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# Determinants of students' intention to use e-wallet in Hanoi - A PLS-SEM analysis

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**Abstract:** E-wallet is a cutting-edge payment method that fosters cashless transactions and supports the expansion of the digital economy. Hanoi plans to become a digital city and achieve 50% of electrical payments by 2025. Understanding the intention to use e-wallets is crucial for promoting e-payment. This paper explores a hybrid theory of behaviour, including the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Theory of Planned Behaviour (TPB) to examine the factors influencing undergraduate students' intention to use e-wallets. Using survey data on 363 students from 12 higher education institutions in Hanoi and the Partial Least Square Structural Equation Model (PLS-SEM) technique, the research findings indicate eight factors influencing students' behavioural intention toward e-wallets in Hanoi: attitude, cost of e-payment, facilitating conditions, service quality, credibility, ease of use, usefulness, and social influence. Due to its multitude of factors, the proposed model offers high explanatory power. The results suggest implications to help Hanoi boost e-payment and digital transformation.

*Keywords:* E-wallet, intention to use, behavioural theory, PLS-SEM.

## 1. Introduction

The fourth industrial revolution, brought on by technological advancement, has altered how people interact and communicate; affecting distribution channels and the sales network, particularly regarding online transactions and payments. In the past decade, e-commerce led to

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an explosion of electronic payment forms (Bui, 2021). Among them, e-wallets are a type of cutting-edge payment method that encourages cashless transactions and promotes the overall growth of the digital economy.

E-wallet is a mobile application allowing users to make virtual cash transactions. E-wallets keep money or store information on payment cards and bank accounts on mobile devices to replace cash and physical wallets. E-wallets play an essential role in today's commerce owing to their benefits, such as convenience, cost-effectiveness, and safety (Kapoor et al., 2022). Users can easily access many services such as savings, insurance or booking movie tickets, restaurants, travel and payment for groceries, and education, among other things. These utilities bring convenience to consumers and assist the central bank in managing cash flow efficiently. For these reasons, e-wallets are becoming more and more popular.

Vietnam ranks third in the percentage of mobile payment users after China and South Korea, accounting for 29.1% of the population (Statista, 2020). Research by VISA - the world's leading electronic payment technology company in 2022 - shows an apparent change in payment habits: 65% of Vietnamese consumers carry less cash in their wallets, and nearly 76% of current consumers use e-wallets (Ha, 2022).

There have been several studies providing theoretical frameworks to analyse and evaluate the factors affecting the intention to use new technology, such as the TPB (Ajzen, 1991), the TAM (Davis et al., 1989) and the UTAUT (Venkatesh et al., 2003). This study aims at testing if the behaviour related to digital transition follows such theories in the case of Vietnam by proposing a hybrid behaviour model. The research also seeks to understand the determinants of the intention to use e-wallets in Hanoi to aid financial technology businesses in attracting users and helping Hanoi administrators accelerate the digital transformation process.

As described by the Diffusion of Innovation Theory (Rogers, 2010), undergraduate students are often Early Adopters, who get excited over the prospect of trying new and unique things, and Early Majorities, who adopt new ideas well before the average person and they tend to become loyalists (Rogers, 2010). Therefore, this study focuses on undergraduate students in the urban areas of Hanoi for efficient policy recommendations. The PLS-SEM technique is applied for data analysis.

## 2. Research method

### *2.1. Proposed research framework and hypothesis development*

Our proposed framework combines several behaviour theories relating to the use of technology, including the TAM, UTATU, TPB and other literature (T. N. Q. Nguyen & Pham, 2021; Yuan et al., 2020), deepening the existing theories, redefining determinants, introducing some variables, and learning the importance of each (Figure 1).

The TAM (Davis et al., 1989) explains the factors affecting the acceptance of using a technological product. Perceived usefulness and perceived ease of use are the two most important determinants of the actual use of technology. These two factors are influenced by external variables (Kustono et al., 2020).

The UTAUT (Venkatesh et al., 2003) has some advantages compared to other models (Yu, 2012). The model aims to provide a comprehensive insight into all the factors influencing behavioural intentions toward new technology. The UTAUT states four core determinants of acceptance and use: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. External factors such as gender, age, voluntariness, and experience modulate the intention-to-use behaviour. Yu (2012) argues that UTAUT has a high explanatory power due to its numerous factors

The TPB (Ajzen, 1991) indicates that an individual's behaviour is determined by behavioural intention, which depends on attitude to behaviour, subjective norm, and perceived behavioural control, which depends on perceived facilitation and control belief.

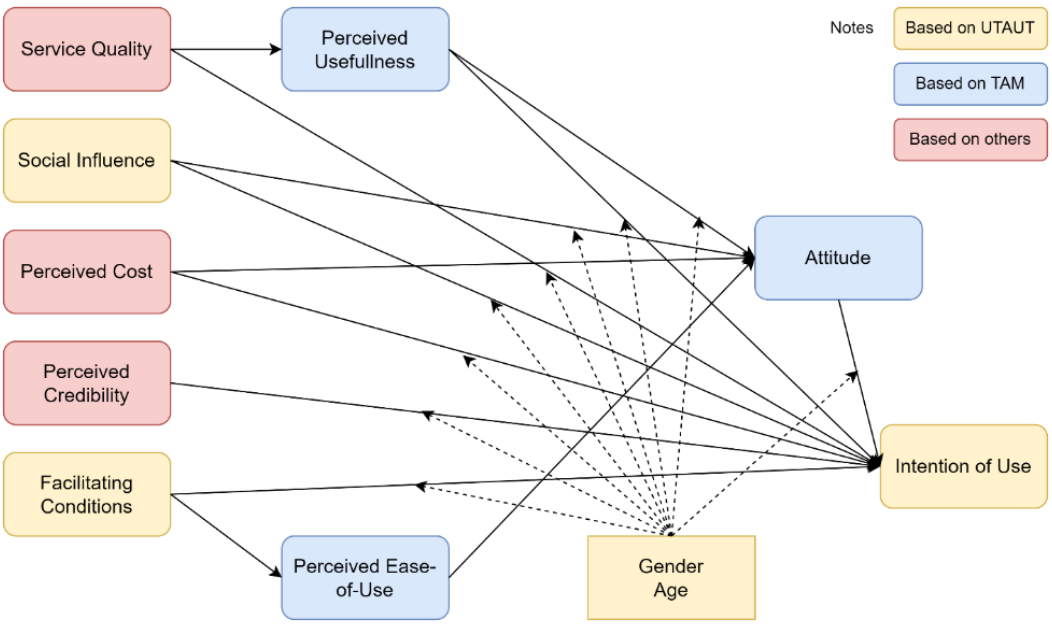


Figure 1: Proposed research framework
*Source*: Proposed by the authors.

Behavioural intention refers to a person's relative strength of desire to carry out a specific action (Venkatesh et al., 2003). In this research, behavioural intention is mentioned as the Intention of Use, which refers to a person's intention or willingness to use e-wallets in the future.

Perceived Usefulness is defined as the consumer's assessment of the benefit of an application. It also includes time convenience, performance expectations, and transaction control. According to the TAM, perceived usefulness positively impacts the intention to use e-wallets (Tran, 2018). However, Kustono et al. (2020) find that perceived usefulness has little effect on using e-wallets among students. Therefore, this study will test if "Perceived Usefulness positively impacts the Intention to Use e-wallets."

Perceived Ease-of-Use is the degree to which an individual believes using a particular system will be effortless (Davis et al., 1989). Ease of use is perceived when consumers feel the electronic payment system is not difficult to download, make settings, learn and use. Regarding e-wallet payment, an easy-to-use application should have friendly interfaces, clear and conspicuous steps, appropriate content and graphical layout, useful functions, and notifications of errors. Innovative technology systems perceived as easier to use and less complex are more likely to be accepted and used by potential users (Pham et al., 2021). So, the second hypothesis is that "Perceived Ease-of-Use positively impacts the Intention to Use e-wallets".

Attitude is defined as an individual's positive or negative feelings about the performance of a goal behaviour (Davis et al., 1989). The TAM and TPB indicate the mediating impact of attitude toward behavioural intention (Ajzen, 1991). When consumers have a positive attitude about the benefits of online payment, they find the use of e-wallets to be wise and valuable, which leads to their decision to use e-wallets (Tran, 2018). Studies have also confirmed the mediating role of attitude toward behavioural intention to use technology products (Gao & Yee, 2022). This study will test if

"Attitude has positive mediating roles toward the Intention to Use e-wallets".

According to the UTAUT theory, Social Influence describes how much other family members, co-workers, and members of the community impact customers' decisions to accept and use mobile payment systems (Venkatesh et al., 2003). In the TPB theory, social influence is considered a subjective norm that impacts attitude (Ajzen, 1991). Social influence positively and directly affects customers' intention to use mobile payment services (Koenig-Lewis et al., 2014). However, Yeh and Tseng (2017) show that social influence does not impact Taiwanese students' intention to use mobile payment services. The subsequent hypothesis is that "Social Influence influences attitude and intention to use e-wallets".

Facilitating Conditions refer to the degree to which an individual believes that technical and organizational infrastructure assist them in using technology (Venkatesh et al., 2003). Facilitating conditions relate to consumers' perceptions of resources and available support in using e-wallets (Bui, 2021). The UTAUT theory indicates that facilitating conditions influence the perceived ease of use. Gao and Yee (2022) suggest facilitating conditions affect usage attitude and intention. Hence, the hypothesis to be tested is "Facilitating conditions influence the perceived ease of use, attitude and intention to use e-wallets".

Perceived Credibility relates to the safety and security of information of automatic payment services. Bui (2021) argues that perceived credibility depends on the application's reliability and security. The more reliable and secure a technology system is, the more assured users will be to use the technology (Nguyen & Pham, 2021). The following hypothesis is "Perceived credibility impacts the intention to use e-wallets".

Perceived Cost includes registration fees, service, transaction, cashback promotion, and vouchers. The perceived costs of online transactions often arise from information asymmetries, and investment in mobile devices can hinder consumer engagement (Nguyen & Pham, 2021). If the use of e-wallets does not cause a cost burden on customers and is not expensive, then perceived costs are said to influence customer attitudes positively. So, the subsequent hypothesis is "Perceived costs influence attitude and intention to use e-wallets".

Service Quality is formed by technical awareness, how to handle arising errors and transaction time. Nguyen and Huynh (2017) explain that service quality is the service provider's customer support. Yuan et al. (2020) indicate service quality is a significant factor as the lack of user support will be one of the first reasons customers abandon the service. This study will test if "Service Quality impacts on perceived usefulness, attitude, and intention to use e-wallets".

In addition, the UTAUT model identifies gender and age as moderating factors affecting behavioural intention (Venkatesh et al., 2003). Chawla and Joshi (2020) confirm the mediating role of gender and age in the choice to use e-wallets. This study will seek the moderating impact of gender and cohort, which is a proxy of age, on the intention of use.

The Structural Equation Model is widely used in behavioural research (Gao & Yee, 2022). This paper applies the PLS-SEM for data analysis to explore the appropriateness of the proposed research framework. Since the factors influencing behavioural intention cannot be measured directly, several observed variables are employed to identify them.

### *2.2. Measurement of factors*

Based on the research framework and previous studies, the measuring factors will be reflected in the observed variables listed in Table 1.

All variables are expressed in complete statements and require respondents to confirm their agreement on a Likert-5 scale (1. Strongly Disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly Agree).

A survey questionnaire is designed to be filled on paper, or Google Forms with pre-designed answer boxes, making the respondents' responses faster and more convenient. The questionnaire also asks for personal data like gender, cohort, and studying majors.

Table 1: Reflective observed variables of factors

| Code | Factors/Observed variables | References |
|---|---|---|
| PU | Perceived usefulness | Kustono et al. (2020) |
| PU1 | Not necessary to carry a lot of cash. | Nguyen and Huynh (2017) |
| PU2 | Saves time. | Nguyen and Huynh (2017) |
| PU3 | Manage and control online payment transactions. | Tran (2018) |
| PU4 | Improve work efficiency. | Author's recommendation |
| PEU | Perceived ease of use | Davis et al. (1989) |
| PEU1 | Easy-to-use e-wallets. | Tran (2018) |
| PEU2 | Easy to learn how to use an e-wallet. | Author's recommendation |
| PEU3 | Operations on the e-wallets are straightforward and easy to understand. | Tran (2018) |
| PEU4 | E-wallets interact flexibly. | Tran (2018) |
| PEU5 | Easy to download and install the e-wallet application on any smartphone. | Author's recommendation |
| PEU6 | Simple requirements to participate in e-wallet promotions. | Ta (2022) |
| SQ | Service quality | Kustono et al. (2020), Yuan et al. (2020) |
| SQ1 | Thoroughly solve errors and not affect the user's experience. | Author's recommendation |
| SQ2 | Get better service quality. | Author's recommendation |
| SQ3 | E-wallet payment service works well technically. | Nguyen and Huynh (2017) |
| SQ4 | E-wallet payment process is error-free. | Author's recommendation |
| PC | Perceived cost | Gao and Yee (2022) |
| PC1 | No extra charge (i.e., fee registration, no service fee, etc.). | Cha et al. (2021) |
| PC2 | Use e-wallets in a "cashback" promotion. | Cha et al. (2021) |
| PC3 | Use an e-wallet with an e-voucher (e.g., get a free delivery voucher). | Cha et al. (2021) |
| PC4 | Not expensive cost of using the e-wallet. | Author's recommendation |
| PCR | Perceived credibility | Kustono et al. (2020), Tran (2018) |
| PCR1 | Personal information is kept private. | Author's recommendation |
| PCR2 | Secure transactions. | Bui (2021) |
| PCR3 | E-wallet application helps customers in any case. | Author's recommendation |
| PCR4 | Available advanced forms of security against account intrusion. | Author's recommendation |
| PCR5 | Provide many forms of account recovery in the event of account theft. | Author's recommendation |
| PCR6 | Thoroughly and accurately reflect transaction information. | Author's recommendation |
| SI | Social influence | Bui (2021), Venkatesh et al. (2003) |
| I1 | Because family members use them. | Tran (2018), Cha et al. (2021) |
| SI2 | Because my friends use them. | Tran (2018), Cha et al. (2021) |
| SI3 | Because it is a social trend. | Author's recommendation |
| SI4 | Because organizations support electronic payment. | Bui (2021) |
| SI5 | To be in line with current trends. | Author's recommendation |
| FC | Facilitating conditions | Venkatesh et al. (2003), Ta (2022) |
| FC1 | Stability of internet availability supports e-wallets. | Cha et al. (2021) |
| FC2 | All smartphones can support electronic payment. | Cha et al. (2021) |

| Code | Factors/Observed variables | References |
|---|---|---|
| FC3 | Available e-wallet payment methods from sellers. | Author's recommendation |
| FC4 | E-wallets can be used everywhere. | Author's recommendation |
| AT | Attitude | Gao and Yee (2022); Kustono et al. (2020) |
| ATT1 | Enjoy using e-wallets. | Tran (2018) |
| ATT2 | Using an e-wallet is a wise decision. | Tran (2018) |
| ATT3 | Feel comfortable using e-wallets. | Tran (2018) |
| ATT4 | Sense of excitement. | Author's recommendation |
| IU | Intention to use | Venkatesh et al. (2003) |
| IU1 | Plan to continue using an e-wallet. | Venkatesh et al. (2003) |
| IU2 | Willing to use e-wallets in my daily life. | Venkatesh et al. (2003) |
| IU3 | Recommend the e-wallet to friends and colleagues. | Venkatesh et al. (2003) |
| IU4 | Plan to use e-wallets often. | Venkatesh et al. (2003) |

*Source*: Compilation by the authors

*2.3. Sampling and survey implementation*

Since PLS-SEM is a non-parameter analysis, there is no threshold for the minimum number of observations in the data sample (Sarstedt et al., 2021). In the covariance-based SEM, the sample size must be at least five times the number of observed variables (Hair Jr et al., 2017). This study has 42 observed variables, so at least N = 5 x 42 = 210 observations are needed for CB-SEM. According to Hair Jr et al. (2017), PLS-SEM achieves more statistical power than CB-SEM in all sample sizes, especially smaller ones. Therefore, the sample size of 210 observations would be enough for a statistically significant PLS-SEM analysis, although a large size sample will produce more precise statistical results.

Hanoi has 101 higher education institutions, including 93 public and 18 private ones. Twelve universities, accounting for 11.8% of the total number of higher education institutions, were chosen for the study, including ten public universities (11.9%) and two private ones (11.1%). The survey tried to include universities with various majors to ensure the student population's representativeness. About 30-40 students in each university were approached for paper-based and online interviews.

The survey was implemented in February 2023 and got 371 responses. After data cleaning, 363 observations without missing data points were left for PLS-SEM analysis, including 219 responses from face-to-face interviews and 144 online forms. The data description is shown in Table 2.

Table 2: Data sample

| Description | | N | % |
|---|---|---|---|
| Institutions | Public | 294 | 81.0 |
| | Private | 69 | 19.0 |
| Gender | Female | 191 | 52.6 |
| | Male | 172 | 47.4 |
| Cohort | 1st year | 114 | 31.4 |
| | 2nd year | 104 | 28.7 |
| | 3rd year | 111 | 30.6 |
| | 4th and 5th year | 35 | 9.7 |
| | Total | 363 | 100 |

*Source*: Data from field survey.

The survey tried to maintain equal shares of students regarding gender and cohort. There are 52.8% of female students in the final sample. According to statistics from the Ministry of Education and Training (2021), the male-to-female ratio of university students in Hanoi is about 1:1.25; about 55% of students are female, and 45% are male. The gender ratio of the sample is close to the student population's ratio, indicating that the sample is representative in terms of gender.

The data sample has an equal percentage of students in different cohorts, in which the 1st year cohort accounts for 31.2%, 2nd year 28.5% and 3rd year 30.7%. As there are often fewer students in their last year of study on campuses, the proportion of the 4th and 5th year cohorts is 9.7%, which is appropriate. These figures also confirm that the sample is representative in terms of cohort.

## 3. Research results and discussion

### *3.1. Evaluation of the measurement models*

*Outer loadings*

Since the observed variables are reflective, the reliability of the latent measurements is evaluated using outer loading factors. Outer loading is the square root of $R^2$ in the linear regression from the latent variable to the observed variable. Hair Jr et al. (2020) suggest that the outer loading should be 0.708 or more to ensure the reliability of an observed variable. Since $0.708^2 = 0.5$, an observed variable is reliable if the construct explains at least 50% of its variation.

Using SmartPLS4 software, we exclude the observed variables with outer loading factors lower than 0.708 and obtain the acceptable measurement models where all reliably observed variables have outer loadings of more than 0.708.

*Construct reliability and validity*

Cronbach's Alpha measures the reliability or internal consistency. For reflective measurement models, Hair et al. (2019) state that Cronbach's Alpha should be 0.708 or higher. In the final model, all Cronbach's Alphas are between 0.708 and 0.90, indicating that the constructs are reliable.

Construct reliability is also a measure of internal consistency in scale items, much like Cronbach's Alpha (Netemeyer et al., 2003). It is an indicator of the shared variance among the observed variables (Fornell & Larcker, 1981). In this study, all the Construct Reliabilities are more than 0.708, indicating the appropriateness of the constructs for a PLS-SEM analysis (Hair et al., 2019).

Average Variance Extracted (AVE) is the variance captured by a construct compared to the variance due to measurement error. It is a measure to assess convergent validity. Fornell and Larcker (1981) suggest that a scale is convergent if the AVE is 0.5 or more. In this study, all AVEs exceed the threshold of 0.5, which means the latent variables explain, on average, more than 50% of the variation of each observed variable.

*Discriminant validity*

The constructs have discriminant validity when the square root of AVE is larger than the explained variance of any other latent variable (Fornell & Larcker, 1981). In this study, the absolute values of the square roots of AVEs are greater than any of the correlation coefficients in the columns and rows containing them; the scales are discriminatory. In summary, all the measurement models are reliable and valid; therefore, they are appropriate for the PLS-SEM analysis.

### *3.2. Structural model results*

Using f-squares and p-values from bootstrapping calculations, the final model keeps the significant relationships and excludes the insignificant ones for easy analysis. The path model result is shown in Figure 2. Numbers on the connecting paths and outside the brackets indicate the direct impacts, which are the standardized coefficients of the partial regressions. The figures in brackets are p-values, calculated based on bootstrapping regression of 5000 subsamples. The total effects can be calculated as the sum of direct effects and products of indirect effects. Figures located in the node circles show the R squares of the regression models.

As shown in Figure 2, the model can explain 44.4% of using intention variance and 45.9% in attitude toward e-wallets.

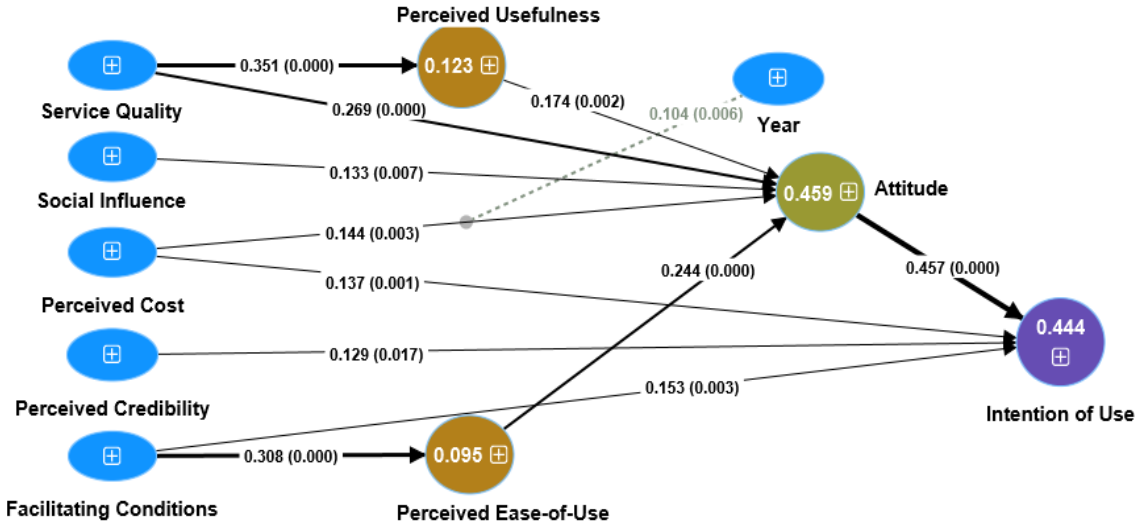


Figure 2: Determinants of students' intention of using e-wallets in Hanoi, PLS-SEM model
*Source*: PLS-SEM 4 graphic results from the survey data.

The influence of attitude on the intention of use is quite considerable; the effects of service quality and facilitating conditions on perceived ease-of-use are medium. Although the size of the direct effects of other relationships is slight, they are statistically significant and collectively affect the attitude and intention of using e-wallets.

The following paragraphs discuss the factors affecting the intention to use mobile payment.

Attitude has a crucial impact on the intention of use, with a direct effect of 0.457, i.e., if the attitude is improved by one standard deviation, the intention of use will increase by 0.457 standard deviations. It is essential to emphasize that since the observed variables are measured in the Likert scale, the standard deviation has little meaning, except for ordering the importance of influence. A larger coefficient indicates a higher impact.

Attitude plays as a mediator between several factors – including perceived ease-of-use, perceived usefulness, service quality, social influence, and perceived costs – and intention of using e-wallets. Among them, service quality and perceived ease-of-use have the highest impacts on attitude, with direct effects of 0.269 and 0.244, respectively. Better service quality also improves perceived usefulness, enhancing attitude toward using e-wallets. The total effect of service quality on attitude is the sum of direct effect (0.269) and the product of indirect effects (0.351*0.174), which is 0.330.

Perceived cost is the second most important factor influencing students' intention to use mobile payment, after attitude, with a direct effect, via the attitude, of 0.137 and a total effect of 0.202. Students tend to use more mobile transactions if using e-wallets is less costly, such as no or little charge and available voucher promotions. In Vietnam, e-wallets appeared in 2008 to facilitate payment between buyers and sellers. After 15 years of development, up to now, there are more than 40 e-wallet applications of different businesses in circulation. Most e-wallets do not require a minimum balance or transaction fee. Besides, users often receive discount vouchers such as phone cards, refunds when paying electricity and water bills, etc. These advantages make e-wallets competitive in terms of cost compared to other payment methods. Similar findings are available in the literature of Vietnam and the world (Cha et al., 2021; Gao & Yee, 2022; Nguyen & Pham, 2021).

Facilitating conditions rank third in influencing students' behavioural intention, directly and indirectly through perceived ease of use and attitude, with a total effect of 0.187. This

result confirms findings from the literature (Bui, 2021; Chawla & Joshi, 2020; Gao & Yee, 2022; Ta, 2022). Students' perceptiveness of facilitating conditions, such as the support of mobile devices and the popularity of e-wallet payment acceptance, are critical factors that lead to better perceived ease-of-use, enhancing positive attitudes and intention of using mobile payment. The popularity of e-wallets in today's social life is not only covered by luxury restaurants and supermarkets but also by small shops, street vendors, and traditional markets. In addition, most smart mobile devices can install e-wallets easily. As of March 2022, Vietnam has 95.5 million smartphone subscribers, an excellent condition for spreading mobile wallets.

Service quality is a characteristic of a system with fast and accurate transactions, solving errors shortly or answering technical problems quickly. It plays the most critical role in perceived usefulness and attitude and ranks fourth among eight factors affecting students' intention to use e-wallets. This result coincides with the findings of several studies (Kustono et al., 2020; Nguyen & Huynh, 2017; Yuan et al., 2020).

Perceived credibility relates to the safety and security of information of automatic payment services, i.e., the privacy policy, transaction security, and support to clients when there is a problem such as an account intrusion, among others. The research result shows that perceived credibility has a direct positive effect on the intention to use e-wallets, confirming findings from various studies (Bui, 2021; Kustono et al., 2020; Tran, 2018). However, perceived credibility's direct effect on the attitude is not statistically significant.

Perceived ease of use positively affects the attitude toward e-wallets, impacting the intention of use. This outcome is consistent with research by numerous other studies in Vietnam (Nguyen & Huynh, 2017; Ta, 2022; Tran, 2018) and other parts of the world (Davis et al., 1989). Users will prioritize using what they feel easy to use. Research results also clarify the specific criteria for ease of use, such as quickly learning how to use e-wallets, straightforward and effortless performance, and flexible interaction with the application.

Perceived usefulness improves the intention to use e-wallets indirectly via attitude. That is, the more valuable the e-wallet, the better the attitude and the intention to use e-wallets. Usefulness is the ability to save time, improve work efficiency, and control online payment transactions. Interestingly, students do not consider "no need to bring cash" a useful function of e-wallets.

Among the eight elements, social influence has the least significant effect on students' desire to use, with a total effect of 0.061. Nonetheless, the impact of social influence has been supported by several international research (Koenig-Lewis et al., 2014; Venkatesh et al., 2003; Yeh & Tseng, 2017) and domestic ones (Bui, 2021; Nguyen & Huynh, 2017; Nguyen & Pham, 2021; Tran, 2018). Social influence affects the attitude toward using an electronic wallet. They are convinced to use e-wallets by their family members, friends, and social trends.

Various models with moderating factors are manipulated to check if students' characteristics, such as gender, age, and studying major, have any direct and moderating impacts on attitude and intention to use e-wallets. The results indicate that gender and majors have neither direct nor moderating effects. Cohort is employed as a proxy for age. The result finds that cohort does not directly impact attitude or behavioural intention but moderates perceived costs' impact. First- and second-year students are more cost-sensitive than the 3$^{rd}$ and 4$^{th}$ year students.

## 4. Implications and conclusion

### *4.1. Policy implications*

Hanoi plans to become a digital city. By 2025, Hanoi hopes to accomplish several specific e-payment-related objectives: non-cash payment values that are 25 times the city's gross domestic product; e-tax payments and returns account for over 98% of tax transactions for businesses; a rise in the proportion of customers

paying their water bills online to 98%; and around 99.7% non-cash payments of electricity bill, tuition, and hospital fees. Hanoi thrives on making non-cash payments a habit of people in urban areas, gradually spilling over to rural areas.

The research results confirm Hanoi's solutions, such as having online trading promotion programs, cashless day events, and cross-border e-commerce seminars.

The government has many supportive policies toward e-payment. Recently, the State Bank of Vietnam has licensed more than 43 non-bank organizations to provide payment services. Nevertheless, Hanoi still faces some challenges that must be solved.

The credibility of e-wallets is still problematic as legal regulation is insufficient. The policies on e-wallet payment have not been legislated. Many forms of e-payment have developed, but the legal corridor is inadequate and not keeping up with market and technology development.

The ease of use is also a problem that needs to be addressed. Currently, e-payment partners, including banks, intermediaries and companies providing electronic payment solutions, have all built their payment equipment systems without appropriate linkage, coordination, and sharing of payment infrastructure with each other. More than 40 e-wallets on the market, but they are not linked. Therefore, although electronic payment in Vietnam is diverse, it has not yet established an interconnected system between electronic payment products and services to provide customer convenience.

Cost is an essential factor influencing the spread of e-wallets. The cooperation between e-wallet service providers, banks, and businesses has recently increased to reduce transaction costs. However, further collaboration is still needed to benefit customers, such as promotions, free vouchers, discounts, etc.

Research results show that social influence is also a factor that positively affects the attitude toward e-wallets of students in Hanoi. Therefore, targeted marketing campaigns for students would be beneficial.

### *4.2. Conclusion*

Through the development of a hybrid model of various theories, including TPB, TAM and UTAUT (Ajzen, 1991; Davis et al., 1989; Venkatesh et al., 2003), this study confirms the appropriateness of the behaviour model relating to intention to use new technology in the case of mobile payment. Due to its multitude of factors, the proposed model offers high explanatory power.

The study identifies eight determinants of students' intention to use e-wallets in Hanoi: e-payment transaction cost and promotions, facilitating conditions, service quality, credibility, ease of use, usefulness, and social influence. These findings are helpful information for implications to help Hanoi boost e-payment and digital transformation.

Although undergraduate students are an ideal group of consumers of e-wallets, further studies are still needed for a larger variety of people will provide results for better solutions to e-payment development in Vietnam in its course of digital transformation.

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