Factors Affecting the Behavioral Intention to Use Mobile Fintech Payment Channel in Bangkok

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Abstract

The study examines the intention to use mobile banking in Bangkok and the factors influencing this behavior. We analyze the behavioral intention across different age groups and education levels. The results indicate that perceived ease of use, perceived usefulness, attitude, perceived behavioral control, perceived security, and intention behavior significantly impact the willingness to use mobile banking. However, subjective norm and perceived COVID-19 risk were found to be insignificant factors in this context.

Keywords: Mobile payment, Consumer Behaviour, Technology Acceptance Model (TAM), Structure Equation Modelling (SEM)

Introduction

1. Research Background

Financial technology, commonly known as FinTech, has revolutionized the way businesses and consumers conduct transactions through the use of digital services. In Thailand, FinTech has become an integral part of people's daily lives, leading authorities to establish standards for QR code payments, further promoting the adoption of mobile payments over traditional payment methods (Bank of Thailand, 2019). Mobile payment, a popular application

of FinTech, allows contactless transactions using a mobile device (Jixiang, 2021) and involves fund transfer between the payer and the payee (Karthikeyan, 2012). The rise of cashless payments has also provided commercial banks with valuable insights into customers' behavior (Konigstorfer & Thalmann, 2020).

As the political, cultural, and economic hub of Thailand, Bangkok holds a prominent position in the nation's development policy. Rankin 15th among the largest metropolises, it stands as Southeast Asia's largest international financial center (BMA Information Center, 2022). With its significant contribution of approximately 29% to the country's GDP, Bangkok plays a crucial role in driving economic success (Kasikorn Research, 2012). Prior to the COVID-19 pandemic, Thailand witnessed annual economic growth of 3.4%, while Bangkok's growth reached approximately 4.5%. Given these factors, it is unsurprising that people in Bangkok tend to engage in more online transactions compared to other provinces. With a diverse population of around 8.8 million people, comprising both registered and non-registered commuters (Thairath, 2022). The city presents a unique opportunity to study factors influencing the behavioral intention of using mobile FinTech payment channels. Therefore, this study aims to identify the significant factors affecting people's behavioral intention to adopt mobile FinTech payment channels in Bangkok.

2. Research Objective

2.1 The primary objective is to identify the factors that influence the behavioral intention to use mobile FinTech payment channels in Bangkok.

2.2 Additionally, we aim to compare the behavioral intention of people across different age groups and education levels regarding the adoption of mobile FinTech payments.

3. Scope of Research

3.1 This research will employ four established theories, namely the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), and Diffusion of Innovation Theory (DIT). These theories will help identify the factors influencing people's behavioral intention to use mobile FinTech payment services in Bangkok.

3.2 To analyse the dependent variable (behavioural intention), we will utilize four control variables: age, gender, education level and income level, along with seven independent variables. The independent variables include attitude towards behaviour, subjective norm, perceived behavioral control, perceived usefulness, perceived ease of use, perceived security and perceived COVID-19 risk.

3.3 Data collection will be conducted through questionnaires administered from January to March 2023.

4. Expected Research Benefits

This research aims to shed light on the key factors influencing the intention to use mobile FinTech payment services in Bangkok. By understanding these factors, businesses and policy makers can make informed decision s to enhance the adoption and utilization of mobile payment solutions.

In the post COVID-19 era, financial institutions can leverage the insights from this study to develop innovative and customer-centric financial technologies. By analyzing the successful adoption of mobile payments by the government and intrapreneurs, bankers can create tailored FinTech solutions that better serve their customers' evolving needs and preferences.

Review of Literature

1. Factor Determining Intention to Use Mobile Payment Service

1.1 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen in 1975 defines attitude as a positive or negative aspect of personal interest. In the context of this study, attitude towards using mobile payment services refers to an individual's positive or negative feelings about utilizing these services (Yadav & Pathak, 2016). Research has shown that attitude is a significant predictor of the intention to use mobile payment services (Luarn & Lin, 2005). Based on this, we propose the following hypothesis:

H_1: Attitude towards using mobile payment services positively influences intention to use these services.

Subjective norm another component of TRA, refers to the perceived social pressure that can influence individual to either perform or abstain from a particular behavior. Ajzen and Fishbein (1975) argued that if a behaviour is entirely under voluntary control, individuals may not fully express true intentions due to external environmental factors. Furthermore, if people have a strong attitude towards using mobile payment services, they are more likely to have a subjective norm intention towards such behaviour (Henk Staats, 2004). In other words, influential peers and individuals can engage consumers to adopt mobile payment services. Therefore, we propose the following hypothesis:

H_2: Subjective norm positively affects intention to use mobile payment services.

1.2 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) builds upon the TRA by introducing a new construct called perceived behavioral control, which suggests that people believe they can control their behaviour (Ajzen, 1991). Perceived behavioral control helps explain the relationship between human behaviour and their intention to use or adopt new information technologies, such as mobile payment services (Cameron, 2010). When deciding whether to use a particular service, people assess their ability to use technology and their confidence in controlling their behavior (Daragmeh, Lentner & Sagi, 2021). Based on this, we propose the following hypothesis:

H_3: Perceived behavioral control positively influences intention to use mobile payment services.

1.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) measures the behavioral intention to use new technologies based on personal attitude (Davis, 1986). TAM includes two specific beliefs: perceived usefulness and perceived ease of use. Perceived usefulness refers to people's belief in the utility of technology. Specifically, people assess the potential of a technology to improve their performance when using a mobile payment service (Davis, 1989). Therefore, we propose the following hypothesis:

H_4: Perceived usefulness positively influences the attitude towards using mobile payment services.

Perceived ease of use refers to the convenience felt by users when interacting with a new system. Specifically, it measures the extent to which people believe they can use mobile payment services without much effort (Davis, 1991). When people agree that a technology is easy to use, they are also more likely to perceive it as useful. (Zhao & Zhao, 2008). We propose the following hypotheses:

H_5 a. Perceived ease of use positively influences perceived usefulness.

H_5b. Perceived ease of use positively influences the attitudes towards using mobile payment services.

As technology continues to advance, more variables are introduced to TAM. In this study, we extend TAM to predict consumers' intention to use mobile payment services by adding two factors: perceived security and perceived COVID-19 risk.

Perceived security refers to the degree to which users believe that transactions on mobile payment platforms are secure, safeguarding their financial and personal information (Zhang, Luximon & Song, 2019). We propose the following hypothesis:

H_6: Perceived security positively influences the intention to use mobile payment services.

Perceived COVID-19 risk relates to people's fear of catching the virus when engaging in cash-based transactions or using other contact-based payment methods (Durr, 2020). People also turn to mobile payment services as a mean to reduce their chances of contracting the virus (C.C. & Prathap, 2020). We propose the following hypothesis:

H_7: Perceived COVID-19 risk positively influences the intention to use mobile payment services.

2. Proposed Model

Drawing from the insights of TRA, TPB and TAM, the initial research model proposed in this study comprises eight factors that influence the intention to use mobile payment services. These factors have demonstrated significant relationships with the intention to adopt mobile payment services and encompass the following:

- Attitude towards using mobile payment services,
- Subjective norm, perceived behavioral control,
- Perceived usefulness,
- Perceived ease of use,
- Perceived security and
- Perceived COVID-19 risk.

These factors collectively form the foundation of our proposed model, which aims to better understand the determinants that drive individual's intentions to embrace mobile payment services.

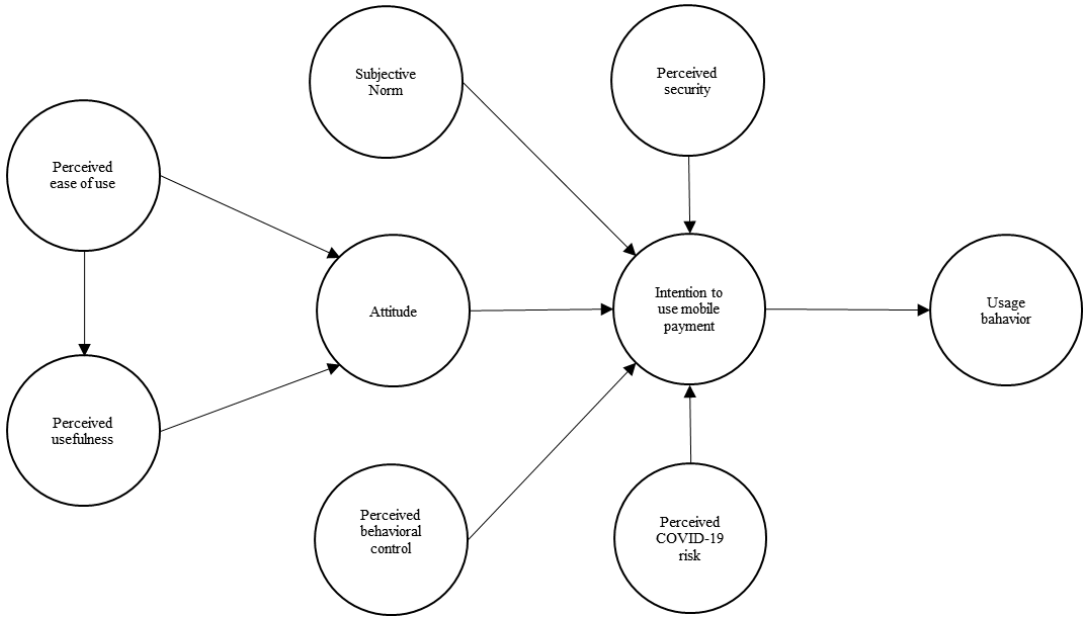

Figure 1 Proposed Model

3. Diffusion of Innovation Theory (DIT)

Proposed by Roger (2003), the Diffusion of Innovation Theory (DIT) explains the adoption of innovations as a process of social change that considers the characteristics of the population.

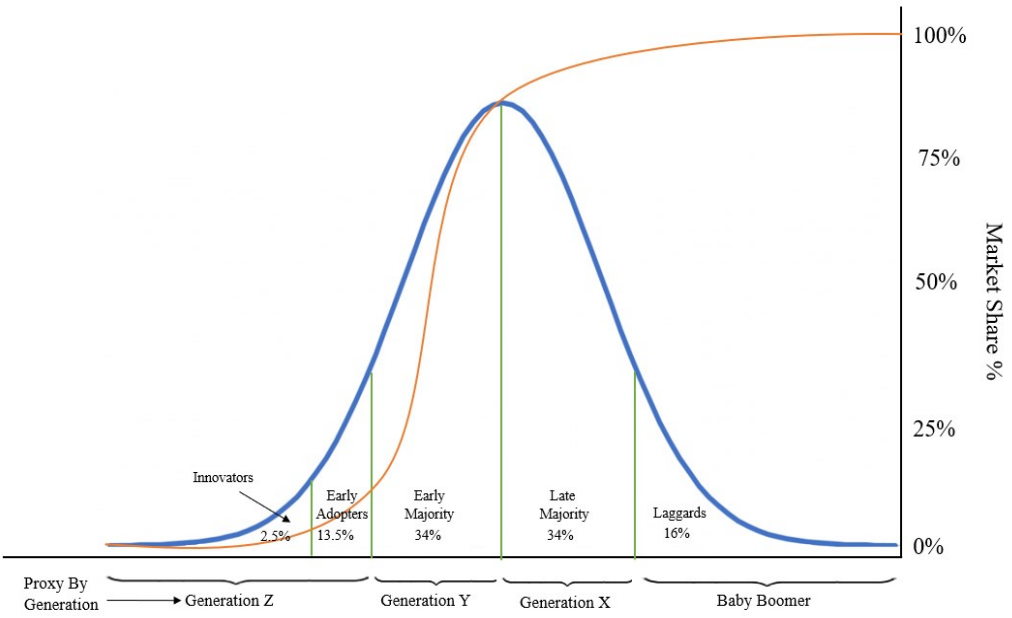

Figure 2 Diffusion of Innovation and Innovation Adoption Process

In the context of mobile payment services adoption, different age groups exhibit varying tendencies. Generation Z is classified as an innovators and early adopters due to their youth, financial flexibility, and higher education level compared to late adopters. They are also more likely to become opinion leaders (Mirthinti, 2020). Generation Y represents the early majority; this generation is more conservative and risk averse when making financial decisions, seeking feedback from influencers and early adopters. Generation X falls under the late majority category; being older and more traditional, only a few are highly educated and socially active. Baby Boomers, as the laggards of the older generation, tend to be the most resistant to change. Although connected to their community, they do not promote the spread of innovation (Pierre Maeli, 2016).

To compare the behavioral intention of people to use mobile payment services across different age groups and education levels, the following hypotheses are proposed:

H_8 a: Age positively influences perceived ease of use, perceived usefulness, attitude, subjective norm, perceived behavioral control, perceived security, perceived COVID-19 risk, behavioral intention and usage behaviour.

H_8 b: Education level positively influences perceived ease of use, perceived usefulness, attitude, subjective norm, perceived behavioral control, perceived security, perceived COVID-19 risk, behavioral intention and usage behaviour.

Research Methodology

Considering the presence of four distinct generations, a minimum sample size of 400 was deemed appropriate for the study in Bangkok. The participants were subsequently selected using stratified random sampling, ensuring representation from each generation as indicated in the table below:

Table 1 Sample Size

	Gen Z	**Gen Y**	**Gen X**	**Baby Boomer**	**Total**
High school or equivalent	56 34.35%	42 25.77%	32 19.63%	33 20.25%	163 100%

Table 1 (continued)

	Gen Z	**Gen Y**	**Gen X**	**Baby Boomer**	**Total**
Bachelor's degree	43 25.60%	48 28.57%	43 25.60%	34 20.23%	168 100%
More than master's degree or equivalent	46 26.28%	45 25.72%	44 25.14%	40 22.86%	175 100%
Total	145 28.66%	135 26.68%	119 23.51%	107 21.15%	506 100%

2. Research instrument

Data collection was conducted through an online survey questionnaire, which was designed with three sections. The first section includes screening questions to ensure the suitability of respondents. The second section gathered demographic information about the participants. The third section comprised 29 multiple-choice questions based on 9 factors. To assess their responses, each participant was asked to indicate their level of agreement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Given that the sampling was conducted in Bangkok, the survey questionnaire was translated from English to Thai to ensure participant's ease and comfort in understanding and responding to the questions.

3. Measurement of variables

To ensure the reliability of the measurements, internal consistency reliability was assessed using Cronbach's alpha coefficient. The acceptance value for Cronbach's alpha should exceed 0.70 for all factors (Fornell & Larcker, 1981). The assessment confirms the consistency of respondent's answers and their direction when asked similar questions. Validity, representing the precision of measurements in quantitative research, was measured using a model based on factor analysis. The factor loading acceptance value from the factor analysis model should be greater than 0.7 for all variables, and total variance should exceed 70% (Hair, 2006).

In this study, almost all variables demonstrated validity and reliability with factor loadings, total variance and Cronbach's alpha coefficients exceeding 0.7. Some factors achieved values slightly below 0.7 but above 0.5, which are still considered acceptable for measurement.

Table 2 Reliability and validity of questionnaire

Factor	Factor Loading	%Total Variance	Cronbach Alpha
Perceived ease of use		0.6693	0.7493
b1. It is easy for me to use.	0.8052		
b2. Mobile banking is clear and understandable.	0.7928		
b3. Using the mobile payment service is not complicated.	0.8551		
Perceived usefulness		0.6237	0.6906
b4. Transactions are faster.	0.7177		
b5. Can use everywhere and every time.	0.8389		
b6. Can use as cash.	0.8078		
Attitude		0.5268	0.6942
b7. Have an advantage to use.	0.6960		
b8. It has a good system.	0.7016		
b9. I have a positive attitude.	0.7368		
b10. It is a good choice.	0.7666		

Table 2 (continued)

Factor	Factor Loading	%Total Variance	Cronbach Alpha
Subjective norm		0.6644	0.7868
b11.My family influenced my decision.	0.6880		
b12.My friends influenced my decision.	0.8948		
b13.My colleagues influenced my decision.	0.9660		
b14.Other people influenced my decision.	0.9587		
Perceived behavioral control		0.6952	0.7799
b15.I am confident in using the mobile payment service.	0.7568		
b16.I am good at using the mobile payment service.	0.8367		
b17.I can use the mobile payment service easily.	0.9016		
Perceived security		0.8703	0.9252
b18. Mobile payment is safer more than other payment methods.	0.8771		
b19.The risk of abuse of user's information is improved.	0.9551		
b20.The risk of abuse of billing information is improved.	0.9640		
Perceived COVID-19 risk		0.8690	0.9230
b21. COVID-19 droplets may be transmitted via physical cash.	0.9483		

Table 2 (continued)

Factor	Factor Loading	%Total Variance	Cronbach Alpha
b22. When I use physical cash, I worry that I will get the coronavirus.	0.9569		
b23.I avoid using cash during the pandemic.	0.8899		
Intention behavior		0.7211	0.8062
b24.I will use the mobile payment service in the near future.	0.8300		
b25.When I have the opportunity, I will certainly use the mobile payment service.	0.8537		
b26.Mobile payment is one of method that I will use to make my transactions.	0.8635		
Usage behavior		0.7732	0.8465
b27.I am frequently using mobile payment services.	0.8851		
b28.I use mobile payment in my daily life.	0.8793		
b29.I use mobile payment services in every transaction.	0.8736		

4. Data Analysis

Google Forms was used to collect the data, which were then inputted into a Microsoft Excel spreadsheet. The data were then imported into Stata for analysis using Structure Equation Modelling (SEM), a technique that combines confirmatory factor analysis and path analysis. SEM enables the examination of the relationships between dependent and independent variables using the maximum likelihood estimator method, thus revealing both direct and indirect effects of variables.

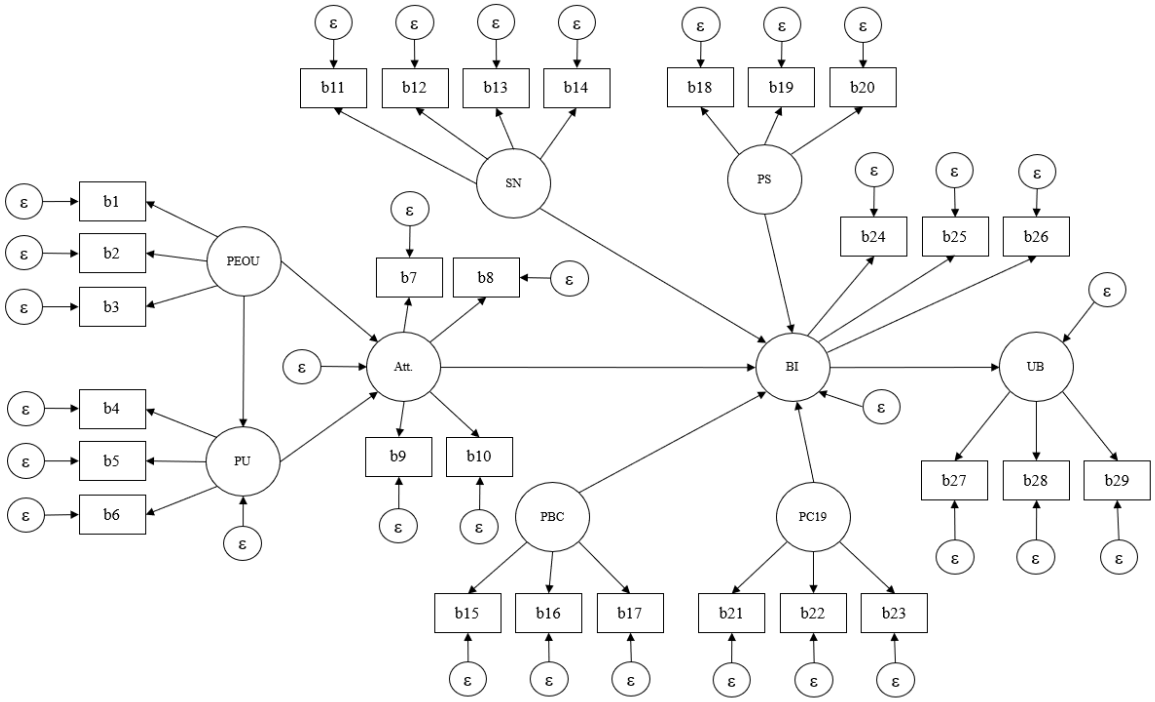

Figure 3 Structural equation modelling (SEM)

Note: PEOU= Perceived ease of use, PU= Perceived usefulness, Att= Attitude, SN= Subjective norm, PBC= Perceived behavioral control, PS= Perceived security, PC19= Perceived COVID-19 risk, BI= Behavioral Intention, and UB= Usage behaviour

Results and Discussion

1. Inferential analysis for hypotheses testing

Table 3 Inferential analysis for hypotheses testing

Variable	M1	M2
PU		
<--PEOU	0.4763***	0.4779***
Att		
<--PU	0.3088***	0.3066***
<--PEOU	0.3445***	0.3429***

Table 3 (continued)

Variable	M1	M2
BI		
<--Att	0.4853***	0.5226***
<-- Snorm	5.9555	
<--PBC	0.5545***	0.5938***
<--PSecur	0.2277***	0.2351***
<--COVID	0.0202	
UB		
<--BI	1.1134***	1.1161***
Observations	506	506
Loglikelihood	-13023.7370	-8850.6922
Chi2_MS		1078.8365***
Chi2_BS	9588.5164***	6015.4252***
AIC	26239.4750	17847.3840
BIC	26645.2220	18155.9220
RMSEA		0.0930
SRMR	0.1860	0.1980
CFI	0.9990	0.8480
TLI		0.8270
CD	0.9990	0.9990

Note: * p<0.5, ** p<0.01, *** p<0.001, SEM model with all factors (M1), SEM model without Subjective Norms and Perceived COVID-19 risk (M2).

The results of hypotheses testing indicated both subjective norms and perceived COVID-19 risk were both higher than 0.5, indicating their insignificance. Before modifying the model, certain fit indices, such as root mean square error of approximation (RMSEA), Tucker–Lewis Index (TLI) and chi-square statistic for model fit (chi2_MS), were inestimable, suggesting potential issues with some factors. As a result, we removed subjective norms and perceived COVID-19 risk from the model, as these factors contradicted the hypothesis. Perceived COVID-19 risk had a low value, while subjective norms had a high value. Upon

eliminating these factors, the overall results remained largely unchanged, and the values of RMSEA, TLI and chi-square could be estimated to fit the model.

It is important to note that data were collected after the COVID-19 pandemic, when a large portion of population had already received the vaccine. Consequently, respondents were not concerned about catching the virus from of cash usage. Additionally, subjective norms did not influence their intention to use mobile banking services, as respondents preferred using these services based on their own decision making. Therefore, subjective norms and perceived COVID-19 risk did not significantly affect their intention to use mobile banking services.

2. Subsample Analysis by Age Group

Table 4 Subsample analysis by age group

Variable	GenZ	GenY	GenX&BB
PU			
<--PEOU	0.5209***	0.4314***	0.4442***
Att			
<--PU	0.3050***	0.0517	0.4719***
<--PEOU	0.3776***	0.2882**	0.2742***
BI			
<--Att	1.0974***	0.5460*	0.4102***
<--PBC	0.6996***	0.6568***	0.3784***
<--Psecur	0.1566***	0.1891***	0.3057***
UB			
<--BI	0.9506***	1.1396***	1.0302 ***
Observations	145	135	226
Loglikelihood	2183.9265	2196.0660	4249.1273
Chi2_MS	515.4829***	473.1241***	643.7258***
Chi2_BS	2186.3372***	1666.5847***	2734.3111***
AIC	4513.8531	4538.1320	8644.2545
BIC	4731.1546	4750.2170	8893.9536

Table 4 (continued)

Variable	GenZ	GenY	GenX&BB
RMSEA	0.1030	0.1000	0.0980
SRMR	0.2570	0.2100	0.1860
CFI	0.8400	0.8110	0.8240
TLI	0.8170	0.7840	0.7980
CD	0.9999	0.9990	0.9990

Note: * p<0.5, ** p<0.01, *** p<0.001

The impacted perceived ease of use varies across different generations, with Generations Z being more influenced by comparing to Generation Y, X, and baby Boomers. This is attributed to Generation Z's inclination to experiment and embrace new technology more readily. As a result, Generation Z demonstrated the strongest behavioral intention to use mobile banking services, primarily driven by their positive attitude toward technology. Conversely, Generation X and Baby Boomers exhibited a stronger behavioral intention due to the perceived security associated with mobile banking services. It is worth noting that Generation X and Baby Boomers, being over 42 years old, tend to be more risk-averse and less familiar with technology (Badowska, Zamojska & Rogala, 2015).

Perceived behavioral control significantly influenced the behavioral intention of Generations Y and Z, while it had a limited impact on Generation X and Baby Boomers. Generation Z, being innovators and early adopters, enjoys challenging and trying out new technologies and is confident in their ability to control themselves when using them. (Priporas, Stylos & Fotiadis, 2017).

On the other hand, perceived security played a more significant role for Generation X and Baby Boomers compared to other generations. Older individuals are often taught to be frugal by their families, which explains their cautious spending habits. (Pew Research Center, 2008).

3. Subsample analysis by education levels

Table 5 Subsample analysis by education levels

Variable	HS	BA	MA
PU			
<--PEOU	0.4035***	0.7686***	0.2022**
Att			
<--PU	0.2598**	0.3012***	0.8533**
<--PEOU	0.5074***	0.2777**	
BI			
<--Att	0.2546***	0.9138***	0.5886***
<--PBC	0.5405***	0.4974***	
<--PSecur	0.2860***	0.2095***	0.1235***
UB			
<--BI	1.0015***	1.0123***	1.2219***
Observations	163	168	175
Loglikelihood	-2963.2599	-2876.3461	-2432.8381
Chi2_MS	550.7942***	505.3157***	312.7339***
Chi2_BS	2413.7200***	2220.1290***	1240.5013***
AIC	6072.5198	5898.6923	4989.6761
BIC	6298.3635	6126.7416	5185.8928
RMSEA	0.1030	0.0950	0.0800
SRMR	0.1950	0.2210	0.1160
CFI	0.8400	0.8480	0.8450
TLI	0.8170	0.8260	0.8200
CD	0.9999	0.9990	0.9940

Note: * p<0.5, ** p<0.01, *** p<0.001, HS : High school or equivalent , BA: Bachelor's Degree, MA: More than master's degree or equivalent.

The impact of perceived ease of use on individuals varied depending on their educational levels. Bachelor's degree holders were significantly more influenced by perceived ease of use compared to respondents with other levels of education. The difference can be attributed to the fact that individuals with a bachelor's degree may place more importance on the ease of using mobile banking services. On the other hand, respondents who only finished high school showed a higher impact of perceived ease of use compared to those with a master's degree. This is because individuals with a master's degree possess the necessary skills and knowledge to navigate mobile banking services seamlessly. As a result, people with higher levels of education tend to be less affected by perceived ease of use (Holden & Rada, 2011).

Furthermore, people with a lower education level were less influenced by perceived usefulness compared to those with higher education levels. This difference in impact can be attributed to the varying levels of knowledge and experience with mobile banking services among individuals with different education backgrounds (Wilson, 2015). Notably, perceived ease of use did not significantly affect individuals holding master's degrees. This finding is possibly due to the higher expectations of individuals with advanced education, who require more sophisticated functionalities from mobile banking services, such as handling mutual funds or applying for loans and credit cards. The influence of attitude on behavioral intention was found to be the strongest among individuals who only finished high school. In other words, individuals with bachelor's degrees displayed a greater tendency to adopt mobile banking services based on their attitude towards them (Irfan Ali, 2021).

Perceived behavioural control was not a significant factor for master's degree holders but did impact individuals with bachelor's degrees and those who only finished high school. These two groups demonstrated an intention to use mobile banking services when they had self-efficacy and felt in control of their bahavior while using these services (Irfan Ali, 2021).

Perceived security had a lower impact on people with higher education levels, possibly due to their higher level of knowledge and confidence, which makes them more aware of the security measures in place for mobile banking systems. On the other hand, individuals with high school and bachelor's degree levels may have relatively lower knowledge and might not consider security aspects as extensively. Their intention to use mobile banking services was positively influenced when they perceived the service to have good security measures (Govender & Sihlali, 2014).

Conclusions and Recommendations

1. Conclusion

1.1 Factors affecting Behavioral Intention to Use Mobile FinTech Payment Channels in Thailand

This study aims to identify the key factors influencing people's behavioral intention to use mobile banking services in the context of FinTech in Thailand. The significant factors include perceived ease of use, perceived usefulness, attitude, perceived behavioral control, perceived security and intention behavior. However, subjective norm and perceived COVID-19 risk were found to have no significant effects on behavioral intention.

1.2 Comparison of Behavioral Intention among Different Age Groups and Education Levels

The study categorizes participants into different age groups, namely Generations X, Y and Z, as well as Baby Boomers, to compare their behavioural intention to use mobile FinTech payment services. The results revealed variations in the impact of each factor across these generations. Generation Z showed a higher sensitivity to perceived ease of use, as they have greater expectations for the user-friendliness of mobile banking services. Additionally, their behavioural intention was strongly influenced by attitude, as they place importance on mobile banking services having a robust system and providing substantial benefits. For older generations, such as Generation X and Baby Boomers, perceived usefulness was the most influential factor. They prioritize the convenience of quick and accessible transactions through mobile banking services. Furthermore, perceived security had a more significant impact on Generation X and Baby Boomers, reflecting their risk-averse nature and preference for secure transaction methods.

The study also explores the effects of factors across different education levels, including high school, bachelor's degree and master's degree or equivalent. Individuals with higher education levels displayed less impact from perceived behavioral control, perceived security and perceived ease of use, likely due to their higher levels of knowledge and skills in using technology. On the other hand, for those with lower education levels, perceived ease of use had more sustainable impact, particularly for individuals who only completed high school. This may be because they possess relatively lower knowledge and familiarity with technology compared to those with higher education.

Attitude significantly influenced the behavioral intention of individuals holding a bachelor's degree, while its impact was limited to those who finished high school. Conversely, people with higher education were more affected by perceived usefulness compared to individuals with lower education levels. This suggests that individuals with higher education often seek more complex functionalities from mobile banking services, such as investing in mutual funds or applying for loans and credit cards.

2. Discussion

The Theory of Reasoned Action (TRA) posits that people's attitudes and subjective norms influence their behavioral intentions (Fishbein & Ajzen, 1975). In this study, attitude significantly affected behavioral intention, particularly to the belief that mobile banking offers advantageous and ease of use, thus positively influencing people's intention to use these services. However, subjective norms, which involve social influence and the opinions of important people, did not have any bearing on consumers' decisions to use mobile banking services, indicating their insignificance in shaping behavioural intentions.

The Technology Acceptance Model (TAM) assesses people's behavioral intention to adopt new technology based on their personal attitudes towards the perceived usefulness and perceived ease of use of the technology (Davis, 1986). Both perceived usefulness and perceived ease of use positively influenced attitude, while perceived ease of use also had a positive effect on perceived usefulness.

In the extended TAM model, perceived COVID-19 risk is not considered significant, likely due to the data collection occurring at a time when people in Bangkok had already been vaccinated against the virus. As a result, individuals were less concerned about the risk of catching COVID-19 when using cash, leading to its diminished impact on behavioral intentions.

3. Recommendations

3.1 Government

The government should continue promoting national e-payment systems, with a specific focus on mobile payment services. To address the security concerns of Generation X and Baby Boomers regarding mobile banking transactions, the government should conduct comprehensive public education campaigns, providing detailed information on mobile banking security measures. Additionally, the government should emphasize and publicize the benefits of using mobile banking services, highlighting its usefulness and security features.

For individuals who only finished high school, perceived ease of use plays a crucial role in influencing their adoption of mobile payment services. To encourage their participation, the government should create user-friendly materials with step-by-step instructions on how to use all available functions of mobile payment services. By enhancing their understanding and confidence in using these services, this group is more likely to embrace mobile payment options.

3.2 Regulators

The Bank of Thailand should continue supporting the government's initiatives in transitioning to a cashless society, with a particular focus on promoting QR code payments and PromptPay services. To facilitate international money transfers through QR payments, the bank should also support services that connect neighbouring countries under the concept of 'ASEAN Payment Connectivity'. Disseminating relevant information on these cross-border transfers and providing up-to-date currency exchange rates for the Thai baht will foster confidence and convenience for users. Additionally, the bank should highlight the advantages of using QR payments, such as speed, safety and lower transaction fees compared to traditional methods.

3.3 Bankers

Bankers take an active role in providing customers with useful information about mobile banking services. Conducting demonstrations of how to use these services on mobile devices, considering that each banking institution has a unique interface, can greatly assist customers in adopting and utilizing mobile banking services effectively. Encouraging small and medium-sized enterprises to embrace QR codes and e-payment schemes as payment options by highlighting their benefits, such as quick and secure money transfers and easy access to transaction histories, will further drive the adoption of mobile payments.

To cater to the preferences of Generation X and Baby Boomers, mobile banking app developers and programmers should focus on creating applications that are user-friendly and easy to install. Ensuring that the app design incorporates various layouts and keeping buttons fixed in position to avoid confusion can enhance the user experience. Moreover, considering adjustable font sizes can be beneficial for older users who may have vision-related challenges.

3.4 Future studies

Future studies are encouraged to expand their focus beyond the population of Bangkok and include a representative sample of the entire Thai population. Conducting research on a larger scale and incorporating additional factors that may influence the intention to use mobile payment services will yield more valuable and comprehensive data. Additionally, future research should encompass both customers and businesses to gain a broader perspective on mobile payment behavior.

Furthermore, future studies may consider segmenting their samples based on the specific mobile banking apps used by respondents. Understanding how different interfaces and levels of complexity impact customer behavior can contribute to the design of mobile banking apps that cater to customers' diverse needs and preferences.

4. Limitation

This study's findings are limited to reflecting the behavioral intention of mobile banking customers in Bangkok and may not represent the entire Thai population. The data collection method utilized an online survey questionnaire distributed through Google Forms, which could be less familiar to some Generation X and Baby Boomer respondents, potentially affecting response rates. Despite these limitations, the study's target demographic remains comprehensive, and the research findings are reliable within the scope of the study.

References

A. S. Al-Aufi & M. N. Al-Suqri. (2015). *Information Seeking Behavior and Technology Adoption: Theories and Trends*. IGI-global publisher of timely knowledge.

Aditya, & Andy. (2020, May 2). *Thailand's Fintech Growth Is Amongst the Fastest In ASEAN - Startup in Thailand*. StartUp in Thailand. Retrieved from: https://startupinthailand.com/thailands-fintech-growth-is-amongst-the-fastest-in-asean, June 4, 2023.

Ajzen, I. (1991, December 1). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211. https://doi.org/10.1016/0749-5978(91)90020-T.

Ajzen, I., & Madden, T. J. (1986, September). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, *22*(5), 453-474. https://doi.org/10.1016/0022-1031(86) 90045-4.

Allen, R. (2020, November 13). *Digital Marketing Models: The Technology Acceptance* Model. Smart Insights. Retrieved from: https://www.smartinsights.com/manage-digital-transformation/digital-transformation-strategy/digital-marketing-models-technology-acceptance-model, June 5, 2023.

Alm, K. H., Chotiyaputta, V., & Bejrakashem, S. (2022, April). Factors Influencing Mobile Payment Adoption by Silver Generation in Thailand and Sweden. *Social Science Asia, 8*(2), 22-44. https://socialscienceasia.nrct.go.th/index.php/SSAsia/article/view/286.

Alsajjan, B., & Dennis, C. (2006, June). The Impact of Trust on Acceptance of Online Banking. *European Association of Education and Research in Commercial Distribution*, 27-30. https://bura.brunel.ac.uk/handle/2438/738

Axerve. (2022, April 26). *Generational comparison on the use of payment methods*. Retrieved from: https://www.axerve.com/en/learn/insights/generation-payments-method-comparison, June 5, 2023.

Bangkokbiznews. (2021, September 19). *Six transactions through the FinTech payment*. Financial Technology. Retrieved from: https://www.bangkokbiznews.com/pr-news/business/961081.

Bank of Thailand. (2021, March 26). *Joint Press Release The Launch of the Interoperable QR Payment Linkage between Viet Nam and Thailand*. News & Media. Retrieved from: https://www.bot.or.th/en/news-and-media/news/news-20210324-1.html.

CardConnect. (2022). *Mobile Payment Security: Best Practices & Risks*. Payment Security. Retrieved from: https://cardconnect.com/launchpointe/payment-security/mobile-payment-security.

Chancharussin, N., & Tangtammaruk, P. (2019). *A Study of Consumer Behavior and Decision to Use Mobile Banking*. (An independent study for the Master's degree). Faculty of Economics Srinakharinwirot University, Bangkok. http://ir-ithesis.swu.ac.th/dspace/handle/123456789/527.

Choomchit, C., & Dheera-aumpon, S. (2022, August). Factors Affecting the Decision to Use Personal Loan Service via Mobile Banking Application. *Journal of Buddhist Education and Research, 8*(2), 130-141. https://so06.tcithaijo.org/index.php/jber/article/view/260570.

Daragmeh, A., Lentner, C., & Sági, J. (2021, December). FinTech payments in the era of COVID-19: Factors influencing behavioral intentions of “Generation X” in Hungary to use mobile payment. *Journal of Behavioral and Experimental Finance*, *32*(100574). https://doi.org/10.1016/j.jbef.2021.100574.

Engelberg, R. (2023, May 26). *Mobile Payment: Definition, Types, and Advantages (2023)*. Shopify Blog. Retrieved from: https://www.shopify.com/blog/mobile-payment, July 1, 2022.

Giles, B. (2022, August 10). *Consumers' Preferred Payment Methods, by Generations*. Ingenico. Retrieved from: https://ingenico.com/us-en/newsroom/blog/consumer-payment-methods, June 5, 2023,

Goddard, W. (2021, June 2). *What is Mobile Payments - Types, Benefits and Examples*. Retrieved from: https://itchronicles.com/mobile/what-is-mobile-payments-types-benefits-and-examples/

Grabner-Kräuter, S., & Kaluscha, E. (2003, June). Empirical research in on-line trust: a review and critical assessment. *International Journal of Human-Computer Studies*, *58*(6), 783-812. https://doi.org/10.1016/S1071-5819(03)00043-0.

Jantarakolica, K., & Jantarakolica, T. (2018, October 4). Acceptance of Financial Technology in Thailand: Case Study of Algorithm Trading. *Banking and Finance Issues in Emerging Markets*, *25*, 255-277. https://doi.org/10.1108/S1571-038620180000025011.

Jantarakolica, T., Jantarakolica, K., & Wongkantarakorn, J. (2021, June). Point of Sale and Decision to Use e-Payment Channel. *Thailand and The World Economy*, *39*(2), 37-55. https://so05.tci-thaijo.org/index.php/TER/article/view/251891/170485.

Jixiang, Y. (2021). *The Factors Affecting Intention to use Mobile Payment in Chonburi of Thailand*. (Dissertation). Faculty of Management and Tourism Burapha University, Chonburi. https://buuir.buu.ac.th/xmlui/handle/1234567890/5399.

Kasikorn. (2020, September 1). *Contactless Payment in Thailand*. Kasikorn Research Center. Retrieved from: https://www.kasikornresearch.com/th/analysis/k-econ/financial/Pages/z3131-Contactless-Payment.aspx

Kongkumcha, J. (2021, November 11). *Digital Payment Transformation*. Retrieved from: https://www.scbeic.com/th/detail/product/7924.

Li, B., Hanna, S. D., & Kim, K. T. (2022, January 31). who uses mobile payments: Fintech potential in users and non-users. Financial Counseling and Planning. *Journal of Financial Counseling and Planning*, *31*(1), 83-100. https://doi.org/10.1891/JFCP-18-00083.

Liu, G.-S., & Tai, P. T. (2016, November). A Study of Factors Affecting the Intention to Use Mobile Payment Services in Vietnam. *Economics World*, *4*(6), 249-273. 10.17265/2328-7144/2016.06.001.

Lwoga, E. T., & Lwoga, N. B. (2017, December 5). User Acceptance of Mobile Payment: The Effects of User-Centric Security, System Characteristics and Gender. *Electronic Journal of Information Systems in Developing Countries*, *81*(3), 1-24. https://doi.org/10.1002/j.1681-4835.2017.tb00595.x.

Mahattanalai, T. (2021, September 13). *Industry Outlook 2021-2023: Digital Services and Software*. Retrieved from: https://www.krungsri.com/en/research/industry/industry-outlook/services/digital-software/io/io-digital-software-21.

Pierce, T. (2020, July 14). *The Generational Effect on Consumer Payment Preferences* CU Today. Retrieved from: https://www.cutoday.info/THE-tude/The-Generational-Effect-on-Consumer-Payment-Preferences.

Pin, L., & Lin, H.-H. (2005, November). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, *21*(6), 873-891. https://doi.org/10.1016/j.chb.2004.03.003.

Rogers, E. M. (2003). *The generation of innovations*. In Diffusion of Innovations (5th ed., pp. 134-162). Free Press. https://doi.org/10.1016/j.jmig.2007.07.001.

Rouibah, K., Thurasamy, R., & May, O. S. (2009). User Acceptance of Internet Banking In Malaysia: Test of Three Competing Models. *International Journal of E-Adoption*, *1*(1), 1-19. https://doi.org/10.4018/jea.2009010101.

Suoranta, M., & Mattila, M. (2004, June). Mobile banking and consumer behaviour: New insights into the diffusion pattern. *Journal of Financial Services Marketing*, *8*(4), 354-366. https://doi.org/10.1057/palgrave.fsm.477013.

United Overseas Bank. (2021, November 5). *FinTech in Thailand, 3Q2021*. Retrieved from: https://www.uobgroup.com/techecosystem/news-insights-fintech-in-thailand-3q-2021.html?filter=.Blockchain.

Valencia, S., Bautista, R., & Jeong, L. S. (2021). Know Your Customers: How Generations X and Y Perceive Mobile Payment. *DLSU Business & Economics Review*, *31*(1), 16-28. https://www.dlsu.edu.ph/wp-content/uploads/2021/08/DLSUBER.2021.July_.2valencia-0728.pdf

Vanguard Marketing International. (2022, May). *Top 5 Perceived Attributes of Innovations and Their Effect on Rate of Adoption. A Strategic, Technology Marketing Firm*. Retrieved from: https://e-vmi.com/top-5-perceived-attributes-of-innovations-and-their-effect-on-rate-of-adoption.