeds both this power-based threshold and the Lemeshow minimum, the sample provides more than adequate statistical power; indeed, the post hoc power estimate at $N = 246$ exceeded 0.99. Therefore, the sample size in this study is sufficient to reliably test the proposed mediation model.

The sampling technique used purposive sampling with the criteria that students as respondents must be active. Data analysis was performed using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method. SEM-PLS analysis in SmartPLS software is carried out through three main stages sequentially. The first stage is the Outer Model. For reflective constructs, validity and reliability are assessed through the Outer Loading value (> 0.70) and Average Variance Extracted / AVE (> 0.50) for convergent validity, the HTMT criterion (< 0.90) for discriminant validity, and Composite Reliability and Cronbach's Alpha (> 0.70) for reliability, whereas formative constructs are assessed through outer weights and their significance, indicator collinearity (VIF), and outer loadings.

Before estimating the model, each construct was evaluated to determine whether a Reflective or Formative measurement specification was theoretically more appropriate, following the guidelines of Hair et al., (2016). Family Environment, Financial Literacy, and Financial Self-Efficacy were specified as Reflective constructs because their indicators are interchangeable manifestations of a single underlying latent variable that are expected to correlate, so that removing one indicator does not change the meaning of the construct. Conversely, Financial Education and Digital Access were specified as Formative constructs. For Financial Education, the indicators (Formal Education Placement, Informal Training Attendance, and Frequency of Learning) represent different sources of financial learning that jointly form an individual's overall educational exposure rather than reflecting a single common trait, so they are neither interchangeable nor required to correlate. Likewise, for Digital Access, the indicators (Connectivity Quality, Device Ownership, and Digital Skills / Competence) are defining components that together form the construct, as a student may own an adequate device yet still have limited digital competence, meaning each indicator captures a conceptually distinct facet of access. Therefore, these two Formative constructs were evaluated through the Outer Weights value and its significance, the indicator collinearity value (Variance Inflation Factor / $VIF < 5$), and the Outer Loadings value (> 0.50) when the weight was not significant, whereas

the three Reflective constructs were evaluated using Composite Reliability, Cronbach's Alpha, Average Variance Extracted / AVE, and discriminant validity.

After the instrument is proven valid and reliable, the next step is to conduct an Inner Model analysis to see the predictive power of the model through the R^2 (R-Square) value. Furthermore, because all variables were measured using a single self-administered questionnaire filled out by the same respondents at one time, the potential for Common Method Bias / CMB was tested using the Full Collinearity Assessment Approach proposed by Kock, (2015). In this procedure, a full collinearity test is conducted to obtain the Variance Inflation Factor / VIF value for all latent variables, where the model is declared free from serious common method bias if all Full Collinearity VIF values are below the threshold of 3.3. Finally, hypothesis testing was conducted through a bootstrapping procedure using 500 subsamples with two-tailed testing at the 5% significance level, from which the t-statistics, p-values, and bias-corrected confidence intervals were obtained. A hypothesis was declared supported when its T-statistic exceeded 1.96 and its P-value was below 0.05. To ensure interpretive consistency, this same decision criterion was applied uniformly to all direct and indirect (mediation) paths.

4. Result and Discussion

As described in the data collection procedure, 246 valid responses met the criteria and were analyzed. Respondent characteristics were distributed as follows.

Table 2. Respondent Characteristics

Characteristics	Category	Number (N)	Percentage (%)
Campus Hometown	Surabaya	56	22,7
	Malang	58	23,5
	Jember	36	14,6
	Lumajang	61	24,7
	Gresik	35	14,2
Type of Higher Education	Public	126	51,2
	Private	120	48,7
Disciplines (Study Areas)	Economics & Business	179	72,7
	Non Economics & Business	67	27,2

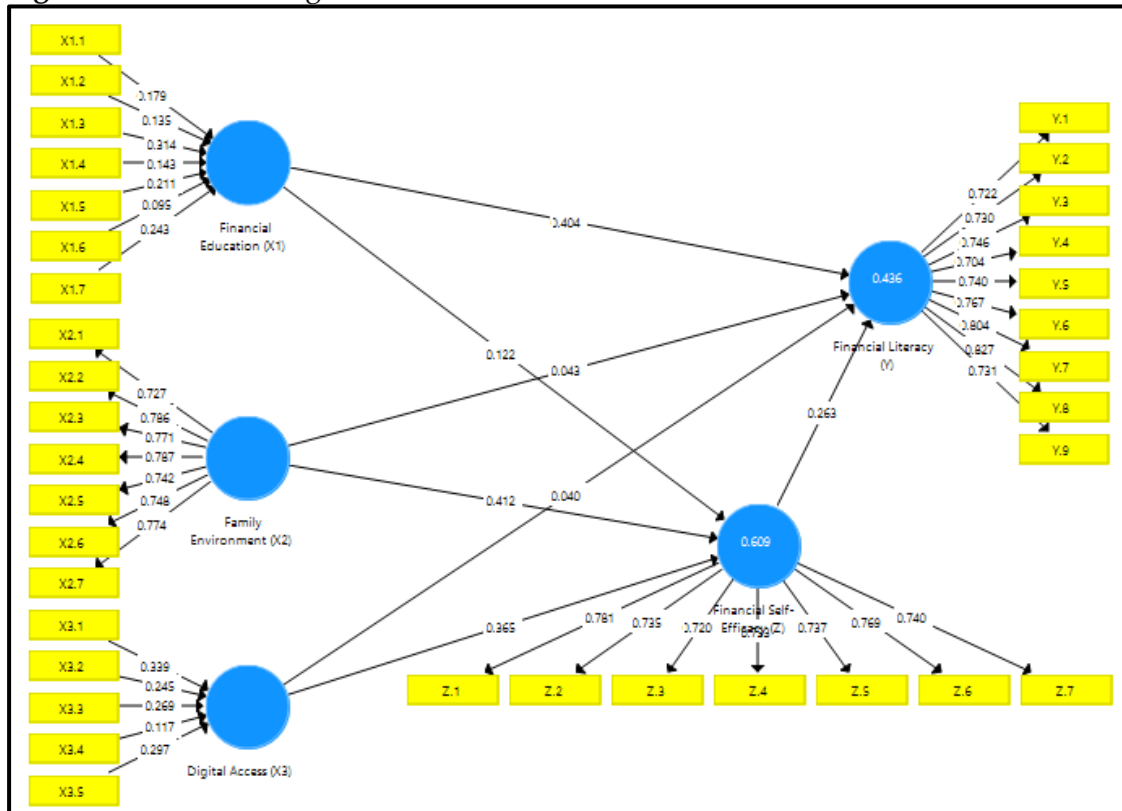
Source: Data processed in 2026

Data analysis in this study used the Partial Least Squares-based Structural Equation Modeling (PLS-SEM) method with the assistance of SmartPLS software. Model evaluation was carried out through two main stages: evaluation of the measurement model (outer model) and evaluation of the structural model (inner model).

4.1. Outer Model

From the analysis results, the outer loading values of all indicators are above 0,7 (figure 2.).

Figure 2. Outer Loading



Source: Data processed in 2026

In addition, the Average Variance Extracted / AVE value is also > 0.5 (table 3.)

Table 3. Construct Reliability and Validity (Reflective Constructs)

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Family Environment (X2)	0.880	0.880	0.907	0.581
Financial Literacy (Y)	0.904	0.907	0.922	0.567
Financial Self-Efficacy (Z)	0.866	0.867	0.897	0.555

Source: Data processed in 2026

The assessment of the two formative constructs is presented in Table 4. Although several outer weights were not statistically significant, all corresponding outer loadings exceeded 0.70 and all indicator VIF values were below 3.0; therefore, following Hair et al., (2016), all formative indicators were retained

Table 4. Formative Measurement Assessment (Outer Weights, Significance, Loadings, and VIF)

Construct	Indicator	Weight	t	p	Loading	VIF
Financial Education (X1)	X1.1	0.179	1.842	0.066	0.757	1.950
	X1.2	0.135	1.184	0.237	0.738	1.934
	X1.3	0.314	3.220	0.001	0.775	1.654
	X1.4	0.143	1.464	0.144	0.739	1.896
	X1.5	0.211	2.172	0.030	0.759	1.847

Construct	Indicator	Weight	t	p	Loading	VIF
Digital Access (X3)	X1.6	0.095	0.859	0.391	0.715	1.868
	X1.7	0.243	2.521	0.012	0.771	1.835
	X3.1	0.339	4.148	0.000	0.822	1.800
	X3.2	0.245	2.698	0.007	0.731	1.520
	X3.3	0.269	3.363	0.001	0.777	1.673
	X3.4	0.117	1.487	0.138	0.740	2.145
	X3.5	0.297	3.140	0.002	0.833	2.392

Source: Data processed in 2026

Discriminant validity among the three reflective constructs was assessed using the Heterotrait-Monotrait ratio (HTMT). As shown in Table 5, all HTMT values were below the 0.90 threshold (the highest being 0.795), confirming that discriminant validity was established. Because Financial Education and Digital Access were specified as formative constructs, HTMT was not applicable to them; their validity was instead evidenced by significant outer weights and/or high outer loadings together with acceptable collinearity levels, as reported above.

Table 5. Discriminant Validity — Heterotrait-Monotrait Ratio (HTMT)

	Family Environment (X2)	Financial Literacy (Y)	Financial Self-Efficacy (Z)
Family Environment (X2)	—		
Financial Literacy (Y)	0.533	—	
Financial Self-Efficacy (Z)	0.795	0.631	—

Source: Data processed in 2026

The test results showed that all Full Collinearity VIF values were below the threshold of 3.3 (ranging from 1.772 to 2.683), so it can be concluded that common method bias is not a serious problem in this study.

Table 6. Common Method Bias — Full Collinearity VIF (Kock, 2015)

Construct	Full Collinearity VIF
Financial Self-Efficacy (Z)	2.683
Digital Access (X3)	2.329
Financial Education (X1)	2.262
Family Environment (X2)	2.116
Financial Literacy (Y)	1.772

Source: Data processed in 2026

4.2. Inner Model

The structural model was assessed through collinearity, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and out-of-sample predictive power (PLSpredict). All inner VIF values were below 3.3, indicating no collinearity issues among the constructs. The model explained 60.9% of the variance in Financial Self-Efficacy ($R^2 = 0.609$) and 43.6% of the variance in Financial Literacy ($R^2 = 0.436$), both in the moderate category (Table 7). The blindfolding procedure produced Q^2 values above zero for both endogenous constructs (Financial Self-Efficacy = 0.326; Financial Literacy = 0.239), confirming the model's predictive relevance. In

terms of effect size (Table 8), Financial Education exerted a medium effect on Financial Literacy ($f^2 = 0.147$), whereas Family Environment and Digital Access exerted their strongest effects on Financial Self-Efficacy ($f^2 = 0.258$ and 0.172 , respectively), and both showed negligible effects on Financial Literacy ($f^2 = 0.002$ and 0.001), consistent with their non-significant direct paths. Finally, the PLSpredict analysis (Table 9) showed that all indicators produced Q^2 predict values above zero and that the PLS-SEM model yielded lower RMSE values than the naïve linear model (LM) benchmark for all indicators of both endogenous constructs, indicating that the model has high out-of-sample predictive power.

Table 7. R Square and Q Square (Predictive Relevance)

	R Square	R Square Adjusted	Q ²
Financial Literacy (Y)	0.436	0.426	0.239
Financial Self-Efficacy (Z)	0.609	0.605	0.326

Source: Data processed in 2026

Table 8. Effect Size (f^2)

Path	f^2	Category
Financial Education (X1) → Financial Literacy (Y)	0.147	medium
Family Environment (X2) → Financial Self-Efficacy (Z)	0.258	medium-large
Digital Access (X3) → Financial Self-Efficacy (Z)	0.172	medium
Financial Self-Efficacy (Z) → Financial Literacy (Y)	0.048	small
Financial Education (X1) → Financial Self-Efficacy (Z)	0.020	small
Family Environment (X2) → Financial Literacy (Y)	0.002	none
Digital Access (X3) → Financial Literacy (Y)	0.001	none

Source: Data processed in 2026

Table 9. PLSpredict Summary (Endogenous Constructs)

Endogenous construct	Q ² predict	PLS vs LM (RMSE)
Financial Literacy (Y)	0.363	PLS < LM for all 9 indicators
Financial Self-Efficacy (Z)	0.582	PLS < LM for all 7 indicators

Source: Data processed in 2026

4.3. Hypothesis Testing (Bootstrapping)

Hypothesis testing was conducted using the Bootstrapping method by looking at the Path Coefficients values. The significance limits used were a T-Statistic value > 1.96 and a P-Value < 0.05. Table 10 shows the results of the Direct Effect Test and the Indirect Effect Test.

Table 10. Summary of Hypotheses (Direct and Indirect Effects)

Hypothesis	O	STDEV	T	P	95% CI [2.5%, 97.5%]	Decision
H1: X1 → Y	0.404	0.076	5.350	0.000	[0.267, 0.557]	Supported
H2: X2 → Y	0.043	0.080	0.534	0.594	[-0.121, 0.188]	Not supported
H3: X3 → Y	0.040	0.093	0.429	0.668	[-0.159, 0.209]	Not supported
H4: X1 → Z → Y	0.032	0.023	1.375	0.170	[0.001, 0.087]	Not supported

Hypothesis	O	STDEV	T	P	95% CI [2.5%, 97.5%]	Decision
H5: $X2 \rightarrow Z \rightarrow Y$	0.108	0.046	2.348	0.019	[0.026, 0.204]	Supported
H6: $X3 \rightarrow Z \rightarrow Y$	0.096	0.046	2.078	0.038	[0.020, 0.193]	Supported

Source: Data processed in 2026

Note: The bootstrap confidence interval for H4 marginally excluded zero; the decision follows the pre-specified t-statistic criterion ($t > 1.96$; $p < 0.05$) and the negligible effect size ($f^2 = 0.020$). The same decision criterion was applied to all hypotheses

Table 11. Component Paths of the Mediation Model

Path	O	STDEV	T	P	Sig.
$X1 \rightarrow Z$	0.122	0.056	2.191	0.029	Yes
$X2 \rightarrow Z$	0.412	0.080	5.124	0.000	Yes
$X3 \rightarrow Z$	0.365	0.074	4.902	0.000	Yes
$Z \rightarrow Y$	0.263	0.109	2.415	0.016	Yes

Source: Data processed in 2026

To further examine the underlying mediation mechanism, the component paths of the model were analyzed, as presented in Table 11. All four component paths were positive and statistically significant. The three antecedent variables significantly influenced Financial Self-Efficacy—Family Environment ($\beta = 0.412$; $t = 5.124$), Digital Access ($\beta = 0.365$; $t = 4.902$), and Financial Education ($\beta = 0.122$; $t = 2.191$)—while Financial Self-Efficacy, in turn, significantly influenced Financial Literacy ($\beta = 0.263$; $t = 2.415$). These results indicate that the mediation mechanism is empirically established: the antecedent variables meaningfully shape students' financial self-efficacy, which subsequently enhances their financial literacy. When considered together with the direct effects reported in Table 10, this pattern clarifies that the significant indirect effects of Family Environment and Digital Access (H5 and H6) operate fully through Financial Self-Efficacy, whereas Financial Education influences Financial Literacy primarily through a direct rather than an indirect pathway.

4.4. Discussion

Financial Education on Financial Literacy (H1)

The results of the first hypothesis test (H1) indicate that financial education has a positive and significant impact on financial literacy, with a T-statistic of 5.350, significantly greater than 1.96, and a P-value of 0.000, below the 0.05 significance threshold. These results support the findings of Kaiser et al., (2021) and Gutter et al., (2010) which state that financial education consistently has a positive and significant effect on financial literacy, both nationally and internationally. This also indicates that financial education directly provides students with a strong conceptual understanding through formal education, training, and robust independent learning activities. Students will gain a better theoretical understanding of macro concepts such as inflation, compound interest, the time value of money, and opportunity cost when they become accustomed to reading financial articles, attending webinars, and taking related courses. Therefore, structured education generates a positive correlation with the understanding and knowledge of financial literacy in the study subjects.

Family Environment on Financial Literacy (H2)

However, the second hypothesis (H2), which tested whether the family environment influences financial literacy, was rejected. The results showed a t-statistic of only 0.534 (less than 1.96) and a relatively large p-value of 0.594 (greater than 0.05). The relationship between

the two variables was also unclear, as indicated by these statistics. Consequently, it can be concluded that the family environment variable does not have a direct, significant effect on financial literacy. In other words, changes in the family environment variable do not significantly impact financial literacy. This conclusion supports the results of research by Shim et al., (2010a) and Agnew & Cameron-Agnew, (2015). Although the family environment can provide intensive financial instruction, direct interaction, and role modeling, parents' role tends to be more focused on developing daily habits, such as how to save and manage pocket money. In contrast, the financial literacy indicator in this instrument requires a more complex theoretical-cognitive understanding of issues such as how the stock market works, how insurance serves as risk protection, and how inflation impacts it. Therefore, family environment was found to have no significant impact on improving financial literacy, as each student's family education was typically conventional and did not comprehensively teach modern financial instruments. Some other explanations that may be more appropriate to explain the insignificant impact of family background on students' financial literacy in this study are that parents' financial literacy is different or very different and financial socialization in the family environment is very rare. Second, the existence of a taboo in the family to talk about financial matters or the assumption that children are not allowed to discuss financial matters in depth can hinder the process of transferring more complex cognitive knowledge. This is reinforced by the fact that the financial literacy indicators in this study also include macro elements and modern financial instruments, such as inflation and stock risk diversification, which are rarely discussed at home by family members.

Digital Access to Financial Literacy (H3)

Furthermore, the third hypothesis (H3), which stated that digital access influences financial literacy, was also rejected. The processed data showed a t-statistic of 0.429, below 1.96, and a P-value of 0.668, far exceeding the 0.05 significance level. These results indicate that the linear relationship between the two variables is not supported by sufficient empirical evidence. In short, the digital access variable does not directly influence financial literacy. These results support the conclusions of Lyons & Kass-Hanna, (2021) and Pudín et al., (2024) which assert that digital access is only one prerequisite, but that improving financial knowledge is highly dependent on other factors, such as financial education, experience, and a person's ability to process financial data.

Owning a sophisticated smartphone capable of using digital financial applications does not guarantee an understanding of complex financial concepts, such as calculating compound interest or the risk of capital loss in stocks. Furthermore, the availability of technology does not necessarily lead to a broad understanding of financial literacy.

Financial Education on Financial Literacy through Financial Self-Efficacy (H4)

To test the mediation effect, the fourth hypothesis (H4), which states that financial education influences financial literacy through financial self-efficacy, was not supported. The statistical results showed a T-statistic of 1.375, which is below 1.96, accompanied by a P-value of 0.170, which is greater than 0.05. Although the bootstrap confidence interval of this indirect effect marginally excluded zero (95% CI [0.001, 0.087]), the lower bound was virtually equal to zero and the effect size was negligible ($\beta = 0.032$; $f^2 = 0.020$). Consistent with the significance criterion adopted in this study ($t > 1.96$; $p < 0.05$) and given the trivial magnitude of the effect, H4 is therefore declared not supported. This indicates that the mediating pathway of financial self-efficacy does not operate optimally in bridging financial education and financial literacy. This finding is reinforced by the strong and highly significant direct effect of financial

education on financial literacy (H1; $t = 5.350$), suggesting that financial education shapes students' financial literacy directly through cognitive channels rather than indirectly through financial self-efficacy. The results support the findings of Maulida H et al., (2021) and Sutarmi et al., (2026). Financial education taught in schools or seminars focuses primarily on transferring knowledge and strengthening cognitive-theoretical aspects, whereas financial self-efficacy requires internal confidence, emotional control, and discipline in adhering to a budget, so that the self-efficacy pathway becomes less relevant in channeling the influence of education on financial literacy.

Family Environment on Financial Literacy through Financial Self-Efficacy (H5)

The fifth hypothesis (H5) tested the statement that family environment impacts financial literacy through financial self-efficacy. The test results were accepted. A t-statistic of 2.348 (greater than 1.96) and a P-value of 0.019 (less than 0.05) were found in the computational data, with a positive initial sample of 0.108. This path reflects an indirect-only mediation pattern, as the direct effect (H2) was insignificant while the indirect effect was significant. In other words, the financial self-efficacy variable functions as an indirect-only mediation. Research by Arifa & Setiyani, (2020) and Lestari & Hardini, (2026), supported these results. In this situation, the family environment variable can only indirectly influence financial literacy after first passing through or intervening with the financial self-efficacy variable.

This is evidenced by the fact that financial interactions occur. An example of this is the belief in children's responsibility for their personal finances, which will significantly shape their psychological foundation. Experiences within a family can increase self-confidence, discipline in preparing a monthly budget, and emotional calm when facing financial challenges. When students develop self-efficacy and a mature financial mindset thanks to their family, they will be more motivated and wiser in learning, understanding, and applying broader financial literacy concepts.

Digital Access to Financial Literacy through Financial Self-Efficacy (H6)

Finally, the sixth hypothesis (H6) was accepted, stating that digital access impacts financial literacy through financial self-efficacy. The statistical results showed a T-statistic of 2.078, exceeding the 1.96 criterion, and a P-value of 0.038, below 0.05. The initial sample also showed a positive value of 0.096. Similar to the results of H5, the combination of an insignificant direct effect (H3) and a significant indirect effect indicated an indirect-only mediation pattern. This indicates that financial self-efficacy significantly mediates the relationship between digital access and financial literacy. In other words, when digital access is involved with the mediator variable financial self-efficacy, the effect or impact of digital access can reach and influence the overall financial literacy variable. These results clearly support the conclusions of studies Wiharno et al., (2025) and Sharma et al., (2026).

Improving the connectivity and ease of use of digital applications can significantly improve students' confidence and ability to manage their cash flow in real time. Students can use digital tools to take financial efficacy measures, such as self-discipline, creating detailed budgets, and identifying the source of financial problems through digital transaction histories. With enhanced skills and self-efficacy through digital technology, students become more prepared, flexible, and open to absorbing and evaluating accurate digital financial information to improve their financial literacy.

Based on the results of the total effect analysis and confidence intervals presented in Table 10, the indirect effects of family environment and digital access on financial literacy proved significant, while the direct effects were insignificant. Referring to the contemporary

mediation logic proposed by Zhao et al., (2010), this phenomenon is classified as indirect-only mediation. Because the present design is cross-sectional, these indirect-only results should be interpreted as statistically significant indirect associations within the tested model rather than as definitive evidence of a temporal causal sequence. This finding indicates that within the framework of the proposed research model, financial self-efficacy (FSE) successfully acts as a psychological mechanism that mediates the influence of these external antecedent variables. The researchers state that the position of FSE in this study is not a universal psychological standard. The importance of this pathway does not preclude the possibility of other alternative mechanisms not measured in this model, given the limitations of the cross-sectional research design. It is suspected that external factors influence students' cognitive abilities to understand finance. These include the level of intense personal financial experience, the quality of family communication, the ability to filter financial information, and methods of learning from peers. Therefore, the indirect mediation of FSE should be considered here as one of the important psychological pathways empirically proven within the contextual constraints of this model.

5. Conclusion and Suggestion

Based on the data analysis and hypothesis testing results presented in the discussion chapter, the first conclusion of this study is that financial education significantly influences students' financial literacy. In other words, formal learning, training, and independent activities have been shown to provide students with a strong cognitive-conceptual understanding of economic instruments such as inflation, compound interest, and the time value of money. Next, the partial influence of family environment and digital access on financial literacy shows different results, with neither influencing students' financial literacy. Regarding the family environment, parenting patterns and financial interactions are typically limited to basic daily habits such as saving and managing pocket money. Furthermore, they cannot achieve complex cognitive-theoretical understandings such as the function of contemporary insurance protection or stock market mechanisms. Then, regarding the influence of digital access, ease of digital access does not necessarily guarantee that someone can process and understand complex financial instruments, even if respondents own sophisticated devices connected to digital financial applications. In this case, sophisticated devices are merely tools, and their use also involves humans as users.

Furthermore, regarding the influence of financial self-efficacy, which acts as a mediating variable, financial self-efficacy was proven unable to mediate the effect of financial education on financial literacy. This is due to the fact that formal education often only concentrates on conveying theoretical-cognitive knowledge and ignores factors that can help students strengthen control over their emotions, mental, psychological, and financial situations when facing a crisis. However, this is different from the influence of family environment and digital access on financial literacy through financial self-efficacy. Partially, financial self-efficacy significantly mediates the relationship between family environment and digital access on financial literacy. In terms of the family environment, parents will psychologically instill financial responsibility, interaction, and role models to build emotional and financial control in students. This encourages students to learn and master financial concepts more broadly. Then, in terms of digital access, easy-to-use digital technology and applications will be able to help people become more confident in managing their financial budgets and cash flow. Self-efficacy built through optimizing this technology can help students correctly absorb and evaluate digital financial information.

In general, the contribution of this study lies in reframing the role of family environment and digital access, which showed no significant direct effect on financial literacy but exerted a significant indirect-only effect through financial self-efficacy. Whereas several prior studies positioned family environment and technological access as direct determinants of financial literacy, the present findings suggest that, within this sample, their influence operated primarily through students' financial self-efficacy rather than directly. These results should be interpreted as contextual evidence drawn from active students in five East Java cities using cross-sectional, self-reported data; they do not imply that family environment or digital access cannot enhance financial literacy in other settings or through other mechanisms. Rather, they indicate that, in the digital era, a mature financial mindset—characterized by confidence, discipline, and emotional control—may serve as an important psychological channel linking these external factors to financial literacy.

Based on the research findings, several practical, evidence-based recommendations can be put forward to improve student financial literacy. First, higher education institutions are advised to focus not only on theoretical classroom-based financial education but also design experiential learning. This can be realized through guided investment simulations, digital financial analysis competitions, or the creation of financial planning laboratories for non-economics students. For Financial Service Providers, digital financial application interventions need to integrate knowledge acquisition features with real-time confidence building, for example through user-friendly interfaces, financial gamification, and embedded education to guide students' financial decisions. For the Family Environment, there is a need for inclusive and open family financial discussion programs, where parents begin to involve children in simple household budget planning to train children's self-efficacy.

6. Limitations and Future Research

The researchers acknowledge several inherent weaknesses and limitations in this study, including the first one related to the questionnaire data collection. Data collection relying on self-administered questionnaires carries the risk of subjectivity bias, where respondents, namely students, may have provided normative or exaggerated answers (Self-Reported Data Bias). Second, this study used a purposive sampling method, focusing on five cities in East Java. Therefore, the results cannot be broadly generalized to all students in East Java as a whole, as they only represent a subset of the surveyed student population. Furthermore, this study was limited to a sample of students with access to formal education and digital devices. The results may be invalid if generalized to the general population with lower socioeconomic backgrounds or in areas where digital access is considered inadequate. In addition, several measurement items were still formulated normatively or prescriptively (e.g., “I feel the need to...” or “parents should...”), so that they had the potential to trigger socially desirable answers and capture respondents' perceived norms rather than their actual behavior or ability (Normative Wording Bias). Combined with the reliance on self-reported data, this has the potential to cause measurement bias. Therefore, further research is advised to reformulate these items into behavior- or experience-based statements and to complement subjective self-assessment with an objective financial knowledge test.

Further suggestions for Advanced Research include restructuring the Financial Literacy test instrument by dividing it into two dimensions: basic financial literacy and advanced financial literacy, so that the real influence of the family environment can be identified more fairly and comprehensively. Future researchers are also expected to expand the scope of the independent

variable ecosystem by including control variables such as parental socioeconomic status, future orientation, and peer group influence.

Reference

- Agnew, S., & Cameron-Agnew, T. (2015). The influence of consumer socialisation in the home on gender differences in financial literacy. *International Journal of Consumer Studies*, 39(6), 630–638. <https://doi.org/https://doi.org/10.1111/ijcs.12179>
- Amidjono, D. S., Husodo, Z. A., & Muchtar, A. (2022). The Readiness of Indonesian Youths Towards the Era of Digital Economy and Business. *Jurnal Pendidikan Ekonomi Dan Bisnis (Jpeb)*. <https://doi.org/10.21009/jpeb.010.2.6>
- Anggraini, A., Anggrainie, N., & Suroto, S. (2024). The Mediating Role of Financial Self-Efficacy in the Relationship Between Financial Inclusion, Literacy, and Investment Behavior Among Banking Employees in Jakarta. *Journal of Economics Finance and Management Studies*. <https://doi.org/10.47191/jefms/v7-i10-04>
- Antwi, P. K. A., Addai, B., Duah, E., & Kubi, M. T. (2024). *The Impact of Financial Literacy on Financial Well-Being: A Systematic Literature Review*. <https://doi.org/10.21203/rs.3.rs-5187088/v2>
- April, R., Chandra, N., Fontanella, A., & Sukartini. (2024). The Effect of Family Financial Socialization on Financial Self-Efficacy Mediated by Financial Knowledge and Financial Skills. *Economics Business Accounting & Society Review*. <https://doi.org/10.55980/ebasr.v3i1.88>
- Arifa, J. S. N., & Setiyani, R. (2020). Pengaruh pendidikan keuangan di keluarga, pendapatan, dan literasi keuangan terhadap financial management behavior melalui financial self-effiacy sebagai variabel mediasi. *Economic Education Analysis Journal*, 9(2), 552–568. <https://doi.org/10.15294/eeaj.v9i2.39431>
- Arvita, D., & Mardiana, M. (2026). THE EFFECT OF FINANCIAL LITERACY ON FINANCIAL MANAGEMENT WITH SELF EFFICACY AS A MEDIATION. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 9(2 SE-Articles). <https://doi.org/10.31538/ijse.v9i2.9744>
- Bai, R. (2023). Impact of Financial Literacy, Mental Budgeting and Self Control on Financial Wellbeing: Mediating Impact of Investment Decision Making. *Plos One*. <https://doi.org/10.1371/journal.pone.0294466>
- Bandura, A. (1991). Social Cognitive Theory of Self-Regulation. *Organizational Behavior and Human Decision Processes*, 50(2), 248–287. [https://doi.org/https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/https://doi.org/10.1016/0749-5978(91)90022-L)
- Binti, M. T., Willem, W., & Tanduh, D. B. (2023). Developing Student Literacy Management to Support National Economic Development in Indonesia. *International Journal of Business Economics & Management*. <https://doi.org/10.21744/ijbem.v6n1.2070>
- Bongini, P., & Cucinelli, D. (2019). University Students and Retirement Planning: Never Too Early. *International Journal of Bank Marketing*. <https://doi.org/10.1108/ijbm-03-2018-0066>
- Camerini, A.-L., Schulz, P. J., & Jeannet, A. (2017). The Social Inequalities of Internet Access, Its Use, and the Impact on Children's Academic Performance: Evidence From a Longitudinal Study in Switzerland. *New Media & Society*. <https://doi.org/10.1177/1461444817725918>
- Campehouth, G. Van. (2015). Revaluing the Role of Parents as Financial Socialization Agents

- in Youth Financial Literacy Programs. *Journal of Consumer Affairs*. <https://doi.org/10.1111/joca.12064>
- Cecco, S. De, & Estache, A. (2016). Is the Belgian Youth Ready to Save for Retirement Under a Defined Contribution Pension System? *Reflets Et Perspectives De La Vie Économique*. <https://doi.org/10.3917/rpve.553.0099>
- Chen, F., & Cao, S. (2022). Consumer Informal Financial Education and Retirement Financial Behaviors: Financial Knowledge as a Mediator. *Asian Journal of Economics Business and Accounting*. <https://doi.org/10.9734/ajeba/2022/v22i2330740>
- Chinh, N. T., Anh, K. T., Đức, D. N., Kim Quốc, C. P., & Linh, L. D. (2024). Impact of Self-Efficacy and Mediating Factors on Fintech Adoption in the VUCA Era. *Journal of Eastern European and Central Asian Research (Jeecar)*. <https://doi.org/10.15549/jeecar.v11i4.1740>
- Chutani, R., Watkins, K., Lu, Z., & Grable, J. (2026). Family Financial Socialization, Financial Capability, and Well-Being Across Generations: Practical Insights for Financial Planners. *Financial Planning Review*. <https://doi.org/10.1002/cfp2.70038>
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, 112, 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Darmawan, A., & Pratiwi, F. A. (2020). Pengaruh Pendidikan Keuangan Keluarga, Pembelajaran Keuangan Di Perguruan Tinggi, Sikap Keuangan Dan Teman Sebaya Terhadap Literasi Keuangan Mahasiswa. *Fokus Bisnis Media Pengkajian Manajemen Dan Akuntansi*. <https://doi.org/10.32639/fokusbisnis.v19i1.499>
- Defiansih, D. D. (2021). Pengaruh Religiusitas, Pendidikan Keluarga, Dan Sosialisasi Keuangan Terhadap Literasi Keuangan Syariah Dengan Kecerdasan Intelektual Sebagai Variabel Moderasi. *Jurnal Ekonomi Dan Pendidikan*. <https://doi.org/10.21831/jep.v18i1.33146>
- Deviana, D., Malini, H., & Syahputri, A. (2025). Peran Financial Self-Efficacy dalam Hubungan antara Pendapatan, Literasi Keuangan, dan Perilaku Keuangan Mahasiswa di Indonesia. *ECo-Buss*, 8(1), 276–294. <https://doi.org/10.32877/eb.v8i1.2604>
- Dewi, I. G. A. (2022). Financial Management Behavior Dengan Financial Self-Efficacy Sebagai Variabel Mediasi. *Wacana Ekonomi (Jurnal Ekonomi Bisnis Dan Akuntansi)*. <https://doi.org/10.22225/we.21.2.2022.185-197>
- Dewi, I. G. A. R. P. (2022). Financial Management Behavior Dengan Financial Self-Efficacy Sebagai Variabel Mediasi. *Wacana Ekonomi (Jurnal Ekonomi, Bisnis Dan Akuntansi)*, 21(2). https://doi.org/https://www.ejournal.warmadewa.ac.id/index.php/wacana_ekonomi/article/view/5902
- Dzidni, D. A., Hanurawati, K., Yuniar, N. F., Hanurawati, K., & Susilowati, N. (2025). Perilaku Finansial Mahasiswa Pendidikan Akuntansi: Peran Literasi Keuangan Dan Gaya Hidup. *Buletin Literasi Budaya Sekolah*, 7(1), 128–144. <https://doi.org/10.23917/blbs.v7i1.10910>
- Fan, L., & Zhang, L. (2021). The Influence of Financial Education Sources on Emergency Savings: The Role of Financial Literacy. *Family and Consumer Sciences Research Journal*. <https://doi.org/10.1111/fcsr.12400>
- Fatimah, P. L. R., Ilyana, S., & Hermawan, H. D. (2021). Augmented Reality (AR)-based Sharia Financial Literacy System (AR-SFLS): A New Approach to Virtual Sharia Financial Socialization for Young Learners. *International Journal of Islamic and Middle Eastern Finance and Management*. <https://doi.org/10.1108/imefm-11-2019-0484>
- Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial Literacy, Financial Education, and Downstream Financial Behaviors. *Management Science*, 60(8), 1861–1883.

- <https://doi.org/https://doi.org/10.1287/mnsc.2013.1849>
- Fundira, M., Edoun, E. I., & Pradhan, A. (2023). Adapting to the Digital Age: Investigating the Frameworks for Financial Services in Modern Communities. *Business Strategy & Development*. <https://doi.org/10.1002/bsd2.303>
- Goyal, K., Kumar, S., & I. Hoffmann, A. O. (2023). The Direct and Indirect Effects Of financial Socialization and Psychological Characteristics on Young Professionals' Personal Financial Management Behavior. *International Journal of Bank Marketing*. <https://doi.org/10.1108/ijbm-09-2022-0419>
- Gudmunson, C., & Danes, S. M. (2011). Family Financial Socialization: Theory and Critical Review. *Journal of Family and Economic Issues*, 32. <https://doi.org/10.1007/s10834-011-9275-y>
- Gulati, A., & Singh, S. (2024). Financial Self-efficacy of Consumers: A Review and Research Agenda. *International Journal of Consumer Studies*. <https://doi.org/10.1111/ijcs.13024>
- Guo, Y., Wang, X., & Md Kassim, A. A. (2026). Enhancing Anti-Fraud Capabilities in Older Adults Through Digital Financial Literacy. *International Journal of Information Technologies and Systems Approach*. <https://doi.org/10.4018/ijitsa.409328>
- Gutter, M. S., Copur, Z., & Garrison, S. (2010). Financial Capabilities of College Students from States with Varying Financial Education Policies. *National Endowment for Financial Education*, 1–89.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. SAGE Publications. https://books.google.co.id/books?id=C_EmjgEACAAJ
- Hasan, M., Asriani, Ahmad, M. I. S., Supatminingsih, T., Dinar, M., Sangkala, M., Rahim, A., Hasyim, S. H., & Idris, H. (2025). Family financial education and financial management behavior among Generation Z: integrating the theory of planned behavior and technology acceptance model to explore the importance of financial literacy and locus of control. *Cogent Education*, 12(1), 2510067. <https://doi.org/10.1080/2331186X.2025.2510067>
- Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). FINANCIAL LITERACY, FINANCIAL EDUCATION AND ECONOMIC OUTCOMES. *Annual Review of Economics*, 5, 347–373. <https://doi.org/10.1146/annurev-economics-082312-125807>
- Herawati, T., KusumaDewi, L., Wahyuni, M., & Savitri, N. (2020). Financial Self Efficacy: A Mediator in Advancing Financial Behavior among Accounting Students. *Journal of Academic Finance*, 11, 226–241. <https://doi.org/10.59051/joaf.v11i2.392>
- Ho, C. S. M., Choi, S., & Barajeeh, B. (2026). Financial Literacy Education, Confidence, and Digital Financial Behavior Among Adolescents: Evidence From 19 Countries. *International Journal of Consumer Studies*. <https://doi.org/10.1111/ijcs.70188>
- Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2021). Financial education affects financial knowledge and downstream behaviors. *Journal of Financial Economics*, 145. <https://doi.org/10.1016/j.jfineco.2021.09.022>
- Kang, G.-L., Park, C., & Jang, S. (2024). A Study on the Impact of Financial Literacy and Digital Capabilities on Entrepreneurial Intention: Mediating Effect of Entrepreneurship. *Behavioral Sciences*. <https://doi.org/10.3390/bs14020121>
- Kartawinata, B. R., Fakhri, M., Pradana, M., Hanifan, N. F., & Akbar, A. (2021). The Role of Financial Self-Efficacy: Mediating Effects of Financial Literacy & Financial Inclusion of Students in West Java, Indonesia. *Journal of Management Information and Decision Sciences*, 24(2), 1–9.

- Kaur, R., & Singh, M. (2024). The Dynamics of Family Financial Socialization: Impact on Financial Self-Efficacy and Financial Behavior. *Nmims Management Review*. <https://doi.org/10.1177/09711023241282195>
- Kock, N. (2015). Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach. *International Journal of E-Collaboration*, 11, 1–10. <https://doi.org/10.4018/ijec.2015100101>
- Koskelainen, T., Kalmi, P., Scornavacca, E., & Vartiainen, T. (2023). Financial literacy in the digital age—A research agenda. *Journal of Consumer Affairs*, 57(1), 507–528. <https://doi.org/https://doi.org/10.1111/joca.12510>
- Kurniasari, I., Sumiati, Sumiati, & Ratnawati, K. (2023). The Role of Self-Efficacy in Mediating Parental Financial Teaching on Financial Management Behavior: A Study on Youths in Malang. *International Journal of Research in Business and Social Science* (2147-4478). <https://doi.org/10.20525/ijrbs.v12i4.2610>
- Kurniawan, A., Kusumawardhani, R., & Rinofah, R. (2022). Pengaruh Pendidikan Keuangan Di Keluarga Pengalaman Bekerja Teman Sebaya Dan Pembelajaran Di Perguruan Tinggi Terhadap Literasi Keuangan. *J-Mas (Jurnal Manajemen Dan Sains)*. <https://doi.org/10.33087/jmas.v7i1.360>
- Le, T. D., Nguyen, N., & Nguyen, Q. T. (2024). Technology and Happiness: The association Between Online Budget Planner and Financial Satisfaction. *Review of Behavioral Finance*. <https://doi.org/10.1108/rbf-04-2024-0106>
- Lestari, P. D., & Hardini, H. T. (2026). The Influence of Family Financial Education and Fintech Usage on Financial Management with Financial Self-Efficacy as a. *Nternational Journal of Management Science and Information Technology (IJMSIT)*, 6(1), 632–643.
- Lestari, T. P., Wihartanti, L. V., & Styaningrum, F. (2023). Faktor Yang Memengaruhi Minat Berinvestasi Pada Mahasiswa Universitas Pgri Madiun. *Bina Ekonomi*. <https://doi.org/10.26593/be.v27i1.6041.44-57>
- Lo Prete, A. (2022). Digital and financial literacy as determinants of digital payments and personal finance. *Economics Letters*, 213, 110378. <https://doi.org/https://doi.org/10.1016/j.econlet.2022.110378>
- Lone, U. M., & Bhat, S. A. (2022). Impact of Financial Literacy on Financial Well-Being: A Mediation Role of Financial Self-Efficacy. *Journal of Financial Services Marketing*. <https://doi.org/10.1057/s41264-022-00183-8>
- Lown, J. (2011). Development and Validation of a Financial Self-Efficacy Scale. *Journal of Financial Counseling and Planning*, 22.
- Lusardi, A. (2019). Financial Literacy and the Need for Financial Education: Evidence and Implications. *Swiss Journal of Economics and Statistics*. <https://doi.org/10.1186/s41937-019-0027-5>
- Lusardi, A., & Mitchell, O. S. (2013). *The Economic Importance of Financial Literacy: Theory and Evidence*. <https://doi.org/10.3386/w18952>
- Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring “digital” financial literacy. *FINANCIAL PLANNING REVIEW*, 4(2), e1113. <https://doi.org/https://doi.org/10.1002/cfp2.1113>
- Maulida H, A., Indarto, I., & Santoso, A. (2021). The role of financial knowledge in realizing financial behavior: is it any mediating effect of financial attitudes and self-efficacy? *Asian Management and Business Review*, 1(2), 128–143. <https://doi.org/10.20885/ambr.vol1.iss2.art5>
- Mehraj, D., U. Nissa, S. N., Nissa, V. U., & Gulzar, S. (2025). The Mediating Role of Financial

- Self-Efficacy in the Relationship Between Financial Inclusion and Poverty Alleviation. *Business Strategy & Development*. <https://doi.org/10.1002/bsd2.70146>
- Murugiah, L., Ismail, R., Taib, H. M., Applanaidu, S. D., & Habibi Long, M. N. (2023). Children's Understanding of Financial Literacy and Parents' Choice of Financial Knowledge Learning Methods in Malaysia. *Methodsx*. <https://doi.org/10.1016/j.mex.2023.102383>
- Nam, E. W., Jung, H., & Lee, H. (2024). *Impact of Digital Literacy on Life Satisfaction Among Older Adults in South Korea: Analysis of the Mediating Effect of Social Capital (Preprint)*. <https://doi.org/10.2196/preprints.68163>
- Noor, N., Batool, I., & Rehman, H. ur. (2022). An Empirical Assessment of Mediating Role of Financial Self Efficacy on Financial Literacy and Financial Inclusion in Pakistan. *Annals of Social Sciences and Perspective*. <https://doi.org/10.52700/assap.v3i1.160>
- OECD. (2020). OECD/INFE 2020 International Survey of Adult Financial Literacy. *OECD/INFE International Survey of Adult Financial Literacy*, 78. www.oecd.org/financial/education/launchoftheoecdinfeglobalfinancialliteracysurveyreport.htm
- OECD. (2021). *G20/OECD-INFE Report On Supporting Financial Resilience And Transformation Through Digital Financial Literacy*. <http://www.oecd.org/finance/supporting-financial-resilience-and-transformation-through-digital-financial-literacy.htm>
- OECD. (2022). *Financial Planning and Financial Education for Old Age in Times of Change*. <https://doi.org/10.1787/e1d4878e-en>
- Oehler, A., Horn, M., Wendt, S., Reisch, L. A., & Walker, T. (2017). Young Adults and Their Finances: An International Comparative Study on Applied Financial Literacy. *Economic Notes*. <https://doi.org/10.1111/ecno.12110>
- Otoritas Jasa Keuangan, (OJK). (2025). *Edukasi Konsumen (OJK)*. 1–52.
- Pudin, A. S., Karyani, E., Pamungkas, P., & Achsanta, A. F. (2024). Digital Literacy and Cashless Payment: Evidence from Indonesia. *The Asian Journal of Technology Management (AJTM)*, 17(1 SE-Articles), 51–58. <https://doi.org/10.12695/ajtm.2024.17.1.4>
- Rahmayani, S. I., Sudarno, S., & Sangka, K. B. (2022). Faktor-Faktor Yang Memengaruhi Literasi Keuangan Mahasiswa Pendidikan Ekonomi FKIP Universitas Sebelas Maret Surakarta. *Jurnal Pendidikan Ekonomi (Jupe)*. <https://doi.org/10.26740/jupe.v10n3.p210-223>
- Richardson, J., Alpert, K., Tanner, M., & Birt, J. (2022). Financial Literacy and Retirement Spending: A University Student Perspective. *Australian Accounting Review*. <https://doi.org/10.1111/auar.12377>
- Robertson-Rose, L. (2019). "Because My Father Told Me To": Exploratory Insights Into Parental Influence on the Retirement Savings Behavior of Adult Children. *Journal of Family and Economic Issues*. <https://doi.org/10.1007/s10834-019-09643-1>
- Rothwell, D. W., & Wu, S. (2019). Exploring the Relationship Between Financial Education and Financial Knowledge and Efficacy: Evidence From the Canadian Financial Capability Survey. *Journal of Consumer Affairs*. <https://doi.org/10.1111/joca.12259>
- Sari, N. R., & Listiadi, A. (2021). Pengaruh Literasi Keuangan, Pendidikan Keuangan Di Keluarga, Uang Saku Terhadap Perilaku Pengelolaan Keuangan Dengan Financial Self-Efficacy Sebagai Variabel Intervening. *Jurnal Pendidikan Akuntansi (Jpak)*. <https://doi.org/10.26740/jpak.v9n1.p58-70>
- Sarju, N., & Sobandi, A. (2021). Pengaruh Pendidikan Keuangan Di Keluarga Dan Teman Sebaya Terhadap Literasi Keuangan. *Jurnal Dinamika Pendidikan*.

<https://doi.org/10.51212/jdp.v14i3.75>

- Sharif, S. P., Ahadzadeh, A., & Turner, J. J. (2020). Gender Differences in Financial Literacy and Financial Behaviour Among Young Adults: The Role of Parents and Information Seeking. *Journal of Family and Economic Issues*, 41. <https://doi.org/10.1007/s10834-020-09674-z>
- Sharma, V., Kumar, R., Kaur, M., & Jain, J. (2026). Shaping financial well-being through digital financial literacy: do financial self-efficacy and personal financial management behavior mediates the relationship? *Journal of Financial Services Marketing*, 31. <https://doi.org/10.1057/s41264-026-00366-7>
- Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010a). Financial socialization of first-year college students: the roles of parents, work, and education. *Journal of Youth and Adolescence*, 39(12), 1457–1470. <https://doi.org/10.1007/s10964-009-9432-x>
- Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010b). Financial Socialization of First-year College Students: The Roles of Parents, Work, and Education. *Journal of Youth and Adolescence*, 39(12), 1457–1470. <https://doi.org/10.1007/s10964-009-9432-x>
- Sutarmi, S., Risfandy, T., & Futri, I. N. (2026). Digital Financial Inclusion, Digital Financial Literacy, and Financial Self-Efficacy. *Jurnal Akuntansi Dan Bisnis*, 26(1). <https://jab.fe.uns.ac.id/index.php/jab/article/view/1740>
- Tran, Q. N., Minh Trang, P. T., Nguyen, N. H., & Nguyen, T. H. (2023). Financial Knowledge Matters Entrepreneurial Decisions: A Survey in the COVID-19 Pandemic. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-023-01137-8>
- Velasco, M. S. (2022). Causal Effects of Financial Education Intervention Aimed at University Students on Financial Knowledge and Financial Self-Efficacy. *Journal of Risk and Financial Management*. <https://doi.org/10.3390/jrfm15070284>
- White, K. J., Park, N., Watkins, K., McCoy, M., & Morris, J. (2021). The Relationship Between Objective Financial Knowledge, Financial Management, and Financial Self-Efficacy Among African American Students. *Financial Services Review*. <https://doi.org/10.61190/fsr.v29i3.3455>
- Widyawati, I. (2012). Faktor-Faktor Yang Mempengaruhi Literasi Finansial Mahasiswa Fakultas Ekonomi Dan Bisnis Universitas Brawijaya. *Assets Jurnal Akuntansi Dan Pendidikan*. <https://doi.org/10.25273/jap.v1i1.527>
- Wiharno, H., Rahmantya, Y. E. K., & Supriatna, O. (2025). Self Efficacy Moderating Digital Financial Literacy and Youth Well Being. *Jurnal Ilmu Keuangan Dan Perbankan (JIKA)*, 15(1).
- Zhao, X., Lynch Jr., J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. In *Journal of Consumer Research* (Vol. 37, Issue 2, pp. 197–206). Univ of Chicago Press. <https://doi.org/10.1086/651257>