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Relationship between the Factors and Adoption of E-payment Services among UTHM Students

Cheong Hao Sing[1] **& Juzaimi Nasuredin**[1,*]

[1]Department of Technology Management, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, MALAYSIA.

*Corresponding Author

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Abstract: The widespread availability of the internet and the increasing digitisation of payment processes have given rise to various e-payment options, such as credit and debit cards, digital and mobile wallets, electronic currency, and contactless payment ways. However, the need for awareness, security, risk, and trust are among several issues in the adoption of e-payment services. This study aims to answer the research question, which is to identify the level of factors towards adopting E-payment services among UTHM students, to identify the level of E-payment services adoption among UTHM students, and to identify the relationship between factors and adoption of E-payment services. The Unified Theory of Acceptance Use of Technology (UTAUT) framework was used as the variable factors, which were perceived usefulness, perceived ease of use, perceived security, and trust, to measure factors towards adopting E-payment services among UTHM students. This study used an online questionnaire to collect data from respondents. 876 questionnaires were distributed to the respondents, and a total of 275 sets have been returned. Descriptive analysis, central tendencies measurement of the construct, normality test, reliability analysis, and correlation analysis was used and discussed in the quantitative findings. The researcher concluded from the findings that the variables have a significant relationship towards adopting e-payment services. The implications of theoretical and practical of this study found that UTHM students' continuance adopts e-payment services were influenced significantly by all variables from the adoption of e-payment services with using the UTAUT model, and this study may be helpful to cashless service providers as well as entrepreneurs interested in developing e-payment application services in Malaysia.

Keywords: Adoption, E-Payment, Factors, UTAUT model

1. Introduction

The widespread availability of the internet and the increasing digitisation of payment processes have given rise to various e-payment options, such as credit and debit cards, digital and mobile wallets,

*Corresponding author: juzaimi@uthm.edu.my

electronic currency, and contactless payment ways. E-Payments are known as electronic payments for transactions made on the internet and converted into a cashless society today. Under Vision 2020, Malaysia intends to become a cashless society (Yaakop *et al*., 2021). Fatonah *et al*. (2018) defined electronic payment as a system that offers an application for online payments for services or items. E-payment methods include electronic cash like credit and debit card payments, prepaid cards like gift cards, and e-wallet platforms like Touch n' Go, Boost App, and GrabPay (Lam, Lam, & Lee, 2020).

In most cases, these services' expansion depends upon the breadth of their original product network. The network serves as the basis for providing these transaction services (Julianto, Pasek, & Wiguna, 2021). Other than that, E-Commerce is based on E-Payment Systems (EPS) and has become a major part of many businesses' operations (Sarkam *et al*., 2021). Similarly, Khadke (2020) found that E-payments allow organisations, governments, businesses, and individuals to pay for numerous services without using cash. Therefore, e-payment services will influence students who study at local and private universities that commonly use this system to purchase products and services. For example, the goods and services consist of e-payment services, including local public transport, food & beverage, and Grab (Khadke, 2020). The benefits of e-payment provide consumers and businesses with convenience, flexibility, and efficiency (Sujith & Julie, 2017). Therefore, these benefits will influence students' willingness to use e-payment services, and it has convenient that reduces the long queues when going to banks or Automated Teller Machines (ATM).

According to recent data, customers in Malaysia have accepted the e-payment system, and the e-payment system has unquestionably been the driving force behind the departure of the traditional commercial transaction technique (Sarkam *et al*., 2021). Therefore, the ease of use provided by the e-payment system contributes to its growing popularity among vendors and customers in Malaysia. One of the serious cases of the COVID-19 pandemic is that e-payment influences consumers' intention to switch from a cash payment method to a cashless one. Purwandari *et al*. (2022) found that the COVID-19 outbreak impacted user intent to switch from Cash on Delivery to e-payment services in Indonesia. The adoption of e-payment services allows for faster and more convenient transactions while being safe and preventing COVID-19. Students' perceptions of adopting e-payment services will be studied in this research.

Universities are trying to keep up with the rapidly changing technological progress and the use of current technologies in domains such as electronic payment, enabling students to make all payments online (Al-Farawn *et al*., 2020). Numerous studies on adopting the e-payment system have been conducted that assist students in becoming aware of its benefits. However, some students must be aware of and recognise these e-payment benefits. This occurs due to a general lack of awareness and knowledge among individuals (Pai, 2018). Balakrishnan and Shuib (2021) found that digital payment services still need to be widely used in the country, and most of the services are mostly used by younger people. Besides, the biggest problem for the government is that people do not know enough about digital payment and are afraid to use it because they could be hacked (Baghla, 2018). However, Barman (2018) discovered that the main obstacle to the widespread adoption of e-payment systems is a need for more public understanding of the system's applications and disadvantages in rural areas.

Several major issues need to be concerned when using e-payment. Firstly, one of the major issues in early e-payment research concerns security considerations. Barriers will occur when security issues such as fraud cases and data theft affect consumers who use e-payment. One study by Salloum *et al*. (2019) examined that hackers are likely to seek personal and credit card information, which poses a significant risk. Therefore, cyberattacks have a bigger influence on online payment system user adoption.

Furthermore, the other issue that needs concern is the risk considerations when adopting e-payment. Legi and Saerang (2020) found that risk is in close proximity to perceived security and personal privacy. Consumers are still hesitant to do E-payment transactions because they are worried about the system's

security and privacy. Previous research has shown two types of risks commonly occurring when using e-payment services: financial and privacy (Ho, See-To, & Chiu, 2020). Ladkoom and Thanasopon (2018) mentioned that data privacy is a major issue since making online payments often requires disclosing personal information such as ID card number, mobile phone number, credit card number, and email address. This may lead to consumers' unwillingness to the adoption of e-payment. For the financial risk, the risk related to e-payment options will result in financial loss. Financial loss occurs when a customer cannot get a refund, when necessary, reverse the transaction, or stop payment after finding the error (Ranweera, 2019).

Trust is a major issue when adopting e-payment. Many students will likely start using e-payment to buy goods or services through E-commerce, such as Shopee and Lazada. This will also need to build trust between buyers and sellers. Tombe *et al*. (2017) found that the interaction between sellers and buyers in the customer-to-customer (C2C) e-marketplace without face-to-face contact is one of the reasons behind the popularity of cash payments in C2C transactions. As a result, the buyer must trust the seller before proceeding with the purchase. With a lack of confidence between buyers and sellers, most consumers prefer to meet with sellers on the C2C e-marketplace website and make payments (Tombe *et al*., 2017). Antinoja and Scherling (2019) explained that consumers like to choose sociable on, familiar websites, ones they had used before or heard friends recommend as trustworthy since online transactions are based on trust.

Therefore, to achieve the level of factors towards adopting E-payment services among UTHM students and the level of E-payment services adoption among UTHM students are identified. Consequently, the relationship between factors and the adoption of E-payment services is predicted.

This research will focus on UTHM students in Johor, Malaysia, to gather information about the factors towards adopting E-payment services among UTHM students. This research uses the Unified Theory of Acceptance Use of Technology (UTAUT) model and descriptive method to determine the factors towards adopting E-payment services among UTHM students. The respondents in this study came from students who are studying at UTHM and who used E-payment services. The questionnaire will be distributed online via Google forms across numerous social media platforms, including WeChat, WhatsApp, and Telegram, for this research. The collected data will be analysed by using IBM Statistical Package for Social Sciences (SPSS) software.

The importance of the study is that it demonstrates that situational factors, personal attitudes, and knowledge all significantly affect the adoption of e-payment services among students, especially in UTHM. This study will understand their attitudes and purchase behaviour from the factors towards adopting e-payment services. This study will also help obtain awareness, knowledge, and information about adopting e-payment services in higher education. However, this study can help the government, especially the Ministry of Higher Education, design the best strategies to provide more suitable e-payment services and increase the usage of e-payment services among students in higher education.

2. Literature Review

2.1 Introduction

The literature review is a support material that helps researchers find references to other researchers' work. The literature review also overviews current knowledge, enabling the researcher to find related theories, methods, and research needs. This chapter examines previous articles, perspectives, and empirical findings on students' perceptions and adoption of e-payment services. The research information comes from academic articles, journals, theses, and books relevant to the topic of this study. This chapter reviews past studies that support this research.

2.2 E-payment

"Electronic - payment", in short, is known as "e-payment". E-payment was defined more narrowly as payments done by electronic signals directly connected to deposit or credit accounts (Nadler, Chen & Lin, 2019). The e-payment may be described as the network infrastructure (online) and payment mechanisms used to exchange financial value through internet services (Julianto, Pasek, & Wiguna, 2021). According to Husni and Hidayat (2018), e-payment means that payments are made using other physical media that may include nominal money rather than cash or real physical money. Other authors, such as Sarkam *et al*. (2021), define it as a subset of e-commerce that utilises electronic-based systems. This research uses these definitions as the basis for adopting a more comprehensive definition of e-payment as the type of financial transaction between a buyer and a seller that is made possible through electronic communications (Malonda, Tulung, & Arie, 2020).

2.3 Adoption of E-payment services

In the late 1950s, the United States found the idea that an increasingly mobile society is using the non-cash method when paying for products and services (Nadler, Chen & Lin, 2019). Mohamad and Kassim (2018) argue that the cost of exploiting electronic payments is high, but it is significant for adopting or using e-payment services. Nowadays, consumers have accepted and satisfied the e-payment service due to the requirements and design needs (Alkhwaldi & Eshoush, 2022). However, service providers need to examine the impact of clients' demographic traits while developing an effective marketing strategy (Alkhwaldi & Eshoush, 2022).

2.4 Perceived usefulness

Perceived usefulness can be defined as the extent to which an individual believes that using a system will improve his or her job performance (Granić & Marangunić, 2019; Purwanto & Premananto, 2019; Legi & Saerang, 2020; Fahlevi & Alharbi, 2021). A direct correlation exists between perceived usefulness and consumers' attitudes when using e-payment (Isrososiawan, Hurriyati, & Dirgantari, 2019). This usefulness can then get the attention of potential consumers as a new way to do the same thing more effectively and efficiently, which could lead to better productivity and satisfaction (Malonda, Tulung, & Arie, 2020).

Purwanto and Premananto (2019) state that perceived usefulness is a significant variable in users' acceptability of word processing and internet services. Perceived usefulness is valid if the information in the system helps customers a lot in all situations until they fully understand how it works and wants to use e-payment for their daily activities (Malonda, Tulung, & Arie, 2020). Thus, people are more likely to think that technology is useful when they can use it to do a task without any problems (Fahlevi & Alharbi, 2021). For example, previous research indicates that perceived usefulness positively affects e-wallet acceptance among Generation Y in India (Hidayat *et al*., 2021).

2.5 Perceived Ease of use

Perceived ease of use refers to the extent to which a person believes using a system will be free of effort (Uche *et al*., 2021; Purwanto & Premananto, 2019; Hidayat *et al*., 2021). The perceived ease of use indicators is clear and easy to understand (Isrososiawan, Hurriyati, & Dirgantari, 2019). Several indicators may be used to measure the perceived ease of use, including the following: easy to learn, simple to control, easy to understand, flexible, easy to carry out, and easy to use. Other than that, Isrososiawan, Hurriyati, and Dirgantari (2019) conclude that by comparing cash payment systems to third-party e-payment systems, perceived ease of use consists of several factors such as ease of making instalments, simplicity of learning the interface, and ease of getting.

The ease of use has influenced consumers' intention to adopt a technology due to simple learning and developing skills (Hidayat *et al*., 2021). For example, mobile payments in Hong Kong are

significantly related to perceived ease of use (Hidayat *et al*., 2021). Consequently, this attitude will influence the user's behaviour (Fahlevi & Alharbi, 2021).

2.6 Perceived security

Perceived security might be defined as consumers' and individuals' views and beliefs that none of their personal and private data or information would be misused or used for fraudulent objectives (Keni *et al*., 2020). Consumers will satisfy when using e-payment due to the security of e-payment is confidential to protect their information (Malonda, Tulung, & Arie, 2020). Similarly, Yaakop *et al*. (2021) found that consumers expect to keep security confidential for their information when using e-payment because they fear it may be utilised for online fraud. In addition, Hidayat *et al*. (2021) argue that perceived security towards e-payment has brought many benefits to consumers, but they also have some risks, such as security concerns. Customers perceived security as an important factor in their decision to utilise the single-platform e-payment system (Lai, 2017). Additionally, based on the UTAUT model, the researchers concluded that cultural norms and a sense of safety are important factors in whether people in that nation would adopt e-payments (Oyelami, Adebiyi, & Adekunle, 2020). Moreover, these studies found that perceived security has significantly affected consumers' use of e-payment (Keni *et al*., 2020).

2.7 Trust

Trust can be defined as the degree to which a consumer feels that using a mobile service would be free of security and privacy risks (Najib & Fahma, 2020; Yaakop *et al*., 2021). Trust is also called credibility. A person's decision to use an information system depends on how credible they think it is (Legi & Saerang, 2020). The addition of a trust variable is very necessary given that the usage of payment systems accessible through the internet or digital technology is still considered to be fraught with danger due to the high number of instances of fraud, hacker attacks, and other similar occurrences (Najib & Fahma, 2020). Trust also involves reducing the amount of risk one takes while using a system for e-payment services (Yuwono & Sari, 2021).

According to Aggarwal and Rahul (2018), the importance of trust in transactions is shown by the fact that a lack of trust in online businesses is the primary reason why many consumers choose not to purchase online. Yuwono and Sari (2021) concluded that trust is the most important factor for consumers in improving electronic payment services because this factor affects whether consumers want to use electronic payment services. The trust and security of the Mobile Wallet App were the most important factors in determining whether users planned to continue being used (Garrouch, 2021). Trust is another important factor in whether people are willing to use digital payment, especially in e-business (Chao, 2019). Aggarwal and Rahul (2018) concluded that these studies consistently found that the trust variable significantly affected consumers' adopting e-payment services.

2.8 Unified Theory of Acceptance Use of Technology (UTAUT)

The UTAUT is the most effective model for analysing the technology adoption of consumers. As independent variables, there are four constructs that previous researchers used in the UTAUT model, including performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FAC) that impact both behavioural intentions and actual use behaviours. (Mohamad & Kassim, 2018; Alkhwaldi & Eshoush, 2022). These constructs are influenced by gender, age, experience, and voluntariness of use. Several research despite the advances provided by the UTAUT, the current research focuses on perceived usefulness and perceived ease of use as fundamental elements of technology acceptance. Besides that, Junadi and Sfenrianto (2015) recommend adding perceived security as a new element to the UTAUT model for the e-payment adoption system. Besides, the UTAUT model with two extra variables, which are perceived risk and trust, is used to examine customers' perceptions about mobile payment applications since perceived risk and trust are not

included in the UTAUT model, this shows that the user's acceptance model still needs to be modified (Pradibta, 2018).

2.9 Hypothesis Development

Perceived usefulness is the degree to which a person feels that using technology would improve his or her work performance (Hidayat *et al*., 2021). Sausi, Mtebe, and Mbelwa (2021) found that perceived usefulness significantly impacts consumers' satisfaction with using the Government Electronic Payment Gateway (GePG) system. This showed that consumers are more interested in the usefulness of the technology, such as faster and more efficient payment procedures when using mobile payment services (Chuah *et al*., 2021). Tuilan, Pangemanan, and Tielung (2018) highlighted that perceived usefulness is also significant for e-payment transactions are good, and it also considerably improves the effectiveness of transactions and offers all of their payment needs for everyday transactions. Based on the results of previous studies about the relationship between perceived usefulness and adoption of e-payment services, the first hypothesis is formulated:

H1: There is a significant relationship between perceived usefulness and the adoption of e-payment services.

Perceived ease of use was defined as the extent to which a person feels utilising a certain system would be effortless (Granić & Marangunić, 2019). Mohamed *et al*. (2020) found that perceived ease of use is the major important influencing consumer adoption of cashless payment because it is simple to use and understand when using cashless payment. It also gives numerous payment channels facilitating the online purchasing process, and cashless payment has a simple and comprehensible method (Mohamed *et al*., 2020). Babu and Amudha (2014) have stated that the perceived ease of use variable has benefits for the adoption of online payments, such as usability, clarity, interaction, performance, and flexibility, that have a significant relationship with the adoption of online payments. The second hypothesis generated in this study based on the results of these previous researchers is shown in the following:

H2: There is a significant relationship between perceived ease of use and adoption of e-payment services.

Perceived security is "the subjective possibility in the customer's view that his or her personal or financial information will not be displayed, kept, and/or stolen during e-commerce and storage by third parties" (Aggarwal & Rahul, 2018). Wong and Mo (2019) stated that perceived security significantly influences customers' intention to use mobile payment systems. Security is the most influential factor in the desire to use digital payments, the government or seller must take safeguards regarding security (Hanifa & Toolib, 2020). Ayoade and Yusuf (2019) found that perceived security has significantly affected consumer satisfaction with the e-payment system at universities in Nigeria. All previous research provided a basis for this study and generated the third hypothesis, as seen below:

H3: There is a significant relationship between perceived security and the adoption of e-payment services.

Trust in e-payment systems can be defined as a consumer's belief that e-payment transactions will be carried out in accordance with their expectations (Kafley & Chandrasekaran, 2021). Sarika and Vasantha (2018) found that trust significantly influences the actual use of mobile wallets. To and Trinh (2021) determined that service providers must earn and maintain user trust to develop a successful mobile payment app since these apps involve personal or financial information. Liu, Ben, and Zhang (2019) highlighted that trust significantly influences customers' intention to utilise mobile payment. In other words, these factors positively influence consumers' spending patterns and consumption habits. The following shows the fourth hypothesis generated in this study based on the findings of these previous researchers:

H4: There is a significant relationship between trust and the adoption of e-payment services.

2.10 Conceptual Framework

The researchers comprehend the relationship between the variables in their study and the conceptual framework. The problem statement of a thesis offers the study's framework and identifies its resulting problems. This study uses the UTAUT model to identify factors towards adopting e-payment services among UTHM students. This study model includes perceived usefulness, perceived ease of use, perceived security, and trust as independent variables, while adopting e-payment services is the dependent variable.

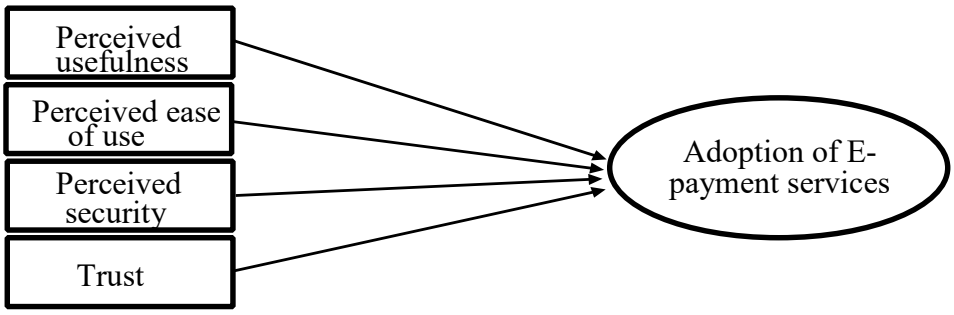

Figure 1: Proposed Conceptual Framework

3. Research Methodology

This study mostly used the quantitative approach as its methodology. This study was conducted in accordance with the methodology described in the research process. This topic will briefly describe the research design, sampling, pilot study, data collection, and other aspects.

3.1 Research Design

The most important step after establishing the research problem is coordinating the design of the research plan, also known as the 'research design'. Researchers may concentrate on the testing way that is suited for the topic matter and set up their research for success thanks to the design (Silva, 2017). This study will use a quantitative approach to collect data using survey approaches.

3.2 Research Sampling

According to Tunner (2020), probability and nonprobability are the two major sampling designs. Probability sampling, by other names, is random sampling. In this study, the sampling design will be based on non-probability sampling, which consists of snowball sampling. The sample size may be increased using a non-random approach called snowball sampling, which employs a few instances to encourage more cases to participate. In this study, the population will consist of undergraduate UTHM students in Batu Pahat who experienced the e-payment techniques. The total population of this study is 11,243 students required from PPA (Pejabat Pengurusan Akademik, 2021) websites. According to Krejcie and Morgan (1970), 370 respondents will be collected for the sample. Therefore, 370 students are the targeted responders, and the surveys will be distributed to UTHM students.

3.3 Data Collection

The data collection method refers to the techniques utilised to obtain relevant data during the study. There are two types of data collection: primary and secondary data. The research questions and hypotheses only use primary data to answer this study. For this study, primary data will be gathered by utilising structured questionnaires in English and distributed through Google Forms. The questionnaire has been distributed via multiple social media platforms, and the secondary data will be collected from published publications, including journals, articles, and theses.

3.4 Reliability and Validity

The accuracy (error-free) is shown by a reliability test, which ensures that the instrument's calculations are correct over time and across a variety of items (Sekaran & Bougie, 2009). External validity and construct validity are the most often utilised and accepted types of validity in business research (Borden & Abbott, 2011).

3.5 Pilot Study

A pilot study or pilot test is conducted to assess the validity and reliability, the time necessary to complete the questions, and the general understanding and analysis of questions by various target populations of the questionnaire. The research indicates that all variables are higher than 0.70. The variables include perceived usefulness, perceived ease of use, perceived security, trust, and adoption of e-payment services. The Cronbach's alpha values for these variables are 0.823, 0.854, 0.900, 0.894, and 0.853, respectively.

Table 1: Cronbach's alpha value for the pilot test

Variable	No. Items	Cronbach's Alpha
Perceived of Usefulness	4	0.823
Perceived Ease of Use	5	0.854
Perceived Security	5	0.900
Trust	5	0.894
Adoption of E-payment services	5	0.853

3.6 Normality test

Normality tests are used to determine whether data collection has been done correctly and to estimate the probability that data will be normally distributed with random variables. Using a normal distribution, the Kolmogorov-Smirnov test (K-S) and the Shapiro-Wilk test (S-W) to determine whether the data is normally distributed. According to this formula, it may be determined that the data is either normal or unnormal depending on whether the P-value is more than or equal to 0.05 (data is normal) or less than 0.05 (data is unnormal).

3.7 Data Analysis

Data analysis is the most important part of the research. Using a statistical tool, it analyses and interprets the raw data collected from the targeted respondents. Data analysis helps researchers in evaluating the importance of the proposed hypothesis. The IBM Statistical Package for Social Sciences (SPSS) software will be used for analysing data after collecting the data and completing the pilot test.

(a) Descriptive analysis

The descriptive analysis will be used to explain the fundamental characteristics of the study's data. They offer simple summaries of the sample and measurements. Descriptive statistics refer to summaries of data that will be used to characterise a demographic survey. The SPSS statistical tool was used to analyse the data gathered from the questionnaire about the perception of the UTHM students towards

adopting E-payment services. The demographics utilised in this study using descriptive analysis based on respondent characteristics such as gender, age, race, faculty, current year of study, and monthly income. In addition, the descriptive analysis assesses the frequency and percentage, the mean and standard deviation of variables used to describe the background variable of the respondent.

(b) Correlation analysis

Correlation analysis is a statistical technique used to assess the strength of the relationship between two quantitative variables (Senthilnathan, 2019). A high correlation indicates that two or more variables are a strong relationship, while a low correlation indicates that the variables are hardly related (Franzese & Luliano, 2019). As a result, scientists often used Pearson and Spearman correlations in their research. This study will utilise correlation analysis to determine the relationship between independent factors (perceived usefulness, perceived ease of use, perceived security, and trust) and the dependent variable (adoption of e-payment services).

4. Analysis and Findings

This chapter aims to discuss the findings and analysis of the data acquired from the questionnaire collected from the respondents in this study. The raw data collected will be analysed through IBM Statistical Package for Social Sciences (SPSS) software. This chapter consists of five main parts: reliability analysis, descriptive analysis, Central tendencies measurement of the construct, normality test, and correlation analysis to analyse this research data.

4.1 Analysis

This chapter aims to discuss the findings and analysis of the data acquired from the questionnaire collected from the respondents in this study. The raw data collected will be analysed through IBM Statistical Package for Social Sciences (SPSS) software. This chapter consists of five main parts: reliability analysis, descriptive analysis, Central tendencies measurement of the construct, normality test, and correlation analysis to analyse this research data.

(a) Response rate

A response rate was 275 respondents who participated in this study. In this study, 876 questionnaires were distributed via Google Forms, and 275 surveys were received in this study. The questionnaires received 31.39%of the responses. The data are analysed by using IBM Statistical Package for Social Sciences (SPSS) software.

(b) Descriptive analysis

Among the 275 respondents in the total population, there were 146 male and 129 female respondents. In the age group, 0.7% of respondents are under 18 years old, 12.7% are aged 18 to 20 years old, and 86.5% are above 20 years old. Chinese respondents made up the biggest group of respondents in this study, accounting for 48.7% of the respondents. It was followed by Malay respondents, 40.0%, Indian respondents, 8.4% and other races respondents, 2.9%.

In addition, the highest percentage of respondents is from FPTP, which is 68.7%. The percentage of respondents from FKMP and FKAAB is the same percentage which is 8.7%. The percentage of respondents from FKEE is 5.8%. The lowest percentage of respondents is from FPTV, and FSKTM has the same percentage, 4.0%. The percentage of respondents from year 1 is 12, or 4.4%. The percentage of respondents from year 2 is 16, or 5.8%. The percentage of respondents from year 3 and year 4 is 42 and 205, or 15.3% and 74.5%, respectively.

Among all respondents, the majority of 270 respondents, which are 98.2%, have used any kind of e-payment, and 5 respondents, which are 1.8%, have not used any kind of e-payment. Appendix A shows that respondents use three different types of e-payment services in this section. It shows the data about the UTHM students who use e-payment services such as ATM/ Debit Card mobile banking and internet banking. 60.4% of respondents use internet banking, and 39.6% of respondents do not use it. The second largest type of e-payment service used in mobile banking is 26.2%. 73.8% of respondents do not use mobile banking. Only 37 respondents are using ATM/ Debit Cards.

(c) Central tendencies measurement of the construct

Appendix B indicates the central tendencies measurement of each of the constructs. The Perceived usefulness range's mean value falls between 4.47 and 4.62, the Perceived ease of use range between 4.37 and 4.62, the Perceived security range from 4.28 to 4.55, and the Trust range between 4.39 and 4.57. The mean value for the adoption of e-payment services is between 4.52 to 4.60. This outcome shows that most respondents choose to agree and strongly agree. PS1 has the highest standard deviation (0.815), whereas PU4 has the lowest standard deviation (0.557). This finding indicates that the scores for the standard deviations for independent variables are above 0.557 but below 0.815.

Next is the adoption of e-payment services as the dependent variable in this study. Appendix B shows that the adoption of e-payment services range's mean value falls between 4.52 and 4.60. It shows that most of the respondents choose to agree and strongly agree. According to Appendix B, A4 scored the highest standard deviation, 0.608, while A5 achieved the lowest standard deviation, 0.579. Consequently, the dependent variables item's standard deviation is above 0.579 but below 0.608.

(d) Normality test

Normality tests are used to determine whether data collection has been done correctly and to estimate the probability that data will be normally distributed with random variables. The data in table 2 shows that the Kolmogorov-Smirnov test was used in this normality test because the sample size of respondents is more than 50 respondents, which is 275 respondents. If the test results are not significant, the null hypothesis is accepted, and the data is normal, the p-value must be greater than 0.05. In contrast, a p-value of 0.05 or less indicates that the test was significant, the null hypothesis was rejected, and the data was not normal. Based on table 2, the result shows that the p-value is 0.000 for each independent variable and dependent variable, which mean is lower than 0.05 ($0.000 < 0.05$). Therefore, the normality test of this study is significant, and the data is not normally distributed. Since the data is not normal, a non-parametric test will be used.

Table 2: Test of normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Perceived Usefulness	0.189	275	0.000	0.826	275	0.000
Perceived Ease of Use	0.185	275	0.000	0.863	275	0.000
Perceived Security	0.171	275	0.000	0.885	275	0.000
Trust	0.188	275	0.000	0.859	275	0.000
Adoption of E-payment services	0.230	275	0.000	0.850	275	0.000

(e) Reliability analysis

Table 3 shows Cronbach's Alpha of the dependent and independent variables in this study. For UTAUT dimensions, there are a total of 24 measured items. According to Mat Nawi *et al*. (2020), Reliability ratings below 0.60 are unacceptable or poor, whereas alpha values between 0.60 and 0.80

are reasonable or good or moderate, and alpha values over 0.80 are very good or excellent. Cronbach's alpha values over 0.60 are relevant to the suggested experiments (Hair *et al*., 2006). According to Nunnally (1978), Cronbach alpha values between 0.5 and 0.6 are recommended for exploratory experiments. Based on the table, there are five variables to identify the level of factors towards adopting e-payment services among UTHM students. Cronbach's alpha of perceived usefulness, perceived ease of use, perceived security and adoption of e-payment services achieved good reliability with 0.781, 0.721, 0.798, and 0.742, respectively. The trust achieved 0.826 Cronbach's alpha which shows very good reliability. In this research, the result does not have Cronbach's alpha value below 0.600, which indicates poor reliability. The highest Cronbach's alpha value is trust, with a value of 0.826, while the lowest value is perceived ease of use, with a value of 0.721.

Table 3: Cronbach's alpha value for the reliability test

Variable	No. Items	Cronbach's Alpha
Perceived Usefulness	4	0.781
Perceived Ease of Use	5	0.721
Perceived Security	5	0.798
Trust	5	0.826
Adoption of E-payment services	5	0.742

(f) Hypotheses testing and Correlation analysis

The purpose of hypothesis testing in this study is to identify the relationship between the independent and dependent variables. Since the data distribution is not normal, Spearman's correlation analysis was utilised. Based on table 4 shows the result of Spearman's correlation analysis. Also, the factors correlated with the adoption of e-payment services. The coefficient value of the outcome ranges from 0.306 to 0.417, with values for perceived security at 0.306, trust at 0.321, perceived usefulness at 0.409, and perceived ease of use at 0.417. Therefore, a discussion of each of the four developed hypotheses will take place in the subsequent section.

Table 4: Result of spearman correlation test

			A	PU	PEOU	PS	T
Spearman's rho	A	Correlation Coefficient	1.000	**0.409****	**0.417****	**0.306****	**0.321****
		Sig. (2-tailed)	-	0.000	0.000	0.000	0.000
	PU	Correlation Coefficient	0.409**	1.000	0.490**	0.397**	0.369**
		Sig. (2-tailed)	0.000	-	0.000	0.000	0.000
	PEOU	Correlation Coefficient	0.417**	0.490**	1.000	0.421**	0.461**
		Sig. (2-tailed)	0.000	0.000	-	0.000	0.000
	PS	Correlation Coefficient	0.306**	0.397**	0.421**	1.000	0.450**
		Sig. (2-tailed)	0.000	0.000	0.000	-	0.000
	T	Correlation Coefficient	0.321**	0.369**	0.461**	0.450**	1.000
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	-

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

4.2 Findings

(a) Perceived usefulness

Based on table 5, the outcome indicates that the correlation coefficient of the perceived usefulness is 0.409, and the p-value is below or less than 0.05. As a result, the study supported or accepted the H1 hypothesis while rejecting the null hypothesis. This research proves that the adoption of e-payment services and perceived usefulness are statistically significant.

H1: Perceived usefulness has a significant relationship with the adoption of e-payment services.
H0: Perceived usefulness has an insignificant relationship with the adoption of e-payment services.

(b) Perceived ease of use

According to table 5, the result shows that the correlation coefficient of the perceived ease of use is 0.417, and the p-value is below or less than 0.05. Hence, the study supported or accepted the H2 hypothesis while rejecting the null hypothesis. This research indicates that the adoption of e-payment services and perceived ease of use are statistically significant.

H2: Perceived ease of use has a significant relationship with the adoption of e-payment services.
H0: Perceived ease of use has an insignificant relationship with the adoption of e-payment services.

(c) Perceived Security

The results demonstrate that the correlation coefficient of the perceived security is 0.306 and the p-value does not exceed 0.05. Therefore, the study supported or accepted the H3 hypothesis while rejecting the null hypothesis. This research indicates that the adoption of e-payment services and perceived security are statistically significant.

H3: Perceived security has a significant relationship with the adoption of e-payment services.
H0: Perceived security has an insignificant relationship with the adoption of e-payment services.

(d) Trust

The results indicate that the correlation coefficient of the trust is 0.321, and the p-value does not exceed 0.05. Therefore, the study supported or accepted the H4 hypothesis while rejecting the null hypothesis. This indicates that the adoption of e-payment services and trust variables are statistically significant.

H4: Trust has a significant relationship with the adoption of e-payment services.
H0: Trust has an insignificant relationship with the adoption of e-payment service

Table 5: Summary of Spearman's rho correlation analysis

	Hypothesis	Spearman's Correlation	P-value (sig.)	Result
H1	Perceived usefulness has a significant relationship with the adoption of e-payment services	0.409	0.000	Accepted/ Supported
H2	Perceived ease of use has a significant relationship with the adoption of e-payment services	0.417	0.000	Accepted/ Supported
H3	Perceived security has a significant relationship with the adoption of e-payment services	0.306	0.000	Accepted/ Supported
H4	Trust has a significant relationship with the adoption of e-payment services	0.321	0.000	Accepted/ Supported

5. Discussion and Conclusion

This chapter provides suggestions on how future research might be improved, evaluates and interprets the research findings, and summarises an overview and summary of the research study. Along with some recommendations, it also provides an outline of the research's limitations and possibilities. Finally, the whole research study's conclusion is provided.

5.1 Discussions

(a) To identify the level of factors towards adopting e-payment services among UTHM students.

The result indicates the level of factors towards adopting e-payment services among UTHM students. According to appendix b, the table shows that the perceived ease of use value is the highest (M=4.54; SD=0.431). In this study, most of the respondents responded that using e-payment services is more simple and easier to use. Besides, 177 respondents responded felt that e-payments provide a selection of payment methods that simplify the online buying experience. According to previous research by Hazwani *et al*. (2021), the consumer is satisfied and comfortable with the mobile payment services, therefore the chances of them using the service is high, and they will continue to use it. However, perceived security is at the lowest value (M=4.42; SD=0.530). In this study, 6 and 44 respondents responded neutral and disagreed that e-payment services bring less financial risk. In the previous study conducted by Saxena *et al*. (2019), researchers found that some internet users still stay away from online shopping out of concern that their financial information may be stolen.

(b) To identify the level of E-payment services adoption among UTHM students.

The level of factors is examined using descriptive analysis. According to Wiersma (2000), the range of the mean value is between 1.00 and 2.33 and is classified as low level based on the level of the mean measurement. The medium level is classified as a mean value between 2.34 and 3.66. The mean value between 3.67 to 5.00 is classified as high level. The e-payment services adoption question has a high mean value. Students have access to e-payment services anytime and anywhere. They can use e-payment services to purchase products and services. Based on the table in Appendix B, the highest mean value (M=4.60; SD=0.579) is the question of A5. Many respondents are willing to use e-payment services because of the influence of their friends or family. One of which is a study conducted by Anastasia and Santoso (2020), the researcher pointed out that the use of credit cards is influenced by social pressure from normative beliefs and motivations, which influential individuals support. Therefore, parents have the most influence since they are the most trustworthy party to them and because youngsters frequently observe parents using credit cards. Ariffin and Lim (2020) indicate that to increase the adoption of mobile payment services among young professionals, service providers must play a role and ensure that their services are trustworthy. Users who already have believed in the products and services will start to have an impact on their peers.

(c) To identify the relationship between factors and the adoption of E-payment services.

Perceived usefulness towards adopting e-payment services was discovered to have a significant relationship (correlation coefficient = 0.409; $p<0.05$). According to the survey results, most respondents think that e-payment services are effective and convenient. It significantly enhances the payment transaction process and reduces transaction time. The findings of Sleiman *et al*. (2021) stated that behavioural intention in the adoption of mobile payments is significantly directly influenced by perceptions of perceived utility. This study supports the findings of Lim *et al*. (2018). This study found that the perceived usefulness of a technology or service to users influences their satisfaction, which in turn determines their continued intention to use that technology or service. Other than that, research indicated that the result of perceived usefulness has no significant relationship with the consumers' actual use of e-payment in Dubai. The finding of this study was inconsistent with the previous study

(Najdawi, Said, & Chabani, 2021). However, perceived usefulness is not as important as the other factors because some users are more concerned with the system's ease of use than with its usefulness.

Perceived ease of use towards adopting e-payment services was found to have a significant relationship (correlation coefficient = 0.417; $p<0.05$). A simple operating system will appeal more to consumers who want to utilise it. Hazwani *et al*. (2021) found a significant relationship between perceived ease of use and customer perception of mobile payments. According to the findings, if the consumer is satisfied and comfortable with the mobile payment services, the possibility of them using it again is high, and they will continue to use the mobile payments. Another previous study found that perceived ease of use results has no significant relationship between consumers' perceived ease of use and intention to utilise the electronic payment system. The finding of this study was inconsistent with the previous study (Azman, Tan, & Bakri, 2020). The results suggest that consumers are frustrated while using e-payment, and the consumers disagree that the e-payment system is simple to use.

Perceived security towards adopting e-payment services was found to have a significant relationship (correlation coefficient = 0.306; $p<0.05$). Most of the respondents feel that using e-payment services is safe and cannot be easily stolen. The findings of Halaweh (2017) showed a significant relationship between perceived security and the adoption of COD for e-commerce. Some consumers still prefer to pay in cash at the time of delivery rather than take the risk of using a credit card or another payment method over the Internet since Internet security concerns only keep increasing and there are no proven solutions. A previous study found that perceived security does not significantly impact the reuse intention of e-wallets. (Visakha & Keni, 2022). The top concern when using an e-wallet was security since they were concerned that scammers would steal their money, bank account information, and other sensitive information.

Trust towards adopting e-payment services was found to have a significant relationship (correlation coefficient = 0.321; $p<0.05$). Most of the respondents are satisfied with the security of e-payment services. They utilise this transaction technique since it is dependable or reliable and they intend to use it in the future. The findings of Yang *et al*. (2021) indicated that perceived trust significantly and positively impacted the intention to use an e-wallet. The intention to use mobile service-by-service providers or payment services might be significantly impacted by consumer trust. When people have more confidence in technologies, they evaluate them more positively and have a good attitude about technology. This will result in technologies that deliver on their promises and are dependable and safe, which will increase people's intentions to use these technologies.

Interestingly, a past study found that the trust variables are not significant relationship with consumers' perception toward e-payment. The finding of this study was inconsistent with the previous study (Aryal, 2021). In order to increase trust, usefulness and strengthen the security system, the government should pay attention to mobile payment services. When creating mobile payments, user preferences should be considered. The government should also take note of the various stages at which users of mobile payments are already.

5.2 Implication of the Study

(a) Theory implication

In this study, UTAUT was utilised to describe the whole research framework on factors towards adopting e-payment services among UTHM students. As this study may be used as a reference, it can provide additional insights for future research on related themes. This study can also serve as a guideline for any similar research, particularly for e-payment services, which are a rapidly developing technology in the Industrial 4.0 era.

(b) Managerial Implication

Based on the findings, this study may be useful to cashless service providers as well as entrepreneurs interested in developing e-payment application services in Malaysia. The variables in this study can serve as guidance for cashless service providers looking to improve their present offerings. This can increase the digital payment rate and increase our country's economic growth.

5.3 Limitations of the study

This study has various disadvantages. The first is that there needed to be more time to do all the necessary research due to the questionnaire being distributed online. It will take time to complete the data during the collection period. Secondly, the respondents lack collaboration to make this study. The questionnaire is distributed online so some respondents may ignore or reject filling up the questionnaire. Therefore, only 275 complete sets of the questionnaire were returned and could be used, which resulted in a moderate return rate. Thirdly, the respondents provided unreliable and untruthful answers to the questionnaire that was distributed online. This can be a result of their quick desire to complete the questionnaire and lack of focus when providing the necessary information.

5.4 Recommendations for future research

Future researchers might expand the scope of this study to include larger population studies, such as those in each state within Malaysia to obtain better study results. Future studies should think about the explore more the general areas, especially the residential areas will be recommended to solve the limited areas. In addition, taking more time would allow for more efficient data collection. As a result, the researchers can fully prepare for carrying out this investigation. Additionally, focus groups and interviews can be used in this study's methodology to investigate the relationship between the factor and adoption of e-payment services among UTHM students.

5.5 Conclusion

In conclusion, the aim of this study is to determine factors towards adopting e-payment services among UTHM students. Perceived usefulness, perceived ease of use, perceived security, and trust are the variables used in this study. A total of 275 questionnaires were collected, and it was conducted on the main campus of UTHM, Parit Raja. The analysis used in this research is reliability analysis, descriptive analysis, central tendencies measurement of the construct, normality test, and correlation analysis. The researcher concluded from the findings that the variables (perceived usefulness, perceived ease of use, perceived security, and trust) have a significant relationship towards adopting e-payment services because the p-value for each variable in Spearman's correlation analysis is less than 0.05. Researchers have shown that the most significant influence on how well factors towards adopting e-payment services is the perceived ease of use. This study can help electronic payment service providers understand how to enhance their services. In addition, it can serve as a guide for entrepreneurs that are interested in creating electronic payment applications.

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Appendix A

Summary of respondent demographic in categorical

	Frequency	Percent (%)
Gender		
Male	146	53.1
Female	129	46.9
Age		
Under 18	2	0.7
18 to 20 years	35	12.7
Above 20 years	238	86.5
Races		
Malay	110	40.0
Chinese	134	48.7
Indian	23	8.4
Other	8	2.9
Faculty		
FKAAB	24	8.7
FKEE	16	5.8
FKMP	24	8.7
FPTP	189	68.7
FPTV	11	4.0
FSKTM	11	4.0
Current year of study		
Year 1	12	4.4
Year 2	16	5.8
Year 3	42	15.3
Year 4	205	74.5
Have you used any kind of electronic payment (e-payment)		
Yes	270	98.2
No	5	1.8
What type of electronic payment services do you use		
ATM/ Debit Card	37	13.5
Mobile Banking	72	26.2
Internet Banking	166	60.4

Appendix B

No.	Adoption of E-payment services	Mean	Standard Deviation	Level
A1	I have adoption of e-payment services because I like the feeling of using e-payment services.	4.55	0.604	High
A2	I have adoption of e-payment services because I would use e-payment services to purchase products and services.	4.53	0.587	High

A3	I have adoption of e-payment services because I am satisfied with the effectiveness of the present payment services.	4.52	0.594	High
A4	I have adoption of e-payment services as a result I do not wish to be the only one who does not use e-payment.	4.57	0.608	High
A5	I have adoption of e-payment services as a result my friend and family are using e-payment services.	4.60	0.579	High
Total Average Score		4.55	0.417	High

No.	Perceived usefulness	Mean	Standard Deviation	Level
PU1	E-payment systems assist me in terms of making better payment decisions.	4.48	0.669	High
PU2	E-payment services make it easy for me to compare products across payment methods.	4.53	0.646	High
PU3	E-payment services reduce the amount of time I normally spend on payments.	4.47	0.652	High
PU4	E-payment services improve my search for the payment method I want.	4.62	0.557	High
Total Average Score		4.53	0.492	High

No.	Perceived ease of use	Mean	Standard Deviation	Level
PEOU1	I do not get frustrated when I use e-payment services.	4.37	0.740	High
PEOU2	E-payment services are easy to learn and use.	4.59	0.612	High
PEOU3	Using e-payment services feels flexible to me.	4.51	0.600	High
PEOU4	It is less complex when I use an e-payment service.	4.61	0.602	High
PEOU5	E-payment offers a variety of payment channels that ease my online shopping process.	4.62	0.563	High
Total Average Score		4.54	0.431	High

No.	Perceived Security	Mean	Standard Deviation	Level
PS1	E-payment services bring less financial risk.	4.28	0.815	High
PS2	I like to use e-payment services that provide insurance for security.	4.37	0.704	High
PS3	E-payment services offer sufficient payment security.	4.39	0.733	High
PS4	I am willing to use e-payment if the software is protected by the latest know-how (ingenuity, aptitude or skill).	4.51	0.658	High
PS5	I would assume that e-payment is secure since it is verified by a third party.	4.55	0.640	High
Total Average Score		4.42	0.530	High

No.	Trust	Mean	Standard Deviation	Level
T1	I believe the data provided during the payment transaction (e.g., clear and detailed steps).	4.46	0.715	High
T2	I trust the provider's efforts to guarantee the e-payment service.	4.43	0.703	High
T3	I use an e-payment service that is approved by other ones I know too.	4.39	0.743	High
T4	Trustable software will guarantee that the payment methods available are reliable.	4.46	0.668	High
T5	I accept that e-payment is a reliable tool.	4.57	0.637	High
Total Average Score		4.46	0.533	High