

Adoption of E-Wallets among Students: Trust and Social Influence in E-Commerce

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Abstract. *E-commerce introduces the e-wallet payment transaction system as an innovation that offers convenience and security for consumers in purchasing goods and services online. This research explores the influence of trust in social environments in fostering the intention of students in Central Java, Indonesia, to use e-wallets, utilizing technology theories such as the Technology Acceptance Model (TAM). A quantitative study was conducted through an online survey among students. Purposive sampling was employed as the sampling technique, and data were analyzed using the Partial Least Squares (PLS) approach within Structural Equation Modeling (SEM) analysis. The study found that the factors of trust and social influence significantly impact the intention to use e-wallets, with trust even playing a supportive role in fostering this intention alongside other factors. These findings will assist service providers in enhancing e-wallet services with new innovations tailored to user needs.*

Keywords: *E-commerce, E-wallet, Trust, Social Influence, Students.*

INTRODUCTION

The business value of digitalization doesn't just involve integrating new digital technologies into the current infrastructure but, conversely, demonstrates how these new technologies can be used to transform business processes and create business value (Rachinger et al. 2019). Digital marketing enables the expansion of business promotion and the increased sales of products (Suranto et al. 2022). Digitalization also empowers users to control their consumption habits. Users increasingly integrate digital and analog information, social interactions, and consumption circles (Andersson, Laurin, and Rosenqvist 2018). In the research by (Hagberg and Jonsson 2022) it is illustrated that digital platforms enable businesses to break free from traditional practices and conduct business transactions through digital channels such as online marketing, app stores, e-commerce, online purchases, and smartphones (Ismail 2022).

Consumer perspective lies at the core of e-commerce relationships, and as franchisees are directly involved in running their businesses and interacting with their customers, they are in the best position to understand their customers' needs (Kremez et al. 2019). As stated in the research by (Chiu and Cho 2019) the introduction of innovative technology can attract younger consumers and influence their decision-making processes. The younger generation today

has a consumer-oriented lifestyle (Sari et al. 2020), with a strong inclination towards risk-taking, experimentation, and innovation in unique products and services (Senarathna et al. 2009).

Various technology-backed products and services have enabled individuals to track their payment records with a single click (Sarmah 2021). Mismanagement of finances can lead to financial problems (Titik Ulfatun 2016). By implementing proper financial management practices, one is expected to derive maximum benefits from their money (Sari 2018). E-wallets can be seen as an extension of mobile banking and mobile money as they allow users to store personal information (Okonkwo et al. 2023). Privacy policies refer to wireless operator regulations designed to safeguard customers' personal information and sensitive transactional content gathered during mobile transactions from unauthorized reading, copying, and disclosure (Bibb and Kourdi 2004). Secure transactions might not exhibit the preventive actions taken, and highly insecure transactions can mislead customers about superior security measures. There's a gender. It's crucial to establish a relationship between security measures and trust in the mobile context (Shin 2009). Secure transactions begin by establishing the identities of both customers and sellers involved, enabling verification by both parties (Misra and Wickamasinghe 2004). If behavioral

trust diminishes post-adoption, the role of social influence might be crucial in driving initial adoption and subsequent continued use (Yang et al. 2012).

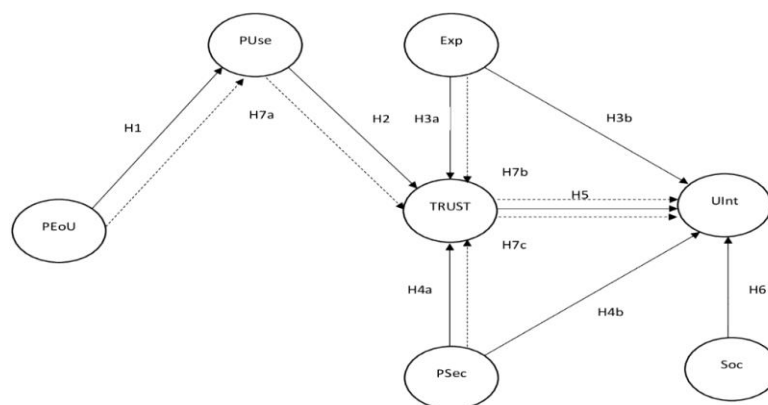
The novelty of this research highlights the student population in Central Java, Indonesia, known for their consumptive behavior and continual interaction with the developments in e-wallet technology, drawing from studies by (Mater et al. 2021), (Shaw 2014), and (Singh, Sinha, and Liébana-Cabanillas 2020). Using the TAM (Technology Acceptance Model) framework, this study aims to identify the crucial roles of Trust and Social Influence in determining the attitudes and intentions of students regarding the adoption of e-wallet technology in the field of e-commerce. As e-wallets become increasingly integrated into daily life and influenced by the social environment, understanding how trust in the social context influences the intention to use electronic wallets will be a significant contribution. The researchers adopted the trust variable from the study by (Chawla and Joshi 2020) and social influence from (Aydin and Burnaz 2016).

This study aims to explore the impact of trust and social environment on students in Central Java, Indonesia, regarding their intention to use e-wallets in everyday life within the realm of e-commerce. The study's population comprises students with experience in using e-wallets in the province of Central Java. The researchers selected Central Java due to the consumptive behavior of its students in e-commerce transactions (Lorenza and Lestari 2023). These findings will aid service providers in enhancing e-wallet services through innovative adaptations tailored to user needs.

METHOD

Data collection and sampling technique

This research employs a quantitative method with multivariable analysis. The variables include exogenous variables: PEoU (Perceived Ease of Use), PUse (Perceived Usefulness), Exp (Experience), PSec (Perceived Security), Trust, Soc (Social Influence), and endogenous variable: UInt (Use Intention). There are mediation variables consisting of PUse (Perceived Usefulness) and Trust. Soc (Social Influence) variable acts as a moderating factor. The population in this study comprises college students in the Central Java Province. Data collection method involves an online questionnaire using Google Form. The sampling technique used is Purposive sampling, where the selection is based on specific considerations or criteria. The criteria include college students using Electronic Wallets (such as Tapcash, LinkAja, GO-PAY, ShopeePay, OVO, DANA, i.saku) residing in the Central Java Province. The following hypothesis is used: H1. The direct influence of Perceived Ease of Use on Perceived Usefulness; H2. The direct influence of Perceived Usefulness on Trust; H3a. The direct influence of Experience on Trust; H3b. The direct influence of Experience on Use Intention; H3c. The direct influence of Experience on Use Intention; H4a. The direct influence of Perceived Security on Trust; H4b. The direct influence of Perceived Security on Use Intention; H5. The direct influence of Trust on Use Intention; H6. The direct influence of Social Influence on Use Intention; H7a. The influence of Perceived Usefulness on the influence of Perceived Ease of Use on Trust; H7b. The influence of Trust on the influence of Experience on Use Intention; and H7c. The influence of Trust on the influence of Perceived Security on Use Intention



Source: processed data

Figure 1

Research framework adoption of e-wallet

Item measurement

The data used in this study are primary data. All instruments utilized to measure constructs in this research were adopted from previously validated instruments. Section A includes questions related to demographic details such as domicile and types of e-wallet platforms. Meanwhile, Section B consists of 4 to 5 point Likert scale measurement statements ranging from 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly Agree). Despite e-wallets being a part of e-commerce services aimed at facilitating consumer transactions, there are still consumers who opt for direct payments despite the convenience offered. This study adopts the TAM to measure perceived benefits, emphasizing the perceived trust of users in their environment. TAM is based on the Theory of Reasoned Action and suggests that tendencies and subjective norms regarding an activity influence

behavioral intentions, which in turn affect how one engages in that activity (Sarmah 2021).

The determination of the sample size utilizes the Lemeshow Formula, with a minimum required sample size of 100 respondents. The reason for using the Lemeshow Formula is due to the unknown total population of e-wallet users among college students in the Central Java Province. There are no identification issues with the small sample size. Achieving a high level of statistical power with a small sample size, however, a larger sample size enhances the precision (consistency) of PLS-SEM estimation (Edeh, Lo, and Khojasteh 2023). The respondent profile can be seen in Table 1. Based on the collected data, the majority of respondents are students from the Muhammadiyah University of Surakarta and reside in the Sragen Regency. All respondents have experience in using e-wallets, and various e-wallet applications are used, with ShopeePay being the most commonly used e-wallet.

Table 1
Demographic Information (N=200)

Variable	Frequency	%
University		
Politeknik Indonusa Surakarta	1	0,5
UIN Raden Mas Said Surakarta	31	15,5
Universitas 'Aisyiyah Surakarta	2	1,0
Universitas Diponegoro	1	0,5
Universitas Duta Bangsa Surakarta	6	3,0
Universitas Islam Batik Surakarta	8	4,0
Universitas Islam Negeri Salatiga	10	5,0
Universitas Jenderal Soedirman	2	1,0
Universitas Muhammad Adi Krisnanto	1	0,5
Universitas Muhammadiyah Purworejo	12	6,0
Universitas Muhammadiyah Semarang	20	10,0
Universitas Muhammadiyah Surakarta	77	38,5
Universitas Negeri Semarang	5	2,5
Universitas Sebelas Maret	10	5,0
Universitas Slamet Riyadi Surakarta	11	5,5
Universitas Teknologi Yogyakarta	1	0,5
Universitas Terbuka Surakarta	2	1,0
Domicile		
Blora	4	2,0
Boyolali	11	5,5
Cilacap	2	1,0
Grobogan	1	0,5
Karanganyar	7	3,5
Kartasura	3	1,5
Kebumen	4	2,0
Klaten	10	5,0
Pati	1	0,5
Pekalongan	4	2,0
Purwokerto	3	1,5
Purworejo	12	6,0
Rembang	1	0,5
Salatiga	8	4,0
Semarang	19	9,5
Solo	6	3,0
Sragen	47	23,5
Sukoharjo	13	6,5

Surakarta	41	20,5
Tegal	2	1,0
Wonogiri	1	0,5
Type of e-wallet		
DANA	28	14,0
GO-PAY	29	14,5
i.saku	10	5,0
LinkAja	26	13,0
OVO	24	12,0
ShopeePay	74	37,0
Tapcash	9	4,5

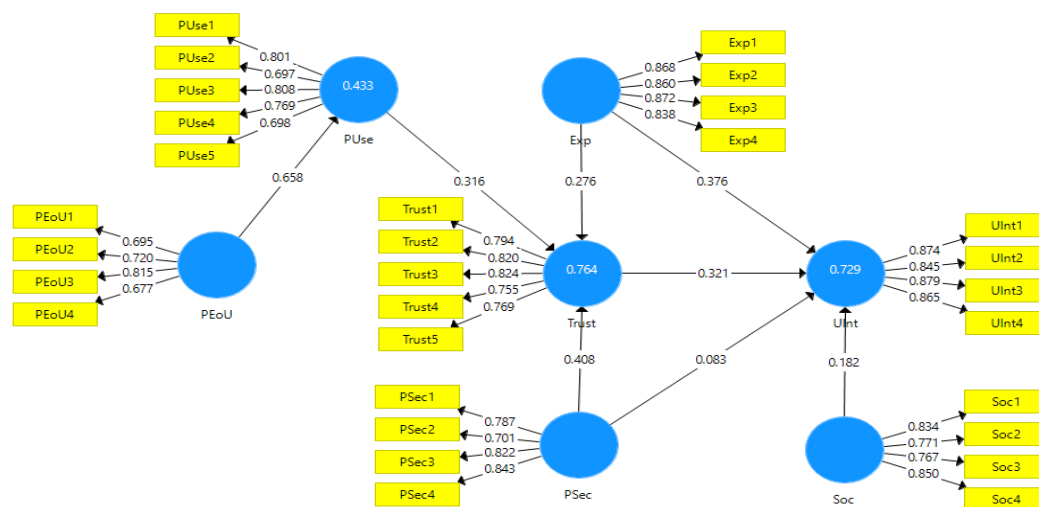
Source: processed data

RESULTS

In this research, the sample size is adjusted according to the analytical model used, namely the Partial Least Squares (PLS) approach in Structural Equation Modeling (SEM) analysis. PLS-SEM is a multivariate statistical method that allows for the simultaneous evaluation of multiple variables within a model (Lutfi et al. 2020). The fit assessment in PLS-SEM, akin to OLS regression, emphasizes how closely the predicted values of the dependent variable match the observed values. Therefore, PLS-SEM is focused on prediction (Sun, Ji, and Ye 2018).

Evaluation Of The Measurement Model

The measurement model in this study comprises a reflective measurement model where the variables Perceived Ease of Use, Perceived Usefulness, Experience, Perceived Security, Trust, Social Influence, and Use Intention are measured reflectively. The evaluation of the reflective measurement model consists of loading factors ≥ 0.60 , composite reliability ≥ 0.70 , Cronbach's alpha ≥ 0.70 , and average variance extracted (AVE) ≥ 0.50 (Hair et al. 2018). Additionally, discriminant validity assessment involves Fornell and Larcker criteria below 0.90.



Source: processed data

Figure 2
Path Coefficient dan P-Value

To examine the validity of the constructed model, validity parameters such as convergent validity (CV) and discriminant validity (DV) are employed. Convergent validity is assessed using the average extracted variance (AVE) with constituent values greater than 0.50. As observed in Table 2, the results indicate that all constructs surpass the minimum threshold for

CV. Moving to discriminant validity (DV), here, the AVE value for a specific construct must exceed the inter-construct correlations. Table 3 illustrates that all construct values are higher than the squared correlations among all construct scales. Consequently, we can conclude that discriminant validity is adequate for all configurations.

Table 2
Results of Model Constructs

Constructs	Item Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Perceived Ease of Use (PEoU)		0,704	0,819	0,531
PEoU1	0,695			
PEoU2	0,720			
PEoU3	0,815			
PEoU4	0,677			
Perceived Usefulness (Puse)		0,812	0,869	0,572
PUse1	0,801			
PUse2	0,697			
PUse3	0,808			
PUse4	0,769			
PUse5	0,698			
Experience (Exp)		0,882	0,919	0,739
Exp1	0,868			
Exp2	0,860			
Exp3	0,872			
Exp4	0,838			
Perceived Security (Psec)		0,800	0,869	0,625
PSec1	0,787			
PSec2	0,701			
PSec3	0,822			
PSec4	0,843			
Trust		0,852	0,894	0,629
Trust1	0,794			
Trust2	0,820			
Trust3	0,824			
Trust4	0,755			
Trust5	0,769			
Social Influence (Soc)		0,820	0,881	0,650
Soc1	0,834			
Soc2	0,771			
Soc3	0,767			
Soc4	0,850			
Use Intention (UInt)		0,889	0,923	0,750
UInt1	0,874			
UInt2	0,845			
UInt3	0,879			
UInt4	0,865			

Source: processed data

Table 3
Discriminant Validity of Constructs

Variables	Exp	PEoU	PSec	PUse	Soc	Trust	UInt
Discriminant Validity: Fornell-Larcker Criterion							
Exp	0,860						
PEoU	0,521	0,729					
PSec	0,640	0,561	0,790				
PUse	0,672	0,658	0,620	0,756			
Soc	0,630	0,329	0,597	0,514	0,806		
Trust	0,750	0,576	0,781	0,755	0,660	0,793	
UInt	0,785	0,511	0,683	0,666	0,681	0,788	0,866

Source: processed data

Structural Model Evaluation

The evaluation of the structural model pertains to testing the hypotheses concerning the influence among research variables. The assessment of the structural model involves examining the significance between variables with path coefficients, where a P-Value < 0.05 and statistically significant T-statistics usually have an absolute value > 1.96. The direct

influence of variables at the structural level is assessed by the effect size measured using f-square (f-square 0.02 low, 0.15 moderate, and 0.35 high). The overall evaluation includes R-squared (0.19 low influence, 0.33 moderate influence, and 0.66 high influence), with Q-square above 0.

Based on the hypothesis testing results in Table 4, it can be observed that all influences

among variables are accepted with values above the minimum except for the direct influence of Perceived Security (P_{Sec}) on Use Intention (U_{Int}) which is rejected, indicated by the Path Coefficient (0.083), P-Value (0.294 > 0.05), and T-Statistics (1.051 < 1.96). The coefficient of determination (R²) is utilized to assess the

model's explanatory power. R² represents the variance in the endogenous construct explained by all relevant exogenous constructs (Daragmeh, Lentner, and Sági 2021). Table 5 shows that the exogenous constructs can interpret the variance in the dependent variables, signifying a high explanatory power.

Table 4
Hypothesis and Path Coefficients Significance Testing Results

Hypothesis	Path Coefficient	P Value	T Statistics	Test results/ Sig?
Direct influence				
Exp -> Trust	0,276	0,000	5,224	Yes
Exp -> U _{Int}	0,376	0,000	4,340	Yes
PEoU -> P _{Use}	0,658	0,000	13,687	Yes
P _{Sec} -> Trust	0,408	0,000	6,769	Yes
P _{Sec} -> U _{Int}	0,083	0,294	1,051	No
P _{Use} -> Trust	0,316	0,000	5,473	Yes
Soc -> U _{Int}	0,182	0,015	2,440	Yes
Trust -> U _{Int}	0,321	0,000	3,725	Yes
Indirect influence				
PEoU -> P _{Use} -> Trust	0,208	0,000	5,129	Yes
Exp -> Trust -> U _{Int}	0,089	0,001	3,265	Yes
P _{Sec} -> Trust -> U _{Int}	0,131	0,002	3,186	Yes

Source: processed data

Table 5
Explanatory Power

Predictor(S)	Outcome(S)	R Square	f Square	Q Square
PEoU	P _{Use}	0,433	0,763	0,242
Exp			0,151	
P _{Sec}	Trust	0,764	0,369	0,471
P _{Use}			0,206	
Exp			0,210	
P _{Sec}	U _{Int}	0,729	0,010	0,534
Soc			0,063	
Trust			0,103	

Source: processed data

The research findings indicate that the intention to use e-wallets is directly determined by trust factors and social environmental factors. This might stem from the sensitive nature of financial transactions conducted through electronic channels (Daragmeh, Lentner, and Sági 2021). Therefore, positive reviews are influenced by the community's trust in the service benefits, their reliability in the service, and their commitment to it. All these elements must be present as their interaction can contribute to a greater positive intention through word-of-mouth (van Tonder et al. 2018). These research outcomes support and also provide alternatives to previous findings. Earlier studies affirm that trust factors and environmental influences determine consumer decisions to use e-wallets ((Huaman-Ramirez and Merunka

2019); (Fan et al. 2018); (Chemingui and Lallouna 2013)). In the context of this study, trust factors and social environmental factors significantly influence consumer intentions to use e-wallets. Additionally, trust factors can act as mediators for other factors, and social environmental factors can influence the intention to use e-wallets without the assistance of other factors.

The intriguing finding of this research is that the emergence of the intention to use e-wallets doesn't rely solely on Perceived Security; rather, there must be a sense of trust first to foster the intention to use e-wallets. This trust becomes a mediating variable in determining the influence between Perceived Security and Use Intention. Addressing complaints and perceived security are crucial factors in determining the

usage of payment systems (Kumar, Adlakaha, and Mukherjee 2018), In reality, the intention to use e-wallets isn't solely based on security perceptions. E-wallet platform providers can establish policies that instill trust to encourage starting or continuing the use of e-wallets in daily life. Factors influencing the belief that using a specific service will enhance performance and directly impact trust in that service (Purwanto and Susanto 2018).

The research findings, utilizing SmartPLS Mediation, reveal that mediation occurs when a third mediator variable intervenes between two other related constructs. Specifically, changes in exogenous constructs cause changes in the mediator variable, which in turn cause changes in endogenous constructs in the PLS path model. Therefore, the mediator variable determines the nature of the relationship between two constructs (the underlying mechanism or process)- Mediation - SmartPLS. (2023). Besides being a mediating variable for perceived security affecting use intention, trust also acts as a mediator for experience affecting use intention. Even though experience alone influences the intention to use e-wallets, trust in that experience also impacts the intention to use e-wallets. Trust can stem from friends and family, and its influence strength is influenced by the number of referrals (Handarkho 2021). Quality becomes a key factor in driving consumers to use mobile payment apps and ultimately enhances user experience (Ramadan and Aita 2018).. Apart from trust, Perceived Usefulness is another mediating variable for perceived ease of use affecting trust.

The study unveils another interesting finding. Apart from indirect influences identified through SmartPLS Mediation, there are direct influences that determine the intention to use e-wallets. The perceived ease of use variable significantly impacts perceived usefulness. The e-wallet's utility in providing transactional ease anywhere generates perceived benefits for users in their daily lives. The transition from Perceived Ease of Use to Perceived Usefulness is highly impactful (Dong et al. 2017). When perceived ease of use influences perceived usefulness, the latter, in turn, significantly influences trust. Once users experience the utility in their daily activities, it can enhance trust in e-wallet services as a genuine innovation that simplifies transactions. This is contingent upon consumers' awareness and understanding of payment assurances. The perceptions of

usefulness and trust are moderated by knowledge belief (Chaouali et al. 2019).

Students' decision to use e-wallets isn't solely based on perceived security; it must meet the threshold of trust in using e-wallets. If students have developed trust—whether from Perceived Usefulness, Experience, or Perceived Security—they will decide to use e-wallets. Additionally, trust can act as an intermediary for students to use e-wallets based on personal experience or recommendations from trusted individuals. Lastly, Perceived Usefulness can act as an intermediary for students to trust in using e-wallets obtained from perceived ease of use. Service providers can enhance platforms to instill a sense of security in users, foster trust among users, and generate positive intentions to use e-wallets. Mobile payment providers shape their ecosystem based on innovative activities within the mobile payment platform and services offered in tandem (Peter Ayeni, Peter Ball 2010). This doesn't only pertain to the platform itself but extends to the service provided to users.

CONCLUSIONS

The study aimed to explore the influence of trust and social environments on students' intention to use e-wallets in their daily lives. Students' decisions to adopt e-wallets aren't solely based on their perceptions of security; it's also tied to their trust in using these platforms. Factors such as perceived benefits, experiences, and perceived security can affect the decision to adopt e-wallets. The research also concludes that trust acts as a mediator influencing e-wallet usage based on users' personal experiences or those of their close contacts. Furthermore, social influence can directly impact the intention to use e-wallets. Service providers play a crucial role in boosting user confidence by enhancing secure electronic wallet platforms, fostering positive intentions among users to adopt e-wallets. Mobile payment providers also shape an ecosystem based on the innovation of platforms and services they offer to users.

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