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The Intention to use E-Wallets of Students from Universities in Hanoi: A Study Based on Technology Acceptance Model (TAM)

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Abstract

This study investigates the factors affecting the intention to use e-wallets based on the Technology Acceptance Model (TAM) by adding the risk perception factor in the electronic context of students' Universities in Hanoi. By examining the influence of product-related factors, perceived risk had a negative effect, and perceived benefit and ease of use positively affected the intention to use e-wallets of the

subjects. The study was carried out in Hanoi, with the subjects being university students in the form of direct interviews. Survey results were collected and processed with the support of SPSS 22.0 software through data cleaning, descriptive statistics analysis, Cronbach Alpha reliability analysis, EFA factor analysis, and analysis correlation to see the relationship between the elements in the model.

Keywords: Intention, E-Wallet, TAM, Students, Hanoi

JEL Code: G41, G41, M15

1. Introduction

The growth of the digital economy has led to the introduction of electronic payment systems as a new form of payment for transactions (Flavián *et al.*, 2020, Teng and Khong, 2021)^[9, 26]. In electronic payment systems, E-wallets that allow individuals to link their bank cards to digital wallets to make payments have attracted great attention (Karim *et al.*, 2020)^[16]. The benefits such as convenience, time savings, and cost savings provided by e-wallets have prompted many countries to implement e-wallets as part of their daily transaction payment options (Abbasi *et al.*, 2022, Hassan and Shukur, 2021)^[1, 12].

E-wallets have brought about a tectonic shift in traditional banking by providing users with convenient and cost-effective payment services (Karim *et al.*, 2020)^[16]. Due to the constant growth of digital commerce, many businesses have seen a significant change in their business models, and the adoption of E-wallets has received considerable attention from academics (Senali *et al.*, 2023)^[24]. In addition to the inherent benefits of e-wallets, high internet and mobile penetration rates make e-wallets an important payment method. The benefits such as convenience, time savings, and cost savings provided by e-wallets have prompted many countries to implement e-wallets as part of their daily transaction payment options (Abbasi *et al.*, 2022)^[1]. However, although governments have invested heavily in e-wallets, the penetration rate of e-wallets in many countries is low (Karim *et al.*, 2020)^[16]. Therefore, it is necessary to identify the factors determining the use of e-wallets. This study aims to explain which factors influence the decision to use E-wallets for the target group of students from universities in Hanoi.

2. Literature Review

Electronic Wallet (E-Wallet)

An electronic wallet (E-wallet) is a convenient means of payment by any electronic means, such as a computer, laptop, or mobile phone, and is also known as a mobile wallet or digital wallet (Singh *et al.*, 2020)^[25]. An e-wallet is an application-based technology that allows users to make payments, receive and transfer funds, and top up via their mobile devices, purchasing instead of a physical wallet. Its functions are similar to that of a credit or debit card, and its requirement is to be linked to an individual's bank account to make payments. The advantage of e-wallets providing value services defeats the purpose of traditional wallets carrying lots of cards and cash. It allows users to use their mobile phones to manipulate their bank accounts, store valuables in the account linked to their mobile phone, transfer money, or even near credit or hazardous product insurance (Pertiwi *et al.*, 2020, Donner and Tellez, 2008)^[21, 7].

Review of research papers on intention to use (IU) innovative technologies based mainly on Unified Technology Use and Acceptance Theory (UTAUT), Innovation Dissemination Theory (DOI), and received innovative pervasive modeling (TAM)

Technology (Junadi^a, 2015, Bommer *et al.*, 2022, Singh *et al.*, 2020) [14, 3, 25]. Among these theories, TAM is the most commonly used that has shown high power in explaining individual IU technologies (Venkatesh and Davis, 2000) [28]. Perceived benefits and perceived ease of use are found to have a positive influence on users' intention to use or accept technology (Davis, 1989b) [6].

However, besides the two factors, perceived benefits and perceived ease of use, previous studies have all appreciated the importance of security in the context of E-wallets (Karim *et al.*, 2020) [16]. In this study, security was also considered a potential driver of intention to continue. Security issues arise when customers are aware of risks in online payments by e-wallets through linking with bank accounts. Furthermore, Abbasi *et al.* (2022) [11] finds that risk is considered the most important determinant for the adoption of mobile payment systems. If risk concerns are not addressed, individuals will be immune to using payment systems (Patel, 2016) [20]. Therefore, this study expands the explanatory power of TAM in e-wallets by adding a risk perception factor based on the recommendations of the studies (Jung *et al.*, 2020, Kaur *et al.*, 2020) [15, 17].

Perceived usefulness (PU)

Perceived usefulness is "the degree to which a person believes that using a particular system will improve his or her job performance" (Davis, 1989b) [6]. In this study, PU measures individuals' beliefs about the extent to which e-wallets make payments more efficiently. PU is considered one of the important precursors of technology usage, related to the pragmatic values that a given technology or system provides to individuals (Kaur *et al.*, 2020) [17]. Abdul-Halim *et al.* (2022) [2] and Ramli and Hamzah (2021) [22] found that PU positively influences new technologies of E-wallets. Furthermore, Che Nawi *et al.* (2022) [4] and Singh *et al.* (2020) [25] indicated that PU is one of the main factors affecting smartphone electronic payment services. Thus, E-wallets allow individuals to make transactions at their own convenient time. Accordingly, this study proposes.

Hypothesis 1 (H1): PU positively affects the intention to use e-wallets

Perceived ease of use (PEOU)

Perceived ease of use (PEOU) is the degree to which users expect to use the system easily. Perceived ease of use refers to the extent to which consumers perceive they can benefit from the ease of control, ease of use, and flexibility in the use of technology (Davis, 1989a) [5]. Extensive research has found a positive association between PEOU and online payments (Senali *et al.*, 2023, Esawe, 2022) [24, 8]. Accordingly, it is expected that there will be a positive association between PEOU and the intention of using e-wallets, and the study suggested:

Hypothesis 2 (H2): PEOU positively affects the intention to use e-wallets

Perceived Risks

While it is recognized that usefulness (PU) and ease of use (PEOU), which are the two core concepts of the TAM model, play an important role in the adoption of new technology, the TAM model needs to be openly expanded by adding contextual elements (Lim *et al.*, 2022, Pertiwi *et*

al., 2020) [18, 21]. Studies on mobile banking, online banking, e-commerce, and mobile payments have found that risk perception is considered an important contextual determinant of the adoption of these systems (Jung *et al.*, 2020, Senali *et al.*, 2023) [15, 24].

Perceived risk refers to the user's perception of the extent to which the use of technology can cause loss due to fraud or hacking (Teoh Teng Tenk *et al.*, 2020) [27]. Ming *et al.* (2020) [19] found risk to be the main barrier to adopting internet-based systems. There is a positive association between perceived risk and resistance to adopting new technologies (Hoang and Le, 2020) [13]. Kaur *et al.* (2020) [17] report that online customers often know that digital payment platforms are insecure and can be disrupted. As online trading systems can be hacked by attackers (Rusbianti and Canggi, 2023) [23] and individuals have no direct interaction with service providers, perceived security risks can play an important role in the online environment (Teng and Khong, 2021) [26]. Jung *et al.* (2020), Singh *et al.* (2020) [15, 25] found a negative association between perceived risk and the use of e-wallets. Senali *et al.* (2023) [24] found that security risk is considered the primary determinant of the intention of using e-wallets. Therefore, this study proposes the following:

Hypothesis 3 (H3): Risk perception negatively affects the intention to use e-wallets

3. Methodology

This study aims to collect quantitative data to test hypotheses. Tests are generated from TAM theories to demonstrate relationships between specific variables (perceived usefulness, perceived ease of use, risk perception, and intention).

The survey was conducted online with 250 students in Hanoi. However, after the survey, the results obtained only 248 questionnaires met the requirements. The questionnaire was designed based on the theories introduced in the literature review. All items used included 14 observed variables applied from the validated scales of (Davis, 1989a) [5]. Data was collected through the survey, processed with SPSS 22.0 software, coded and cleaned, then analyzed.

Research Model

Based on the literature review, the conceptual model research framework of this study is depicted in figure 1.

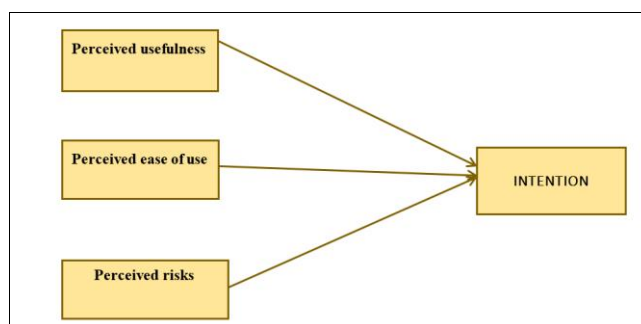


Fig 1: Research Model

4. Results

Descriptive Analysis

From the descriptive analysis, we can see that:

Genders: The results showed that 186 male and 62 female participants responded to the questionnaire. The number of

women is higher because the survey respondents are mainly students of universities in the economic, socio-cultural, and law sectors.

Age: Because the survey subjects are mainly university students, the age ranges from 18 to 23 years old. This group of respondents is sensitive to technology and likes to use technology. Therefore, the survey results of these objects will be typical for the intention to use e-wallets of current users.

Cronbach’s Alpha-Reliability

In order to conduct the reliability test, Cronbach’s Alpha is used as the most popular and effective tool in SPSS analysis (Hair *et al.*, 2010) [11]. In this research, the Cronbach’s Alpha test is applied for one dependent variable and two independent variables. Table 1 demonstrates the result of Cronbach’s Alpha test. Hair *et al.* (2010) [11] also note that the Cronbach’s Alpha result should be equal to or higher than 0.7 (≥ 0.7) to be reliable enough for research. The Cronbach’s Alpha results in table 2 all meet these standard requirements, which means that every item in the questionnaire has a good level of reliability and can be accepted to use for this research.

Table 1: Cronbach’s Alpha Analysis

Variables and coding	Cronbach’s Alpha	Mean	No. of items
Perceived usefulness (PU)	0.781	2.544	3
Perceived ease of use (PEOU)	0.844	2.617	4
Perceived risks (PR)	0.853	3.087	3
Intention (INT)	0.813	2.517	4

Factor Analysis

George and Mallery (2016) [10] emphasize that one of the most crucial steps when analysing data with SPSS is Exploratory Factor Analysis (EFA), which identifies the correlation among observed variables and examine the validity of the set of items.

KMO and Barlett’s Test

In this research, the KMO and Barlett’s Test for independent variables is conducted as the result is illustrated in the Table 3. As shown, the KMO value is 0.824 ($0.5 < 0.824 < 1$) and the sig. value is 0.000 (< 0.05), that means these values satisfied the conditions in the study (Hair *et al.*, 2010) [11]. In addition, after implementing the rotation matrix, we got the followings: every determinant with factor load > 0.5 , Eigenvalues is $1.323 > 1$, and the Variance explained = 72.182 %. It demonstrates that the factor analysis of the research data is appropriate.

Table 2: KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.824
Bartlett’s Test of Sphericity	Approx. Chi-Square	1113.472
	Df	45
	Sig.	0.000
Total variance Explained		72.182
Total Eigenvalues		1.323

Correlations

The results of Pearson correlation analysis showed a close linear correlation between the model’s dependent and independent variables (Hair *et al.*, 2010) [11]. The results

show that these variables all have correlation coefficients with statistical significance. In which, perceived benefits and perceived ease of use are quite closely correlated with users’ intention to use e-wallets, shown by Pearson’s coefficient of 0.604 and 0.438 (sig.000), respectively. Perceived benefits are stronger than perceived ease of use. Meanwhile, risk perception has a negative effect on intention with a correlation coefficient of (-0.341). Detail results are shown in the following table:

Table 3: The results of correlations

		PU	PEOU	PR	INTENT
PU	Pearson Correlation	1	.438	-.341	.604
	Sig. (2-tailed)		.000	.000	.000
	N	248	248	248	248
PEOU	Pearson Correlation	.438	1	-.378	.568
	Sig. (2-tailed)	.000		.000	.000
	N	248	248	248	248
PR	Pearson Correlation	-.341	-.378	1	-.564
	Sig. (2-tailed)	.000	.000		.000
	N	248	248	248	248
INTENT	Pearson Correlation	.604	.568	-.564	1
	Sig. (2-tailed)	.000	.000	.000	
	N	248	248	248	248

** . Correlation is significant at the 0.01 level (2-tailed)

5. Discussion

The research results show that the intention to use e-wallets for students of universities in Hanoi city is the most affected by the usefulness perception strongly and then the perceived ease of use. This result can be explained by the fact that the subjects are all young and agricultural with the help of mobile devices and technology, so using e-wallets is not a technical problem. However, the benefits that they perceive are motivation to encourage them to use e-wallets. Therefore, platforms and applications that use e-wallet linkage should offer utilities that encourage users through sales promotions or special offers for this payment method, such as free shipping or vouchers to buy another product when using the E- wallets. In addition, this is a group of young users; most are still dependents, so the financial situation could not be better than full-time workers, so the platforms and applications could create discounts and reduce the price directly of the product will attract more users. In addition, agreeing with previous studies, this study shows that risk perception is the main barrier limiting users’ intention to use e-wallets. They perceive safety and security risks in secure passwords when linking to bank accounts (Teng and Khong, 2021, Teoh Teng Tenk *et al.*, 2020) [26, 27]. Therefore, the platforms and applications should focus on improving infrastructure technology and technical solutions to increase security and commitments to customers to ensure reliability and safety for users.

6. Conclusion

Although the TAM model (Davis, 1989a) [5] has been widely used in previous studies on technology adoption and online

financial services, studies specific to specific target groups to understand their behavior are still limited. This study confirms that applying the TAM model is still meaningful when considering students' opinions on determining the use of e-wallets in Hanoi. However, this study only uses the factors of the TAM model with two main factors and additional risk perception. Further studies can develop other factors according to the theme proposed by the extended TAM model (Esawe, 2022)^[8] to understand the intention to use e-wallets in the future.

7. References

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