E-PAYMENT DEVELOPMENT: THE ADOPTION OF E-PAYMENT AMONG UNDERGRADUATES IN MALAYSIA

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A final year project submitted in partial fulfillment of the requirement for the degree of

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PREFACE

The study title idea comes from our own experience. By observing how payment methods change over the years, we have noticed the rapid increase in the adoption of digital payment during Covid-19 pandemic. During the pandemic, e-payment became popular because it reduced physical contact with each other. As an undergraduate student, we observed the e-payment trend and the changes in e-payment methods among our peers. Meanwhile, there were also users who still preferred using traditional cash payment. This motivated us to conduct this study to identify the factors that influence undergraduates to adopt the e-payment system in their daily life.

After we reviewed the past studies on e-payment adoption, we found out that most of the studies were conducted before Covid-19 pandemic and only included independent variables such as perceived benefit, perceived security, trust and so on. Most of the past studies did not consider the post-pandemic behavioral change or the factor of counterfeit currency. This gave us the idea to include the variables, perceived benefit, perceived security, social influence, and counterfeit currency in our study. We believe it could provide fresh insights into how undergraduates think about digital transactions.

Moreover, this title is closely related to the government policy on e-payment goals and policies. Malaysia's government is encouraging cashless transactions to create a more stable and secure financial market. The data collection of this study was carried out through surveys among undergraduates in both public and private universities. Besides, we have included the theoretical framework Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB) to support our analysis. Thus, this study connects both theoretical frameworks with real-world issues.

In conclusion, this study has provided us with an opportunity to explore an interesting topic and relevant to current social science development. We hope this study can contribute to society by providing a better understanding on how undergraduates' behavior changes towards adoption of e-payment and provide useful insights for future research.

ABSTRACT

E-payment methods have been increasingly popular in recent years, particularly among younger generation. Knowing what influences undergraduate students' use of electronic payments is becoming progressively more important as digital technologies continue to change the financial environment. With a focus on four main variables which are perceived security, perceived benefit, social influence, and worries about counterfeit currency. This study attempts to explore the major factors influencing Malaysian undergraduate students' adoption of electronic payments. A cross-sectional survey design was employed to obtain primary data from 400 undergraduate students from Malaysia's public and private institutions. Convenience sampling was used, and data was collected via a standardized questionnaire delivered on both physical and digital channels. The instrument included demographic questions as well as measuring items for the four independent variables, all of which were graded on a five-point Likert scale. A pilot test with 50 respondents was undertaken to confirm that the survey items were clear and reliable. Cronbach's Alpha was used to verify the construct's internal consistency, and all variables met the acceptable threshold of 0.70. The findings of this study are likely to provide useful insights into how undergraduates perceive and interact with e-payment platforms. Understanding these perspectives will help to fill in the gaps in past study on e-payment uptake and the promotion of a cashless society, as well as the actual user behavior of young customers. The conclusions will also include recommendations for financial institutions and fintech companies to improve security, enhance user experience, and raise awareness about the benefits of digital payments. Finally, this study contributes to Malaysia's digital economy goals by proposing solutions that promote higher e-payment use and financial inclusion among Malaysian undergraduates.

Keywords: UTAUT model; Malaysia undergraduates; counterfeit currency; cybersecurity; electronic payment adoption; convenience

Subject Area: HG1710-1710.5 Electronic funds transfers

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CHAPTER 1 INTRODUCTION

1.1 Background of Study

The advancement of technology has transferred the landscape of traditional payment methods into cashless payment even contactless. E-payment is an electronic payment for transactions made on the Internet such as credit card, debit card, mobile wallet, and online banking. The advancement of this e-payment revolution has improved the efficiency and effectiveness of the payment system. Globally, there are many countries that adopt e-payment systems, each shaped by their own digital ecosystem.

China is the leader in e-payments system with mobile payment platforms such as Alipay and WeChat Pay becoming deeply integrated into daily life, rendering cash nearly obsolete. This is due to the reason that China have counterfeiting currency problem especially 50 yuan notes and 100-yuan notes. In 2022, the People's Bank of China reported the capture of counterfeit banknotes valued at over 1.2 billion yuan. Counterfeiting cash not only results in financial loss to individuals and business, but damage also national reputation and even leads to economic recession. It increases the money supply but without increase in goods and services, which may affect economic stability by causing inflation to rise. When counterfeit cash is utilized, real money loses value, which reduces confidence in the national currency and may lead to lower acceptance in international trade. People may be cautious of cash transactions since new counterfeit techniques make fake money more difficult to detect. This might result in a trend towards digital payments. Therefore, using e-payment system may reduce the cash usage and enhance the financial security (Jindal, 2024). In Sweden, they widely use mobile payment to pay for the vendor payments. South Korea uses advance technological infrastructure to support digital payments such as Samsung Pay.

From figure 1.1, the transaction volume and value per capita have increased over the years from 2019 to 2023 (Bank Negara Malaysia, 2023). E-payment in 2019 is only 150 transactions per capita while in 2023 the transaction per capita increases to 343, with rapid growth rate of 128.67%. In this statistic shows that the e-payment is increasing in Malaysia, highlighting the growing reliance on e-payment systems in Malaysia. E-payment systems have gained widespread acceptance by the undergraduates in Malaysia because virtual cash enables them to make payments in simpler and faster way at a lower cost.

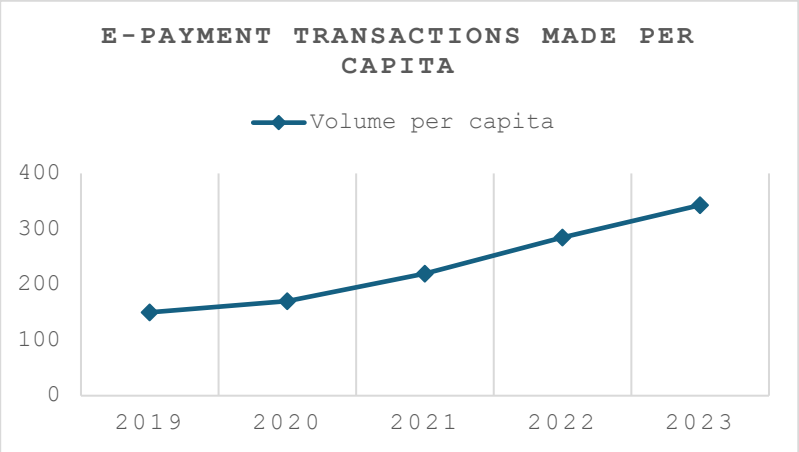

Figure 1.1. E-payment transactions made per capita from 2019 to 2023. Note. Adapted from Bank Negara Malaysia. (2023). *BNM Annual Report 2023*. BNM.

However, there are certain countries where E-payment is not their preferred payment. For instance, Japan which is a well-developed country is known for its high cash usage. Cash is preferred by many Japanese people because it is physical, uncomplicated, and immune to the dangers of online fraud. In addition, it's a habit. However, the reality is that Japan has a comparatively low crime rate. Despite this, carrying currency is relatively pleasant for Japanese people. It is also commonly known that many Japanese, particularly those from older generations, keep substantial sums of money in their houses. There is no risk of robbery there (Jiro, 2025).

In recent year especially after COVID-19 pandemic, the adoption of e-payment among Malaysian undergraduates is boosting. This is since the pandemic serves as a catalyst

to reshape consumer payment behavior following the movement restriction. For example, the Movement Control Order (MCO) implemented over the period March 2020 until December 2021, social distancing regulations, and heightened hygiene concerns accelerated the transformation from cash-based society to increasing e-payment usage. Payments Network Malaysia Sdn Bhd, PayNet (2022) mentioned that cash usage has declined by 11% during the pandemic, while QR payments experienced exponential growth with 13% higher usage. Using e-payment is one of the solutions to address safety concerns during pandemic to enable touchless transactions. Other than that, increasing merchant acceptance, promotional campaigns, and government initiatives such as e-Belia program, which distributed financial aid through e-wallet platforms, also boosted the adoption of e-payment in Malaysia (Info, 2025).

Moreover, the assessment of Fintech plays a significant role in Malaysia's e-payment landscape. The country's near-universal 4G coverage and affordable mobile data plans have fueled the widespread adoption of mobile banking and e-wallet services. Malaysia ranked first among emerging Asian economies in the World Economic Forum's Network Readiness Index (IMF, 2020), demonstrating its strong digital infrastructure. Based on digital wallets and QR codes, China's new system is operated by their own large internet firms, WeChat Pay is operated by Tencent and Alipay is operated by Alibaba. Both serve as digital wallet services, allowing users to store money digitally, perform fast payments and link bank accounts. A significant and established source of income is taken away from banks by China's system, which in effect disintermediates banks from payment transactions. With well-defined incentives for the customers, the payment system providers and merchants create a substitute payment ecosystem. Furthermore, the introduction of DuitNow by PayNet, a platform owned by major banks, has streamlined e-wallet payment processing for merchants, enhancing convenience and interoperability across different e-wallet providers (Times, 2025). Malaysia has also seen the rise of various e-wallet types, including brand-specific wallets like the Starbucks Card, independent wallets such as Boost, and hybrid wallets like GrabPay. These technological advancements have provided Malaysian undergraduates with greater access to efficient and convenient financial services.

Malaysia governments keep promoting usage of e-payment. It is partly due to the annual cost of reprinting dirty or worn-out banknotes is from RM250 million to RM340 million. Printing 500 million new banknotes emits 1,450 tons of CO2, consumes over 80 tons of ink, and uses 2 million kWh of electricity, equivalent to powering 7,500 Malaysian households for one month. The BNM demonstrated that transitioning from a paper-based to a more electronic-based payment system may produce an annual savings of up to one percent of GDP (Bernama, 2020). While government initiatives including, in 2023, people aged between 18 to 20 or students in Malaysia are entitled to apply e-Belia program for receiving RM200 e-cash starting from 26 Jun 2023 to 22 August 2023. People are only allowed to receive e-cash in electronic form via Touch ‘n Go, Boost, and Setel (Badra, 2023). Since Malaysia government was tried so hard promoting on using e-payment, the percentage of Malaysians using e-payment was increasing but have not meet their target to the number of adoptions of e-payment.

One of the key reasons many people insist on using e-payment is security issues. As the adoption of e-payment increased, there are many scammers who found opportunity to exploit the users. People who acquire less knowledge of online payment might worry their personal information be losses or their money to be scammed through e-payment. The common types of e-payment scams include phishing scams, hacking, social engineering, and card skimming (Rodrigues, 2024). These scams issues have created a sense of uncertainty and fear for users to change their behaviour from cash payment to e-payment. Besides worrying about online scammers, many of the people do not use e-payment because adoption of e-payment will cause them to overspend their money. There is no physical exchange of money while making online payment because it is fast and convenient. This makes the user do not aware of their financial limits, further causing impulsive consumption. Especially for undergraduates who are still developing their personal financial discipline, they lack financial alert while using e-payment to make purchases.

Therefore, this study is to investigate about the factors that drive the adoption of e-payment among the undergraduates in Malaysia, including perceived security,

perceived benefit, counterfeit currency and social influence. Perceived security is about the belief of undergraduates towards the security level of the e-payment ecosystem (Jusoh & Teng, 2019). Besides, perceived benefit is the belief about the positive outcomes of a specific action. Moreover, social influence refers to the way individuals modify their opinions, adjust their beliefs, or alter their behaviors due to interactions with others (Moussaïd et al., 2013). Furthermore, counterfeit currency belief that adopt e-payment among Malaysia undergraduate may help to reduce the risk associated with counterfeit cash. It's about how an undergraduate student is influenced by social pressure in using an e-payment system in their daily life. This study will provide valuable insights into university student behavior in the digital payment ecosystem and allow financial institutions, fintech companies, and policymakers to develop strategies for financial inclusion and promote digital transactions among the younger generation.

1.2 Research Problem

Recently, development of e-payment in Malaysia has increased especially after Covid-19. Before that, Malaysia was largely depended on cash for their daily payment, but the MCO restrictions from March 2020 until December 2021 urged consumer behavior to digitalized, from paper to electronic payments. As a result, Malaysia became the second-highest country in Southeast Asia to adopt electronic payments, closely following Singapore (Ecommpay, 2025). In 2024, digital payment transactions in Malaysia reached a total of 172 billion USD, and this value is expected to grow to about 250 billion USD by 2030 (Siddharta, 2025). Moving toward a cashless system improves convenience by allowing faster transactions and easy online payments. It also increases financial transparency, making it harder for illegal activities like under-the-table payments and unreported business income, which are common issues in Malaysia.

Despite of these benefits, Malaysian has not fully embraced with e-payment, cash remains a vital component of the payment ecosystem. One of the major challenges to the adoption of e-payment in Malaysia is that Malaysia is a developing country, many

rural populations may have limited access to digital services. It is like low-income workers and the elderly due to lack of smartphones that support digital payments or lack of digital literacy. While concerns over the security of e-payments platforms also raise to slow down the adoption due to online fraud such as hacking and scams that are growing as digital payments usage expands. Moreover, heavy dependence on technology means that internet disruptions, such as the widespread outage in Australia in 2023, can halt transactions and harm businesses, emphasizing the importance of having alternative payment options such as cash (Barclay, 2025).

In recent years, there has been growing the numbers of undergraduate in Malaysia due to universities in Malaysia have gained international acknowledgement over the past years. According to Ashraf (2025), total number of undergraduates in Malaysia is estimated to exceed one million, and their contribution comes from approximately 681,000 public university students, and 420,000 private university and college students. When undergraduates increase, participants in e-payments adoption increase since Gen Z, who born between 2001-2009 and the Millennials, who born between 1981-2000, are the primary users of digital payments (Yusoff et al., 2022). However, some of the undergraduates still favor cash for their daily payment. PayNet Digital Payments Insight Study 2022 illustrates that although cash usage declined following the COVID-19 pandemic as shown in appendix 1.1, it persists as an alternative payment option in Malaysia. Understanding the factors that affect e-payment adoption among undergraduates continues to be a major challenge. Although e-payment systems provide numerous advantages, it still not being fully embraced by undergraduates, which may slow down Malaysia's transformation process to become a cashless society (Abdul-Halim et al., 2021).

According to Sidek et al. (2024), barriers that hinder the adoption of e-payment among undergraduates include the habitual use of traditional payment methods, concerns over security, and lack of trust in digital platforms. As Malaysia was previously as a cash-based country, students who used to pay with cash may feel harder to shift their payment method to e-payment as these habits can be challenging to break. While many

studies have identified that security concerns and lack of trust are the main challenges for adoption of e-payments. For example, Yusoff et al. (2022) stated that the low use of digital payments is due to internet fraud, data breaches, and misuse of sensitive financial information. Similarly, Munikrishnan et al. (2022) emphasized that while cashless payments offer many benefits, security risks like data breaches, phishing, and cybercrime remain significant obstacles to their wider acceptance. Prasetya (2023) also noted that online payment companies need to invest in better cybersecurity because customers are still wary of using e-payments due to worries about data privacy and security. It is therefore evident that security is the central issue involved in the adoption of e-payment. Although platforms have gone a long way in advancing such as One-Time Password (OTP) use, biometric authentication, push notifications, and hardware tokens, most users remain uninformed about the same.

On the other hand, convenience, efficiency, and rewards that come with e-payment systems are prime reasons why people adopt them. For example, counterfeit cash continues to haunt society, while application of e-payment guarantees that one is not going to be caught up in the counterfeit money syndicate (Putri & Prasetyo, 2020). Yet maybe there is not enough knowledge or understanding of such advantages by undergraduates (Davis, 1989). Other than that, like what we mentioned before, fear of excessive expenditure also acts as one among the barriers to the acceptance of e-payments. Compared to electrical money, physical form of the cash provides some tangible impression to expenditure, ease and quickness provided by digital mode may promote uncalculated purchase decisions. In a survey conducted by Rafee et al. (2022), there are 80% out of 192 respondents believed that using e-payment could lead to overspending. Therefore, Malaysia's undergraduates may view e-payments as a risk which pushed them more difficult to maintain healthy spending habit, which consequently reduce their willingness to adopt digital payments in their daily lives. Therefore, these factors further slowdown the adoption process of e-payments.

As e-payments become more common among undergraduates, this study aims to identify the factors influencing their adoption in Malaysia. Since undergraduates

belong to the tech-savvy generations, understanding their payment behavior can provide an insight for government and financial institutions to further promote digitalization of payment systems, moving toward BNM's Financial Sector Blueprint 2022-2026. It also offers useful insights for future researchers and helps in predicting digital finance trends as this generation enters the workforce.

1.3 Research Gap

This study aims to fill in the research gap related to post-pandemic behaviour. Many of the existing studies on the adoption of e-payment in Malaysia were conducted before COVID-19 pandemic. Thus, this study seeks to update the factors that affect the adoption of digital payment among undergraduates after the covid-19 pandemic.

Besides, this study also introduced counterfeit currency as a new variable in the context of e-payment adoption. E-payment platform provides functions such as expenses tracking and transaction traceability, making each transaction traceable and protected. It offers an alternative way that is safer and more secure compared to physical cash payment which can easily be fraudulent. According to Jindal (2024), country such as China that facing counterfeit currency issue, increasingly advocate the adoption of e-payments in order to combat with this issue. Therefore, the awareness of counterfeit currency risk may affect the adoption of e-payment among Malaysia's undergraduates, if they perceive them as a more reliable and secure payment option.

Moreover, this study is the bridge to connect the government and Malaysia undergraduates' adoption behavior. Although the Malaysian government has made significant efforts to promote e-payment adoption among youth but remains a noticeable disconnect between these initiatives and actual adoption behaviors among undergraduates. This study helps government to find out the real Malaysia undergraduates' payment behavior. Therefore, it may make the adoption of E-payment among Malaysia undergraduates more effective. This study finds out Malaysia

undergraduates specific concerns and motivations to ensure e-payment is relevant to their daily routine.

1.4 Research Objectives

1.4.1 General Objectives

The purpose of this study is to investigate how factors, including perceived security, perceived benefit, social influence, and counterfeit currency issue, affected on the adoption of e-payment among Malaysia's undergraduates. It provides insight into consumer's spending behavior in terms of e-payment and their acceptance toward digital financial system after pandemic covid-19. The findings will contribute to a deeper understanding on how e-payment adoption strengthen financial inclusion and digital literacy among Malaysia's undergraduates. It focusses on the relationship between adoption of e-payment and the factors which are perceived security, perceived benefit, social influence, and counterfeit currency. This study will utilize primary data collected via surveys distributed physically and online to undergraduates in Malaysia.

1.4.2 Specific Objectives

To fulfil the general objective, this study will concentrate on 4 key objectives:

1. To evaluate the effect of perceived security on the trust and adoption rate of e-payment platforms among university students in Malaysia.
2. To analyse the impact of perceived benefit on the adoption of e-payment systems among undergraduates in Malaysia.
3. To examine the role of social influence in shaping the behavioural intention of undergraduates to use e-payment services.

4. To study the factor of counterfeit currency in affecting the rate of e-payment adoption among undergraduates in Malaysia.

1.5 Research Questions

1. How do perceived security affect the trust and adoption rate of e-payment platforms among university students?
2. How do perceived benefits influence the adoption of e-payment systems among undergraduates in Malaysia?
3. What role does social influence play in shaping the behavioural intention of undergraduates to use e-payment services?
4. How counterfeit currency affect the adoption rate of e-payment systems among undergraduates in Malaysia?

1.6 Hypothesis of Study

H1: Perceived security significantly impacts on the adoption of e-payment systems among undergraduates in Malaysia.

H2: Perceived benefit significantly affects the behavioural intention of undergraduates to use e-payment services.

H3: Social influence significantly influences the trust and adoption rate of e-payment platforms among university students.

H4: Counterfeit currency significantly affects the adoption rate of e-payment platforms among undergraduates in Malaysia

1.7 Significant of Study

This study uses Malaysia as a case study to examine how e-payment infrastructure and investment affect financial inclusion and economic activity. Through the integration of theoretical, this study offers a more comprehensive understanding of the connection between the adoption of e-payments with the perceived security, perceived benefits, social influence, and counterfeit currency.

Furthermore, this study could enhance the understanding of various stakeholders, including investors, financial institutions, government, and business owners, on how e-payments infrastructure influences undergraduates' behavior to adopt digital financial system. The findings will offer policymakers valuable insights into Malaysia's digital financial landscape, emphasizing the need for ongoing investment and enhancement of digital payment infrastructure. Such insights can guide strategic decisions in national financial planning and support the creation of a more efficient, inclusive cashless payment ecosystem. For business and investors, this study provides important perspectives into undergraduates' spending behavior, enables them to align their business planning with the preferences of tech-savvy generations. By recognizing the key factors that drive e-payment adoption, companies can stay competitive by enhancing user experience, ensuring secure transactions, and ultimately gaining advantage in the evolving digital marketplace.

In general, this study will contribute the knowledge about the adoption of technology while providing useful suggestions for increasing the use of e-payments in undergraduate in Malaysia. By overcoming the gap between academic knowledge and practical application, this study hopes to contribute to improve Malaysia move to a completely cashless society.

CHAPTER 2 LITERATURE REVIEW

2.0 Introduction

This chapter provides a literature review of past studies to understand the factors that influence the adoption of e-payment among undergraduates in Malaysia, including perceived benefit, perceived security, social influence, and counterfeit currency. Besides, the chapter is linked to theoretical frameworks such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB). By examining the past studies and theoretical frameworks, this chapter provides a strong foundation for a clearer understanding of the proposed research problem.

2.1 E-payment

2.1.1 Definition of e-payment:

Any transaction between a payer and receiver that is carried out electronically without the use of actual cash is referred to as an e-payment, or electronic payment. Customers can access and manage their bank accounts and transactions remotely contributed to its web-based interface (Hussain et al., 2018). E-payment covers a range of options, including e-wallets like Touch ‘n Go and Grab Pay, credit and debit cards, online banking, and automated teller machines (ATMs).

2.1.2 E-payment benefits:

In today’s global business environment, electronic payments are an efficient part of the transaction process. Its promptness, effectiveness, and convenience are the reasons for this (Alzoubi & Ghazal, 2022). E-payment transactions, whether online or in-store, can be finished in seconds, allowing customers to pay with a few taps

on their smartphones more easily than with traditional payment methods like cash or checks (Paygration, 2024). Furthermore, high subsidies, theft, cash-related crimes, ineffective treasury management, and an increase in informal sector transactions are all associated with excessive cash use (Ghaith & Ghaith, 2022). In addition to its effectiveness, security, and expanding global use, electronic payments have thus emerged as a major substitute for cash.

2.1.3 E-payment challenges:

Despite their many advantages, online payment systems still face several challenges, including security risks, internet accessibility issues, the potential for overspending and so on. Security and confidentiality are major concerns of e-payment users, particularly in protecting sensitive bank details and funds from cyber threats (Akanfe et al., 2020). Consumers are also vulnerable to hacking and phishing attacks during online transactions (Ramli & Hamzah, 2021). While limited access to the internet, especially in rural areas and the elderly, further hinder e-payment adoption. These challenges will discourage the user from adopting e-payment as main payment method and slow down the development process of e-payment in Malaysia.

2.2 Adoption of e-payment in Malaysia

2.2.1 History of e-payment's development in Malaysia

Advancements in information technology have enabled the growth of e-payment systems, allowing transactions without the use of physical cash (Kurniawan et al., 2024). Malaysia was once a fully cash-based economy, with many small and large businesses relying solely on cash transactions. However, with the rise of the digital revolution, an increasing number of companies are shifting towards digital payment

solutions (Yusoff et al., 2022). The development of Malaysia's e-payment system can be categorized into three phases from the 1970s to the mid-2000s, as shown in Appendix 2.1. In the late 1970s, the system began with the introduction of credit cards. By the late 1990s, network and internet-based payment systems were implemented, followed by mobile-based payment systems in the mid-2000s, marking the latest advancement (Yaakub et al., 2016).

To further encourage e-payment adoption, BNM has implemented measures such as lowering instant e-payment fees while increasing cheque processing fees to RM5,000 to reflect higher costs. By 2018, Malaysia's cashless transactions were found that nearly 50% of it made by using debit and credit cards, a Visa survey found that almost half of Malaysians could manage well with digital payments (Lee, 2024). The introduction of DuitNow transfer, DuitNow QR, and DuitNow Request further reinforced BNM's efforts to promote cashless transactions. This evolution followed by e-wallet emerged as the next step toward a cashless society. It influenced by the application of Alipay and WeChat Pay that widely use in China. Common e-wallet platforms in Malaysia include GrabPay, Touch 'n Go eWallet, Big Pay, and Boost.

The outbreak of the Covid-19 pandemic further accelerated the growth of digital payment platforms in Malaysia. E-payment usage surged, particularly for e-commerce transactions involving goods and services (Boon et al., 2022). According to the BNM Annual Report 2020, e-payment services increased by 14%, experienced double-digit growth and reached 5.5 billion transactions. On average, e-payment transactions per Malaysian increased from 150 in 2019 to 170 in 2020, with growth rate of 13.33%, as shown in Appendix 2.2 The MCO further contributed to this shift, leading to a 9% decline in cash withdrawals, totaling RM377.3 billion. The rapid advancement of the digital financial sector continues, with businesses and consumers increasingly adopting digital payments. According to the Annual report 2024 released by BNM, e-payment transactions saw a 19%

increase in 2024, reaching 409 transactions per capita, equivalent to at least one e-payment per Malaysian daily (Bank Negara Malaysia, 2024).

2.2.2 Reason why undergraduates use e-payment

The popularity of e-payment has increased in Malaysia along with the use of smartphones; thus, Gen Z and Millennials are the primary users of digital wallets as mentioned before (Yusoff et al., 2022). Because of this, adoption of e-payment among youngsters, especially undergraduates, has increased. Undergraduates widely adopt e-payment due to its simplicity, affordability, and discounts. Some e-payment platforms, especially e-wallets, will offer some incentives such as cashbacks, reward points and discounts to attract potential users. For example, BigPay users enjoy fee-free AirAsia ticket purchases, while Touch ‘n Go e-wallet users receive toll payment discounts (Ramli & Hamzah, 2021). Their spending habits are influenced by their mindset, and educational institutions play a key role in fostering a cashless and digitally driven society (Hamzah et al., 2023).

The adoption of e-payments among undergraduates in Malaysia also contributed to several key factors such as perceived benefits, social influence, perceived security and counterfeit currency. Perceived benefits play an important role in affecting the adoption of e-payment among undergraduates. It includes minimizing the risk of carrying cash such as theft and robbery, offering greater convenience and flexibility (Garrouch, 2021). Nowadays, undergraduates often use e-payment for small-value transactions such as purchase of meals and online shopping due to its benefit bring along. Besides, according to Alshannag et al. (2022.), social influence also affects the adoption of e-payment. In his study, Alshannag noted that users’ spending habits are affected by their surroundings, which motivates them to adopt new technology. A person’s community and environment significantly shape how willing they are to accept technological advancements. While perceived security is the belief that a person’s personal and private information will be safe and not

misused or exploited for fraud activities (Lallmahamood, 2007). Users or consumers will keep using the same platform to perform transactions if they believe that it is safe. In addition, rise of counterfeit currency also contribute to the development of e-payment in Malaysia. Affordable and readily available modern technology has made it easier to produce counterfeit money (Bank Negara Malaysia, 2022). It poses a risk to transaction security, as detecting counterfeit money can be difficult for recipients. As a result, the use of e-payment has increased as it can minimize such risks. Overall, these factors promote the usage of e-payments among undergraduates in Malaysia.

2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

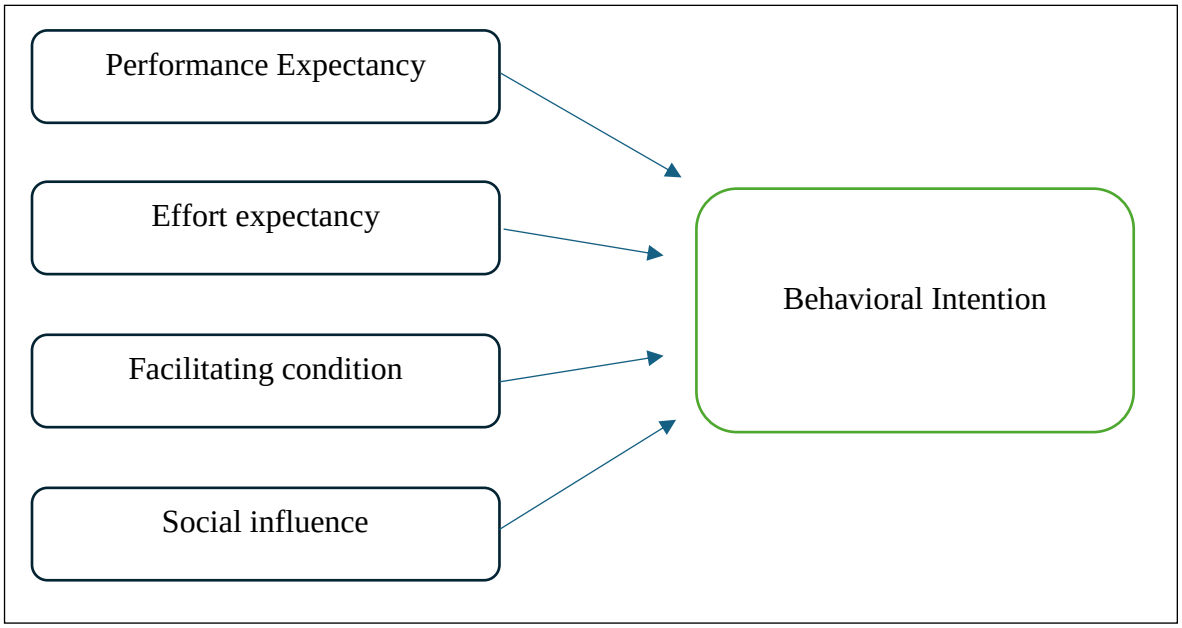

Figure 2.1. The framework of UTAUT model. Source: Developed for study.

As shown in Figure 2.1, Venkatesh et al. (2003) introduced the Unified Theory of Acceptance and Use of Technology (UTAUT) model by integrating key constructs predicting behavioral intention and use. The Unified Theory of Acceptance and Use of Technology (UTAUT) examines why people choose to accept or use a certain

technology. It highlights four main factors that influence this decision, which are performance expectancy, effort expectancy, social influence, and whether facilitating conditions (Marikyan, D.& Papagiannidis, S., 2025). UTAUT also mentioned that individuals like age, gender, experience and technology are used voluntarily and play important roles in affecting adoption. Age influences the impact of all main factors and gender affects how users respond to the main factors. This able integrate perceived benefit into the UTAUT model to analyze its impact on e-payment adoption among Malaysian undergraduates.

2.3.1 Main factors influence adoption of E-payment among Malaysia undergraduates

Performance expectancy refers to the degree to which users believe that adopting e-payment system will enhance their performance and get some benefit. The perceived benefits are close to an e-payment system will enhance their performance and provide some benefits to this construction as they encompass functional advantages such as convenience, economic incentive and financial tracking. According to Rahman et al. (2020) highlighted that performance expectancy was one of the important factors for e-payment adoption in Malaysia.

Besides, effort expectancy is used to measure the degree of ease associated with the use of the system. It is constructed from ease of use and driven from TAM which is the same in definition. Perceived benefits like user-friendly interfaces and intuitive designs making Malaysia undergraduate ease to adopt. For example, QR code scanning and automated transaction histories make the Malaysia undergraduate easy for use. According to Alduais & Al-Smadi (2022) shows that usability is important to drive behavioral intention as the effort expectancy positively correlates with e-payment adoption.

Facilitating conditions refers to how much a person believes that the necessary support such as organizational resources and technical infrastructure is available to help them use a particular technology. If publics feel they have knowledge, tools and support needed, they are more willing to use the system. On the other hand, study shows that this support plays a very vital role in real usage. Once users start using the system, the influence of facilitating conditions on their intention tends to decrease, but its impact on continued use remains significant. In Malaysia e-payment system have a lot of incentives from the platform and government incentives. For example, government incentives MYR30 payouts motivate Malaysia undergraduates to install and use e-payments. According to Wong and Mohamed (2021), their study shows that many users signed up primarily for this incentive which proves government incentive is effective to boost e-payment usage. Besides, hose platforms have continuously carried out some incentives to attract their users.

2.3.2 Age affects the adoption of E-payment among Malaysia undergraduates

Azmee et al. (2023) mentioned that examined the main factor among Malaysia undergraduates on adopt e-payment systems and found important relationships across various age groups. Malaysian undergraduates usually fall within 18-25 years old. A study by Rahim et al. (2022) highlights Malaysian students varies with age, with older students demonstrating higher proficiency in managing digital financial tools. For example, younger undergraduates like first and second year have less financial independent and less exposed to managing their digital financial transactions instead of final year students. As the final students have gained more social and academic responsibilities, they’re more expert in using financial tools.

2.3.3 Gender affects the adoption of E-payment among Malaysia undergraduates

Besides, gender also plays a crucial role in adoption of e-payment. Male students are more influenced by performance expectancy, valuing efficiency while female is focus on effort expectancy and social influence which is ease for use, user-friendly. For instead, female users will attract by spending tracking, rewards or cashback. While male is tending to technical function such as instant transfer with online platform.

2.3.4 Contribution of Perceived Security to E-Payment Adoption: A UTAUT Perspective

Perceived security in e-payment refers to a user's subjective opinion that financial transactions made online are secure and free of hazards such as fraud or data breaches (Ma et al., 2025). In e-payment adoption, security is one of the main points convinces consumers to accept this system. If they believe the system is unsecure, they will not adopt in it even it is good enough (Hassan et al., 2024).

Performance expectancy has been defined as the degree to which an individual believes that employing a particular technology will help them achieve performance gains or wanted outcomes. In E-payment system is linked closely to how users' belief on the system is effective and efficient. (Venkatesh et al., 2003). Users who perceive the e-payment system as secure are more likely to feel that it could bring significant achievement advantages where it could secure transactions and free of unwanted access and fraud. E-payment could save the transactions time compared to traditional payment. It also provides a reliable service which ensures continual operation without technological disturbances.

Perceived security increases the users' trust in technology's ability to achieve these results. Data encryption, biometric identification and real-time fraud warnings are key security elements that play a role. The moment users believe that their financial and personal information is secure, they will be naturally more inclined to anticipate the system to carry out its intended purposes properly (Tomić et al., 2022).

This sense of confidence and certainty promotes performance anticipation as users identify a safe environment with lower risk and more control over their financial activities. As a result, people have higher intentions to implement and utilize the e-payment platform, believing that it could assist them complete better tasks and be more satisfied overall.

In the framework of e-payment systems, it represents the simplicity and accessibility that consumers find the system to use. The system's security and flexibility play a significant role in shaping this view. Users more likely to feel more comfortable and less concerned to engage to e-payment system which could provide a secure and transparent platform for them. A secure system reduces the risk of data leakage and identity theft where it could let the user experience less unpleasant (Venkatesh et al., 2003). This emotional ease is associated to fewer perceived effort, as users believe they may utilize the platform without improper caution or technical knowledge.

The e-payment system has included user-friendly high-end security features such as biometric authentication that requires fingerprint or facial recognition for convenient login without any issues, one-time passwords (OTP) to authenticate every transaction, and end-to-end encryption so that users' information is kept confidential and secure (Heimberger et al., 2024). These features add to the efficiency and ease of use for the users. Users will receive guidance of simple steps that speed the transactions process instead of

memorizing passwords or enter complicated information. This could built confidence and to smooth the operation systems.

In addition, when customers are confident that the system is technically correct as well as secure, their mental effort in learning and using the system is significantly reduced. They feel less anxious or confused while undergoing the procedure of a transaction, something that can be very important for less technically sophisticated or first-time buyers of digital financial instruments (Norbu et al., 2024). Overall perceived security has a double-edge effect. It protects consumers while simultaneously improving perceived ease of use. It also increases the likelihood of e-payment system acceptance and use.

Facilitating conditions are the degree to which an individual perceives that there is an organizational and technical infrastructure to back up the use of a technology. In e-payment systems, this includes access to technical support, system reliability, user guidance, and presence of necessary hardware and software (Gu et al., 2021).

Perceived security is an important but frequently underestimated component of conducive situations. In 2024 alone, the Royal Malaysia Police's Commercial Crime Investigation Department recorded 35,368 scam cases, resulting in RM1.6 billion in financial losses accounting for 84.5% of all commercial crimes reported during the year. Telecommunication scam is at 31.6% where users share personal information or make payments to the fake authorities call or message. Phishing or malware is around 4.7% where users get scammed by clicking on links that enable the theft of personal information (Isamudin, 2024). Users will be more likely to be inspired and confident enough to accept and utilize the technology if they believe that the platform has sound security systems in place, such as system updates daily, secure servers, and conformity to regulations. Secure infrastructure typically includes regular software and security updates that address vulnerabilities and enhance stability within the

system. Directions are clearly expressed and easily presentable so that users will be able to easily use the system. Backup and recovery processes protect the information of users in the case of technical malfunction or cyber-attack (Williams et al., 2015).

Al-Saedi and Al-Emran (2021), these elements contribute to creating an environment in which users feel comfortable and in control, reducing the possible of adoption resistance. Users' confidence in an organization is very vital. The fact that a system is regularly maintained and help is available whenever problems emerge adds to users' confidence that adequate technical support is in place. This type of help boosts trust and system use, especially among users who lack technical abilities and expertise. When security is included into a system's architecture, in addition to normal maintenance, it helps to reinforce other providing preconditions such as equipment friendliness, internet availability, and user education.

Social influence is defined as the extent to which an individual recognizes family, friends, colleagues, or authoritative figures as stakeholders who have a specific regard toward the use of technology. This construct describes how much a user's intention to adopt e-payment systems is influenced by interpersonal motivation and social expectations in the context of digital payment adoption (Williams et al., 2015).

Perceived security complements social influence. Users are more inclined to adopt the system if others in their social circles trust and utilize a secure digital payment method. This occurs because individuals tend to replicate activities that are seen to be safe and desirable, particularly when such acts are endorsed by persons they consider as reliable decision-makers. Recommendations from peers and influencers often cite features of a system that include security, privacy, and convenience. A typical example is when users are informed of the e-wallet cons. They are likely to be encouraged to use the e-wallet. These

perceptions enhance the system's user acceptance potential and diminish psychological barriers towards user resistance (Taiwo & Downe, 2013).

In settings in what's security features like multi-factor authentication, fraud alerts, and transparent transaction digital literacy or adoption of financial technology is still in its developing stages, customers will depend considerably on social reassurance to deal with apprehension or hesitations. If a customer has no technical knowledge, observing others confidently employing a safe platform serves to legitimize the safety and trustworthiness of the system. This led to a greater behavioural intent (AbuShanab & Pearson, 2007). Thus, social influence combined with high perceived security can significantly quicken technology acceptance by creating a positive feedback loop of recommendation, trust, and adoption among social networks.

2.3.5 Contribution of Perceived Benefits to E-Payment Adoption: A UTAUT Perspective

Perceived benefit refers to an individual's recognition of the positive outcomes associated with a specific action (Lee, M.C., 2009). This idea is frequently used in behavioral medicine to describe what drives people to choose interventions or participate behaviors. Researchers and theorists assess perceived benefits because they believe that behavior is largely influenced by an individual's cognitive evaluation, including their acceptance, motivation, and attitude especially when the expected outcome is favorable.

The adoption of e-payments among Malaysian undergraduates is importantly affected by perceived benefits. It focuses on areas of convenience; economic incentives strongly shape Malaysian undergraduates' behaviors towards using e-payments as perceived advantages. The perceived advantages that users can gain in e-payment are convenience, efficiency, financial incentives. In the case

of e-payment adoption, undergraduates in Malaysia may be influenced by benefits like ease of transactions, cost savings, and financial management tools.

Perceived ease of use is a level or situation that is free of effort (Gunawan et al., 2019). Time saving, ease of transactions, and flexibility are the perceived benefits which are primary motivators for adoption of e-payment. As e-payments can conduct the transactions without time and location constraints. To encourage usage of mobile payment and online banking able to make instant transactions without physical cash (Zhou, 2012). In Malaysia widespread of QR payment system such as DuitNow QR enhance the convenience for digital transactions (Abdullah, 2025). The widespread of e-payment reflect Malaysia's rapid advancement in digital payment tools. Malaysia has emerged as a global leader in QR code adoption, currently ranking second worldwide with a usage rate of 61.5%, trailing only behind China, which leads with 67.4% adoption. This high penetration underscores the growing reliance on contactless and cashless payment methods in the Malaysian economy.

Empirical studies support the significance of convenience in adoption behavior. For instance, perceived usefulness closely related to performance expectancy has been identified as a strong predictor of e-payment adoption, influenced by features such as time efficiency and improved financial management tools.

E-payment platforms are designed to be user-friendly, with the featuring intuitive interfaces, step-by-step guides, and integrated help systems. With the features, Malaysian undergraduates more willing to use e-payment. For example, Touch 'n Go wallet is widely used platform in Malaysia especially undergraduates. It is simple to use which is easy to top up option. Allows seamless top-up via online banking (FPX), credit or debit cards, or even physical reload points. Besides, the simple QR payment just scan the QR code to make payment. Moreover, credit cards and debit cards have two forms which are card-present, and card does not present which are online and app-based

transactions. The ease-of-use credit card and debit card makes widely adopted among Malaysian undergraduates.

Discounts in prices, cashback rewards, and promotional coupons are a few of the most significant advantages that make e-payment systems more desirable for users. The person who has budget-conscious specifically Malaysia undergraduates, these incentives can be the major deciding factor to use e-payment. According to Shafi and Misman (2019), it stated that rewards play a crucial role to encourage publics to adopt in e-payment which measures about 27.7% of perceived benefits and intention to adopt in e-payment. Therefore, if the public notice the clear rewards and discounts, they may possibly be more likely to utilize e-payment on daily transactions. But such incentives and rewards are for short-term upliftment for the public to use e-payment. On the same study, it showed that 4% of the users continue using the platform after one year. This revealed that to maintain our users' interest we should incorporate more than a single incentive. In addition, government incentives also triggered early adoption such as Malaysia's MYR 30 e-wallet payment increased early take-up (Amalina & Suhaimi, 2021).

Early in 2020, the Malaysian government introduced the "Tunai Rakyat" stimulus program where there was a one-time payment of MYR 30 to qualifying individuals to be disbursed through approved e-wallet platforms such as Boost, GrabPay, and Touch 'n Go. Malaysians who were 18 years and above, including Malaysian undergraduates immediately, with below MYR 100,000 in yearly income, and with a smartphone, were targeted under the scheme. Most of the Malaysian undergraduates have adopted to e-payment, especially in COVID-19 pandemic period as the contactless payment appeal. The initiative, along with growing awareness of health, safety and convenience, enabled a sudden switch to cashless behavior.

By 2024, the proportion of e-wallet usage in Malaysia had grown to 88% from 63% in 2023 (Sharma, 2025). For the students, these rewards not only provide immediate monetary aid but also expose them to long-term benefits of e-payments like budget management capabilities and rapid, secure transactions. These measures from the government show how tailored rewards could effectively encourage adoption, especially for younger users who are more open to alternative digital solutions.

E-payment platforms have record transaction histories, allowing users to monitor spending patterns and manage personal finances effectively. By Thakur and Srivastava (2014) finds that mobile payment apps encourage financial literacy through features such as categorized expenditures and budgeting tools. For example, OCBC's Money Insights allow users to monitor spending by merchants and categories with the option to enhance budgeting (The Digital Banker, 2025). Further, e-payment platforms feature budgeting facilities. Goodbudget and Monefy are applications that allow one to set spending limits, track spending graphically and be notified when they are close to the limit.

Through financial tracking, these platforms offer practical benefits that fit well with the undergraduate lifestyle. Managing money through mobile device, Malaysian undergraduates no need to visit bank or manually record expenses. It also has automated features such as bill payment reminders and overspending alerts help Malaysian undergraduates monitoring their financial condition and reduce unnecessary spending. Thus, e-payment system is vital in fostering financial awareness and discipline, making them more popular and beneficial tool among Malaysia undergraduates (Nandedkar, 2025).

Overall, UTAUT properly explains the adoption of e-payment among Malaysian students when combined with the concept of perceived benefit. Performance expectancy, effort expectancy, social influence, and facilitating conditions are the principal contributing factors to affect students in intending

to adopt the use of e-payment systems. When Malaysian students perceive apparent benefits such as convenience, financial incentive, and financial efficacy. They are likely to use e-payment technologies. Hence, enhancing the perceived benefits can support the influence of UTAUT variables and invite greater adoption among students.

2.3.6 Contribution of Social Influence on E-Payment Adoption: A UTAUT Perspective

Social influence happens when people change their behaviors, attitudes, or beliefs due to social pressure or social interaction with others (McLeod & Simply Psychology, 2025). In the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, it describes the extent to which someone is influenced by important others, such as family, friends, or authority figures, who encourage them to adopt a particular system (Venkatesh et al., 2003). This dimension acknowledges the technology acceptance is shaped by both individual decisions and the user's social surroundings.

Social interaction can affect an individual's beliefs and opinions, which may be caused by the majority effect and the expert effect. The majority effect occurs when people are influenced by a large group with shared opinions, especially when their confidence level is low. Besides, the expert effect occurs when a high confidence individual in the group shares his/her opinions and influence others through their perceived expertise or authority (Moussaïd et al., 2013). These social psychological mechanisms directly influence technology adoption behaviors, especially in contexts involving peer pressure and social norms.

The development of digital payment systems has increased rapidly after the Covid-19 pandemic. Nowadays, many businesses use electronic payment methods in transactions. According to World Bank Group (2022), statistics show that during the Covid-19 pandemic, more than 40% of the adults globally

(excluding China) used digital payments for the first time. Bank account owners in the global population increased from 51% in 2011, to 68% in 2017, and to 76% in 2021. These figures indicate not only technological advancement but also shifting social expectations favoring contactless and cashless methods of transaction.

In Malaysia, a similar trend is observed among undergraduates. They are increasingly utilizing digital platforms for learning, administration, and personal purposes; students have become increasingly integrated into the digital ecosystem. This social change encourages behavioral intention, makes people feel common, normal, and part of expectation. For example, digital payment systems such as e-wallets, QR code scanning, and mobile banking applications are commonly used in daily life. This digital transition is consistent with the UTAUT model's theory, which suggests that behavioral change is likely to be increased when people receive social support to use new technology (Venkatesh et al., 2003).

There are a lot of empirical studies on the relationship between social influence with the adoption of digital payments. Khatimah, Susanto, and Abdullah (2019) found that the intention of individuals to use e-payment as a payment method to make transactions is significantly affected by social influences. When individuals perceive that people important to them are using and endorsing a technology, they are more likely to adopt it themselves. This aligns with the UTAUT assumption that subjective norms contribute to the formation of behavioral intention.

Similarly, Raimee, Maheswaran, Appannan, and Radzi (2021) suggested that undergraduate students change their behavioral intention by key factors including ease of use, rewards, and social influence. They also claim that many undergraduate students use mobile devices frequently in their daily routines. These mobile devices are frequently used for social communication, academic

task management, and financial transactions. In the process of observational learning, social interaction with their family and friends influences students' behavior and decisions in adoption of digital wallets when they are convinced of the advantages of using the digital payment system. Besides, many of the students responded that when they observe peers using e-payment systems, they will feel motivated and encouraged to do the same, this also aligns with the theory of social influence concept.

Social influence is not limited to direct peer pressure; it is further extended to social and environmental aspects. In study by Nassar, Othman, and Nizah (2019), it was found that social and cultural variables will affect human behavior in adopting information and communication technology (ICT) in Malaysia. In their study, they proposed that an individual's decision making is affected when someone perceives the benefits or importance of using ICT to them. Furthermore, by applying the Unified Theory of Acceptance and Use of Technology (UTAUT) model, they proved their statement and emphasized the social engagement reinforces confidence in using e-payment system in daily life. As a result, the study summarized that the social influence factor has positively affected human behavior; when someone perceives support from others, their intention to use ICT will be increased.

In conclusion, social influence plays a vital role in shaping behavior regarding the adoption e-payment systems among Malaysian undergraduates, as outlined in the UTAUT model. Social encouragement and subjective norms shape the behavioral intention in promoting the adoption of digital payments. This effect is then strengthened by post-pandemic behavior shifts. The COVID-19 pandemic acted as a catalyst for digital transformation, digital tools becoming deeply embedded in both academic and social routines, significantly accelerating the global adoption of digital payment systems. increasing digital integration in daily life. When undergraduates observe their peers and social networks adopting e-payments, they are motivated and more willing to adopt e-

payment, reinforcing the importance of social influence in digital adoption frameworks. This shows the importance of social pressure in changing human behavior. Combined with increased digital literacy and post-pandemic technological shifts and rising digital literacy and growing reliance on mobile platforms, social influence continues to serve as a powerful driver in the adoption of digital payment behavior.

2.3.7 Contribution of Counterfeit Currency to E-Payment Adoption: A UTAUT Perspective

Counterfeiting currency is unauthorized reproduction of banknotes that harm Malaysia economy. According to Bank Negara Malaysia Annual report 2022, more counterfeit issues heightened public awareness. The cash-heavy environment like night markets needs to be aware of this problem and report to the authorities when suspected of this problem occurs. Merchants are encouraged to adopt note scanners and adopt other payment channels such as QR payments for additional security. According to a study of Ramli (2023), there is an increasing number of counterfeit money cases in Malaysia. There are over 1500 cases in 2023 with over RM495,000. Cases rise from 754 in 2022 to 779 in the first 10 months of 2023.

For reducing the risk of counterfeiting, it calls upon consumers and traders to use cashless payment. Undergraduates constitute the key segment which is technology savvy as well as security conscious. E-payment is viewed as safe, traceable and not only reduces counterfeiting risk but also reduces the risk of theft using cash.

Malaysian undergraduates' cashless payment is not only convenient but also a mechanism to protect against fraud. For Malaysian undergraduates, technology-friendly and well-informed about the threat of fraud, this added benefit adds to

their assurance that e-payment increases safety and efficiency in financial transactions. Therefore, being able to escape counterfeiting money by conducting electronic transactions is among the primary drivers for performance expectancy, which leads to greater intention to adopt and continue utilizing e-payment systems.

E-payment can bypass the laborious process of verifying the genuineness of banknotes. Not only does it simplify the process, but it also affords safeguard against counterfeit attack. It is relatively easier and less tiring than verifying counterfeit banknotes individually. In cash transactions, consumers and small merchants primarily verify banknotes manually to avoid accepting fake money. They lack the expert tools to verify banknotes such as UV scanners or note detectors (Kanawade et al., 2024). To verify the banknotes whether real require skill and training, therefore, in the lack of expert skill and equipment there is cognitive load and suspicion for every cash transaction.

In e-payment transactions, systems provide automated payment experience that eliminate the process of authenticating banknotes. Touch ‘n Go, GrabPay, and Boost platforms allow customers to pay in a few taps without the need to authenticate currency legitimacy. The convenient e-payment transaction is easy to learn and easy to practice.

Malaysia government and media have actively promoted e-payment through anti-counterfeiting initiatives such as Basket of brands (Mirandah, 2018). Basket of brands is an anti-counterfeit initiative launched by the Malaysian Ministry of Domestic Trade in 2011. It offers brand owners a chance to register their trademarks with the Ministry, making it feasible for authorities to trace and act against counterfeit goods without a formal complaint. The move instills pre-emptive protection of intellectual property and enforces anti-counterfeiting enforcement measures (Vin, 2024). The government and media of Malaysia are trying to make social aware of the menace of counterfeiting notes to bring about

additional social pressure to embrace e-payments as part of a current fraud-conscious lifestyle.

Amongst students, increased public discourse surrounding counterfeiting has increased peer and institutional pressure to employ safer, cashless alternatives. With government agencies and the media launching anti-counterfeiting campaigns highlighting the risks posed by counterfeit banknotes, students are increasingly being socialized into seeing e-payments as a practical answer to these threats. Use of e-wallets is not only seen as user-friendly but also as social conformed behavior indicating awareness of counterfeiting risk. Students will thus be under pressure from norms to shift from use of cash payment to the usage of e-payment systems in a new fraud-conscious lifestyle that indicates caution and conformity with prevailing social norms.

Both the Malaysian government and BNM have gone out of their way to promote digital payment usage in Malaysia as part of national initiatives to reduce cash dependence and eliminate counterfeit money circulation. This has included government public awareness, regulatory guidance, and incentive-facilitated support for digital payment usage to develop a secure and effective cashless society. By positioning e-payment as the solution to the counterfeit risk, institutions provide a strong outside force that supports and legitimates consumers' behavioral shift, such as university students.

At the same time, the simplicity of digital payment infrastructure also makes it smooth. Facilitators such as DuitNow QR, secure mobile wallets, and biometric authentication facilities render it simple to shift to digital payment from cash. Furthermore, real-time fraud alert mobile banking applications, tracking capabilities with auto-remit reminders, and high merchant acceptability ensure customers have the technical infrastructure and confidence to deter risk bearing on counterfeiting. These conditions for facilitation reduce resistance in the

adoption process and give users valuable resources, hence strengthening customers' intention and ability to adopt secure e-payment systems.

User concerns about fake money are a key motivator of users' intention to adopt e-payment systems. In the UTAUT framework, this concern enables performance expectancy by perceived safety, effort expectancy by elimination of the burden of currency verification, social influence by campaigns and peer behavior, and facilitating conditions infrastructure and policy. For Malaysian students in general, most especially in a post-pandemic era when digital literacy and safety are essential, the specter of counterfeits is a compelling reason to make the move to secure, convenient, and cashless e-payment alternatives.

2.4 Theory of Planned Behaviour (TPB)

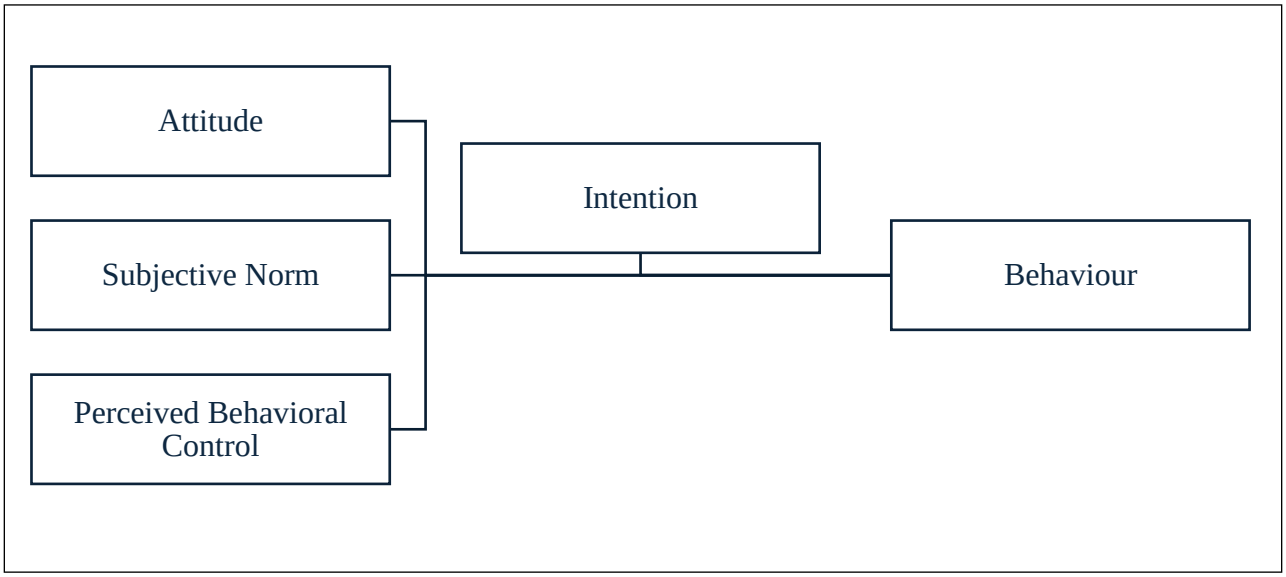

Figure 2.2. The Framework of TPB model. Source: Developed for study.

As shown in Figure 2.2, The Theory of Planned Behaviour (TPB) is an extension of the Theory of Reasoned Action (TRA), cognitive theory by Azjen (1985). It is recognized as one of the most essential theories to understand human behaviour. The Theory of Planned Behavior (TPB) is a well-known scientific structure that describes how

individual intentions impact human behavior and believes that an individual's decision to engage in a certain activity, such as gambling or quitting gambling, might be based on their intention to engage in that action (Brookes, 2023). The growth of digital payment methods has revolutionized economies worldwide, particularly in developing regions where mobile and online transactions have grown popular.

2.4.1 Main factors influence adoption of E-payment among Malaysia undergraduates

Attitude toward the behaviour refers to an individual's thoughts and emotions (evaluative affect) about conducting the target behaviour. If a person feels that their action will result in desirable consequences, they are more likely to have a positive attitude toward it (La Barbera & Ajzen, 2020). When users view e-payment systems as simple, quick, and secure, positive attitudes toward them are likely to be formed. In particular, the aspects of a one-time password (OTP), transaction evidence, and access through a mobile app can increase the users' trust and enjoyment, which is likely to help form a positive attitude. The more positive the attitude is, the more likely users are to accept electronic payments.

A subjective norm is described as a person's opinion of what most people who are significant to them think (they) should or shouldn't not execute the behaviour in issue. This might be the perspective of family, friends, and coworkers on anything. It is not what others believe, but how we perceive others' views (Ham et al., 2015). People may be more likely to use e-payments when they see that friends, family, and generally society approves of it or is already engaging in it through normative influence. The digital trend indicators, marketing by banks or fintech, and governmental initiatives in enforcing cashless societies may be indicators that create this norm, which social influence amplifies creating intent for use of e-payments.

Perceived behavioural control is an individual's assessment of how simple or difficult it will be to complete a certain activity based on previous experiences, predicted obstacles and available resources. This is determined by our sense of internal elements like our own talent and determination, as well as external factors like the resources and assistance we have. The idea proposes that our experience of behavioural control has two effects. First, it influences our intentions to behave in a specific way. The more control we believe we have over our conduct, the greater our desire to carry it out. Second, it has a direct impact on our conduct. If we believe we have a lot of control, we will work harder and longer to achieve our goals (Drew, 2023). Perceived behavioural control reflects user's perception of how much control they have by using e-payments. This encompasses access to resources such as a smartphone, reliable internet, and the level of digital literacy and confidence they have in using the apps. If users perceive they can use the system with little difficulty, ease and safely, they increase their intention of using the system. Furthermore, perceived behavioural control can also influence actual use behaviour, even if there was little intention formed.

2.4.2 Perceived Security Control: Linking Perceived Security to E-Payment Adoption

Perceived security is known as the personal judgment of a user about the safety of an electronic payment system during online financial transactions. It is included the users' views on the privacy, security, and integrity of their financial and personal information both before and following the entire transaction process (Scheldt, 2024). However, Teoh, Chong, Lin and Chua (2013) claimed that security is a significant obstacle to the use of e-payment. Other considerations of equal significance also shape how consumers perceive electronic payments. As with any modern system, protecting privacy and security, particularly personal data and finances, rank at the top of the list. All

online payment systems will always be targets of cybercriminals. Companies can avoid breaches into their systems and attacks by ensuring that their security measures are functioning properly and are updated. To provide suitable security for online payments, companies must comply with evolving regulatory policies concerning online security and payment infrastructure (Trishyarzp, 2025).

In addition to improving people's lives and increasing bank productivity, the e-payment system has changed payment habits. Digital payment security is now more important than ever due to the rise in online financial transactions. As more individuals use digital payment methods like mobile payments, internet banking, and e-commerce, there is a greater chance of fraud and identity theft (Gundaniya, 2023). E-payment systems are vulnerable to a few security issues, such as fraud, identity theft, and data breaches, which can cause monetary losses and harm to a company's or consumer's image. Cybercriminals take advantage of weaknesses in payment systems to get private information, including bank account information and credit card numbers, which they then utilize for identity theft and other illegal activities (Utimaco, 2023).

This study applies the Theory of Planned Behaviour model to examine the relationship between perceived security and the adoption rate of e-payment platforms. The Theory of Planned Behaviour (TPB) is a well-known scientific structure that describe how individual intentions impact human behaviour (Albarracín et al., 2001). The growth of digital payment methods has revolutionized economies worldwide, particularly in developing regions where mobile and online transactions have grown popular. The theory will be explained by the essential elements.

Users' perceptions of security while utilizing e-payment systems are greatly influenced by their level of personal digital literacy. The capacity to utilize digital tools efficiently, discover technological aspects, and explore online settings while being mindful of threats including scams, data breaches, and

online fraud is known as digital literacy (Nguyen et al., 2024). On the other hand, people who lack digital literacy could feel overconfident. Their ignorance of online dangers may lead them to place unnecessary confidence in well-designed websites or user-friendly interfaces, believing that these graphical signals ensure security. Therefore, this makes individuals more vulnerable to hacking attempts as they can underestimate the possibility of risks like identity theft or online (Maqableh et al., 2015).

Additionally, studies have demonstrated that the adoption of e-payment systems is strongly impacted by perceived security, which is influenced by digital literacy. Users are more inclined to use digital transactions and mobile banking when they feel safe, particularly when there is trust among institutions and system usability (Treiblmaier et al., 2006). Promoting digital literacy is crucial as a basis for boosting user trust and guaranteeing safer digital participation. Digital financial services are becoming more and more integrated into daily transactions.

Technological protections are significant components of electronic payment systems which also have a direct impact on consumers' security perceptions. Real-time fraud detection, biometric verification, multi-factor authentication (MFA), and encryption are some of the most important technical protections. To provide a safe environment for online financial transactions, each of these technologies has a specific function. Payment gateways are essential to guaranteeing the safety of online transactions. Merchants may preserve consumer trust in their e-commerce operations and safeguard sensitive financial information by knowing the essential characteristics and best practices of secure payment gateways (DeSousa, 2025).

Users should implement a few crucial procedures to guarantee the safe usage of electronic payment systems. Making strong passwords and PINs that are made up of capital and lowercase letters, digits, and symbols that are at least 12

characters long will greatly lessen the chance of unwanted access (Smarathe, 2023). Individuals using the internet need to be cautious of forged emails and websites of concealed fraud schemes aimed at luring individuals to part with their private details. It is important not to visit malicious websites and to check the legitimacy of the requests made for secret information. In addition to the above, using public wireless networks should be done with great care. Because public wireless networks are often unprotected, users must avoid entering sensitive information using these networks or opt to use a virtual private network (VPN) that encrypts information and mask's identity (Malyshev, 2025).

In summary, perceived security is a key factor in e-payment system acceptance and is strongly related to the Theory of Planned Behavior. Most significantly, users perceived behavioral control is improved by perceived security, which gives them assurance that they can use the system securely and successfully and raises the possibility that they will embrace it.

2.4.3 Perceived Behavioral Control: Linking Perceived Benefits to E-Payment Adoption

In the Theory of Planned Behavior (TPB), perceived behavioral control (PBC) is an individual's belief in being capable of performing a certain behavior, founded on their perception of access to resources, opportunities, and anticipated obstacles. In e-payment systems, PBC is associated directly with the perception of users that these systems have clear benefits, are easy to use, and there are conducive environmental conditions. Positive enablers facilitate initial adoption and continue use of electronic payment systems.

One of the critical components of perceived control is the belief that the use of the system will lead to positive consequences. In Malaysia, financial incentives by way of cashback, rewards, and discount programs have been highly

successful in promoting the use of e-payments. Shafi and Misman (2019) found that these financial rewards significantly affected e-payment adoption by Malaysian university students, accounting for approximately 27.7% of the perceived advantages that led to their adoption intention. These extrinsic incentives not only attract first-time users but also facilitate habitual use by reinforcing perceived value.

Beyond overt monetary benefits, e-payment systems are valued for utilitarian advantages such as worldwide coverage. The ability to make cross-border transactions without the hassles of currency conversion or hard cash is particularly appealing to students and young professionals who engage extensively with overseas sites for subscriptions, digital content, and online purchases. Such features enhance perceived usefulness and control, affirming users' faith in adopting and maintaining e-payment systems.

This is supported by study on counterfeit purchase intention, where perceived behavioral control was a strong predictor of user behavior, not only by access ease, but also by perceived benefit and risk (Ha & Janda, 2014). Similarly, for e-payments, perceived convenience, security, and advantage are considered essential antecedents of behavioral control and adoption intention.

Usability remains a primary driver of PBC. E-wallet applications with user-friendly interfaces, easy layouts, and easy-to-understand reward plans reduce barriers to use and increase users' perceptions of competence and self-efficacy. As customers find e-payment systems easy to use and low-effort, their perceived behavioral control is enabled, resulting in more intensive and extensive use. This linkage of design simplicity with user empowerment parallels study on counterfeit-related TPB study, where reduced perceived difficulty in using or purchasing counterfeit products was linked with higher behavioral intention (Jiang & Cova, 2012). Thus, in legitimate financial systems like e-payments, process simplification also leads to increased usage.

Perceived control is also impacted by forces external to the individual. The proliferation of cashless societies and environmentally friendly digital solutions, such as reduced paper use, has an appeal to ecologically conscious consumers, particularly Gen Z and Millennial generations. Amber (2024) states that the expansion of the e-wallet infrastructure throughout universities, retail outlets, and public services instills a culture of normality of electronic payment. These system factors reduce uncertainty and friction and add to the perception that users have both the ability and the social support to utilize digital payment systems with confidence.

Cumulatively, perceived behavioral control is considerably boosted since users enjoy both material incentives and experiential convenience in taking up e-payment. Environmental stimuli, usability in the system, and utilitarian gains in aggregate produce a sense of autonomy and competence, thus boosting the likelihood of long-term adoption. In line with TPB, these constructs point out how control beliefs determine consumer intentions towards secure, convenient, and eco-friendly payment methods.

2.4.4. Subjective norms: Linking Social Influence on E-payment Adoption

The Theory of Planned Behavior (TPB) is a psychological framework that explains how an individual's beliefs influence their actions. It suggests that the performance of a behavior can be determined by an individual's intention to perform (motivation), which is influenced by 3 factors, including attitude toward the behavior, subjective norms, and perceived behavioral control (PBC). Intentions are considered the most direct predictor of behavior.

Intention is reflecting how much effort the individual is willing to devote to performing that behavior. An individual's intention is shaped by subjective

norms (perceived social pressure from important others), perceived behavioral control (PBC), and attitudes towards behavior (personal evaluation) (Ajzen, 1991). According to Li and Li (2023), individuals are more likely to develop a strong intention to perform a behavior when they hold a positive attitude toward it, perceive support from peers, and believe they have the resources or ability to successfully engage in it. In the context of e-payment adoption, if a student views digital payments as useful by receiving encouragement from friends or family, and thus feels confident in using the system, they are more likely to have stronger intention to adopt the technology.

There are three forms of social influence, including conformity, compliance, and obedience. Conformity is about people changing their behaviors to align with their peers. For example, when many students express their opinion on a behavior such as adopting e-payment, it will have a strong social influence on others because of the majority effect (Moussaïd et al., 2013).

Compliance is about people responding to requests; and obedience is about people responding to an order from a higher status person (Natsumi & Natsumi, 2024; MSEd, 2023). These types of social influences explain how social pressure around undergraduates may shape student behavior, particularly when peers or influencers promote the use of digital payment systems.

Subjective norms, or the perceived social pressure from significant people or groups, like family, friends, or peers, to engage in or refrain from engaging in a specific behaviour, are a reflection of social influence in this framework. Particularly among undergraduates, who are frequently swayed by their peers or societal trends, these social influences shape an individual's intention to adopt a behaviour, such as using electronic payment systems.

Subjective norms are a key aspect of social influence in the TPB. It can significantly affect the intention of an individual to adopt a specific behavior.

For university students in Malaysia, social influence may come from observing their peers frequently using e-wallets or receiving encouragement from family or lecturers to adopt digital payments. For example, if a student perceived that e-payment is a smart or modern choice and widely used in their social group, that student is more likely to have higher intention to adopt digital payments.

An attitude toward the behavior refers to an individual assessing a specific behavior whether they view it positively or negatively to perform the specific behavior. When a person believes that the behavior will have a positive outcome, they are more likely to develop positive attitude toward a given behavior (Ajzen, 1991). Example, if a student receives positive information from friends, family, or social media about the benefits of using e-payment such as convenience, faster speed, or discount, this social influence may shape their belief that e-payment is beneficial, and this such positive attitude will increase his/her intention, thus increase the possibility of adopting e-payment in their daily life.

Perceived Behavioral Control (PBC) refers to an individual's perception of the difficulty of performing a specific behavior based on their access to resources needed, such as time, money, skill, or available opportunities (Ajzen, 1991). From this context, PBC may be affected by social influence factors indirectly. According to Pontz (2022), this form of social support can build confidence, reduce anxiety, and help individuals try new things. For example, social encouragement, if a student learns how to use digital wallet apps from their friends, their digital literacy skills and confidence will increase, and they will feel easier to adopt e-wallets. In addition, emotional reassurance from others may ease the transition from traditional cash to digital payments and this emotional comfort from social influence helps to reduce the perceived effort involved in adopting new technology, enhance the individual's sense of control and strengthens their intention to use e-payment systems.

In conclusion, the Theory of Planned Behavior explains that social influence, particularly through subjective norms, plays a key role in shaping undergraduates' attitudes and intentions to adopt an e-payment system in their daily life. Positive support from peers, influencers, or authority figures can increase motivation, confidence, and digital literacy skills to adopt digital financial behavior.

2.4.5 TPB Perspective: Linking Counterfeit Currency to E-Payment Adoption

Counterfeit currency is a consequential threat to the authenticity of cash-based payments and is still a strong driving force behind the shift in behavior of the public toward electronic payment (e-payment) systems. Notably, though, it is not only the actual prevalence of counterfeit currency that precipitates such change in behavior, but also the perceived threat that it constitutes. As noted by Nguyen and Huynh (2017), individuals avoid cash and opt for electronic where they believe the risk of receiving counterfeit money is high. It is extremely aligned with the Theory of Planned Behavior (TPB), which claims that human behavior is dictated by three principal factors: attitudes, subjective norms, and perceived behavior control.

Consumer behavior is significantly determined by attitudes towards counterfeits. Others will form positive attitudes towards counterfeit currency based on perceived monetary benefits or beliefs of limited legal risk (Mihalek, 2024). These positive attitudes will boost one's intention to use counterfeits in transactions. However, this is offset by the real risks involved in so doing, such as legal sanctions, reputational harm, and loss of money. Since the use of counterfeit money is more widely recognized, society is increasingly anxious regarding the security of payments, which results in a shift toward secure, traceable means of payment particularly, e-payment systems (People's Bank of

China, 2009). This shows that while a segment of the population may be drawn to the perceived benefit of counterfeit currency, the overall setting of legality and financial risk encourages more positive orientations toward digital payment media.

Social influence plays a role as well in shaping behavior implicated in counterfeiting money. When others, including relatives or peers, implicitly condone or openly endorse money-changing activity incorporating counterfeits, individuals are most likely to find themselves incentivized to engage in such activity (Tseng et al., 2020). By contrast, social disapproval most significantly in environments where the use of forged notes is extremely conspicuous or stigmatized can discourage participation. These subjective norms result in a cultural and ethical change towards appropriate and transparent forms of financial interaction. Accordingly, e-payment systems, which are commonly viewed as trustworthy and transparent, increasingly follow socially accepted norms but further promote their adoption.

Perceived behavioral control is how much one feels they can carry out a particular behaviour in the case of the use of false money. Variables such as access to imitation networks, method of transaction information, and detection risk belief influence this perception (Mihalek, 2024). However, with governments and financial institutions continuing to make advanced counterfeit detection technology available and tightening regulation controls, the likelihood of successfully transacting with imitation money becomes less feasible. The sense of perceived coincides decreasing as the confidence in e-payment rises. The higher efficiency of e-payment system increases the users' feeling of control and leads to wide adoption in e-payment system.

Empirical findings in Southeast Asia offer support for applying the TPB model to electronic money adoption. High-profile Indonesian study by Ayudya and Wibowo (2018) merged TPB with the Locus of Control model and found

attitude and perceived behavioral control to be significant predictors of individuals' e-money usage intentions. Subjective norms were seen to have a lesser role, interestingly suggesting individual judgments and self-efficacy when using technology can trounce social pressure under certain circumstances. Also, Prayidyaningrum and Djamaludin (2016) cited that all three TPB constructs of attitude, subjective norms, and perceived behavioral control influence positively the intention to embrace e-payment systems. The above findings support the strength of the TPB framework explaining technology adoption behavior, especially in developing economies where digital finance is highly dynamic.

In summary, the Theory of Planned Behavior offers a lucid model for describing how the use of spurious currency impacts the adoption of electronic payment systems. Through influencing people's attitudes, changing social norms, and influencing beliefs about behaviour control, the dangers and social repercussions of counterfeit money push people and organizations to use safer and more secure electronic payment methods. Policymakers and fintech operators who wish to promote secure, open, and inclusive financial systems can benefit greatly from these findings.

CHAPTER 3 METHODOLOGY

3.0 Introduction

This chapter examine the adoption of e-payment among undergraduate in Malaysia. This study is guided by the UTAUT theory and the TPB theory, with the objective of identifying the factors such as perceived benefit, perceived security, social influence and counterfeit currency on e-payment adoption among Malaysia undergraduate.

To achieve this objective, a quantitative research approach is used in structured questionnaires as a primary data collection tool. Responses will be measured 5-point Likert Scale, allowing the data to be operation and quantification. The data collected will be analyses by descriptive analysis, reliability test which using Cronbach's Alpha the reliability to ensure the questionnaire is reliable. If the questionnaire is reliable, inferential analysis will be carried out such as multiple regression analysis to test the relationship between independent variables and the adoption of E-payment among Malaysia undergraduates.

It presents research design, target population, sampling procedures, data collection methods, research instruments, and the techniques used for data analysis.

3.1 Research Design

This study adopts the quantitative research design and cross-sectional approach to investigate how the perceived security, perceived benefit, counterfeit currency and social influence affect the adoption of e-payment among undergraduates in Malaysia. Besides, this study uses quantitative approach as it allows for measurement and statistical analysis of relationships between variables to adopt e-payment services. This study's cross-sectional design makes it possible to gather data from a sizable sample

over a predetermined time frame, which makes it easier to analyse and interpret current trends.

3.2 Population and Sampling

According to Radhesree (2023), the following formula suggested by Cochran (1977) in Sampling Techniques to calculate the minimum sampling size:

$$n = \frac{Z^2[p(1-p)]}{e^2}$$

$$n = \frac{1.96^2[0.5(1-0.5)]}{0.05^2}$$

$n \approx 384$

Confidence level= 95%

Z-score= 1.96

Standard deviation= 0.5

Confidence interval= ± 5%

The target population for this study including the undergraduates in public and private institutions across Malaysia. This study uses a convenience sampling technique to collect respondents' data by distributing the questionnaire in an accessible and quick way. A sample size of around 385 is adequate to make assumptions on nearly all population size at the 95% confidence level with a 5% margin of error, which explains why samples of 400 or 500 are frequently utilized in research (Kibuacha, 2022). This study has 400 respondents targeted as this sample size is sufficient to ensure meaningful statistical analysis and generalizability within the undergraduate student population.

3.3 Data Collection Method

An online survey created with Google Forms was used to gather primary data for this study. Both online and physical distribution of the questionnaire are underway. The link to the questionnaire was disseminated via several digital channels that Malaysian undergraduate students frequently use, such as social media, messaging apps, and email. As the appendix 3. 8 shown the photos our group member physically distribute questionnaire to Malaysian undergraduates.

3.4 Research Instrument

3.4.1 Questionnaire

The questionnaire consists of five sections:

- Section A: Collects demographic data (age, gender, study level, and e-payment usage frequency).
- Section B: Measures perceived security in adoption of e-payment among Malaysia undergraduate
- Section C: Measures perceived benefits in e-payment adoption among Malaysia undergraduate.
- Section D: Measures social influence on e-payment adoption among Malaysia undergraduate.
- Section E: Measures the impact of counterfeit currency on adoption of e-payment among Malaysia undergraduate.

A five-point Likert scale, with 1 denoting “strongly disagree” and 5 denoting “strongly agree”, is used in sections B through E. To guarantee content relevance and alignment with the research objectives, the questionnaire’s question was modified from a prior study.

Econometric Model

This study employs a multivariate ordinary least squares regression analysis to model the relationship. The model specification is as follows:

AEMU= β0 +β1 (PS) +β2(PB) +β3 (SI)+β4(CC)+ϵ

AEMU: The adoption of e-payment systems among undergraduates in Malaysia

PS**:** Perceived security PB: Perceived benefits

SI: Social influence CC1: Counterfeit currency

3.5 Validity and Reliability

To ensure content validity, the questionnaire was adapted from prior peer-reviewed studies. Then, construct validity was ensured by grouping items according to the theoretical frameworks of UTAUT and TPB, which provided a strong basis for measuring the intended variables. A pilot test involving 50 undergraduate students in UTAR was also conducted to assess the clarity, relevance, and comprehensibility of the items. The pilot test questionnaire is attached to Appendix 3.1. After collecting 50 responses, Cronbach's Alpha was calculated for each construct to assess internal consistency, and as shown in Table, all values exceeded the commonly accepted threshold of 0.70, indicating strong internal reliability. In this pilot test, the PS and CC variables have less than 0.70 which is due to small sample size. The problem may be solved when 400 respondents are collected. [Appendix 3.2]

Table 3.1:

Pilot Test (Reliability Analysis)

Construct	**Cronbach's Alpha**
Dependent variable (DV)	0.846
Perceived security (PS)	0.657
Perceived benefit (PB)	0.889
Security influence (SI)	0.861
Counterfeit currency (CC)	0.660

Moreover, to make sure the questionnaire is reliable, normality test [Appendix 3.3], descriptive analysis [Appendix 3.4], correlation test [Appendix 3.5] and multiple regression analysis [Appendix 3.6] is conducted.

Based on the pilot test in Table 3.1, several refinements were made to improve the questionnaire's clarity and effectiveness. Firstly, a new item was added to the demographic section to capture the state of university of each respondent. This addition allows for more detailed analysis of regional variations in behavioral intention toward adoption of e-payment among Malaysia undergraduates. Secondly, the Likert scale format was revised. A numerical scale from 1 (Strongly Disagree) to 5 (Strongly Agree) was used in place of the original format, which used verbal descriptors like "Strongly Agree" to "Strongly Disagree". This change makes responses more consistent and streamlines the data analysis procedure.

3.6 Data Analysis Techniques

Data analysis performed with SPSS version 29.0, a powerful statistical package that allows a range of quantitative analyses. Data analysis has involved descriptive statistics, reliability analysis, correlation analysis, and multiple regression analysis to ensure the validity, reliability, and interpretability of the study findings. Each of the techniques has applied for a specific purpose for the research objectives:

3.6.1 Descriptive Statistics

Descriptive statistics have been used to define and summarize the demographic information of the respondents such as age, gender, preferred payment method, monthly income, and how often they use e-payment. It described the range of answers for each of the independent variables being studied. The procedure helps identify any disparities or outliers and gives a summary of the data that is currently available.

3.6.2 Reliability Analysis

Cronbach's Alpha reliability analysis has been used to assess the constructors' internal consistency as measured by multiple questionnaire items. To be deemed acceptable, the items must normally measure the same construction with a Cronbach's Alpha of 0.70 or higher. This measure ensures that survey items are reliable and consistent.

3.6.3 Correlation Analysis

Correlation analysis has been employed to examine the strength and direction of independent variables and dependent variables. Spearman correlation coefficient (r) has been utilized, and values that are near +1 or -1 are indicative of strong relationship, and those near 0 illustrate weak or no relationship.

3.6.4 Multiple Regression Analysis

Multiple regression analysis has been utilized to examine the effect of independent variables on the dependent variable. It allows this study to determine factors that significantly explain user acceptance behavior and the variance explained by each factor in the dependent variable. The outcome of the regression helped test hypotheses developed in this study.

3.7 Construct Measurement

The questionnaire was designed by adopting other study questionnaires and self-development questionnaire after reviewing others study. From Table 3.2 to 3.6 are the origins of the questionnaire.

Table 3.2:

The origin of the questionnaire (Dependent Variables)

No.	Questions	Sources
1	Using e-wallet is one of my preferred methods to make payments.	(Vinitha & Vasantha, 2017)
2	One of the main obstacles preventing the widespread usage of e-payments is the consumer's perception.	

3	E-payments are more efficient than cash payments.	
4	I will share and encourage those around me to adopt e-payments.	
5	I would consider switching completely to e-payments if all stores accept them and the systems are secure.	

Table 3.3:

The origin of the questionnaire (Perceived Security)

No.	Questions	Sources
1	Payment security provided by e-payment providers is sufficient.	Kim et al. (2010)
2	I will be concerned with the security of my bank account when I use an e-payment.	
3	I am pleased to use e-payment if the software is secured with the latest technology.	
4	I would prefer using e-payment with security coverage from insurance.	
5	E-payment platforms offer fewer financial risk.	

Table 3.4:

The origin of the questionnaire (Perceived Benefit)

No.	Questions	Sources
1	E-payment is more convenient compared to cash.	Smith (2024)

2	I can avoid carrying a large amount of cash by using e-payment.	
3	E-payment services enhanced my search for the payment method I desire.	
4	E-payment enhances my productivity by reducing the time I spend on handling payments.	
5	E-payment systems assist me in managing and tracking my expenditures.	

Table 3.5:

The origin of the questionnaire (Social Influence)

No.	Questions	Sources
1	I feel motivated to use e-payment since nearly every individual around me are using it.	Putri et al. (2017)
2	I adopt e-payment more frequently as it is perceived as an updated and trendy way to pay.	
3	I am more willing to adopt e-payment if my peers encourage it.	
4	I do feel excluded if I do not employ e-payment while everyone else did.	
5	I frequently mention the advantages of e-payment with those in my social group.	

Table 3.6:

The origin of the questionnaire (Counterfeit currency)

No.	Questions	Sources
1	I am well-informed about the risks of counterfeit money in Malaysia.	Cheong and Nasuredin (2023)
2	I believe the risk of receiving counterfeit currency is high when using cash transactions.	
3	Concerns about the counterfeit currency have positively influenced my decision to adopt e-payment systems.	
4	I feel more secure using e-payments compared to handling physical cash.	
5	I believe the government is taking excellent steps to combat counterfeit currency issues by encouraging us to use e-payment system.	

3.8 Data Processing

Data processing is the conversion of unprocessed data into meaningful information. Information is extracted by organizing, indexing, and manipulating data, which is known as data processing. In this context, "information" refers to relevant linkages and patterns that aid in the solving of associated problems. This method may be completed using appropriate computer software, such as the SPSS program used in this study.

3.8.1 Data Checking

Data checking is one of a crucial step in the process because a problem with missing data can significantly affect the conclusions reached. Missing data can cause estimates to be skewed and lower a study's statistical power, which can result in inaccurate outcomes (Jatin, 2024).

3.8.2 Data Editing

Data editing is the most important stage during the study process which includes verifying and fixing mistakes, inconsistencies, and missing parts in the gathered information. The purpose of data editing is to ensure data quality, study findings validity, and study credibility (Kumar, 2023). The data editing procedure is the first stage in data processing once all completed surveys have been received from respondents via the Google form. After all data has been collected, it is transferred to an Excel spreadsheet. Then our team members examined for omissions and ambiguities to ensure there were no errors in the data. As a result, information is simply transferred and analysed using SPSS software.

3.8.3 Data Coding

Coding is the process of identifying and arranging qualitative data to identify various themes and their relationships. It is crucial step in ensuring the validity and reliability of findings (Medelyan, 2025). In this study, the data were coded by the demographic variables with gender, age, University located, preferred e-payment method monthly income, and frequency of using e-payment per day [Appendix 3.9]. Then all the questions under the dependent and independent variables were coded with numbers according to Likert scale such as (1= Strongly disagree). (2= Disagree), (3= Neutral), (4= Agree), (5= Strongly agree).

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter covers the study findings and data analysis derived from the study conducted on the adoption of e-payment among Malaysian undergraduates. The data for this study is collected through our team members carried out a Google form questionnaire to the selected responders. The results of the questionnaire that was issued will be extensively reviewed in this chapter to support the objectives mentioned in Chapter 1. The data analysis was performed based on the methods that have been discussed in Chapter 3. The final sample that has been analyzed is 407 respondents.

The duration taken to collect all 407 responds are 2 weeks and all findings are discussed deliberately using the statistical approach of SPSS. To address the research objectives outlined in Chapter One and evaluate the hypotheses developed from the theoretical framework, the results from the questionnaire are analyzed systematically.

Chapter 3 outlines the techniques used to analyze the data; in this case, the questionnaire data was analyzed with the aid of the SPSS. In this case, the analysis was performed as outlined in Chapter 3. This chapter also describes the respondents' demographic profiles, which presents as descriptive statistics first, with subsequent inferential analyses examining the relationships between the variables and the significance of the relationships. Each section of the analysis is presented in detail so as to demonstrate the relationship between the findings and the objectives and research questions of the study.

4.1 Descriptive Analysis

Descriptive Analysis is used to summarize and interpret the conclusions regarding the demographic characteristics of the respondents based on the sample data. This section

includes frequency distributions and percentage analyses of key variables such as gender, age, location of university, preferred e-payment method, monthly income, and frequency of e-payment usage per day. This data provides a comprehensive profile of the sample population and contextualizes subsequent inferential findings.

4.1.1 Respondents' Demographic Profile

According to the results, most of our respondents are college students between the ages of 18 and 24, and they frequently use mobile banking apps and digital wallets. The results will be representative of both male and female perceptions if the gender distribution is balanced. The tables and figures below summarize the distribution of these characteristics:

4.1.1.1 Gender

The respondents are categorized by their gender. Majority of the respondents are female as it consists of 52.09% (212 respondents), while 47.91% (195 respondents) are male as shown in Figure 4.1 and Table 4.1.

Table 4.1:

Gender distribution

Gender	Frequency	Percentage (%)
Female	212	52.09
Male	195	47.91

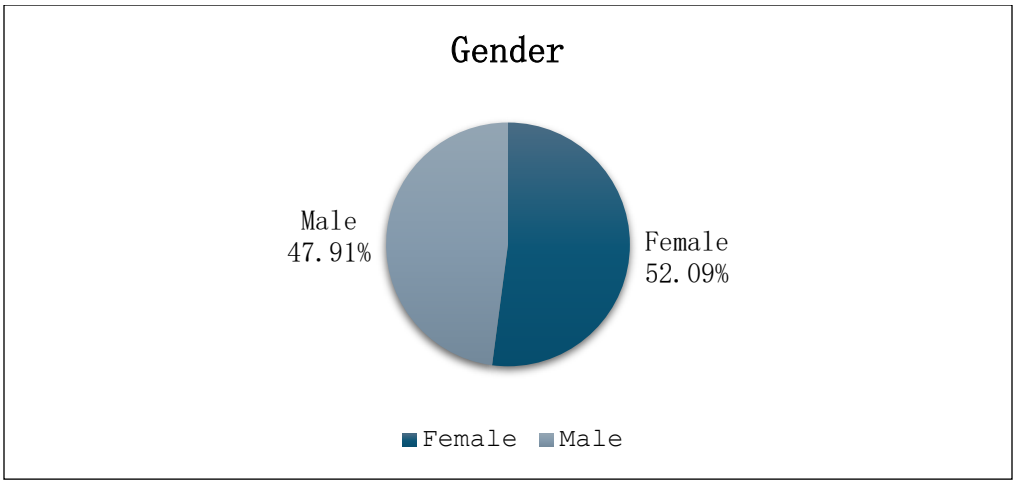

Figure 4.1. Gender Distribution. Source: Developed for study.

4.1.1.2 Age

Besides gender, respondents are also categorized by their age. Figure 4.2 and Table 4.2 indicate that only 3.19% of the respondents is 18 years old, 6.88% is 19 years old, 9.09% is 20 years old, 15.48% is 21 years old, 36.86% is 22 years old, 11.55% is 23 years old and 22.11% is 24 years old.

Table 4.2:

Age distribution

Age	**Frequency**	**Percentage (%)**
18	13	3.19
19	28	6.88
20	37	9.09
21	63	15.48
22	150	36.86
23	90	11.55
24	26	22.11

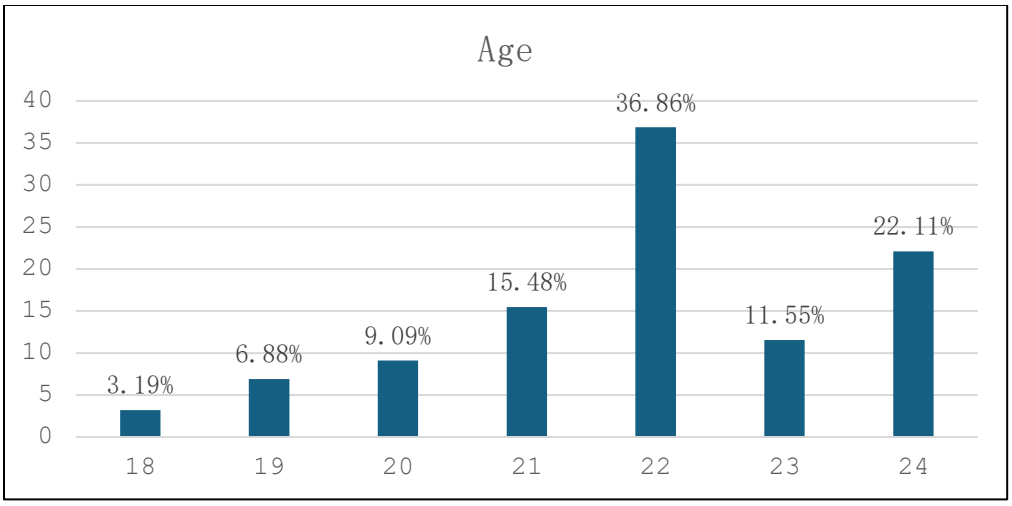

Figure 4.2. Age Distribution. Source: Developed for study.

4.1.1.3 Location of the university

Figure 4.3 and table 4.3 displays respondents to the student survey from universities in different states in Malaysia. The majority of the 407 students surveyed were from Penang, which is (14.99%) 61 of the students. Next was Perak with 57 students (14%). The other representatives were from Johor with 24 students (5.90%), Kelantan with 20 students (4.91%), Kedah with 35 students (8.60%), Malacca with 40 students (9.83%), Pahang with 26 students (6.39%), Selangor with 46 students (11.30%), Terengganu with 34 students (8.35%), Perlis with 27 students (6.63%), Negeri Sembilan with 21 students (5.16%), and Sarawak with 10 students (2.46%). The least is Sabah with 6 students only (1.47%) in that order. This distribution shows that the sample gets broad coverage of the geography of the country but is still concentrated in several states only which are, of course, Penang, Perak and Selangor that jointly hold the number of students close to the half of the distribution. To reduce the possibility of missing out any universities from the dataset, respondents were requested to provide their university's location rather than its name.

Table 4.3:

University Location Distribution

University	**Frequency**	**Percentage (%)**
Johor	24	5.90
Kedah	35	8.60
Kelantan	20	4.91
Malacca	40	9.83
Negeri Sembilan	21	5.16
Pahang	26	6.39
Penang	61	14.99
Perak	57	14.00
Perlis	27	6.63
Sabah	6	1.47
Sarawak	10	2.46
Selangor	46	11.30
Terengganu	34	8.35

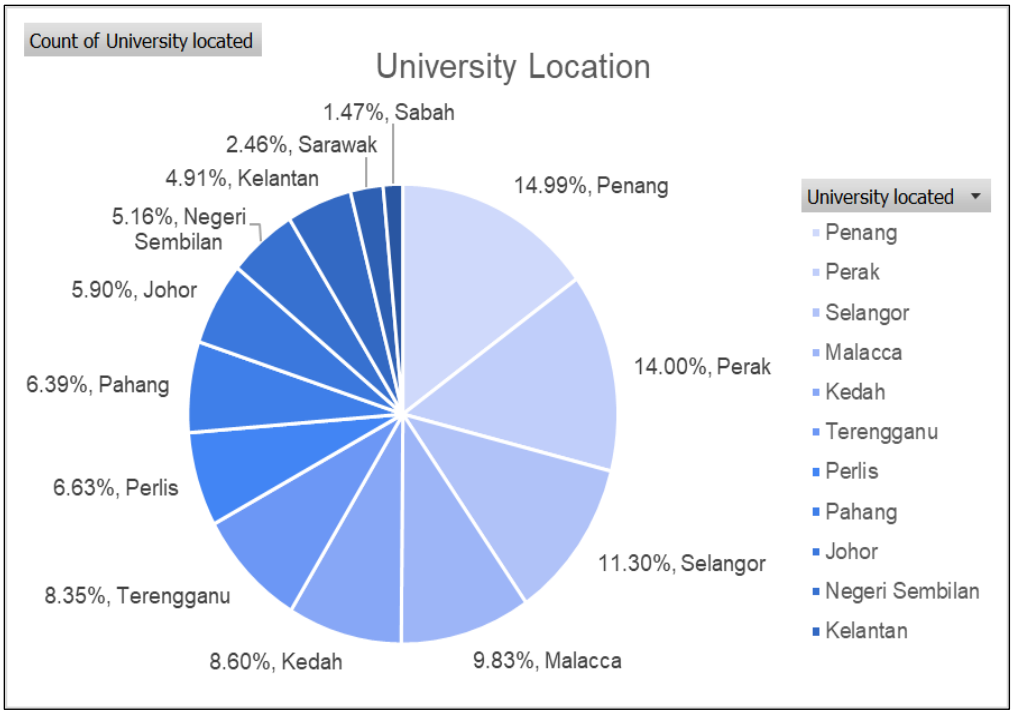

Figure 4.3. University Location Distribution. Source: Developed for study.

4.1.1.4 Preferred Payment Method

Table 4.4 and figure 4.4 show the displays that use the method of payment in their daily lives. It shows that majority of the respondents are favouring towards Touch ‘n Go e-wallet for payment. It consists of 61.67% (251 out of 407 respondents) that use Touch ‘n Go e-wallet. 78 of the respondents use Debit card for their payment which is 19.16% and 60 of the respondents (14.74%) use cash. Only 18 out of 407 respondents, or 4.42%, prefer using credit cards as their payment method, indicating that credit cards are the least preferred payment option among undergraduates in Malaysia.

Table 4.4:

Preferred Payment Method Distribution

	Frequency	**Percentage (%)**
Credit Card	18	4.42
Debit Card	78	19.16
TnG e-wallet	251	61.67
Cash	60	14.74

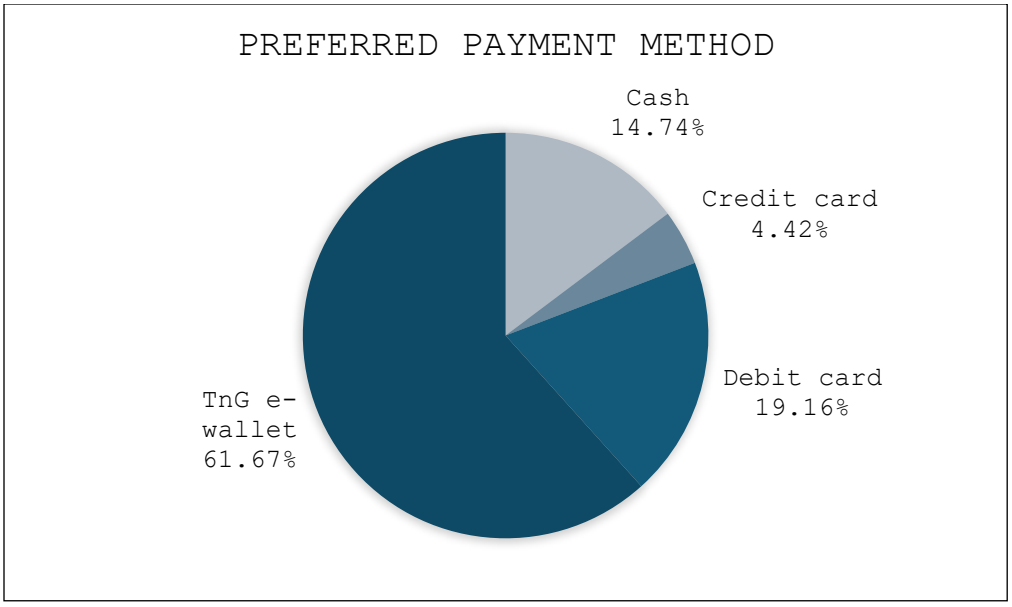

Figure 4.4. Preferred Payment Method Distribution. Source: Developed for study.

4.1.1.5 Monthly Income

The table 4.5 and figure 4.5 shows the majority of the 407 respondents had a monthly income of less than RM 1,000 (37.84%) or between RM 1,000 and RM 2,000 (39.80%). A smaller proportion (15.72%) earned between RM 2,000 and RM 3,000, while the smallest proportion is the categories of monthly income

more than RM 3,000 (6.63%). This indicates that most students are low-level incomers as most of the students' income is given by their parents or some of them rely on the part-time jobs and scholarships.

Table 4.5:

Monthly Income Distribution

Income	**Frequency**	**Percentage (%)**
Less than RM 1000	154	37.84
RM 1000 – RM 2000	162	39.80
RM 2000 – RM 3000	64	15.72
More than RM 3000	27	6.63

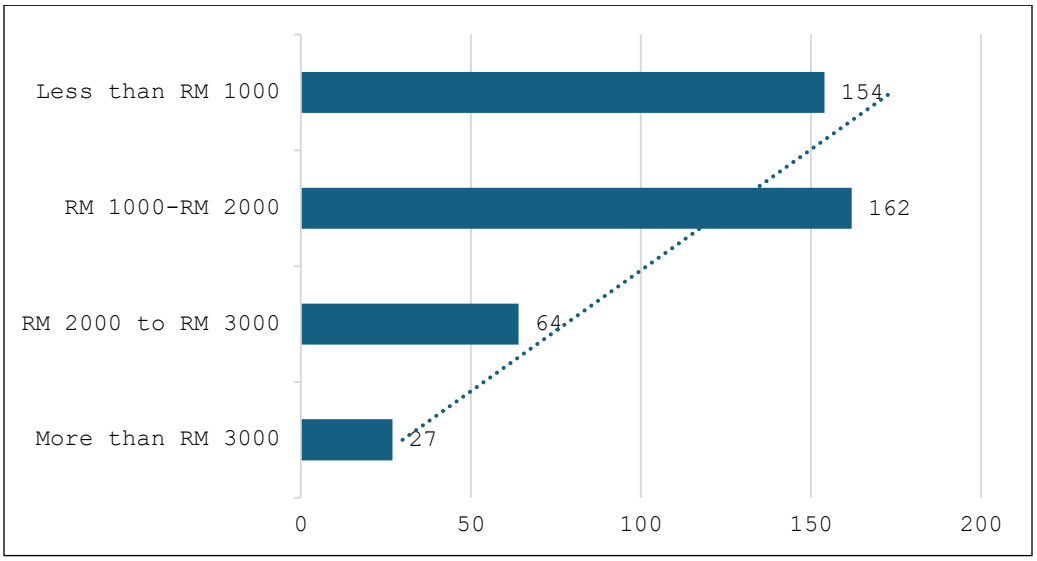

Figure 4.5. Monthly Income Distribution. Source: Developed for study.

4.1.1.6 Frequency of Using E-payment Per Day

According to the statistics in table 4.6 and figure 4.6, most respondents employ e-payment services 2 to 3 times each day (34.89%), followed by more than 3

times per day (27.52%). Approximately 10.57% of respondents use e-payment less than once per day, and 27.03% reporting using it 1 to 2 times each day. The availability of e-payment systems for daily costs is mostly on meals, transportation, and online shopping.

Table 4.6:

Frequency of Using E-payment Per Day Distribution

Times	Frequency	Percentage (%)
Frequency of using e-payment per day		
Less than 1 times	43	10.57
1 to 2 times	110	27.03
2 to 3 times	142	34.89
More than 3 times	112	27.52

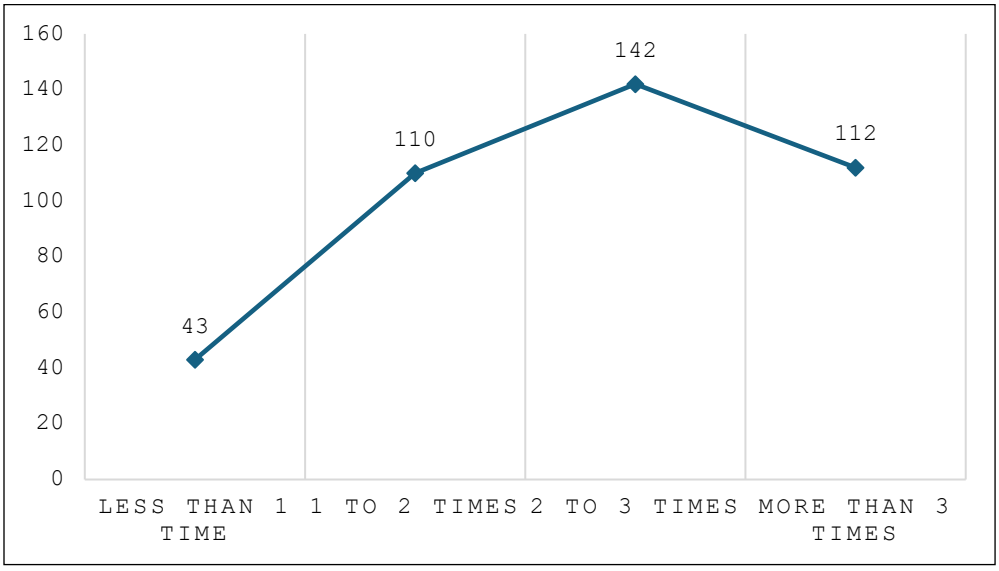

Figure 4.6. Frequency of Using E-payment Per Day Distribution. Source: Developed for study.

4.2 Inferential Analysis

Inferential statistics were used to test the relationship between the social influence, perceived security, perceived benefit, and counterfeit currency and the dependent variable adoption of e-payment among undergraduates in Malaysia.

Hypothesis testing is conducted using correlation analysis, multiple regression analysis, and ANOVA or t-tests, depending on the data structure. The following sections present the findings of each hypothesis:

- H1: Perceived Security has a significant positive relationship with E-payment Adoption.
- H2: Perceived Benefit has a significant positive relationship with E-payment Adoption.
- H3: Social Influence has a significant positive relationship with E-payment Adoption.
- H4: Counterfeit Currency has a significant positive influence on E-payment Adoption.

This section includes reliability testing, normality testing, correlation analysis, and regression analysis.

4.2.1 Reliability Analysis

To ensure internal consistency, Cronbach's Alpha values 0.7 were considered acceptable and showed that the survey items were reliable for measuring each construction.

Table 4.7 shows the Cronbach's Alpha values for all variables. The independent variables in this table which are perceived security, perceived benefit, social influence, and counterfeit currency demonstrate excellent reliability as their values are over 0.90. This result suggests that the measurement scales are stable

and produce consistent responses. Therefore, all variables are retained in the study.

Table 4.7:

Summary of Reliability Analysis (refer Appendix 4.1)

Type of the variable	**Name of the variable**	**No. item**	**Cronbach's Alpha**	**Mean**	**Std. deviation**
DV	Adoption of e-payment	6	0.924	4.2034	0.81735
IV1	Perceived Security	6	0.908	4.1032	0.85025
IV2	Perceived Benefit	6	0.946	4.2708	0.93277
IV3	Social Influence	6	0.938	4.1489	0.88498
IV4	Counterfeit Currency	6	0.938	4.1302	0.85365

4.2.2 Normality Test

The Kolmogorov-Smirnov was employed to analyse the normality of the dependent variable. From the table 4.8, e-payment adoption and the independent variables; perceived security, perceived advantage, social impact, and counterfeit currency, all the variable values are less than 0.05. Therefore, this is not normally distributed.

Table 4.8:

Normality Test Results (refer APPENDIX 4.2)

Variables	**N**	**Kolmogorov-Smirnov**	**Shapiro-Wilk**
DV: Adoption of e-payment	407	0.215	0.769
IV1: Perceived Security	407	0.167	0.835
IV2: Perceived Benefit	407	0.235	0.737
IV3: Social Influence	407	0.227	0.798
IV4: Counterfeit Currency	407	0.228	0.810

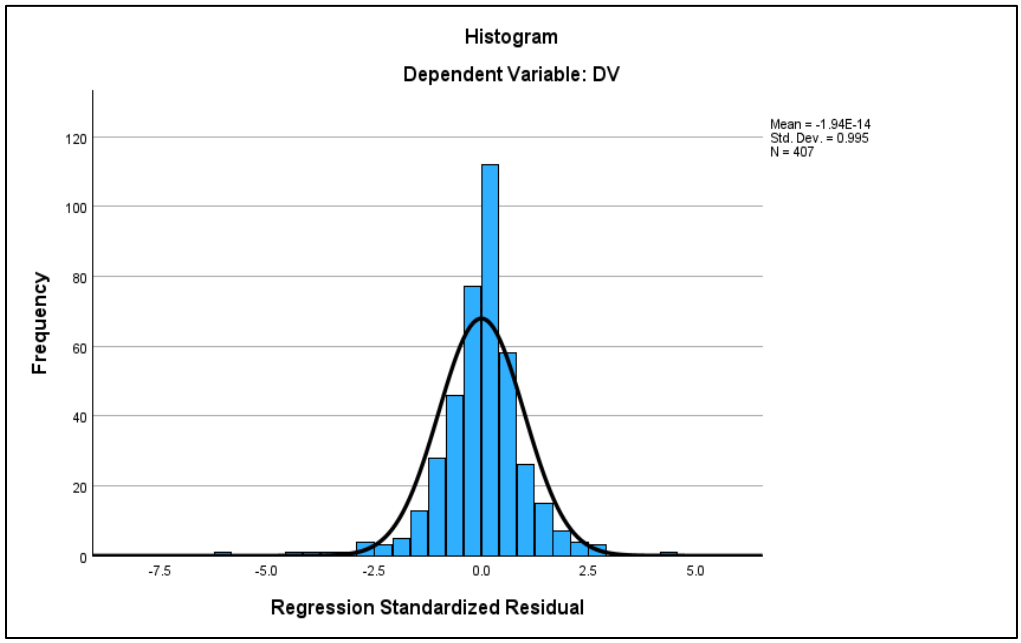

Figure 4.7. Histogram. Source: From Data SPSS.

The normality test showed that data were not normally distributed which $p<0.5$, this is because the large sample size and ordinal data like Likert scales. In Likert scales rank 1 to 5 which is strongly disagreed to strongly agree, the respondents tend to choose higher ratings such as 4 and 5 lending to positively peaked distributions. Besides, the histogram Figure 4.7 showed as visual evidence that data is rough symmetrical and has no deviation to restrict further analyses.

According to the Central Limit Theorem, the sampling distribution of the mean can be considered approximately if the sample size is equal or more than 30 (Siddiqui, L., 2025). Since this study included over 400 samples of respondents, the Central Limit Theorem is valid, sampling distribution of the mean can be considered as approximately normal, even if the raw data are not perfectly normally distributed.

4.2.3 Correlation Analysis

Spearman's rho correlation matrix a non-parametric test examines those variables relationship:

Table 4.9:

Correlation Analysis Table (refer APPENDIX 4.3)

			DV	PS	PB	SI	CC
Spearman's rho	DV	Correlation coefficient	1.000	0.659	0.708	0.659	0.655
	PS	Correlation Coefficient	0.659	1.000	0.638	0.726	0.698

	PB	Correlation Coefficient	0.708	0.638	1.000	0.678	0.650
	SI	Correlation Coefficient	0.659	0.726	0.678	1.000	0.730
	CC	Correlation Coefficient	0.655	0.698	0.650	0.730	1.000

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

Where:

PS = Perceived security PB = Perceived Benefit

SI = Social Influence CC = Counterfeit Currency

From table 4.9, all correlation coefficients are positive which means variables move in same direction. Statistically at the 0.01 level (2 tailed) which indicated moderating to strong positive relationship among variables.

Correlation coefficients:

- DV & PS: $r = 0.659$, $p < 0.001$
- DV & PB: $r = 0.708$, $p < 0.001$
- DV & SI: $r = 0.659$, $p < 0.001$
- DV & CC: $r = 0.655$, $p = 0.003$

The strongest correlation was observed is perceived benefit. All variables were significantly correlated with the DV, it means supporting this study.

4.2.4 Multiple Regression Analysis

A multiple linear regression was conducted to evaluate the influence of the four independent variables on the dependent variable. The model aimed to identify which factors were the strongest predictors of e-payment adoption among undergraduates.

Table 4.10:

Model Summary Table (refer APPENDIX 4.4)

R	R^2	Adjusted R^2	Std. error of the estimate	Durbin-Watson
0.891	0.794	0.792	0.37316	2.009

Based on the result of the model summary table (Table 4.10),

R value = 0.891 indicates a strong positive correlation between the independent variables and the adoption of e-payment

R square value = 0.794 means that 79.4% of the variation in e-payment adoption is explained by the model

Adjusted R Square = 0.792 suggests that the model is still reliable after adjusting for the number of predictors, confirming that the independent variables contribute meaningfully to explaining the outcome

Durbin-Watson statistic = 2.009 indicates that there is no significant autocorrelation in the residuals, suggesting that the model assumptions are met.

Table 4.11:

Anova Table (refer to APPENDIX 4.5)

Model		**Sum of squares**	**df**	**Mean square**	**F**	**Sig.**
1	Regression	215.258	4	53.815	386.472	<0.001
	Residual	55.977	402	0.139		
	Total	271.235	406			

Based on the result of ANOVA table (Table 4.11),

The p-value of F-test is below 0.001. At a confidence level of 95%, this suggests that the regression model is significant.

The F-value reaches a high significant value of 386.472. This indicates that the overall model is highly statistically significant, implying that the independent variables of perceived security, perceived benefit, social influence, and counterfeit currency account for a significant portion of the variation in the dependent variable which is adoption of e-payment.

Table 4.12:

Coefficients Table (refer APPENDIX 4.6)

	Unstandardized coefficients beta	**Unstandardized coefficients std. error**	**Standardized coefficients beta**	**t**	**Sig.**
(Constant)	0.393	0.099		3.959	<0.001
PS	0.211	0.046	0.219	4.623	<0.001

PB	0.346	0.047	0.352	7.366	<0.001
SI	0.209	0.046	0.226	4.500	<0.001
CC	0.146	0.048	0.152	3.037	0.003

In this study, a significant level is set at 0.05. From the result in table 4.12, perceived security, perceived benefit, social influence and counterfeit currency have significant impact to the adoption of e-payment among undergraduates in Malaysia as their p-value are less than 0.05.

A one-unit increase in perceived security leads to a 21.9% increase in the probability of e-payment adoption. A one-unit increase in perceived benefit is associated with a 35.2% increase in e-payment adoption. A one-unit increase in social influence results in a 22.6% increase in the likelihood of adopting e-payment. A one-unit increase in counterfeit currency concerns contributes to a 15.2% increase in the probability of e-payment usage.

4.2.5 Descriptive analysis – demographic profile of research respondents

The descriptive analysis provides an overview of demographic and behavioral characteristics of 407 respondents.

4.2.5.1 Gender

Gender distribution, the female respondents is slightly more than male respondents in the survey.

4.2.5.2 Age

Participants range of ages is in early 20 which largely represent undergraduate students.

4.2.5.3. State

Penang, Perak and Selangor are the states that primarily concentrated on this study. This is because Perak is the state where our university is located. Penang and Selangor are those advances stated that have advanced technology for e-payment. Besides, these two states have the most popular universities and colleges. According to Nikokaren (2024), four best student cities in Malaysia, including Kuala Lumpur, Penang, Johor Bahru and Selangor because most of the top universities in Malaysia are in these four states.

4.2.5.4 Preferred Payment Method

Most of the respondents chose Touch ‘n Go e-wallet while credit card remains minimal. Touch ‘n Go e-wallet is popular because it has lot of benefits such as rewards and discounts. Besides, it is widely accepted by consumers and mechanisms. Credit cards will be the least as the limitations and age-related eligibility.

4.2.5.5 Monthly Income

Most of the respondents’ monthly income is less than RM1000 and between RM1000 to RM2000. Many students reported having a low monthly income. Most of them rely on family allowances, scholarships and part time salaries.

4.2.5.6 Frequency of E-Payment Usage

The most common usage is 2 to 3 times daily. It shows E-payment services are frequently used by students in their daily lives, with many utilizing such services multiple times per day. This reflects the growing integration of digital payments into students' routines.

4.2.6 Relationship of Perceived Security and Adoption of E-payments among Malaysian undergraduates

H1: Perceived security has a significant positive relationship with E-payment Adoption.

Correlation Analysis:
The relationship is a moderately strong and positive relationship ($r = 0.659$). The needs of safety, reliability and privacy among Malaysia undergraduates, the usage of e-payment significantly increase. This mentioned that the security in e-payment platform is essential. As they concerned about data theft and fraud.

Regression Analysis:
The perceived security is statistically significant for e-payment adoption among Malaysia undergraduates ($\beta = 0.219$, $t = 4.623$, $p < 0.001$). This shown that security features like encryption, authentication, and fraud protection mechanisms able to encourage broader adoption e-payment among Malaysian undergraduates. Therefore, H1 supported.

4.2.7 Relationship of Perceived Benefit and Adoption of E-payment among Malaysian undergraduates

H2: Perceived Benefit has a significant positive relationship with E-payment Adoption.

Correlation Analysis:
Perceived benefit and adoption of e-payment among Malaysian undergraduates is highly positive association ($r = 0.708$, $p < 0.001$). E-payment services that offer more tangible benefit like convenience, faster transaction and cashback offers, Malaysian undergraduates more likely to adopt.

Regression Analysis:
Perceived benefit is more influence on Malaysian undergraduates to adopt e-payment ($\beta = 0.352$, $t = 7.366$, $p < 0.001$). This result confirmed functional features is primary driver of adoption among Malaysian undergraduates. H2 supported

4.2.8 Relationship of Social Influence and Adoption of E-payment among Malaysian undergraduates

H3: Social influence has a significant positive relationship with E-payment Adoption.

Correlation Analysis:
Social influence is statistically significant and moderately strong ($r = 0.659$, $p < 0.001$). This highlighted that Malaysian undergraduates tend to observe their friends, family members, influencer and peers. This aligns with UTAUT theory that emphasized social pressure affect behavioral intentions. Thus, H3 is supported.

Regression Analysis:

Social Influence also a significant contributor to adoption E-payment among Malaysia undergraduates ($\beta = 0.226$, $t = 4.500$, $p < 0.001$). This points out that role of peer endorsement, group norm and social media influences is extremely important.

4.2.9 Relationship of Counterfeit currency and Adoption of E-payment among Malaysian undergraduates

H4: Counterfeit Currency has a significant positive influence on E-payment Adoption.

Correlation Analysis:

The relationship is moderate- strong ($r = 0.655$). This is due to reason that Malaysian undergraduates who are worried about the circulation of fake money tend to lean toward more traceable, transparent, and secure digital transactions. The fear of receiving invalid or worthless cash makes e-payment a safer and more appealing option.

Regression Analysis:

Counterfeit currency also shows a significant positive impact, although it has the lowest effect size among all variables ($\beta = 0.152$, $t = 3.037$, $p = 0.003$). While not the dominant factor, it reflects that currency integrity issues such as scams, fake notes, or black-market cash. Those can push users toward more secure, digital alternatives. This is especially relevant in cash-intensive economies where trust in physical money is occasionally questioned. Thus, H4 is supported.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This section discusses the summary results obtained from Chapter 4 and relates them to study's objectives, literature review, and theoretical frameworks (TPB and UTAUT). This chapter begins with a summary of key results from chapter 4, whether the study objectives have been achieved and the study have successfully addressed the research gap. In addition, this chapter also outlines the practical and theoretical implications of the study. These implications provide valuable data for policymakers, financial service providers, and academic researchers in promoting the adoption of e-payment technologies in Malaysia. Additionally, this chapter also discusses the limitations of the study and provides some suggestions to address potential issues such as sample size, geographical coverage, and methodological limitations that may have influenced the adoption of e-payment among undergraduates in Malaysia, thus, providing a balanced conclusion while supporting continuous improvement for future study.

5.1 Discussion of Major Findings

5.1.1 Comparison with previous study

The findings of this study show that, all the variables including perceived security, perceived benefit, social influence, and counterfeit currency have positive relationship with the adoption of e-payment among undergraduates in Malaysia. These findings are consistent with prior study that has explored factors influencing e-payment adoption in Malaysia.

Regarding perceived security, several studies, including those by Jusoh and Jing (2019) and Sarkam et al. (2022), have similarly reported a positive relationship between this factor and adoption of e-payment. Cheong and Nasuredin (2023) also found that perceived usefulness, perceived ease of use, perceived security, and trust significantly predicted e-payment adoption among UTHM students.

In terms of perceived benefit, past studies supported that it has positive relationship with e-payment development in Malaysia. For example, Goh (2017) who focused on private university undergraduates in Klang Valley, while Pei et al. (2015) who investigate the factors on e-payment adoption in China, both proving its significance.

For social influence, result in this study supported by Shafie et al. (2018), stated in their study that social influence has big influence on adoption of e-payment. Similarly, Azmee and Azami (2023) focused on working adults in Malaysia and found that social influence, perceived compatibility, personal innovativeness, and facilitating conditions positively impacted e-payment adoption.

Unlike most prior studies conducted before the COVID-19 pandemic, this study updates the understanding of factors influencing e-payment adoption by focusing on Malaysian undergraduates after the pandemic. Other than examining perceived benefit, perceived security, and social influence, this study also included counterfeit currency as a new variable to investigate factors affecting e-payment adoption. And as a result, all of which show strong positive relationships with adoption.

5.1.2 Summary of this study

This study has addressed the identified research gap by examining the post pandemic behavior of e-payment adoption among Malaysian undergraduates. Besides, we introduced a new variable, counterfeit currency, an area that has

received limited attention in the previous study. By including the new variable, this study expands the theoretical framework by highlighting the influence of perceived external risk in changing behavioral intention.

From the findings in Chapter 4, all the independent variables, including perceived security, perceived benefit, social influence, and counterfeit currency are significant to affect the adoption of e-payment among undergraduates in Malaysia. The results from Chapter 4 show that e-payment adoption is shaped by both internal factors (perceived security and perceived benefit) and external factors (social influence and concern about counterfeit currency). Together, these factors play a vital role in shaping behavioral intentions of users in adopting e-payment systems in daily life.

By bridging the gap between government initiatives and actual undergraduate adoption behavior, this study provides insights into specific motivations and concerns, thereby offering practical guidance for more effective e-payment promotion strategies.

5.2 Implication of the Study

5.2.1 Practical implications

This study results offer valuable insights for policymakers, digital payment service providers, and business owners. By understanding how both external and internal factors including social influence (SI), perceived security (PS), perceived benefits (PB), and counterfeit currency (CC) concerns influence e-payment adoption among Malaysian undergraduates, stakeholders may have a clearer direction for promoting digital payment usage more effectively.

Policymakers

BNM's Financial Sector Blueprint 2022–2026 aims to advance the digital transition in the financial sector. Its target is to increase the e-payment per capita at a compound annual growth rate (CAGR) of over 15%. The positive influence of PS, PB, and SI on e-payment adoption found in this study indicates that government efforts to build digital trust and promote financial literacy among young Malaysians are effectively shaping the payment habits of Malaysia's youth.

Recent findings from Fintech News Malaysia (2025) further reinforce this trend. According to a Mastercard survey, 99% of Malaysians are expected to adopt emerging digital payment methods such as QR codes, mobile wallets, biometrics, and Tap & Go in the coming year. There is 63% prefer these modern methods over traditional options such as cash and manual card entry. These transitions are reflected in this study, where more than 61% of undergraduates prefer Touch 'n Go e-wallet, only 14.74% rely on cash and 4.42% on credit cards. This clear behavioural pattern shift among tech-savvy generations suggests that Malaysia is on track to achieve and exceed its national digitalization targets.

Digital Service Providers

This study offers practical guidance for digital payment service providers aiming to enhance user adoption and retention, particularly among undergraduates. Given that PB and PS are significant predictors of e-payment usage, providers should prioritize improving convenience, user trust, and platform engagement.

For example, Touch 'n Go could enhance its platform by introducing features such as budget planning, budget tracking and expense summaries functions for the users. Strengthening their security measures such as two-factor authentication and biometric login would further boost the variable of perceived security. In addition, Touch 'n Go's existing rewards system such as cashback and point-based promotions could be advanced by offering student-specific benefits, making more attractive to key user segment. By aligning product improvements with the

behavioural factors identified in this study, digital service providers can remain their competitive advantage in Malaysia's rapidly evolving e-payment ecosystem.

Business Owners

This study highlights the need for business owners to adopt digital payment methods to stay aligned with shifting trends of consumer preferences, particularly among younger generation. This study shows that more than 61% of respondents who are undergraduates prefer Touch 'n Go, and only 14.74% of them prefer cash. This result indicates that integrating widely accepted e-payment methods can help businesses to attract a wider customer base and provide a more convenient and effective operation.

Moreover, business owner could reduce risk of receiving counterfeit currency, which is a major concern for cash-based businesses, by adopting e-payment in their daily operations. This study has identified counterfeit concerns as one of the factors that encourages users towards digital payments. Businesses that rely heavily on physical cash in their operations are exposed to counterfeit currency risk, which lead to financial loss and even worst may harm its reputation. By adopting secure, traceable digital payment system, business owners can mitigate this counterfeit currency risk effectively as well as improve customer trust.

5.2.2 Theoretical Implications

This study involved both the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB), it contributes to the existing study on the factors that affect the adoption of e-payment among Malaysian undergraduates.

According to Venkatesh et al. (2003), social influence plays a significant role in e-payment adoption, which is aligning with the theory in UTAUT framework, showing that people are more likely to adopt new technology when receiving peer encouragement. This also highlights the important social norms and environment factors in shaping behavioural intention, particularly among undergraduates.
From the TPB perspective, perceived benefit and perceived security reflect perceived behavioural control, suggesting that when users view e-payments as beneficial, secure, and easy to use, their intention to adopt increases which aligns with Ajzen's (1991) model.

Additionally, the inclusion of counterfeit currency enhances both theory frameworks by emphasizing the influence of external risks in shaping adoption behaviour. The findings show that users are motivated to adopt e-payments to avoid counterfeit risk. This emphasizes the value of incorporating the real-world concerns such as financial security into future technology adoption models, particularly in developing countries where these issues are more common.

5.3 Limitation of the Study

5.3.1 Sampling constraints

The study's population is convenient for sampling. As such, they don't represent the whole heterogeneous sample of Malaysian undergraduates. Sampling method may lead to selection bias. Convenience sampling relies on ease and accessibility, says Etikan (2016), which cannot be a great indicator of population variance. This lessens the capacity for generalizability of the results to the population outside the sample group.

5.3.2 Lack of qualitative Insights

The study relied on quantitative approaches only and did not incorporate qualitative approaches such as interviewing and focus groups. This did not allow detailed exploration of motivations, perceptions, and restrictions that can impact e-payment adoption. In the opinion of Creswell and Plano Clark (2011), quantitative and qualitative data together can lead to enhanced understanding of research problems.

5.4 Recommendation for Future Research

This study focused on e-payment adoption among Malaysian undergraduates, and there is room for further study to build on these findings. Future researchers are encouraged to consider the following:

5.4.1 Include a wider range of respondents

Future researchers should include a varied sample comprising of undergraduate students, postgraduate students, working adults, and residents from rural areas. This would help researchers understand how different groups adopt and use e-payment methods. It will also help the researcher understand that how development of e-payment can be widely adopted by different groups of people in Malaysia.

5.4.2 Use a mixed-methods approach

Future studies are suggested to include **interviews or focus groups,** so that the researchers can have a better understanding of the reasons behind user's choices. This would provide meaningful insights into user behaviours. By employing qualitative methods in the surveys, researchers can obtain a comprehensive analysis

on the factors affecting adoption of e-payment in Malaysia through alternative way of survey method.

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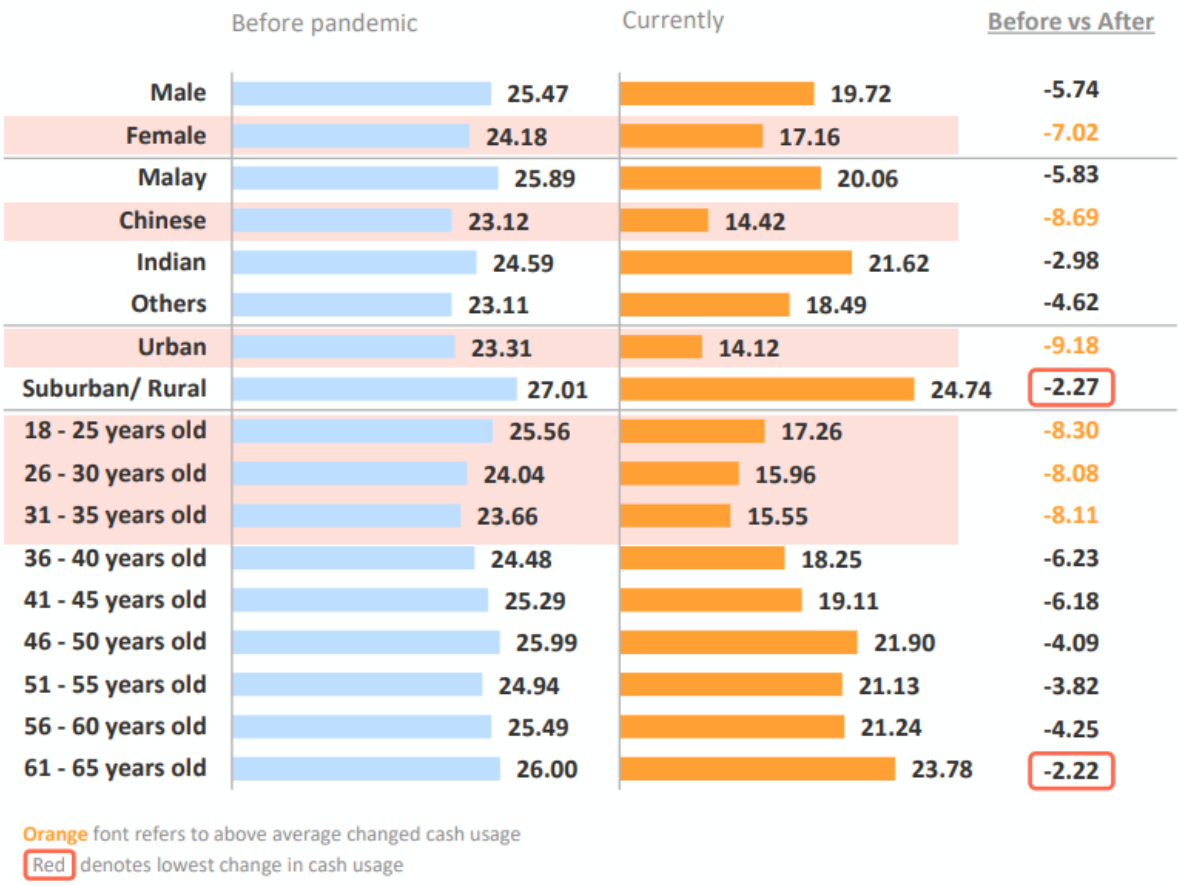
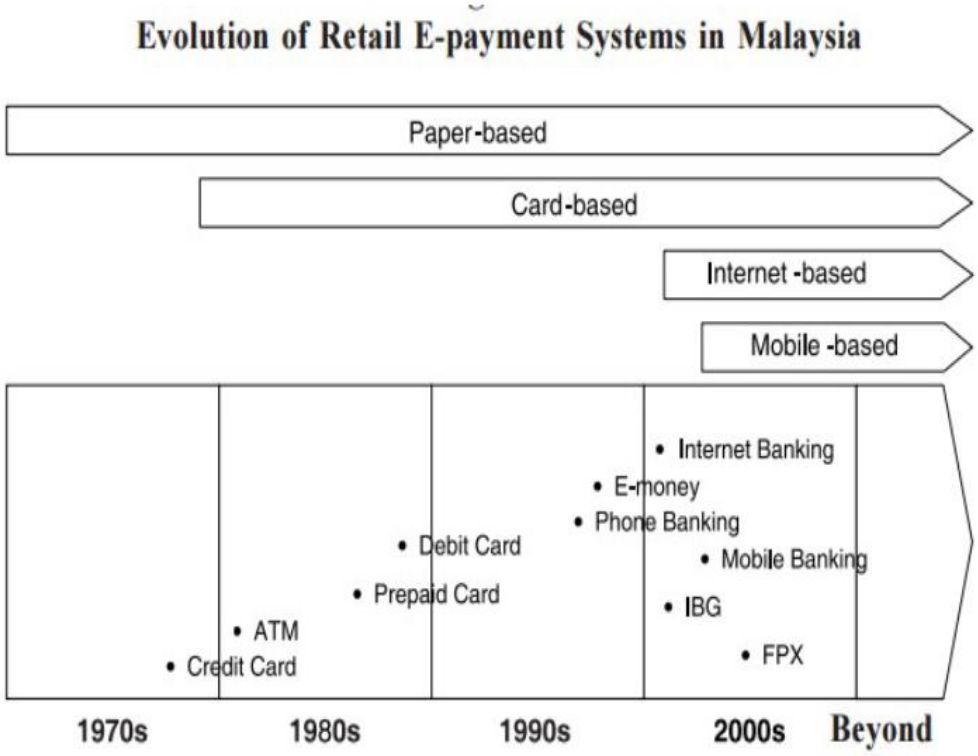
Appendices

Appendix 1.1: Comparison of cash usage before and after pandemic

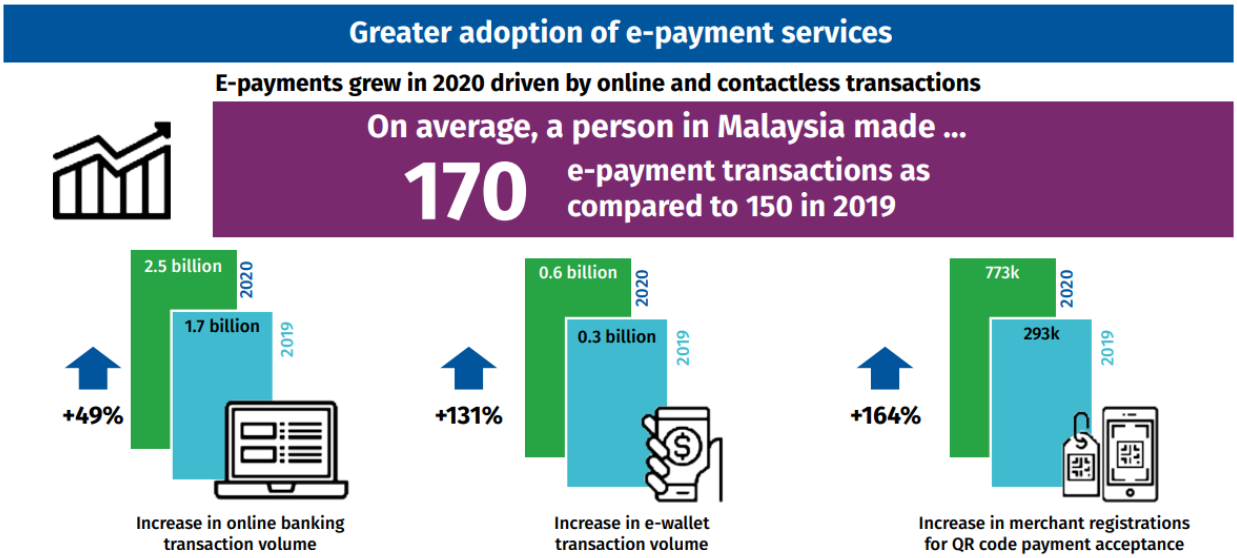


Orange font refers to above average changed cash usage
Red denotes lowest change in cash usage

Appendix 2.1: Evolution process of e-payment system in Malaysia



Appendix 2.2: E-payment transaction per Malaysian made in 2019 and 2020



Appendix 3.1: Pilot test questionnaire

- **Section A is used for collecting the respondents' demographic information like age, gender, level of study and the frequency of using e-payment in daily life.**
  - Gender
  - Age
  - Preferred e-payment method
  - Monthly income
  - Frequency of using e-payment per day
- **Section B designed to measure the adoption of e-payment among Malaysia.**
  1. Using e-wallet is one of my preferred methods to make payments.
  2. One of the main obstacles preventing the widespread usage of e-payments is the consumer's perception.
  3. E-payments are more efficient than cash payments.
  4. I will share and encourage those around me to adopt e-payments.
  5. I would consider switching completely to e-payments if all stores accepted them and the systems are secure.
- **Section C designed to measure the main variables perceived security how affect the adoption e-payment among Malaysia undergraduates.**
  - Payment security provided by e-payment providers is sufficient.
  - I will be concerned with the security of my bank account when I use an e-payment.
  - I am pleased to use e-payment if the software is secured with the latest technology.
  - I will prefer using e-payment with security coverage from insurance.
  - E-payment platforms offer fewer financial risk.

- **Section D designed to measure the main variables perceived benefit how affect the adoption e-payment among Malaysia undergraduates.**

    1. E-payment is more convenient compared to cash.
    2. I can avoid carrying a large amount of cash by using e-payment.
    3. E-payment services enhance my search for the payment method I desire.
    4. E-payment enhances my productivity by reducing the time I spend on handling payments.
    5. E-payment systems assist me in managing and tracking my expenditures.

- **Section E designed to measure the main variables social influence how affect the adoption e-payment among Malaysia undergraduates.**

    1. I feel motivated to use e-payment since nearly every individual around me are using it.
    2. I adopt e-payment more frequently as it is perceived as an updated and trendy way to pay.
    3. I am more willing to adopt e-payment if my peers encourage it.
    4. I do feel excluded if I do not employ e-payment while everyone else did.
    5. I frequently mention the advantages of e-payment with those in my social group.

- **Section F designed to measure the main variables counterfeit currency on affecting the adoption of e-payment among Malaysia undergraduates.**

    1. I am well-informed about the risks of counterfeit money in Malaysia.
    2. I believe the risk of receiving counterfeit currency is high when using cash transactions.
    3. Concerns about the counterfeit currency have positively influenced my decision to adopt e-payment systems.
    4. I feel more secure using e-payments compared to handling physical cash.

5. I believe the government is taking excellent steps to combat counterfeit currency issues by encouraging us to use e-payment system.

Appendix 3.2: Pilot test- Reliability test

Reliability Statistics

Cronbach's Alpha	N of Items
.846	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DV1	16.60	9.878	.765	.791
DV2	16.56	10.456	.530	.847
DV3	16.28	8.940	.750	.787
DV4	16.60	9.510	.583	.838
DV5	16.28	9.920	.683	.808

Reliability Statistics

Cronbach's Alpha	N of Items
.657	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PS1	16.56	7.190	.275	.690
PS2	15.66	7.576	.440	.594
PS3	15.72	7.022	.593	.530
PS4	15.80	7.714	.498	.578
PS5	15.94	7.200	.354	.636

Reliability Statistics

Cronbach's Alpha	N of Items
.889	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PB1	16.94	9.486	.775	.856
PB2	16.58	9.555	.673	.877
PB3	16.70	9.439	.681	.876
PB4	16.82	9.498	.694	.872
PB5	16.64	8.317	.836	.838

Reliability Statistics

Cronbach's Alpha	N of Items
.861	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SI1	16.30	11.439	.639	.845
SI2	16.32	10.467	.719	.823
SI3	16.32	10.385	.711	.825
SI4	16.38	9.342	.678	.837
SI5	16.44	9.476	.695	.830

Reliability Statistics

Cronbach's Alpha	N of Items
.660	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CC1	16.44	8.251	-.076	.751
CC2	16.54	5.396	.616	.521
CC3	16.64	5.174	.467	.582
CC4	16.54	4.866	.515	.555
CC5	16.72	5.226	.530	.550

Appendix 3.3: Pilot test- Normality test

The result of the test indicated that all variables had p-values less than 0.001 which means all data is not normally distributed. To address this, non-parametric tests may be employed in the main study.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
DV1	.409	50	<.001	.664	50	<.001
DV2	.352	50	<.001	.748	50	<.001
DV3	.306	50	<.001	.635	50	<.001
DV4	.267	50	<.001	.781	50	<.001
DV5	.291	50	<.001	.688	50	<.001
DV	.304	50	<.001	.677	50	<.001
PS1	.297	50	<.001	.826	50	<.001
PS2	.326	50	<.001	.650	50	<.001
PS3	.270	50	<.001	.766	50	<.001
PS4	.360	50	<.001	.687	50	<.001
PS5	.287	50	<.001	.760	50	<.001
PS	.209	50	<.001	.860	50	<.001
PB1	.390	50	<.001	.700	50	<.001
PB2	.290	50	<.001	.705	50	<.001
PB3	.304	50	<.001	.722	50	<.001
PB4	.315	50	<.001	.760	50	<.001
PB5	.286	50	<.001	.707	50	<.001
PB	.329	50	<.001	.653	50	<.001
SI1	.349	50	<.001	.696	50	<.001
SI2	.327	50	<.001	.746	50	<.001
SI3	.348	50	<.001	.714	50	<.001
SI4	.279	50	<.001	.755	50	<.001
SI5	.320	50	<.001	.761	50	<.001
SI	.317	50	<.001	.732	50	<.001
CC1	.368	50	<.001	.649	50	<.001
CC2	.311	50	<.001	.735	50	<.001
CC3	.328	50	<.001	.745	50	<.001
CC4	.272	50	<.001	.745	50	<.001
CC5	.380	50	<.001	.715	50	<.001
CC	.299	50	<.001	.751	50	<.001

a. Lilliefors Significance Correction

Appendix 3.4: Pilot test – Descriptive Analysis

Descriptives

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
DV	24	1.60	5.00	4.0083	.80321
Valid N (listwise)	24				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
DV	26	1.60	4.80	4.2154	.73086
Valid N (listwise)	26				

a. Gender = Female

Descriptives

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
PS	24	1.80	5.00	3.8083	.76324
Valid N (listwise)	24				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
PS	26	2.60	5.00	4.1462	.48516
Valid N (listwise)	26				

a. Gender = Female

Descriptives

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
PB	24	1.60	4.80	4.2000	.80865
Valid N (listwise)	24				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
PB	26	1.80	5.00	4.1692	.70811
Valid N (listwise)	26				

a. Gender = Female

Descriptives

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
CC	24	1.60	4.80	4.0000	.67759
Valid N (listwise)	24				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
CC	26	2.60	4.80	4.2769	.43846
Valid N (listwise)	26				

a. Gender = Female

Descriptives

Gender = Male

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
SI	24	1.60	4.80	3.9667	.81223
Valid N (listwise)	24				

a. Gender = Male

Gender = Female

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean	Std. Deviation
SI	26	1.80	5.00	4.2000	.75895
Valid N (listwise)	26				

a. Gender = Female

Appendix 3.5: Pilot test- Correlation Analysis

Spearman's rank correlation was used to evaluate the strength and direction of a monotonic relationship between two variables based on their ranked values. In this pilot test, all variables showed a significant correlation with the dependent variable.

Correlations

			DV	PS
Spearman's rho	DV	Correlation Coefficient	1.000	.663**
		Sig. (2-tailed)	.	<.001
		N	50	50
	PS	Correlation Coefficient	.663**	1.000
		Sig. (2-tailed)	<.001	.
		N	50	50

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

Nonparametric Correlations

Correlations

			DV	PB
Spearman's rho	DV	Correlation Coefficient	1.000	.300*
		Sig. (2-tailed)	.	.034
		N	50	50
	PB	Correlation Coefficient	.300*	1.000
		Sig. (2-tailed)	.034	.
		N	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

			DV	SI
Spearman's rho	DV	Correlation Coefficient	1.000	.342*
		Sig. (2-tailed)	.	.015
		N	50	50
	SI	Correlation Coefficient	.342*	1.000
		Sig. (2-tailed)	.015	.
		N	50	50

*. Correlation is significant at the 0.05 level (2-tailed).

Nonparametric Correlations

Correlations

			DV	CC
Spearman's rho	DV	Correlation Coefficient	1.000	.626**
		Sig. (2-tailed)	.	<.001
		N	50	50
	CC	Correlation Coefficient	.626**	1.000
		Sig. (2-tailed)	<.001	.
		N	50	50

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

Appendix 3.6: Pilot Test- Model Summary

$R^2 = 0.844$

This indicates that 84.4% of the variance in Behavioral Intention can be explained by the independent variables in the model.

$F = 60.682$, $p < 0.001$

The overall model is statistically significant, demonstrating strong predictive capability. The SPSS result can be referred to Appendix 3.6.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.918[a]	.844	.830	.31598	.844	60.682	4	45	<.001

a. Predictors: (Constant), CC, SI, PS, PB

b. Dependent Variable: DV

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.234	4	6.059	60.682	<.001[b]
	Residual	4.493	45	.100		
	Total	28.727	49			

a. Dependent Variable: DV

b. Predictors: (Constant), CC, SI, PS, PB

Appendix 3.7: Pilot test- Coefficients

All variables were found to be statistically significant predictors of Behavioral Intention ($p < 0.05$), except for Social Influence, which was not significant ($p = 0.340$).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.658	.331		-1.990	.053					
	PS	.400	.112	.340	3.568	<.001	.827	.470	.210	.383	2.610
	PB	.299	.129	.293	2.319	.025	.839	.327	.137	.218	4.595
	SI	.111	.115	.114	.964	.340	.793	.142	.057	.250	3.996
	CC	.356	.147	.268	2.417	.020	.844	.339	.142	.282	3.550

a. Dependent Variable: DV

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	PS	PB	SI	CC
1	1	4.961	1.000	.00	.00	.00	.00	.00
	2	.021	15.526	.55	.00	.04	.10	.00
	3	.010	22.588	.26	.64	.03	.14	.01
	4	.005	32.407	.04	.14	.58	.72	.13
	5	.004	35.158	.15	.22	.35	.04	.85

a. Dependent Variable: DV

Appendix 3.8: Photos of physically distributed questionnaire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Appendix 3.9: Data Coding

Coding for Demographic Profile

Demographic	Variable	Coding
Gender	Male	1
	Female	2
Age	18	1
	19	2
	20	3
	21	4
	22	5
	23	6
	24	7
University Located	Johor	1
	Kedah	2
	Kelantan	3
	Malacca	4
	Negeri Sembilan	5
	Pahang	6
	Penang	7
	Perak	8
	Perlis	9
	Sabah	10
	Sarawak	11
	Selangor	12
	Terengganu	13
Preferred e-payment method	Credit card	1
	Debit card	2
	TnG e-wallet	3
	Cash	4
Monthly income	Less than Rm1000	1

	Rm1000 – Rm2000 Rm2000 – Rm3000 More than Rm3000	2 3 4
Frequency of using e-payment	Less than 1 time 1 to 2 times 2 to 3 times More than 3 times	1 2 3 4

Coding for Dependent Variable: Adoption of e-payment

	Questions DV: Dependent Variable: Adoption of e-payment	Coding
DV1	Using e-wallet is one of my preferred methods to make payments.	1= Strongly Disagree 2= Disagree
DV2	One of the main obstacles preventing the widespread usage of e-payments is the consumer's perception.	3= Neutral 4= Agree 5= Strongly Agree
DV3	E-payments are more efficient than cash payments.	
DV4	I will share and encourage those around me to adopt e-payments.	
DV5	I would consider switching completely to e-payments if all stores accepted them and the systems are secure.	

Coding for Independent Variable: Perceived Security

	Questions PS: Independent Variable: Perceived Security	Coding
PS1	Payment security provided by e-payment providers is sufficient.	1= Strongly Disagree 2= Disagree
PS2	I will be concerned with the security of my bank account when I use an e-payment.	3= Neutral 4= Agree
PS3	I am pleased to use e-payment if the software is secured with the latest technology.	5= Strongly Agree
PS4	I will prefer using e-payment with security coverage from insurance.	
PS5	E-payment platforms offer fewer financial risk.	

Coding for Independent Variable: Perceived Benefit

	Questions PB: Independent Variable: Perceived Benefit	Coding
PB1	E-payment is more convenient compared to cash.	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
PB2	I can avoid carrying a large amount of cash by using e-payment.	
PB3	E-payment services enhance my search for the payment method I desire.	
PB4	E-payment enhances my productivity by reducing the time I spend on handling payments.	
PB5	E-payment systems assist me in managing and tracking my expenditures.	

Coding for Independent Variable: Social Influence

	Questions SI: Independent Variable: Social Influence	Coding
SI1 SI2 SI3 SI4 SI5	I feel motivated to use e-payment since nearly every individual around me are using it. I adopt e-payment more frequently as it is perceived as an updated and trendy way to pay. I am more willing to adopt e-payment if my peers encourage it. I do feel excluded if I do not employ e-payment while everyone else did. I frequently mention the advantages of e-payment with those in my social group.	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Coding for Independent Variable: Counterfeit Currency

	Questions CC: Independent Variable: Counterfeit Currency	Coding
CC1	I am well-informed about the risks of counterfeit money in Malaysia.	1= Strongly Disagree 2= Disagree
CC2	I believe the risk of receiving counterfeit currency is high when using cash transactions.	3= Neutral 4= Agree
CC3	Concerns about the counterfeit currency have positively influenced my decision to adopt e-payment systems.	5= Strongly Agree
CC4	I feel more secure using e-payments compared to handling physical cash.	
CC5	I believe the government is taking excellent steps to combat counterfeit currency issues by encouraging us to use e-payment system.	

Appendix 4.1: Reliability Analysis

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	407	100.0
	Excluded[a]	0	.0
	Total	407	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.924	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DV1	21.0241	17.467	.754	.914
DV2	21.0658	16.923	.722	.919
DV3	20.9012	17.085	.753	.914
DV4	21.0708	16.583	.760	.914
DV5	21.0241	16.967	.753	.914
DV	21.0172	16.702	1.000	.886

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	407	100.0
	Excluded[a]	0	.0
	Total	407	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.908	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PS1	20.8526	17.551	.669	.908
PS2	20.4595	18.648	.697	.898
PS3	20.3563	19.030	.727	.894
PS4	20.3759	18.825	.748	.891
PS5	20.5356	18.314	.719	.895
PS	20.5160	18.073	1.000	.862

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	407	100.0
	Excluded[a]	0	.0
	Total	407	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.946	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PB1	21.3568	17.372	.818	.939
PB2	21.2757	17.898	.772	.944
PB3	21.4378	17.782	.808	.940
PB4	21.3617	17.482	.814	.939
PB5	21.3371	17.269	.833	.937
PB	21.3538	17.338	1.000	.920

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	407	100.0
	Excluded[a]	0	.0
	Total	407	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.938	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SI1	20.8049	20.157	.798	.929
SI2	20.6477	19.913	.780	.931
SI3	20.6010	20.416	.799	.929
SI4	20.8442	19.412	.765	.934
SI5	20.8246	19.454	.794	.930
SI	20.7445	19.580	1.000	.907

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	407	100.0
	Excluded[a]	0	.0
	Total	407	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.938	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CC1	20.7273	18.784	.773	.932
CC2	20.6388	18.533	.771	.932
CC3	20.6806	18.474	.803	.928
CC4	20.5455	18.516	.781	.931
CC5	20.6634	18.131	.798	.929
CC	20.6511	18.218	1.000	.907

Appendix 4.2: Normality test results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
DV1	.314	407	<.001	.713	407	<.001
DV2	.265	407	<.001	.762	407	<.001
DV3	.292	407	<.001	.677	407	<.001
DV4	.285	407	<.001	.747	407	<.001
DV5	.286	407	<.001	.735	407	<.001
DV	.215	407	<.001	.769	407	<.001
PS1	.290	407	<.001	.817	407	<.001
PS2	.289	407	<.001	.730	407	<.001
PS3	.286	407	<.001	.699	407	<.001
PS4	.280	407	<.001	.717	407	<.001
PS5	.270	407	<.001	.778	407	<.001
PS	.167	407	<.001	.835	407	<.001
PB1	.296	407	<.001	.678	407	<.001
PB2	.307	407	<.001	.678	407	<.001
PB3	.302	407	<.001	.726	407	<.001
PB4	.277	407	<.001	.710	407	<.001
PB5	.284	407	<.001	.700	407	<.001
PB	.235	407	<.001	.737	407	<.001
SI1	.312	407	<.001	.757	407	<.001
SI2	.283	407	<.001	.708	407	<.001
SI3	.285	407	<.001	.710	407	<.001
SI4	.288	407	<.001	.768	407	<.001

Appendix 4.3: Correlation analysis result

Nonparametric Correlations

Correlations

			DV	PS	PB	SI	CC
Spearman's rho	DV	Correlation Coefficient	1.000	.659**	.708**	.659**	.655**
		Sig. (2-tailed)	.	<.001	<.001	<.001	<.001
		N	407	407	407	407	407
	PS	Correlation Coefficient	.659**	1.000	.638**	.726**	.698**
		Sig. (2-tailed)	<.001	.	<.001	<.001	<.001
		N	407	407	407	407	407
	PB	Correlation Coefficient	.708**	.638**	1.000	.678**	.650**
		Sig. (2-tailed)	<.001	<.001	.	<.001	<.001
		N	407	407	407	407	407
	SI	Correlation Coefficient	.659**	.726**	.678**	1.000	.730**
		Sig. (2-tailed)	<.001	<.001	<.001	.	<.001
		N	407	407	407	407	407
	CC	Correlation Coefficient	.655**	.698**	.650**	.730**	1.000
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.
		N	407	407	407	407	407

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

Appendix 4.4: Model Summary Table

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	CC, PB, PS, SI[b]	.	Enter

a. Dependent Variable: DV

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.891[a]	.794	.792	.37316	2.009

a. Predictors: (Constant), CC, PB, PS, SI

b. Dependent Variable: DV

Appendix 4.5: Anova result

ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	215.258	4	53.815	386.472	<.001[b]
	Residual	55.977	402	.139		
	Total	271.235	406			

a. Dependent Variable: DV

b. Predictors: (Constant), CC, PB, PS, SI

Appendix 4.6: Coefficients analysis result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.393	.099		3.959	<.001
	PS	.211	.046	.219	4.623	<.001
	PB	.346	.047	.352	7.366	<.001
	SI	.209	.046	.226	4.500	<.001
	CC	.146	.048	.152	3.037	.003

a. Dependent Variable: DV

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.3044	4.9492	4.2034	.72814	407
Residual	-2.25338	1.69516	.00000	.37131	407
Std. Predicted Value	-3.981	1.024	.000	1.000	407
Std. Residual	-6.039	4.543	.000	.995	407

a. Dependent Variable: DV

Appendix 4.7: Descriptive Analysis results

	N	Minimum	Maximum	Mean	Std. Deviation
DV	407	1.00	5.00	4.2034	.81735
PS	407	1.00	5.00	4.1032	.85025
PB	407	1.00	5.00	4.2708	.83277
SI	407	1.00	5.00	4.1489	.88498
CC	407	1.00	5.00	4.1302	.85365
Valid N (listwise)	407				

UNIVERSITY TUNKU ABDUL RAHMAN

Faculty of Business and Finance

Date: 04 Sep 2025

REQUEST FOR APPROVAL TO EXCEED WORD LIMIT IN FYP REPORT

I, Kam Kai Yi (Student ID: 2207360), respectfully submit a request for approval regarding the word count of our Final Year Project (FYP) report titled: E-Payment Development: The Adoption of E-Payment among undergraduate in Malaysia

According to the FYP guidelines, the report should be about 10,000 words. Submissions under 9,000 words will be penalised, while submissions exceeding 11,000 words require prior approval from both the Supervisor and the Research Coordinator.

Our completed report has a total of 19750 words, which slightly exceeds the 11,000-word limit. The additional content is necessary to present our research comprehensively and ensure clarity in analysis and discussion.

We therefore request your kind approval to submit the report in its current form.

Approval

I hereby approve the submission of the above-mentioned FYP report with a word count exceeding 11,000 words.

Supervisor's Name & Signature

Date: _____

Lim Chung Hany
4/9/2025

Research Coordinator's Name & Signature

Date: _____

Noorfaiz binti Purhanudin
5/9/2025