

Digital Payment E-Wallet Adoption Among University Students in Semarang

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ARTICLE INFO

Article History:

Submitted May 07, 2026

Revised May 23, 2026

Accepted Online July 10, 2026

Keywords:

E-wallet, Financial Literacy,
Subjective Norms, Perceived
Behavioral Control, Intention..

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and Business, PGRI University of
Palembang

ABSTRACT

This study examines the adoption of digital e-wallet payments, with the intention of serving as intervening variable that bridges the relationships among financial literacy, subjective norms, and perceived behavioral control. The research methods used was quantitative, with 221 users of e-wallet applications, by utilizing purposive and snowball sampling methods, the study conducted a data analysis via SMART-PLS, which revealed that these constructs exert a significant influence. The results found that financial literacy and perceived behavioral control have a significant affect intention, while subjective norms do not show a significant influence. Results from the indirect effect analysis demonstrate that intention functions as a mediator, linking financial literacy and perceived behavioral control to e-wallet usage behavior. Conversely, intention does not

mediate the relationship between subjective norms and digital e-wallet payment behavior. These findings suggest that intention acts as a bridge between financial literacy and perceived behavioral control, ultimately driving the adoption of e-wallets among the student population.

A. INTRODUCTION

Technological advancements have transformed multiple facets of daily life, including communication, employment, and financial management, shifting from physical wallets to digital wallets. Kurniawan (2021) revealed that in recent years, the internet has rapidly expanded within the information and communication technology sector. Many parties have leveraged this progress to develop new technological innovations, especially in the field of financial technology (Zakaria et al., 2025). This advancement is particularly significant in the use of digital payment e-wallets. Digital payments enable fast, secure transactions, responding to the increasing need for convenient payment options in today's digital era (Khan & Abideen, 2023). In today's digital economy, reliable payment systems are crucial for supporting the exchange of a growing variety of goods and services; they initiate faster, more efficient, and more secure payment processes (Rahmiati et al., 2024). GoodStats (2025) conducted a survey of 2,041 respondents across various regions of Indonesia on the use of digital payment methods. The survey findings demonstrated that the use of digital payments continues to increase. As shown in Figure 1, e-wallets have become as a widely adopted payment method, with 80% of respondents using them for routine transactions. Meanwhile, 45% of respondents use banking platforms for efficient transfers and bill payments, and 23% use paylater services for digital transactions. In the survey, e-wallets are defined as mobile applications used for online transactions, where users can store and manage their finances within the app. Banking platforms include applications and websites such as mobile banking and internet banking. On the other hand, paylater refers to services from e-wallet applications or specialized apps that allow direct purchases with installment payments over a specified period.



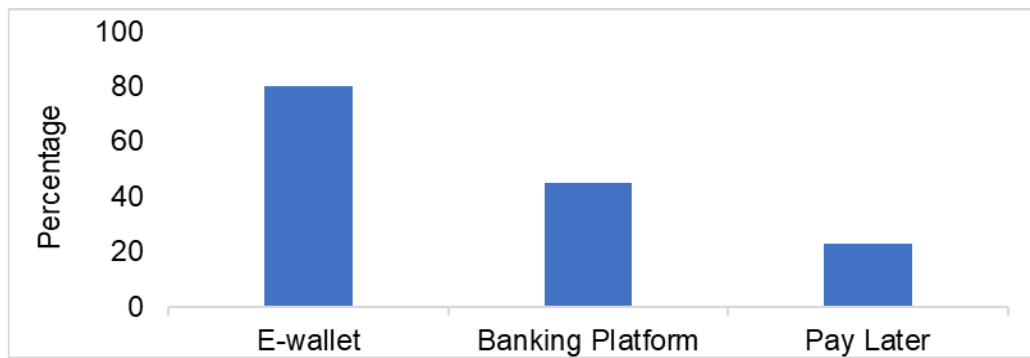


Figure Digital Payment Methods Used by the Indonesian Public in 2025

Semarang City is one of the centers of educational and economic activity in Central Java, with a strategic role in the development of technology and consumer behavior. According to data BPS (2025) the number of university students in Semarang City has reached 316,848, making it the city with the largest student population in Central Java. This large student population represents significant potential to drive the adoption of digital technology, particularly in the field of financial. In line with this, a survey Populix (2025) indicated that most e-wallet users in Indonesia are from Generation Z and millennials, with students dominating. This phenomenon is evident in the increasing use of e-wallet applications, including ShopeePay, GoPay, OVO, Dana, and LinkAja, for daily needs, including food purchases, transportation, and e-commerce transactions. The high level of use reflects that students, as consumers, tend to prioritize efficiency, convenience, and security in transactions.

The increase in e-wallet adoption aligns with rising financial literacy among students. The Financial Services Authority OJK (2025), reported that 61.76% of students have a basic understanding of the risks of digital payments, including data security and personal financial management. This creates a phenomenon in which high financial literacy among tech-savvy students is instrumental in the wise adoption of e-wallets. This indicates that improved financial literacy among students can enhance their intention to use digital payments.

Several studies on financial literacy show that shifts in digital payment adoption behavior are described in the Theory of Planned Behavior (TPB). Ajzen (1991) stated that attitude, subjective norms, and perceived behavioral control drive individual intentions and behaviors (Khan & Abideen, 2023; Musa et al., 2024). The intention to use digital payments and actual usage behavior depend on situational factors such as attitude, subjective norms, and perceived behavioral control (Nugroho et al., 2018). In this study, financial literacy acts as the attitude construct. Esawe (2026) shows that social influence and subjective norms significantly affect consumers' behavioral intentions to adopt e-wallets. Thus, behavioral intention in adopting e-wallets is influenced by social factors from important people, particularly family, relatives, and friends. Additionally, Zaidan (2024) reported a positive, significant correlation between perceived behavioral control and digital payment usage behavior. The adoption of e-wallets is further influenced by an individual's behavioral intention. Pandey & Kushwaha (2025) posit that the intention to adopt digital payments has a positive impact on actual usage behavior. Similarly, a study by Usman (2025) explores how intention serves as a link between digital payment adoption and TPB constructs, including attitude operationalized as financial literacy subjective norms, and perceived behavioral control.

The urgency of this research arises from the inconsistency of empirical findings regarding which factors influence digital payment e-wallet usage behavior. Mishra (2024) and Usman (2025) revealed that the financial literacy variable directly affects digital payment usage behavior, both directly and through the formation of intention. On the other hand, research by Berlianawati & Ridhawati (2025), Raditya (2025), and Zaidan (2024) found that subjective norms and perceived behavioral control significantly affect digital payment e-wallet usage behavior, with intention as the main predictor of behavior as explained in the Theory of Planned Behavior. However, differences in research findings regarding the influence of subjective

norms also indicate empirical inconsistencies: studies by Berlianawati & Ridhawati (2025), Raditya (2025), and Zaidan (2024) showed significant effects on intention and behavior, whereas Usman (2025) found no significant effect. This inconsistency indicates a research gap in understanding the impact of social pressure on digital payment adoption, particularly in students' use of e-wallets.

In light of the observed phenomena and identified research gaps, this study aims to address these discrepancies by answering the following research questions: First, do financial literacy, subjective norms, and perceived behavioral control significantly influence e-wallet usage behavior? Second, does intention have a significant impact on e-wallet usage? Third, do financial literacy, subjective norms, and perceived behavioral control affect usage behavior through the mediation of intention? Finally, does intention function as a mediator between these three constructs and e-wallet usage behavior? Theoretically, this research strengthens the application of the Theory of Planned Behavior (TPB) within the context of e-wallet usage. Practically, it offers valuable implications for e-wallet providers and stakeholders, supporting efforts to grow the user base and develop effective strategies to promote e-wallet adoption. This study examines "Digital Payment E-wallet Adoption among University Students in Semarang" and aims to answer several formulated questions.

B. THEORETICAL STUDY

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) provides a structural lens through which the drivers of human conduct are analyzed. Ajzen (1991) posits that an individual's behavioral intention serves as the primary indicator of their subsequent actions. This intention acts as a motivational catalyst, reflecting the amount of effort a person is prepared to invest in a specific behavior (Bermeo-Giraldo et al., 2023). TPB is built upon three pillars attitude toward the behavior, subjective norms, and perceived behavioral control each rooted in the individual's expectations regarding potential outcomes. Underpinning this theory is the assumption that individuals process information logically and systematically; thus, the choice to adopt digital payments involves a careful weighing of favorable and unfavorable beliefs.

Financial Literacy

Financial literacy represents the depth of an individual's grasp on financial principles, products, and hazards, which enables informed decision-making. According to the OECD (2018), it is a blend of knowledge, skills, attitudes, and behaviors essential for managing resources to ensure personal well-being. Within the realm of digital finance, this literacy involves understanding the advantages, potential pitfalls, and operational aspects of e-wallets, which ultimately shapes how technology is integrated into daily life. Furthermore, Swiecka (2021) suggests that higher levels of financial literacy often result in more cautious and calculated approaches to adopting digital payment systems.

Subjective Norms

Subjective norms involve an individual's perception of social expectations within their environment that guide the choice to adopt or reject certain actions (Ajzen, 1991). This social pressure is derived from the opinions of significant figures in one's life, which can either foster or hinder the desire to act (Prabandari & Sholihah, 2014). Consequently, people often modify their conduct to harmonize with the standards of their social circle, seeking to avoid behaviors that lack external validation or support.

Perceived Behavioral Control

Perceived behavioral control refers to an individual's self-assurance regarding their skills, resources, and the external opportunities needed to perform a behavior. As defined by Ajzen (1991), this construct captures the perceived ease or difficulty of an action, shaped by previous encounters and the ability to navigate hurdles. In the context of e-wallet adoption, it encompasses the user's confidence in navigating the application, the presence of necessary



infrastructure, and the perceived safety of the system. A stronger sense of control typically correlates with a higher probability of utilizing e-wallets for financial transactions.

Intention

Intention signifies a person's preparedness or psychological leaning toward executing a specific behavior. Ajzen (1991) describes intention as a measure of how hard someone is willing to try to achieve an action, making it the most immediate precursor to actual behavior. Regarding digital e-wallets, intention reflects the user's resolve and commitment to employing these services for their financial needs. It is the product of an individual's internal assessment of their attitude, external social influences, and perceived capability, acting as the vital link between cognitive thought and physical action.

Digital Payment E-wallet Usage Behavior

Digital payment usage behavior denotes the tangible steps individuals take when utilizing e-wallet services for transactions. Ajzen (1991) views behavior as the concrete expression of intention through physical activity. In the digital payment landscape, this is evidenced by how frequently, consistently, and intensely a person uses the technology for their daily financial needs. Such behavior is shaped by both internal psychological states and external circumstances, including intention, social norms, and the level of control felt by the user (Usman et al., 2025). Ultimately, e-wallet usage behavior is the definitive realization of an individual's adoption of digital payment technology.

Hypotheses Development

In this research, financial literacy is treated as a core element of attitude within the TPB framework. A high level of financial knowledge helps form a positive outlook by framing digital payments as secure, efficient, and useful. Affandi (2024) suggests that financial literacy improves an individual's ability to navigate fintech, leading to better financial choices and outcomes. Furthermore, a favorable attitude increases the likelihood of technology adoption, particularly when individuals view digital management as essential for their financial well-being (Soleha et al., 2023). This is corroborated by Iqbal (2025) and Purnamasari (2024), who found a positive correlation between literacy and digital payment use.

H1: Financial literacy positively influences the use of digital payment e-wallets.

Social environments significantly impact the adoption of digital payments, as individuals often look to peers, family, and mentors to validate their choices (Bermeo-Giraldo et al., 2023). Social influence can exert direct pressure on individuals to conform, thereby strengthening their behavioral intentions. Indirectly, it can also shape the perception that digital payments are safe and convenient. For example, witnessing friends and family use these systems can build trust and self-efficacy. Research by Nur (2024) and Zaidan (2024) confirms that subjective norms are significantly linked to digital payment behavior.

H2: Subjective Norms positively influences the use of digital payment e-wallets.

Perceived behavioral control (PBC) reflects how individuals assess their own capacity to perform a behavior, based on the resources and confidence they possess to navigate potential obstacles (Musa et al., 2024). (Averill (1973) noted that PBC involves the management of psychological and physical functions that guide actions. This sense of control allows individuals to reach goals by overcoming internal and external barriers. For instance, those confident in managing their finances through digital platforms are less likely to act impulsively. Studies by Zaidan (2024) and Berlianawati & Ridhawati (2025) support a positive link between PBC and actual usage.

H3: Perceived Behavioral Control positively influences the use of digital payment e-wallets.

A clear link exists between the intention to use an e-wallet and actual usage, driven by the underlying motivation to perform the action. Ajzen (1991) argued that a strong intention

significantly increases the probability of executing the behavior. Consequently, the more determined a person is to use digital payments, the more frequently they will do so. Consistency between intention and action is vital for achieving positive outcomes. Research by Usman (2025) and Berlianawati & Ridhawati (2025) reinforces that intention is a powerful predictor of digital payment adoption.

H4: Intention positively influences the use of digital payment e-wallets.

Sound financial literacy is a major driver of the intention to adopt digital payment systems (Mishra et al., 2024). Puspita & Solikah (2022) found that a strong grasp of financial concepts increases the intention to use electronic money by boosting user confidence. As literacy improves, individuals are more likely to make informed decisions, viewing digital payments as a safe and effective way to manage transactions. Findings by Usman (2025) and Chanafaro & Sari (2024) support the idea that increased literacy fosters a stronger desire to use e-wallets.

H5: Financial Literacy positively influences Intention.

Subjective norms represent the social pressures individuals feel to either adopt or avoid certain behaviors. If a person's social circle views digital payments favorably, this endorsement can encourage the individual to follow suit (Shuhaiber et al., 2023). While Berlianawati & Ridhawati (2025) and Utomo (2024), found that subjective norms positively influence intention, Usman (2025) observed no such effect. This discrepancy suggests that personal preferences or specific motivations may sometimes weaken the power of social influence.

H6: Subjective Norms positively influences Intention.

Individuals who feel in control of their actions tend to use e-wallets more responsibly, managing their expenditures and curbing impulsive spending due to their financial confidence (Terry & O'Leary, 1995). This is consistent with studies by Ashour (2023) and Usman (2025), which indicate that when people believe they can regulate their behavior, they develop a stronger intention to use fintech and electronic money tools.

H7: Perceived Behavioral Control positively influences Intention.

Financial literacy impacts e-wallet usage through both direct and indirect channels. It allows users to critically evaluate the risks and functions of digital platforms, building confidence in their use (Shuhaiber et al., 2023). Peiris (2021) demonstrated that intention serves as a bridge between financial education and positive financial behaviors. In the context of e-wallets, literacy informs decision-making and fosters the intentions necessary to transition from curiosity to regular, responsible usage.

H8: Financial Literacy positively and significantly affects Digital Payment E-wallet Usage behavior through Intention.

While subjective norms create the social expectation to use digital payments, intention is the necessary link that turns that expectation into action. Musa (2024) found that social norms influence behavior both directly and indirectly via intention. This suggests that while people may feel social pressure to conform, that pressure must first be internalized as a deliberate intention before it manifests as actual usage behavior.

H9: Subjective Norms positively and significantly affects Digital Payment E-wallet Usage behavior through Intention.

PBC represents a user's belief in their ability to manage e-wallet usage and maintain financial discipline. This sense of control is vital for preventing impulsive habits and ensuring responsible technology engagement. According to (Usman et al., 2025). PBC affects usage behavior indirectly through intention. Users with a high sense of control form rational intentions, allowing them to use digital payments more deliberately and effectively manage their spending.

H10: Perceived Behavioral Control positively and significantly affects Digital Payment E-wallet Usage behavior through Intention.



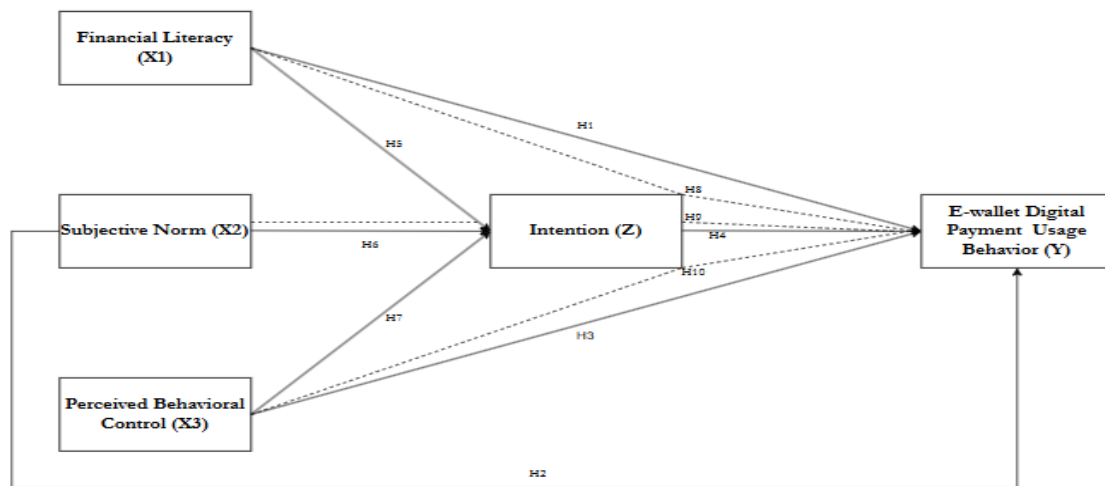


Figure Conceptual Framework
Source: (Usman et al., 2025)

C. RESEARCH METHODS

Type of Research

This research uses a quantitative method with an explanatory research design, in which causal relationships or influences between variables are explained through hypothesis testing of the effects of financial literacy, subjective norms, and perceived behavioral control on digital payment e-wallet usage behavior via intention.

Data Type and Sources

This research uses primary data obtained from respondents through the distribution of questionnaires. The questionnaire was distributed online via Google Forms across various social media platforms, including Instagram and personal and group WhatsApp. These platforms were selected to enhance accessibility and participation, resulting in a diverse sample of respondents across academic levels and backgrounds (Evans & Mathur, 2025). Data collection took place between October 25, 2025, and December 16, 2025.

Population and Sample

The research population comprises university students in Semarang City who use digital payment services. Sampling was conducted using a non-probability purposive sampling, targeting active university students in Semarang who have adopted e-wallet applications. Additionally, snowball sampling was also employed to support purposive sampling. Initial qualifying respondents were encouraged to share the survey link to their friends who also meet the criteria. According to Hair (2022), to obtain a representative sample, the number of indicators should be multiplied by 5, which means $n = (32 \times 5) = 160$, so the minimum sample size is 160. The sample obtained (221) meets the criteria because it exceeds the minimum threshold, ensuring representativeness.

Research Instrument

The research instrument uses a 1-7 Likert scale, ranging from strongly disagree to strongly agree, enabling participants to indicate their level of agreement with each statement. The use of a 7-point Likert scale is intended to enhance measurement reliability and validity. This study is based on the idea that it can provide a more optimal range of responses than scales with fewer points (Taherdoost, 2019).

Data Analysis Techniques

The data analysis employed the Structural Equation Modeling approach with Partial Least Squares (SEM-PLS), using the SmartPLS version 4.1.6. The data analysis method

involved evaluating the outer model to determine validity and reliability through parameters such as Average Variance Extracted (AVE), Cronbach's Alpha, and Composite Reliability (CR). Next, the inner model is tested for predictive power using a research model, with adjusted R^2 and hypothesis testing of path coefficients via bootstrapping (5000 resamples).

Table Operational Definition

Variable	Variable Definition	Indicator
Financial Literacy (X1)	The knowledge and understanding of financial concepts among research respondents are necessary for effective financial choices when using digital payments as a transaction method.	1. Comparing costs between e-wallet apps before using them 2. Knowing and understanding how to make transactions using digital payments 3. Creating a financial budget plan to estimate monthly expenses 4. Consistently managing monthly income and expenditure 5. Understanding the advantages of digital payments 6. Avoiding digital payments for high-risk products 7. Knowing that buying products on credit means having debt that must be paid in the future 8. Maintaining savings for emergency situations.
Subjective Norms (X2)	Perceived social pressure refers to respondents' beliefs about the expectations of influential individuals or groups around them, which may encourage or discourage the use of digital payments as a transaction method.	1. Family recommendations 2. Peer recommendations 3. Social environment recommendations 4. Recommendations from professors 5. Following family recommendations 6. Following peers' recommendations 7. Following recommendations from the social environment 8. Following professor recommendations
Perceived Behavioral Control (X3)	Respondents' capacity to regulate their behavior when using digital payments as a transaction method	1. Able to exercise self-control when the products and services used in the e-wallet do not meet expectations. 2. Able to suppress the desire to use e-wallet products and services when they are not needed 3. Always think before using e-wallet products or services 4. Always being careful when choosing an e-wallet payment method to avoid being disappointed with the service. 5. I am rational in making decisions regarding digital payment transactions via e-wallet. 6. Pay for products and services via e-wallet by prioritizing logic over personal values.
Intention (Z)	The measure to which respondents plan and intend to use of digital payment as a transaction method.	1. Intend to use digital payments in the future. 2. Will use digital payments in the future. 3. If given the opportunity, would likely use digital payments in the future. 4. Likely to use digital payments in the future. 5. Expect to use digital payments in the future
Digital Payment E-wallet Usage Behavior (Y)	Actual actions taken by research respondents in using digital payment as a transaction method.	1. Regularity of use 2. Frequency of use 3. Use to solve problems 4. Use improves performance quality 5. Use accelerates task completion



D. RESULTS AND DISCUSSION

Based on the answers from respondents. Respondents were classified according to age, gender, university affiliation, e-wallet apps used, and monthly usage frequency. Detailed respondent information follows the table.

Table Respondent Demographic Profile

Variable	Demographic Information	Frequency (<i>n</i> = 221)	Percentage (%)
1 Age (Years)	18	12	5.4%
	19	31	14.0%
	20	40	18.1%
	21	76	34.4%
	22	49	22.2%
	23	11	5.0%
	26	2	0.9%
	Total	221	100.0%
2 Gender	Male	86	38.9%
	Female	135	61.1%
3 Higher Education	Total	221	100.0%
	UDINUS	91	41.2%
	UNDIP	16	7.2%
	UNNES	22	10.0%
	UNWAHAS	9	4.1%
	USM	12	5.4%
	POLINES	20	9.0%
	UNISULA	10	4.5%
	UPGRIS	12	5.4%
	UNIKA	5	2.3%
	STIE SEMARANG	2	0.9%
	UIN WALISONGO	8	3.6%
	POLTEKKES Semarang	6	2.7%
	UNIMUS	2	0.9%
	Telogorejo University	6	2.7%
	Total	221	100.0%
4 E-wallet apps used	GoPay	54	15.8%
	OVO	24	7.0%
	ShopeePay	127	37.1%
	LinkAja	3	0.9%
	DANA	126	36.8%
	Others	8	2.3%
	Total	221	100%
5 Frequency of Use (per month)	Never	2	0.9%
	1–3	34	15.4%
	4–8	55	24.9%
	9–15	51	23.1%
	> 15	79	35.7%
	Total	221	100%

Source: *Primary Data Processed, 2026*

Table indicates that the total respondents is 221, consisting of active university students who use digital payment e-wallets. Regarding age, most respondents are 21 years old (34.4%). This age distribution indicates that the majority of respondents are students in the productive age range at the final stage of their undergraduate studies. Based on gender, most respondents in this study are female, which is 61.1% of the total respondents. On the other hand, male respondents account for 38.9%. This aligns with the tendency for women to be more involved in shopping and to display consumer behavior than men, especially due to women's greater activity on social media (Baker & Hubona, 2007).

As for university representation, most respondents are from UDINUS (41.2%). This is followed by UNNES (10.0%), POLINES (9.0%), and UNDIP (7.2%). Respondents from other universities, such as USM, UPGRIS, UNISULA, and other universities in the Semarang area, account for less than 6%.

The analysis shows that ShopeePay is the most widely used e-wallet application among respondents, accounting for 37.1%. This study found that respondents tend to choose e-wallet applications linked to e-commerce platforms and digital services they frequently use in their daily activities. Based on e-wallet use frequency, the majority of respondents (35.7%) conduct transactions via e-wallet more than 15 times per month. This indicates that the majority of respondents are active users of digital payments.

Validity and Reliability Tests

Table Validity and Reliability Tests

Construct	AVE	Cronbach's Alpha	Composite Reliability
Financial Literacy	0.541	0.787	0.854
Subjective Norms	0.639	0.921	0.934
Perceived Behavioral Control	0.652	0.892	0.918
Intention	0.868	0.962	0.970
Digital Payment E-wallet Usage Behavior	0.719	0.902	0.918

Source: Smart-PLS Data Processing, 2026

Table displays the results of the instrument reliability test, evaluated using Cronbach's Alpha and Composite Reliability, both of which exceed 0.708. This demonstrates that the research instrument has high accuracy, reliability, and precision in representing the constructs. These results indicate that the latent constructs in this study function as valid measurement instruments, with all indicator items for each construct proving reliable (Hair et al., 2022). Additionally, the convergent validity test reveals that all constructs exhibit Average Variance Extracted (AVE) values above 0.50, indicating that both the composite reliability and AVE meet the standards established by Hair et al. (2022).

Discriminant Validity Tests

Table Cross Loading

Indicator	Financial Literacy	Subjective Norms	Perceived Behavioral Control	Intention	Digital Payment E-wallet Usage Behavior
X1.2	0.647	0.189	0.468	0.447	0.400
X1.4	0.675	0.462	0.536	0.396	0.392
X1.5	0.774	0.442	0.550	0.642	0.591
X1.7	0.769	0.203	0.597	0.533	0.418
X1.8	0.800	0.355	0.639	0.535	0.462
X2.1	0.321	0.772	0.252	0.276	0.369
X2.2	0.373	0.824	0.338	0.333	0.387
X2.3	0.456	0.747	0.413	0.354	0.446



Indicator	Financial Literacy	Subjective Norms	Perceived Behavioral Control	Intention	Digital Payment E-wallet Usage Behavior
X2.4	0.262	0.807	0.224	0.188	0.323
X2.5	0.347	0.796	0.290	0.307	0.379
X2.6	0.393	0.839	0.415	0.351	0.458
X2.7	0.412	0.797	0.481	0.407	0.556
X2.8	0.240	0.812	0.242	0.210	0.334
X3.1	0.521	0.389	0.684	0.424	0.422
X3.2	0.513	0.266	0.757	0.402	0.431
X3.3	0.589	0.363	0.832	0.468	0.475
X3.4	0.690	0.308	0.817	0.617	0.566
X3.5	0.645	0.442	0.867	0.596	0.653
X3.6	0.679	0.339	0.871	0.570	0.565
Z1	0.649	0.381	0.577	0.919	0.672
Z2	0.657	0.376	0.585	0.948	0.695
Z3	0.659	0.390	0.614	0.950	0.701
Z4	0.641	0.357	0.637	0.918	0.723
Z5	0.689	0.341	0.600	0.921	0.682
Y1	0.532	0.464	0.557	0.583	0.841
Y2	0.468	0.445	0.445	0.665	0.851
Y3	0.512	0.538	0.501	0.632	0.877
Y4	0.588	0.460	0.640	0.656	0.883
Y5	0.556	0.317	0.626	0.623	0.784

Source: Smart-PLS Data Processing, 2026

Furthermore, Table displays the finding of the cross-loading test, which show that the loadings for each indicator are higher than those for other indicators within the same construct. All indicators consistently show a stronger association with their original construct than with other constructs. Therefore, all indicators in this research satisfy the discriminant validity criteria. In addition, the study of the instrument validity and reliability tests are illustrated in the measurement model, as shown in the SEM-PLS Algorithm model output below.

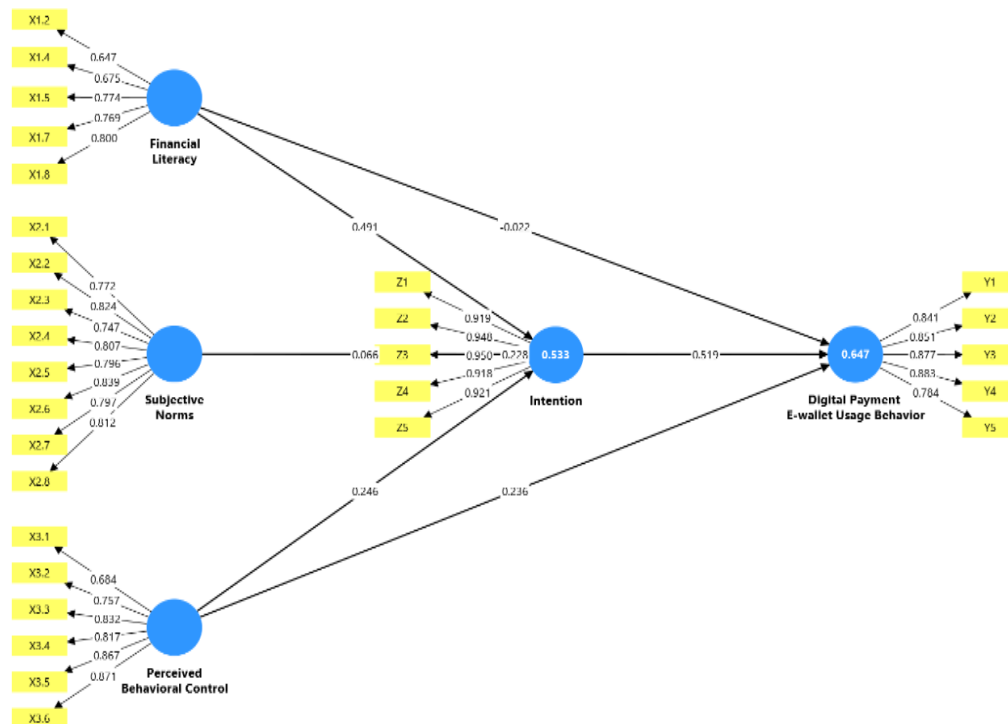


Figure SEM-PLS Testing Model Algorithm
Source: Smart-PLS Data Processing, 2026

R-Square Tests

Table R-Square Tests

	R-square	R-square Adjusted
Intention	0.533	0.527
Digital Payment E-Wallet Usage Behavior	0.647	0.640

Source: Smart-PLS Data Processing, 2026

Table shows the R-square test results, revealing that the independent variables influencing intention explain 0.527 of the variances in intention to use e-wallets. Furthermore, an R-square value of 0.640 shows that the independent and mediating variables together explain the variance in e-wallet usage behavior. Thus, R-square values of 0.527 and 0.640 are categorized as moderate.

Structural Model Analysis

Table Results of Bootstrapping Coefficient Path Analysis

Path	Original Sample (O)	Sample Mean (M)	Standard deviation (STDEV)	t-statistics (O/ STDEV)	P Values
X1 -> Y	-0.022	-0.017	0.083	0.269	0.788
X2 -> Y	0.228	0.230	0.048	4.734	0.000
X3 -> Y	0.236	0.234	0.083	2.827	0.005
Z -> Y	0.519	0.515	0.071	7.306	0.000
X1 -> Z	0.491	0.494	0.078	6.261	0.000
X2 -> Z	0.066	0.068	0.061	1.094	0.274
X3 -> Z	0.246	0.243	0.088	2.805	0.005

Source: Smart-PLS Data Processing, 2026

Table indicate that financial literacy and e-wallet usage behavior do not have a significant influence, thereby rejecting H1. Conversely, subjective norms and perceived behavioral control determined to positively and significant effects on e-wallet usage behavior, thereby supporting H2 and H3. On the other hand, intention was found to positively and significantly influence on e-wallet usage behavior, thus supporting H4. Furthermore, the analysis found that financial literacy and perceived behavioral control positively and significant influence intention, thereby supporting H5 and H7. This research indicates that individuals with higher level of financial literacy and perceived behavioral control are more likely to have intend to use digital payment systems. Thus, H6 states which proposes a relationship between subjective norms and intention, is rejected. Overall, SEM-PLS approach with bootstrapping supports most of the hypothesized relationships.

Considering the complexity of the proposed model, the purpose of this study is to examine direct effects among variables while examining the role of mediating variables. Consequently, tests of indirect effects were conducted with intention serving as the mediating construct. In this study, the hypothesis testing of indirect paths was conducted using the bootstrapping method for specific indirect effects. The hypothesis tests involving intention as a mediating variable are Hypotheses 8, 9, and 10 in table.

Table Bootstrapping Test of Specific Indirect Effects

Path	Original Sample (O)	Sample Mean (M)	Standard deviation (STDEV)	t-statistics (O/ STDEV)	P Values
X1 -> Z -> Y	0.255	0.255	0.056	4.532	0.000
X2 -> Z -> Y	0.034	0.035	0.031	1.102	0.271
X3 -> Z -> Y	0.127	0.125	0.050	2.572	0.010

Source: Smart-PLS Data Processing, 2026



The bootstrapping test results for specific indirect effects, as presented in the table above, illustrate the function of intention as a mediating construct in the relationships among the study's variables. Three hypotheses examine intention as a mediator. Of these three paths, two show significant mediation effects: the paths from financial literacy and perceived behavioral control to digital payment e-wallet usage behavior via intention.

The significant result in the path from financial literacy to e-wallet usage behavior via intention ($t > 1.96$ and $p < 0.05$) demonstrates the effective role of intention in influencing financial literacy on digital payment e-wallet usage behavior. In addition, the path from perceived behavioral control to e-wallet usage behavior via intention ($t > 1.96$ and $p < 0.05$) also shows a significant mediating role. On the other hand, the path from subjective norms to e-wallet usage behavior through intention does not show a statistically significant mediation effect, as indicated by ($t < 1.96$ and $p > 0.05$). These results emphasize the roles of perceived behavioral control and intention in shaping e-wallet usage behavior and show that intention's mediating function may differ based on the characteristics of the influencing construct.

Discussion

Financial Literacy does not positively effect on Digital Payment E-wallet Usage Behavior

This study presents significant insights into the factors affecting digital payment e-wallet usage behavior, aligning with and deviating from earlier research. The results indicate that financial literacy does not positively impact e-wallet usage behavior. This finding aligns with Swiecka (2021), who reported that financial literacy does not significantly influence non-cash payment behavior, indicating that individuals with higher financial literacy may be more cautious in using digital payments to prevent overspending. Approach digital payments cautiously to avoid excessive spending. These results suggest that an individual's level of financial literacy does not always directly influence actual behavior in using digital payment systems. The use of e-wallet payment systems can be influenced by social media and by digital promotions such as cashback and discounts. In addition, social influence can affect e-wallet usage, as individuals are more likely to adopt the behavior of those around them and recognize the benefits of digital payments.

Subjective Norms positively effect on Digital Payment E-wallet Usage Behavior

Subjective norms are shown to positively affect digital payment e-wallet usage behavior. Usman (2025) found that subjective norms significantly influence the adoption of digital payment. Meanwhile, Nur (2024) also found that social norms and peer influence have a strong effect on Generation Z, given their connectedness through social media and other digital platforms. This study indicates that social expectations are important in influencing peers and social groups to motivate individuals to directly adopt digital payments. This means students tend to consider their friends' advice, experiences, and preferences when deciding how to use their e-wallets. Recommendations from peers not only serve as sources of information but also as implicit social pressure, compelling individuals to adjust their behavior to align with their group. Thus, the stronger the influence of peer recommendations, the greater the individual's tendency to use e-wallets. In addition, Zaidan (2024) found that subjective norms positively affect e-wallet usage. Among students, e-wallet use is often influenced by shared habits and social trends, so subjective norms serve as triggers for actual behavior, as described in TPB.

Perceived Behavioral Control positively effect on Digital Payment E-wallet Usage Behavior

Perceived behavioral control positively affects e-wallet usage for digital payments. This is consistent with Usman (2025) findings, who observed that the stronger an individual's perceived control, the greater their tendency to use digital payment e-wallets. This perception of control can be additionally reinforced by promotional strategies, such as cashback or other incentives, that reduce financial barriers and increase the attractiveness of e-wallets. Zaidan (2024) supports this finding, showing that perceived behavioral control positively affects e-wallet usage. Additionally, Berlianawati & Ridhawati (2025) found that Generation Z often uses

e-wallets for all transactions and payments. These results indicate that students' decisions to use e-wallets tend to be based on rational considerations, such as efficiency, ease of access, transaction speed, and economic benefits gained. Compared to personal values such as a preference for cash or old habits, these logical considerations are more dominant in shaping individuals' confidence that they can and do control their use of e-wallets.

Intention positively effect on Digital Payment E-wallet Usage Behavior

The test results show that intention influences e-wallet usage behavior for digital payments. Usman (2025) also highlighted the importance of intention as a predictor of digital payment usage. In addition, Berlianawati & Ridhawati (2025) revealed that the intention to use e-wallets stems from personal motivation rather than external influence, and is supported by a commitment to continued usage. These results indicate that students have a strong tendency to continue using e-wallets in the future when conditions and opportunities are favorable. The perception of future usage opportunities reflects individual readiness and the belief that e-wallets will remain relevant and beneficial for their transactional activities.

Financial Literacy positively effect on Intention

Financial literacy has a positive effect on the intention to use digital payment e-wallets, consistent with Usman (2025), who found that knowledge of digital financial products encourages the formation of usage intentions, as users with greater knowledge are more likely to recognize and appreciate the benefits of e-wallet services. On the other hand, Chanafaro & Sari (2024) found that high levels of financial literacy encourage Generation Z to have a strong intention to use digital payment services. These results indicate that students who are aware of the need to build emergency funds tend to have a better understanding of finances, including how to manage and use digital financial instruments such as e-wallets. Having savings for urgent needs reflects sound financial planning skills, which are an important part of financial literacy.

Subjective Norms do not positively effect on Intention

The result found that subjective norms do not significantly affect intention. This finding supports Usman (2025), who found that social pressure alone may not be sufficient to foster intention. The study results show that social influence, whether from peer encouragement or environmental expectations, does not necessarily directly shape intention, even though it can influence actual usage behavior. In the student context, the use of digital payments tends to be influenced by situational factors and social habits rather than intention formed through social pressure. These results indicate that advice or suggestions from the surrounding environment are not the main factor in students' intention to use e-wallets. In other words, even if individuals are in an environment that supports the use of digital payments, it does not automatically foster a strong intention to use them.

Perceived Behavioral Control positively effect on Intention

This study found that perceived behavioral control positively affects the intention to use e-wallets, Ashour (2023) and Usman (2025) also found a similar relationship. When individuals have confidence in their ability, convenience, and control in using digital payment services, their tendency to adopt the technology becomes stronger. This suggests that confidence in one's abilities and the availability of resources are important factors in encouraging usage intentions. These results show that the stronger an individual's perception of rational and practical benefits, the higher the perceived level of control, which ultimately strengthens the intention to use. Thus, perceived behavioral control reflects not only technical ability, but also logical evaluation of the advantages of e-wallets.

Financial Literacy positively and significantly effect on Digital Payment E-wallet Usage Behavior through Intention



In this indirect analysis, it is shown that intention positively and significantly mediates the relationship between financial literacy and e-wallet digital payment usage behavior. This is consistent with Peiris (2021) findings, which demonstrate that intention, together with financial literacy, mediates financial management behavior, indicating that individuals with good financial literacy tend to form intentions aligned with positive financial behavior. This research suggests that financial literacy does not directly affect behavior; rather, it must first form intention. Therefore, intention serves as the primary psychological mediator linking financial literacy and digital payment usage behavior.

Subjective Norms do not positively and significantly effect on Digital Payment E-wallet Usage Behavior through Intention

In this study, intention does not mediate the relationship between subjective norms and digital payment usage behavior. Usman (2025) also reported similar results, stating that social pressure or encouragement is not always followed by the formation of a strong intention. These findings indicate that intention does not mediate this relationship. This condition suggests that the influence of subjective norms tends to be direct and contextual without going through a deep stage of intention formation, especially in the use of e-wallets among students. The findings show that the indicator for recommendations from the social environment has the lowest weight in forming subjective norms. This indicates that suggestions or encouragement from the surrounding environment are not the main factors influencing students, either in forming intention or in encouraging usage behavior. The low contribution of this indicator strengthens the view that explicit social influences, such as recommendations, are less effective than implicit influences such as habits or trends. Thus, subjective norms play a more direct role in behavior in situational contexts, without significant mediation by intention.

Perceived Behavioral Control positively and significantly effect on Digital Payment E-wallet Usage Behavior through Intention

Intention acts as mediator in the relationship between perceived behavioral control and digital payment usage behavior positively and significantly. Usman (2025) also highlighted that individuals with high perceived behavioral control tend to have strong intentions to use digital payments, which is then translated into actual behavior. This mediating role shows that perceived behavioral control can influence usage behavior both directly and through the formation of intention. An individual's logical orientation strengthens the formation of intention as an intermediary between perceived behavioral control and actual behavior. In other words, when individuals view e-wallet use as a practical and beneficial choice, they become more confident in their skills and control, which increases their intention to use and ultimately translates into actual behavior. Thus, this indicator confirms that a rational approach plays an important role in strengthening the indirect relationship between perceived behavioral control and usage behavior through intention.

E. CONCLUSION AND SUGGESTIONS

Conclusion

Based on the study findings suggest that the adoption of digital payment e-wallets among university students in Semarang City is significantly influenced by subjective norms, perceived behavioral control, and intention. Intention is the strongest predictor of digital payment usage behavior, in line with the Theory of Planned Behavior (TPB). Financial literacy does not have a direct effect on e-wallet usage behavior but does contribute indirectly by shaping intention. Perceived behavioral control influences behavior both directly and indirectly through intention. Conversely, subjective norms do not have a significant impact on intention, nor do they do so through the mediation pathway. These findings also emphasize that internal factors, particularly intention and perceived behavioral control, are more influential in determining e-wallet usage behavior than social pressure. Meanwhile, non-significant variables, such as financial literacy in behavior and subjective norms in intention, suggest that financial

knowledge or social encouragement does not always directly drive actions or intentions, but rather requires intermediary factors including perceived benefits and self-control.

This limitation of this study is, first, the data were collected via online questionnaires that relied on respondents' perceptions, which may introduce subjective bias and inaccurately depict actual behavior. Second, the study object is limited to university students in Semarang, so the findings cannot yet be widely generalized to other community groups. Third, this study uses only TPB constructs, omitting other variables such as trust, risk perception, security, and technological factors that may also influence e-wallet usage. In addition, the research limitations include the inability to control for respondents' honesty and the possibility of differing interpretations of each questionnaire statement.

Suggestions

Based on these result and limitations, several recommendations can be proposed. For e-wallet users, especially university students, it is expected that they will increase awareness of using e-wallets wisely, while still considering financial literacy aspects such as expense management and financial planning, so that e-wallet use is not only driven by convenience and trends, but also by sound financial considerations. In addition, students are expected not only to follow social norms but also to prioritize rational considerations when using digital payment technology. For service providers and policymakers, it is recommended to focus more on improving perceptions of ease, benefits, and user control, as these factors have proven to be more influential than social pressure. Strategies such as improving user-friendly features, enhancing transaction security, and offering relevant promotions can increase intention and sustain e-wallet usage. Recommendations for future research include expanding the study object to different regions or community groups to obtain more representative results. Next, future research may further develop the model by incorporating additional variables such as trust, risk perception, and security, as well as the influence of technology and digital promotions. Finally, future study is expected to use mixed methods or longitudinal data to develop a deeper understanding of e-wallet usage behavior over time. Thus, the sustainability of research is expected to provide a deeper insight into the determinants of digital payment adoption.

BIBLIOGRAPHY

- Affandi, Y., Ridhwan, M. M., Trinugroho, I., & Hermawan Adiwibowo, D. (2024). Digital adoption, business performance, and financial literacy in ultra-micro, micro, and small enterprises in Indonesia. *Research in International Business and Finance*, 70, 102376. <https://doi.org/https://doi.org/10.1016/j.ribaf.2024.102376>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/https://doi.org/10.1016/0749-5978(91)90020-T)
- Ashour, M. L., Allan, M. S., & Al-Adayleh, M. M. (2023). Consumer Adoption of e-Payment Services Using the Theory of Planned Behavior. In S. G. Yaseen (Ed.), *Cutting-Edge Business Technologies in the Big Data Era* (pp. 417–425). Springer Nature Switzerland.
- Averill, J. R. (1973). Personal control over aversive stimuli and its relationship to stress. *Psychological Bulletin*, 80(4), 286.
- Baker, E. W., & Hubona, G. S. (2007). The effects of gender and age on new technology implementation in a developing country Testing the theory of planned behavior (TPB). January. <https://doi.org/10.1108/09593840710839798>
- Berlianawati, D. I., & Ridhawati, R. (2025). Exploring The Mind of Gen Z : Deciphering E-wallet Adoption Through The Lens of TPB Theory. 19(1). <https://doi.org/10.24843/JIAB.2024.v19.i01.p09>



- Bermeo-Giraldo, M. C., Valencia-Arias, A., Palacios-Moya, L., & Valencia, J. (2023). Adoption of Fintech Services in Young Students : Empirical Approach from a Developing Country. 1–19.
- BPS. (2025). Number of Universities, Lecturers, and Students (State and Private) Under the Ministry of Research, Technology and Higher Education/Ministry of Education and Culture by Regency/City in Central Java Province. <https://jateng.bps.go.id/id/statistics>
- Chanafaro, M. K., & Sari, L. P. (2024). Determinants of Digital Payment Usage Decisions: The Role of Intention as a Mediator of Digital Payment Financial Literacy. 14(1), 133–148. <https://doi.org/10.14414/jbb.v14i1.4993>
- Esawe, A. T. (2026). Understanding mobile e-wallet consumers ' intentions and user behavior. 26(3), 363–384. <https://doi.org/10.1108/SJME-05-2022-0105>
- Evans, J. R., & Mathur, A. (2025). The value of online surveys : a look back and a look ahead. December. <https://doi.org/10.1108/IntR-03-2018-0089>
- GoodStats. (2025). E-Wallets Will Be the Preferred Digital Payment Method by 2025. <https://data.goodstats.id/statistic/e-wallet-jadi-metode-pembayaran-digital-favorit-2025-V6gYH>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM) Third Edition (3rd ed.). Sage Publications Sage CA: Thousand Oaks, CA.
- Iqbal, Z., Rao, Z.-U. R., Akram, M., & Ahmad, M. (2025). Bridging the gap : how knowledge sharing , individual values , financial literacy and incentives drive digital payment adoption in Pakistan. <https://doi.org/10.1108/SAJBS-06-2024-0253>
- Khan, W. A., & Abideen, Z. U. (2023). Effects of behavioural intention on usage behaviour of digital wallet : the mediating role of perceived risk and moderating role of perceived service quality and perceived trust. *Future Business Journal*, 9(1), 1–15. <https://doi.org/10.1186/s43093-023-00242-z>
- Kurniawan, R., Udayana, I. B. N., & Maharani, B. D. S. (2021). The Effect Of Privacy Perception And Security Perception On Customer Loyalty With Trust As An Intervening Variables In Zalora E-Commerce (A Case Study of Zalora Users in Yogyakarta City). 2021(2), 550–562.
- Mishra, D., Agarwal, N., & Sharahiley, S. (2024). Digital Financial Literacy and Its Impact on Financial Decision-Making of Women : Evidence from India.
- Musa, H., Hayati, N., Ahmad, B., & Nor, A. M. (2024). Extending the Theory of Planned Behavior in financial inclusion participation model – evidence from an emerging economy Extending the Theory of Planned Behavior in financial inclusion participation model – evidence from an emerging economy. *Cogent Economics & Finance*, 12(1). <https://doi.org/10.1080/23322039.2024.2306536>
- Nugroho, A., Najib, M., & Simanjuntak, M. (2018). Factors Affecting Consumer Interest In Electronic Money Usage With Theory Of Planned Behavior (TPB). 03(01), 15–27.
- Nur, T. (2024). Generation Z's Adoption of E-Wallet: Understanding factors and Implication for Consumptive Behavior. 245–250. <https://doi.org/10.1109/ICoSEIT60086.2024.10497467>
- OECD. (2018). PISA 2018 Assessment and Analytical Framework.
- OJK. (2025). Joint Press Release: Financial Literacy and Inclusion Index Increases, OJK and BPS Announce Results of the 2025 National Financial Literacy and Inclusion Survey (SNLIK). <https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/OJK-dan-BPS->

Umumkan-Hasil-Survei-Nasional-Literasi-Dan-Inklusi-Kuangan-SNLIK-Tahun-2025.aspx

- Pandey, V., & Kushwaha, G. S. (2025). Transforming rural economies : a study on adoption of digital payments by rural women in India. <https://doi.org/10.1108/JSTPM-01-2025-0015>
- Peiris, T. U. I. (2021). Effect of Financial Literacy on Individual Savings Behavior; the Mediation Role of Intention to Saving. 6(5), 94–99.
- Populix. (2025). QRIS Becomes a Favorite Digital Choice: How Do Gen Z and Millennials Transact? <https://info.populix.co/articles/penggunaan-qris-jadi-pilihan-digital-favorit/>
- Prabandari, S. P., & Sholihah, P. I. (2014). The influence of theory of planned behavior and entrepreneurship education towards entrepreneurial intention. 17(3), 385–392. <https://doi.org/10.14414/jebav.14.1703008>
- Purnamasari, E., Astuti, R. D., Wahyuni, S., Supaya, S., & Putri, A. (2024). Analysis Of The Influence Of Financial Literacy , Risk Perceptions , And Lifestyle On Transaction Decisions Through Fintech Payment Paylater On Students In The City Of Semarang. 03(01), 77–87.
- Puspita, E., & Solikah, M. (2022). Factors Influencing Interest in Using E-money among the Millennial Generation. 21(1), 29–41. <https://doi.org/10.29303/aksioma.v21i1.154>
- Raditya, M. Z., Fronita, M., Saputra, E., Studi, P., Informasi, S., Islam, U., Sultan, N., Riau, S. K., Baru, S., Pekanbaru, K., Behavior, A. T., & Norm, S. (2025). Analysis of E - Wallet User Behavior among Generation Z using the Theory of Planned Behavior Method User Behavior Analysis of E - Wallet Usage among Generation Z using the Theory of Planned Behavior. 14, 1838–1850.
- Rahmiati, R., Mazumder, A. H., & Ahmed, R. (2024). The eMoney revolution : how culture and technology drive adoption and use ? <https://doi.org/10.1108/JSTPM-05-2024-0192>
- Shuhaiber, A., Al-Omouh, K. S., & Alsmadi, A. A. (2023). Investigating trust and perceived value in cryptocurrencies: do optimism, FinTech literacy and perceived financial and security risks matter? *Kybernetes*, 54(1), 330–357. <https://doi.org/10.1108/K-03-2023-0435>
- Soleha, E., Keuangan, M., Bangsa, U. P., & Barat, J. (2023). Analysis of the Influence of Financial Literacy, Ease of Use and Lifestyle on Generation Z's Interest in Using Digital Wallets (Go-Pay). 7(1), 36–48. <https://doi.org/10.29408/jpek.v7i1.12295>
- Swiecka, B., Terefenko, P., Wiśniewski, T., & Xiao, J. (2021). Consumer Financial Knowledge and Cashless Payment Behavior for Sustainable Development in Poland. 1–18.
- Taherdoost, H. (2019). What Is the Best Response Scale for Survey and Questionnaire Design ; Review of Different Lengths of Rating Scale / Attitude Scale / Likert Scale. 8(1), 1–10.
- Terry, D. J., & O’Leary, J. E. (1995). The theory of planned behaviour: The effects of perceived behavioural control and self-efficacy. *British Journal of Social Psychology*, 34(2), 199–220.
- Usman, B., Rianto, H., & Aujirapongpan, S. (2025). International Journal of Information Digital payment adoption : A revisit on the theory of planned behavior among the young generation. *International Journal of Information Management Data Insights*, 5(1), 100319. <https://doi.org/10.1016/j.jjime.2025.100319>
- Utomo, R. G., Yasirandi, R., & Suwastika, N. A. (2024). Adoption Dynamics of Digital Payments : An Urban Case Study on E-Money Using the Technology Acceptance Model. 567–581.



- Zaidan, H., Shishan, F., Al-hasan, M., Mowafi, H. A.-M. and O., & Dahiyat, S. E. (2024). Cash or cash-less ? Exploring the determinants of continuous intention to use e-wallets : the moderating role of environmental knowledge. January 2026. <https://doi.org/10.1108/CR-11-2023-0279>
- Zakaria, F., Nuswantoro, U. D., Panjaitan, R., Nuswantoro, U. D., Nuswantoro, U. D., Online, P., & Kunci, K. (2025). The Influence of Generation Z's Decision on Online Loans: The Role of Ease of Use as Moderation. 8(2), 822–829.