CHINESE MOBILE PAYMENT LANDSCAPE: A STIMULUS-ORGANISM-RESPONSE MODEL EXAMINING INFLUENCERS ON CUSTOMERS' WILLINGNESS TO USE THIS TECHNOLOGY

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ABSTRACT

This thesis aims to identify factors influencing individuals' willingness to use mobile payment application in China, using Stimulus–organism–response (SOR) theory as the foundational framework. There are eight latent variables: Mobile Payment Application, Cost, Risk, Confirmation, Social Influence, Satisfaction, Perceived Value, and Willingness to Use, along with 20 observed variables. External factors can influence individual behavior through psychological reactions. These external stimuli include aspects of the Mobile Payment Application (Image, Usefulness, Ease of Use, Service Quality), Cost, Risk, Confirmation, and Social Influence. These stimuli affect the user's psychological state (Perceived Value and Satisfaction), ultimately leading to the dependent variable: Willingness to Use. Data were collected from 608 valid questionnaires about mobile payment app usage in different regions of China. The study used SPSS and Amos software to analyze survey data through various methods, including descriptive statistics, reliability and validity tests, correlation analysis, and structural equation modeling, to verify research hypotheses and models. The findings are as follows: The Mobile Payment Application positively influences user satisfaction and perceived value. Confirmation enhances both user satisfaction and perceived value. Social influence also

boosts user satisfaction and perceived value. Additionally, perceived value improves user satisfaction and increases willingness to use the app, while satisfaction further enhances users' willingness to use it. Cost and risk both negatively impact users' perceived value of the mobile payment app. Based on the research findings, suggestions are proposed to enhance the willingness of mobile payment app users in China. Mobile payment operators should better understand customer needs and regularly evaluate the image, usefulness, ease of use, and service quality of their products. This will help improve their offerings. As customer behavior evolves, it is essential to reassess customer needs and responses. Additionally, operators can reduce costs and risks, enhance social influence, and improve user satisfaction and perceived value to boost users' willingness to use the app. Finally, the paper points out the insufficiency and the prospect of the paper.

Keywords: mobile payment; S-O-R Theory; Willingness to use; Influencing factors

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CHAPTER 1

INTRODUCTION

1.1 Research Background

China's mobile e-commerce has rapidly advanced due to the growth of 4G and 5G networks, the widespread use of smartphones and tablets, ongoing app innovation, and increasing consumer demand (Jiang, 2021; Li, 2018). Traditional paper currency transactions have significant drawbacks for mobile electronic payments, including longer transaction times, high labor costs, and the risk of counterfeiting. To meet the demands of mobile e-commerce, mobile payments offer a convenient and fast cashless alternative, addressing these issues (Jiang, 2021; Yang, 2021; Hana, 2002). The COVID-19 outbreak in 2020 further accelerated the shift to mobile payments, as they became the preferred method for ensuring personal health (Mobile Payment Security Survey Research Report, 2021).

As of June 2023, according to the 52nd Statistical Report on China's Internet Development by the China Internet Network Information Center, China had 1.079 billion Internet users, with an Internet penetration rate of 76.4%, surpassing the global average (see Figure 1.1). Mobile Internet users totaled 1.076 billion, and 99.8% accessed the Internet via mobile phones (see Figure 1.2). This vast user base supports the growth of China's mobile payment industry. With rapid growth in mobile devices and data traffic, China's mobile Internet services are expanding, driving the mobile Internet industry's development. As of June 2023, China had 11.29 million mobile phone base stations (see Figure 1.3), with 1.73 million being 5G stations (15.32%). Mobile Internet traffic reached 142.3 billion GB, a 14.6% year-on-year increase (see Figure 1.4). Online e-commerce has grown, with 943 million online payment users, representing 87.5% of netizens. Mobile payments offer quick shopping solutions, address challenges with paper currency transactions, enhance transaction speed, reduce costs, and minimize counterfeit currency risks. These benefits and the expansion of mobile payment applications are driving the industry's growth (China Internet Network Information Center, 2023).

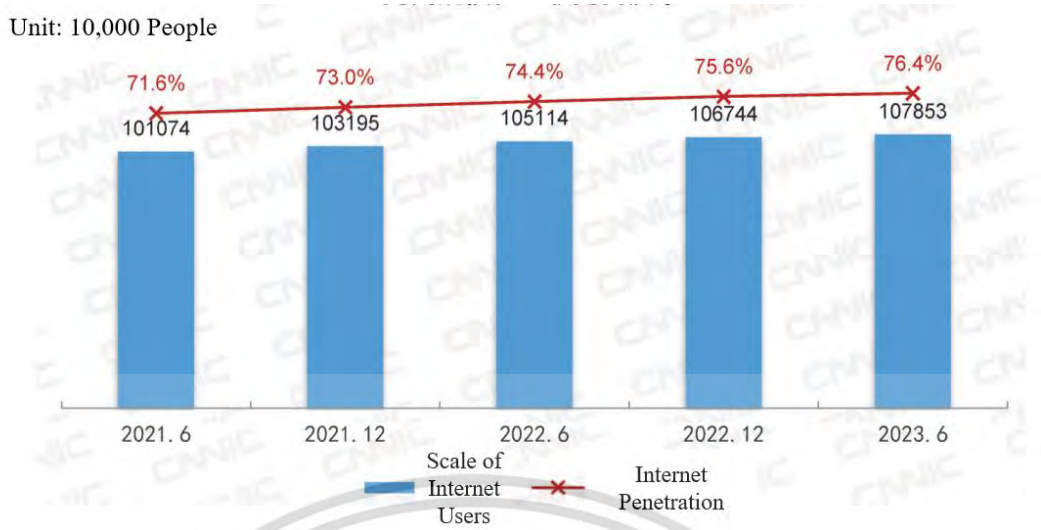


Figure 1.1 Scale of Internet users in China and Internet penetration rate

Source: China Internet Network Information Center (2023)

Figure 1.1 shows that in June 2023, the number of Internet users in China was 1.079 billion, and the Internet penetration rate was 76.4%. It can be seen from this that China's Internet is developing very quickly, and its penetration rate has reached a relatively high level. It shows that China's Internet is booming, and people have a high acceptance of the Internet, which provides vast Internet economic business opportunities.

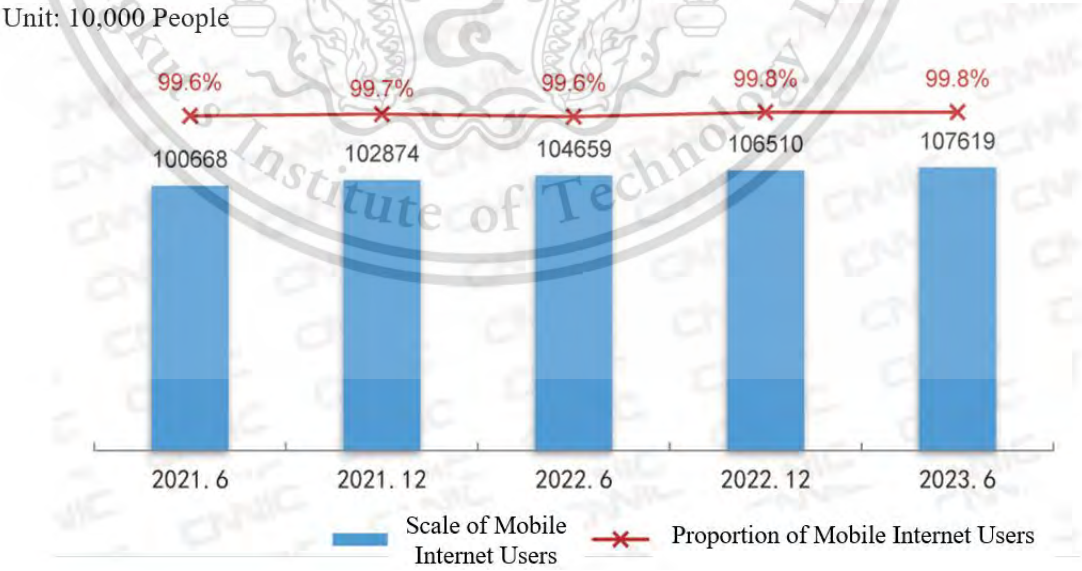


Figure 1.2 Scale and Proportion of Chinese Mobile Internet Users

Source: China Internet Network Information Center (2023)

Figure 1.2 shows that in June 2023, the number of mobile Internet users in China was 1.076 billion, an increase of approximately 70 million from 2 years ago. The proportion of Chinese netizens using mobile phones is 99.8%, an increase of 0.2 percentage points from two years ago. It can be seen from this that Chinese people like to use mobile phones to access the Internet, and the proportion of Chinese netizens using mobile phones to access the Internet has always been at a high level.

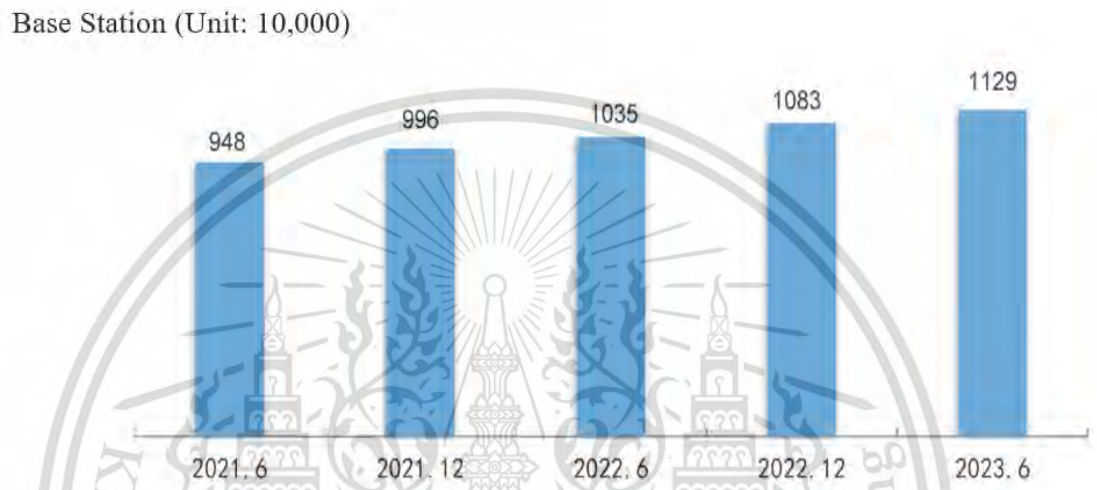


Figure 1.3The number of mobile phone base stations in China

Source: China Internet Network Information Center (2023)

Figure 1.3 shows that in June 2023, the total number of mobile phone base stations in China reached 11.29 million, an increase of 1.81 million from 2 years ago. The number of mobile phone base stations continues to increase, the breadth and depth of China's Internet coverage constantly expands, China's digital infrastructure construction is further accelerated, and digital resource applications are constantly enriched.

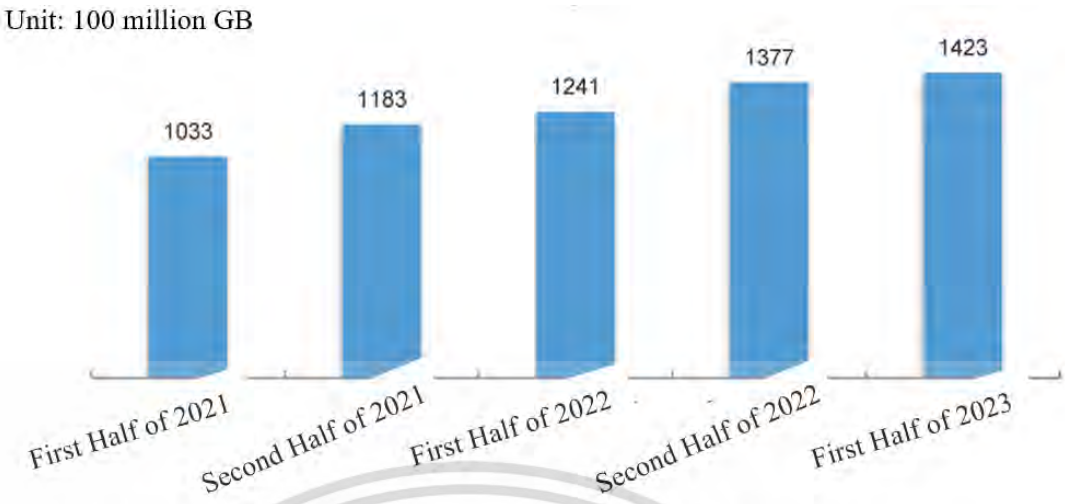


Figure 1.4The number of China Mobile Internet Access Traffic

Source: China Internet Network Information Center (2023)

Figure 1.4 shows that by June 2023, China Mobile's Internet access traffic reached 142.3 billion GB. China Mobile's Internet access traffic has increased by 40 billion GB per month compared with two years ago. The expansion of China Mobile Internet access traffic provides a traffic foundation for developing China Mobile Internet (China Internet Network Information Center, 2023).

According to the 'Top 10 Mobile Payment Institutions' by Payment Encyclopedia, China's top three mobile payment platforms are Alipay, Tencent Pay (including WeChat Pay, QQ Wallet, and Tenpay), and Ping An Yi Wallet. Alipay holds around 49% of the market, and Tencent Pay has 34%, giving them a combined 83% market share, nearly dominating China's mobile payment market. The market share of third-party integrated payment is about 10%, and the market share of the rest of mobile payment is about 7% (Payment Encyclopedia, 2022).

In 2019, the digital RMB app began pilot tests in Shenzhen, Suzhou, Xiong'an New District, Chengdu, and the Winter Olympics. By December 2021, over 8.09 million scenarios had tested the app, covering areas like life payment, catering services, transportation, shopping, and government services, with transactions totaling 875.65 billion yuan (People's Bank of China, Orient Securities Research, 2022).

The state of mobile payment can indicate a region's level of economic development

(Ajouz et al., 2023; Elsotouhy et al., 2023). The industry's strong prospects have attracted many firms, with more mobile payment companies expected to emerge (Dang et al., 2023; Mukhopadhyay & Upadhyay, 2022). As new payment methods arise, consumer choices will expand, and competition will intensify (Chen et al., 2023b; Khan et al., 2023). With many available options, understanding the factors influencing users' choices is crucial for mobile payment operators. This research aims to explore these factors and address the existing knowledge gap.

There have been many researches related to mobile payment, which have made many important contributions to the field of mobile payment. However, there are relatively few studies on mobile payment using SOR theory (Dahlberg et al., 2015; Karsen et al., 2019; Leong et al., 2022). SOR theory, which combines consumer psychology and behavior, can ultimately present the entire process of users' willingness to use, provide a clearer understanding of user needs, and provide a better reference for relevant decision-makers. Some scholars have realized the importance of SOR theory in mobile payment, and some scholars have used SOR theory to conduct mobile payment usage intention. However, there still need to be more related studies. As of February 2024, less than 20 studies are using SOR theory to study mobile payments (Chen et al., 2019; Chen et al., 2023a; Chen et al., 2023b; Hsieh, 2021; Jiang, 2021; Kim & Park, 2019; Leong et al., 2022; Li et al., 2023; Rao & Ko, 2021). In order to make up for this shortcoming, mobile payment stakeholders need to make better strategic decisions. Based on the SOR theory, this study constructs a model of willingness to use Chinese mobile payment and investigates the factors influencing Chinese mobile payment users' willingness to use it.

The originality of this study is that it conducts a study on the willingness to use Chinese mobile payment based on SOR theory. SOR provides all the steps the user is willing to use, and it can present the whole process of the user's willingness to use it completely. This study can not only enrich the research in the field of mobile payment but also solve the shortcomings of SOR theory in the field of mobile payment. This also allows mobile payment stakeholders to understand better the whole process of willingness to use. It also provides a more precise direction for mobile payment operators to make strategic decisions to make informed decisions.

1.2 Research Questions

Research questions include:

a) What are the factors that affect the willingness to use China's mobile payment APP?

b) What are the direct, indirect and combined influence of variables on the willingness to use China Mobile Payment APP?

c) What improvement suggestions can be put forward for China Mobile Payment APP operators based on the perspective of users?

1.3 Research Objectives and Significance

1.3.1 Research Objectives

Mobile payment is a cashless payment method. As a novel payment method, mobile payment faces a severe market competition environment in the complex mobile payment market. The essence of competition in the mobile payment industry is to acquire customers, retain customers, and expand the scope of customers. Therefore, mobile payment enterprise operators need to enhance their competitiveness to expand customer groups, enhance user stickiness, and enhance competitiveness.

In the face of users' ever-upgrading consumption quality and the market's rapid development, the future development of mobile payment APP is full of unknown opportunities and challenges. Therefore, it is crucial to study the factors that affect users' willingness to use mobile payment APP to promote the development of enterprises and industries. With the widespread use of Internet technology and mobile devices and more and more payment scenarios supporting the use of mobile payment APP, the number of mobile payment APP users continues to increase, and the number of mobile payment APP is also gradually increasing. Mobile payment users are faced with multi-platform choices when they generate payment behavior. What kind of factors stimulate (S) users (Organism, O) to produce what kind of psychological activities and finally choose a certain payment APP (Response, R). SOR theory provides a good idea for research into this problem. Therefore, this paper takes the SOR theoretical model as the research basis to study the willingness of mobile payment APP users

to enrich further the research results of users' willingness to use mobile payment APP.

There are four research objectives of the dissertation:

a) To find out the factors that affect the willingness to use China's mobile payment APP.

b) To build a model of factors influencing the willingness to use China's mobile payment APP.

c) To investigate the direct, indirect, and combined influence of variables on willingness to use mobile payment from the perspective of users.

d) To put forward targeted improvement suggestions for China Mobile Payment APP operators and other relevant units.

1.3.2 Research Significance

1.3.2.1 Theoretical Significance

The literature review found that most existing research on mobile payment APP use intention is based on theories such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These studies pay more attention to the use value of the technical characteristics of mobile payment itself to users. However, mobile payment APP has become the preferred payment method today, and users face multiple mobile payment APP choices. In the face of multiple types of mobile payment APP, which one do users prefer to choose, and what factors influence users to choose mobile payment APP, these are the key issues that mobile payment operators should pay attention to. Based on this background, based on the stimulus-organism-response (SOR) model, the paper constructs a theoretical research model of mobile payment APP users' willingness to use and designs a questionnaire according to the research model to conduct empirical research to find out the factors that influence the use of willingness of mobile payment APP users in China. Through the research of this paper, the theoretical perspective and the selection range of influencing factors of the willingness to use mobile payment APP are enriched, and the theoretical and method reference for subsequent scholars to do in-depth research on such topics is provided.

1.3.2.2 Practical Significance

The stable and healthy development of China's mobile payment industry plays

a fundamental role in the sound operation of China's digital economy. Users' willingness to use China's mobile payment APP directly affects their behavior and determines whether they will choose which mobile payment APP to use. An in-depth understanding of the factors influencing users' willingness to use can help guide mobile payment app operators to continuously improve their products so that the services provided by their products genuinely meet the needs of consumers and increase user stickiness. Through the research on various factors of China's mobile payment APP users' willingness to use, we can more accurately understand the future development direction of China's mobile payment APP and guide mobile payment operators to make practical improvements for specific problems to ensure the rapid and healthy development of the mobile payment industry.

1.4 Research Contributions

Based on the stimulus-organism-response (S-O-R) model, the paper constructs a theoretical research model of mobile payment APP users' willingness to use and designs a questionnaire according to the research model to conduct empirical research to find out the influencing factors of China's mobile payment APP users' willingness to use. The research of this paper can enrich the theoretical perspective of mobile payment APP usage intention and the selection range of influencing factors. The research of the thesis can guide mobile payment operators to make practical improvements for specific problems to ensure the rapid and healthy development of the mobile payment industry.

1.5 Definitions

This research study defined the important terminology (for this study) as follows.

1.5.1 Mobile payment

Mobile payment refers to a service method in which users use mobile phones to pay for the services or products they consume.

1.5.2 Mobile Payment APP

Mobile payment APP belongs to financial APP, which can help users quickly receive

and pay for goods through mobile phones, such as Alipay, WeChat Pay, etc.

1.5.3 User

Users refer to Chinese users who use mobile payment via APP. In China, people over the age of 18 are regarded as adults, and people over the age of 18 basically have independent mobile phones, and they can use mobile payments.

1.5.4 S-O-R Theory

S-O-R is a theory. S stands for Stimulus, O stands for Organism, and R stands for Response. It means that when the organism receives a series of external stimuli, it will cause the organism's response. For example, when the user is stimulated by the product attributes and environment of the mobile payment product, it will enhance the user's perceived value of the product, then improve the user's satisfaction of the product, and thus increase the user's willingness to use the product.

1.5.5 Mobile Payment Application

The definition of mobile payment application (mobile payment APP) in this study is, Mobile payment application is a kind of financial application, which can help users quickly complete the receipt and payment of goods or service through smart phones.

Mobile payment application is combined with the Mobile Payment Application's image, usefulness, ease of use, service quality. It refers to Mobile Payment Application's information such as effective product's information and high-quality service quality, which can establish a positive customer experience, increase customers' perception of product value, satisfaction, and thus enhance customers' willingness to use products.

a) Image

The definition of image in this study is, image refers to the unified image characteristics of products in design, development, research, circulation and use, which is the result of the unity of the internal quality image of the product and the external visual image of the product.

Image can be expressed as popularity, reputation, design.

b) Usefulness

The definition of usefulness in this study is, usefulness refers to the fact that in the

process of using the mobile payment APP, because the mobile payment APP can quickly and conveniently complete the payment activities, the user thinks that the use of the mobile payment APP is a useful product. It can improve the quality of life and work efficiency.

Usefulness can be expressed as Mobility, convenience, Payment efficiency.

c) Ease of Use

The definition of ease of use in this study is, ease of Use is defined as the user's subjective perception of the effort and difficulty of using mobile payment.

Ease of use can be expressed as ease of operation, easy to learn.

d) Service Quality

The definition of service quality in this study is, service quality refers to the service quality that users feel when using the mobile payment APP, including the timeliness of the service, the comprehensiveness of the service and the professionalism of the service, etc.

1.5.6 Cost

The definition of cost in this study is, cost refers to all the expenses incurred by the user in the process of using the mobile payment application. Cost include Extra Cost and Transaction Cost.

a) Extra Cost

Extra cost refer to the cost incurred due to the use of mobile payment APP that require corresponding equipment, such as the cost of replacing mobile phones, SIM cards and other mobile devices.

b) Transaction Cost

Transaction cost refer to the transaction cost incurred by using mobile payment APP, including data traffic fees, transaction fees, etc.

1.5.7 Risk

The definition of risk in this study is, Risk refers to the adverse consequences that users may bring when using mobile payment, including Financial Loss, Security Threat, Information Disclosure, etc. Mobile payment involves many aspects such as personal finance, privacy, information, etc.

Risk can be expressed as financial risk， security risk, privacy risk.

a) Financial Risk

Financial risk means that the use of mobile payment APP may cause economic loss, such as system errors leading to deductions of excess amounts.

b) Security Risk

Security risk refer to the possible security risk and security threat brought by the use of mobile payment APPs, such as tampering of transaction information, poisoning of mobile phones, interruption of data transmission, etc.

c) Privacy Risk

Information risk refers to the use of mobile payment APP that may lead to user information leakage, password theft, etc.

1.5.8 Confirmation

The definition of confirmation in this study is, Confirmation is the degree of consistency between the actual use performance of the information system perceived by users and the expectations before use.

Confirmation can be expressed as experience, expectation confirmation.

a) Experience

Experience is the actual feeling of the user using the mobile payment APP.

b) Expectation Confirmation

Expectation confirmation is the degree to which the user achieves the expected effect by using the mobile payment APP.

1.5.9 Social Influence

The definition of Social influence in this study is, Social influence refers to certain changes in the behavior of users after being influenced by external environmental factors.

Social influence can be expressed as Network Externality, Scenes to be used.

a) Network Externality

Network Externality include influence and importance. Influence refers to the people who influence the user's consumption, such as family and friends. Those who may influence consumers to use mobile payment app. Importance refers to the degree of importance consumers give to mobile payment app in their purchasing actions, which means that it is very

important for me to use mobile payment app.

b) Scenes to be used

Scenes to be used refer to specific scenarios where users can complete consumption through mobile payment APP at different times and consumption places.

1.5.10 Perceived Value

The definition of perceived value in this study is, Perceived value is a consumer's subjective cognition of a product, and it is the overall cognition and feeling of all factors such as product, service and cost. It is a subjective overall judgment and evaluation of a product or service.

Perceived value can be expressed as Use value, Commercial value.

a) Use Value

Use value is the use value consumers feel for mobile payment app.

b) Commercial Value

Commercial value is the price value consumers feel when using mobile payment app.

1.5.11 Satisfaction

The definition of satisfaction in this study is, satisfaction is defined as the psychological pleasure that users get after being stimulated by external stimuli, such as products, people, environment and other factors, the actual feeling that they get meets or exceeds the expectations before use sense.

Satisfaction can be expressed as Satisfied, Pleased.

a) Satisfied

Satisfied means that the user is satisfied with using the mobile payment APP.

b) Pleased

Pleased means that the user is in a happy mood when using the mobile payment APP.

1.5.12 Willingness to Use

The definition of willingness to use in this study is, willingness to use refers to the psychological activity of the user's intention to use or purchase the products or services provided by the merchants.

Willingness to use can be expressed as Be willing to use, Recommend to use，Continue to use.

a) Be Willing to Use

Be Willing to Use is whether customers are willing to use mobile payment APP.

b) Recommend to Use

Recommend to Use is whether the customer is willing to recommend to others to use the mobile payment APP.

c) Continue to Use

Continue to Use is whether the customer is willing to continue to use the mobile payment APP.

1.6 Research Structure

On the basis of extensive reading and sorting out the research results of mobile payment, users' willingness to use and other related theories, the paper takes the stimulus-organism-response (S-O-R) theory as the theoretical basis to construct a model of China's mobile payment APP users' willingness to use. The research content of the dissertation is divided into five parts:

Chapter 1: Introduction. In the first chapter of the paper, the research background of the research is introduced, and the current use of China's mobile payment APP is described. Then, the research objectives, research significance, research questions, research contributions, definitions, and research structure of the paper are introduced.

Chapter 2: Literature Review. The second chapter summarizes the literature on the introduction of mobile payment, mobile payment APP, stimulus-organism-response (S-O-R) theory and other theories based on previous research results. By sorting out the theoretical basis, it provides theoretical support for the construction of research models and the formulation of research hypotheses. Based on the theoretical basis, the variables (independent variables and dependent variables) of the paper are introduced, a model framework of factors influencing the willingness of users of China Mobile Payment APP is constructed, and the research hypothesis of the paper is put forward.

Chapter 3: Research Methodology. This part introduces Population and Samples, Sampling Size, Sampling Method, Variables, Research Instruments and Scales, Quality of the Instruments, Data Collection, Data Analysis, Statistic for Analysis, Ethical Consideration.

Chapter 4: Research Results. Based on the research model, the paper refers to the research of relevant literature, designs the questionnaire according to the variables in the research model, locks the objects of the questionnaire survey, distributes the questionnaire and collects the data, and uses the statistical analysis software SPSS 25.0 and AMOS 21.0 to analyze the collected questionnaire. Analysis methods include: descriptive statistical analysis, Correlation Coefficient, The Kaiser-Meyer-Olkin (KMO), Confirmatory Factor Analysis (CFA). With the help of AMOS 21.0 software, the research model of the paper was tested for fit and path significance. The Structural Equation Model is used here.

Chapter 5: Conclusion and Discussion. Chapter 5 is to analyze and discuss according to the data analysis results of the fourth chapter, and then provide improvement suggestions for China Mobile Payment APP and other related units to promote the healthy development of the mobile payment industry. In addition, the shortcomings of the paper are pointed out, and the direction of future research improvement is proposed.

CHAPTER 2

LITERATURE REVIEW

2.1 Mobile Payment

2.1.1 Mobile Payment Concept

Böhle and Krueger (2001) stated that mobile payment means that in order to trade a particular commodity or service, both parties obtain an information flow of the same amount from a mobile payment service provider through a mobile device with a specific credit limit or a certain amount of currency, and then use the mobile device to obtain the same amount of information. A payment method that transfers the information flow to the transaction party through the mobile terminal as a medium, thereby repaying the consumption fee. Karnouskos (2004) believed that mobile payment is any payment activity that uses mobile devices to pay merchants with equivalent data to complete transactions. The mobile device can initiate payment requests and activate or confirm payment. Chen and Tang (2006) pointed out that mobile payment uses communication terminals and devices (such as mobile phones, computers, etc.) to complete payment, shopping, and other activities through interactive communication. Ding (2014) believed that mobile payment is a payment method that completes the transfer of funds between the payer and the payee with the help of mobile devices and mobile Internet. Mao (2017) believed that mobile payment refers to individuals or units sending instructions directly or indirectly to financial institutions such as banks through mobile devices, the Internet, or sensors to complete the payment process. Mobile payment provides users with financial services such as currency payment and fund transfer by combining terminal equipment, application providers, the Internet, and financial institutions. Qin (2017) divided mobile payment into broad and narrow payment. In a broad sense, mobile payment refers to a service method in which users use mobile terminal devices such as mobile phones, notebook computers, and tablet computers to make account payments for the services and products they consume. In a narrow sense, mobile payment only refers to a service method in which users use mobile phones to pay for the services or products they consume.

In this paper, mobile payment refers to mobile payment in a narrow sense, also called mobile payment. Mobile payment refers to a service method in which users use mobile phones to pay for the services or products they consume.

Mobile payment has four characteristics: First, the time and space constraints are small. Mobile payment in the Internet era breaks the limitation of time and space in traditional payment, allowing users to make payment anytime, anywhere. Traditional payment is mainly based on cash, which requires face-to-face payment between users and merchants. Therefore, there are significant restrictions on the time and place of payment; mobile payment is mainly based on mobile payment. They are not limited by time and space. The second is to facilitate management. Users can conduct various payment activities through mobile phones anytime and anywhere and manage personal accounts such as inquiry, transfer, payment, recharge, and other functions. Users can also get information about their consumption at any time. This provides great convenience to the user's life and makes it more convenient to manage personal accounts. The third is a high degree of privacy. Mobile payment means that the user binds the bank card to the mobile phone and needs to enter the payment password or fingerprint when making payment activities, and the payment password is different from the bank card password. This enables mobile payment to protect users' privacy better and has a high degree of privacy. Fourth, the degree of comprehensiveness is relatively high. Mobile payment has a high degree of comprehensiveness and provides users with various types of services. For example, users can pay water, electricity, and gas bills at home through mobile phones and manage personal accounts through mobile phones; users can conduct online shopping and other payment activities. This reflects the high comprehensiveness of mobile payment (Qin, 2019; Shen, 2006).

2.1.2 Mobile Payment Themes

The Mobile Payment Themes involves consumers, merchants, and mobile payment operators and their transaction activities. Moreover, mobile payment operators can be subdivided into mobile network operators, financial institutions, government agencies, mobile device manufacturers, software providers, and service providers (Qin, 2019).

Consumers are those organizations or individuals who hold mobile devices and are willing to use mobile payments to purchase goods. The security of mobile payment, whether it

is easy to operate, and the level of fees all have an essential impact on consumers' willingness to use mobile payment (Qin, 2019).

Merchants are businesses that sell products or services to consumers. There is a "network externality" between merchants and customers; that is, when customers think that more and more stores accept mobile payment, merchants will be willing to use mobile payment devices. Moreover, more and more customers use mobile payment devices, which will also attract more and more merchants to add mobile payment devices (Qin, 2019).

Mobile network operators refer to organizations or institutions that provide secure communication channels for mobile payments. Mobile network operators play a key role in the development of mobile payment services (Qin, 2019).

Financial institutions refer to financial institutions that play the role of clearing and settlement between buyers and sellers in mobile payment (Qin, 2019).

Government agencies refer to agencies and units carrying out legal and regulatory constraints and policy supervision in mobile payment. Especially in mobile payment charges, the government needs to define and restrict them more clearly (Qin, 2019).

Mobile device manufacturer refers to the manufacturer or provider of mobile devices (Qin, 2019).

Software and service providers refer to manufacturers or providers of mobile payment software and services such as mobile payment APP (Qin, 2019).

2.1.3 Types of Mobile Payment

There are many classification methods of mobile payment. Mobile payment can be divided into different categories based on different classification standards. As shown in Figure 2.1, mobile payment can be classified according to payment technology, operating Subject, and payment amount (Mao, 2017):

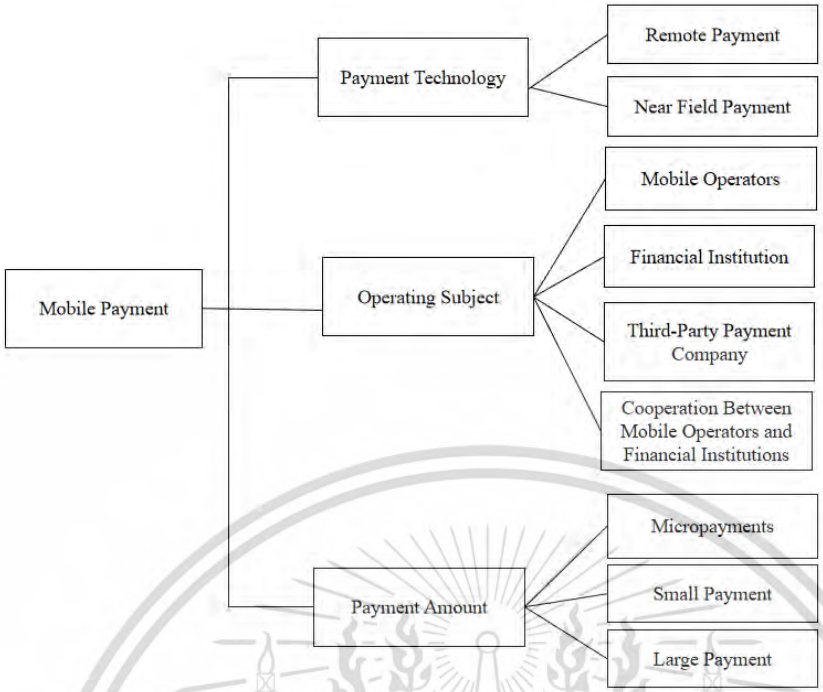


Figure 2.1 China Mobile Payment Classification

Source: Mao (2017)

The mobile payment is classified according to the payment technology, and the mobile payment can be divided into remote payment and near-field payment. Remote payment is a payment method that sends payment instructions through a mobile terminal or with the help of payment tools; near-field payment is a short-distance payment through a mobile terminal (Mao, 2017).

By classifying mobile payments according to the operating subject, mobile payments can be divided into four categories. Take mobile operators as the main body of operation, such as China Mobile, China Unicom, Telecom, etc.; take financial institutions as the main body of operation, such as UnionPay, major banks, etc.; take third-party payment companies as the main body of operation, such as Alipay, WeChat, JD Wallet, etc.; Mobile operators and financial institutions cooperate as the main body of operation, such as the digital RMB that the People's Bank of China cooperates with financial institutions (Mao, 2017).

2.1.3.1With Mobile Operators as the Main Body of Operation

China's three major operators, China Mobile, China Unicom, and China Telecom,

have all made arrangements for mobile payment. China Mobile's mobile phones with Near Field Communication (NFC) function have gradually become the standard configuration for customers. Each terminal partner's LTE low, medium and high-end products must have at least one product with NFC function in each grade, and this product has NFC function when it is first listed. At the same time, China Mobile pushes more customers to replace SIM cards with NFC-enabled mobile phone cards, and its mobile wallet business is also developing continuously.

China Unicom use the NFC function as a standard configuration in mobile phones of more than 2,000 yuan, speeding up the layout of NFC functions and increasing the convenience of mobile payment applications.

Since 2014, China Telecom has added the NFC function to the newly listed terminals, and equipped all 4G terminals with the NFC function to support the e-Surfing mobile wallet business. The WingPay product launched by China Telecom provides users with fast, convenient and all-round mobile payment functions.

2.1.3.2 Take Financial Institutions as the Main Body of Operation

China UnionPay is a joint organization of various bank cards in China. It is a joint organization approved by the State Council of China and approved by the People's Bank of China in the core position of China's bank card industry. It is of great fundamental significance to the development of China's bank card business. Various banks in China use China UnionPay's inter-bank clearing and transaction system to connect their own systems to achieve cross-bank, regional and cross-border use of bank cards, thus laying the foundation for China's mobile payment business (Mao, 2017).

2.1.3.3 Taking Third-party Payment Companies as the Main Body of Operation

In the business model with third-party payment companies as the main body of operation, Tencent's Tencent Finance and Alibaba's Alipay occupy a larger market share in the Chinese market. Tencent relies on a strong social system, while Alibaba relies on e-commerce to gradually promote from online to offline. As a third-party payment platform founded by Alibaba, Alipay APP has millions of transactions every day. Relying on Taobao platform, it has gradually developed from a third-party transaction guarantee tool that solves the security of

online transactions into a comprehensive payment platform system. Provide a full range of services, and gradually become an important link between businesses and individuals on the Internet (Mao, 2017).

Alipay is a mobile payment system owned by Alibaba Holding Group Co., Ltd. Ant Financial, an affiliate of Alibaba, is China's largest payments company. Launched in 2004, Alipay was the first Chinese mobile payment platform. It was originally developed as an escrow service to facilitate transactions between buyers and sellers on Alibaba's consumer-to-consumer e-commerce platform. Alipay has more than 500 million monthly users.

Figure 2.2 Alipay APP

Source: Baijiahao.Visual China (2004)

WeChat Pay (also known as Tenpay), WeChat Pay was launched in 2013 and it can be used through WeChat. With over one billion active users, WeChat is the most popular social media platform in China, so its mobile payment system is one of the most widely used among Chinese consumers. Wechat has more than 900 million monthly mobile payment users.

Figure 2.3 WeChat payment APP Interface

Source: Baijiahao.Visual China (2013)

2.1.3.4 The Main Body of Operation is the Cooperation between Mobile Operators and Financial Institutions

The main body of operation is the cooperation between mobile operators and financial institutions, such as the digital RMB that the People's Bank of China cooperates with financial institutions.

The digital RMB is issued by the People's Bank of China, and is operated by the formulating authority and exchanged for the public. It is based on a generalized account system, supports the loose coupling function of bank accounts, is equivalent to banknotes and coins, and has value characteristics and legal compensation. Digital RMB is a Controllable Anonymous payment tool.

The Digital RMB APP (see Figure 2.4) is in the process of research and development, pilot testing, and has not yet been put into use in the market. According to the "Digital RMB Can Optimize the Existing Payment System - Digital RMB Series Report 3" released by the

Orient Securities Research Institute, as of June 2021, there are more than 1.32 million digital RMB test scenarios (Figure 2.5 shows the cities tested), The application areas include daily life fields such as life payment, catering services, transportation, shopping consumption, government services, etc., with a cumulative test transaction of 70.75 million, and a cumulative test transaction amount of about 34.5 billion yuan.

Figure 2.4 Digital RMB APP Interface

Sources: China Mobile Payment Network, Orient Securities Research (2021)

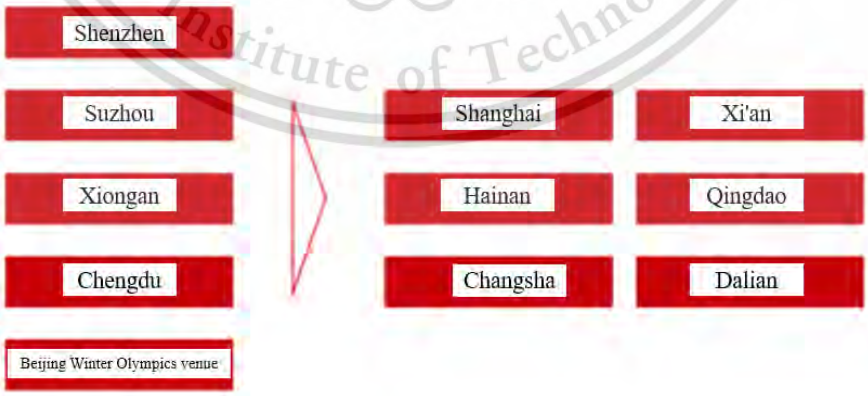


Figure 2.5 Cities Where the Digital Renminbi is being Tested in China

Source: People's Bank of China, Orient Securities Research (2021)

Dividing the mobile payment according to the payment amount, the mobile payment can be divided into micro-payment, Small-payment and large-amount payment.

2.2 Mobile Payment APP

APP stands for Mobile Application, which refers to software on mobile devices. Apps are categorized into social, entertainment, tools, finance, and shopping, with many options in each category. Users can download apps based on their needs from their phone's app store.

A mobile payment app is a type of financial app that allows users to quickly receive and make payments via their mobile phones (Yang, 2018).

China's mobile payment business began in 2003. By 2005, there were 15.6 million users, and the industry was valued at 340 million yuan, primarily for non-face-to-face payments. With digitalization and technological innovation, mobile payment has become a mainstream method. According to iiMedia Research, in 2019, China had 733 million mobile payment users, with rising market penetration. In the first quarter of 2020, transaction volume reached 90.8 trillion yuan, a year-on-year growth of 4.8%.

The COVID-19 outbreak in 2020 accelerated the growth of the digital economy. To reduce virus transmission, China encouraged the public to limit cash transactions. Mobile payment offers the advantage of being "contactless and more hygienic," effectively lowering the risk of spreading the virus. According to the "2020 Mobile Payment Security Survey and Research Report," in 2020, Chinese residents used mobile payment an average of 3.49 times a day (see Figure 2.6), making it the dominant payment method.

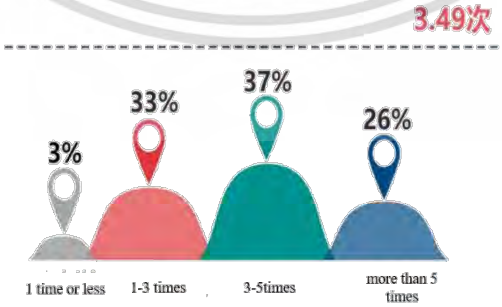


Figure 2.6 Frequency of mobile payment usage

Source: Mobile Payment Security Survey Research Report (2021)

According to Analysys' analysis, in the mobile payment market, Alipay's market share in the second quarter of 2020 is about 49%, Tencent Financial's market share is about 34%, third-party comprehensive payment market share is about 10%, and the rest of mobile payment's market share is about 10%. The market share is about 7% (see Figure 2.7). The total market share of third-party mobile payment has reached 93%, which shows that third-party mobile payment has become the mainstream method of mobile payment. According to the Quarterly Monitoring Report on China's Third-Party Payment Mobile Payment Market in the Third Quarter of 2021 released by Analysys, the third-party mobile payment market transaction size in the third quarter of 2021 was RMB 77.46 trillion, a quarter-on-quarter increase of 2.55%.

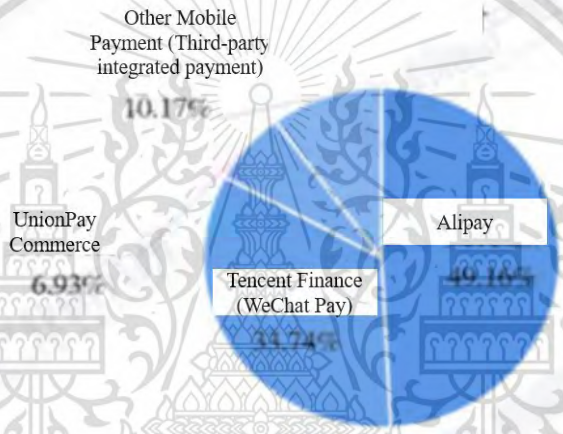


Figure 2.7 Market share of various mobile payment app in China

Source: Analysys Analysis, Prospective Industry Research Institute, Orient Securities Research (2022)

2.3 Willingness to Use

Willingness to use refers to the psychological activity of whether consumers have the desire to use or purchase a product or service, and the user's willingness to use will affect their behavior of using a product or service (Liu,2011).

The theory of user willingness to use has mainly gone through the following four stages: TRA, TPB, TAM, UTAUT.

2.3.1Theory of Reasoned Action (TRA)

In 1975, American scholars Fishbein and Ajzen put forward the Theory of Reasoned

Action. The basic assumption is that people are rational, and they will comprehensively consider various information to evaluate the meaning and consequences of their own behavior before carrying out a certain behavior (Mao, 2017; Fishbein & Ajzen). This theory holds that people's behavioral intentions can infer individual behaviors to a certain extent, and behavioral attitudes and subjective criteria determine individual behavioral intentions. The theoretical model of rational behavior is shown in Figure 2.8:

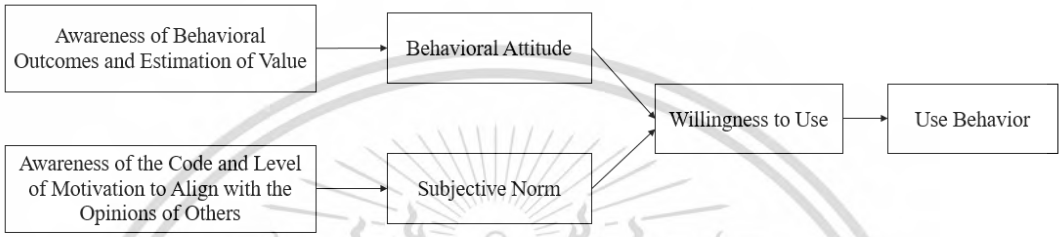


Figure 2.8 Theory of Reasoned Action (TRA)

Source: Mao (2017)

2.3.2 Theory of Planned Behavior (TPB)

Ajzen introduced perceived behavior control variables on the basis of Theory of Reasoned Action, which evolved into the theory of planned behavior (TPB). Human behavior is influenced by other control factors, not entirely dependent on one's own psychology (Mao, 2017; Ajzen & Rosenthal). Ajzen complements Theory of Reasoned Action by adding behavioral control cognitive factors, whose theoretical model is shown in Figure 2.9:

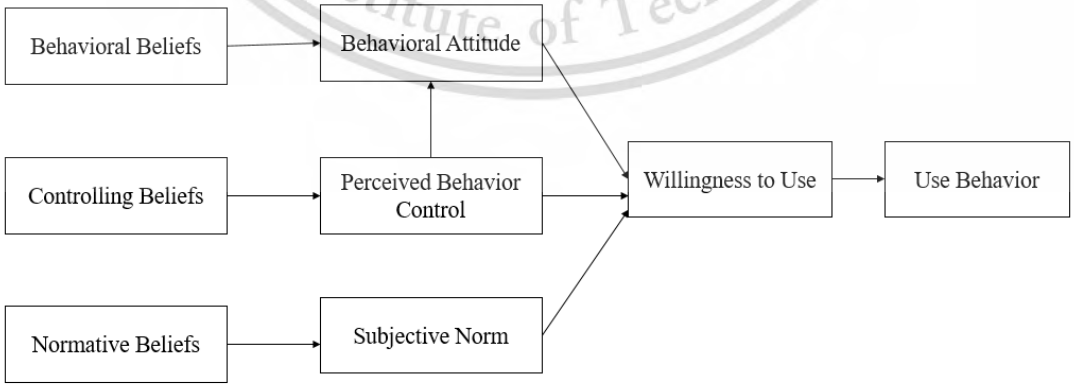


Figure 2.9 Theory of Planned Behavior (TPB)

Source: Mao (2017)

2.3.3 Technology Acceptance Model (TAM)

Davis revised the TRA model in 1989 when it was applied to the field of information technology, and proposed a technology acceptance model y (Mao, 2017; Davis et.al, 1989).

On the basis of TRA, the Technology Acceptance Model (TAM) takes Perceived Usefulness (PU) and Perceived Ease of Use (PE) as the influencing factors to determine the attitude of information technology users. The model is shown in Figure 2.10:

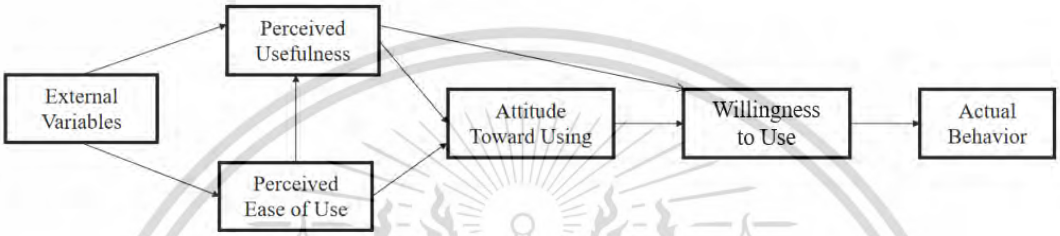


Figure 2.10 Technology Acceptance Model

Source: Mao (2017)

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

On the basis of TAM, Venkatesh and Davis put forward an integrated technology acceptance and use model on the basis of the above theories and combined with psychology, cognitive behavior and other theories. The model proposes four research variables: performance expectancy, effort expectancy, social influence and facilitating conditions (Mao, 2017; Venkatesh & Davis, 2000), the model is shown in Figure 2.11:

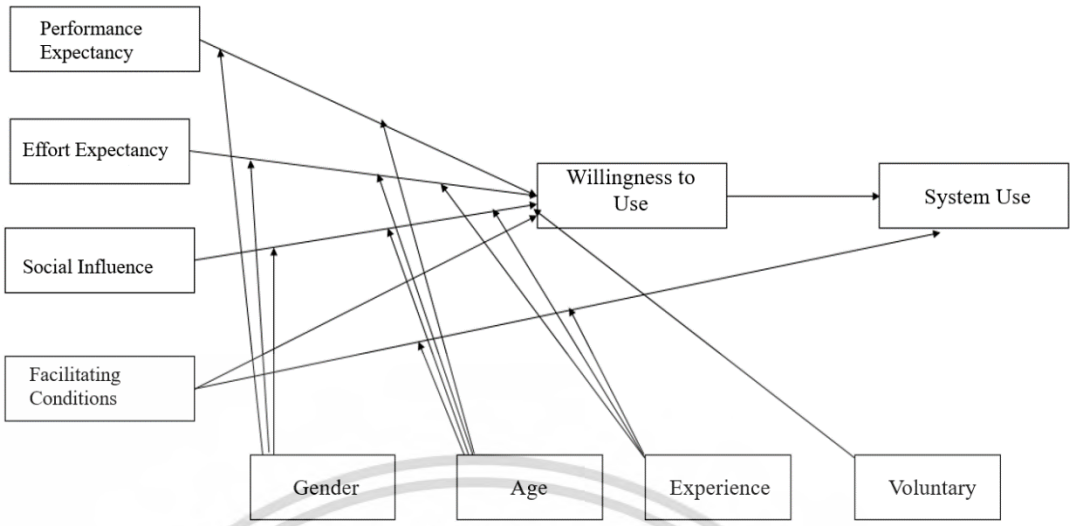


Figure 2.11 Unified Theory of Acceptance and Use of Technology (UTAUT)

Source: Mao (2017)

Most of the existing researches on mobile payment APP use intention are based on Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and other theories, and pay more attention to the technical characteristics of mobile payment itself. For the user's use value, but mobile payment APP has become the preferred payment method for people today, and users are faced with the choice of multiple mobile payment APP. In the face of multiple types of mobile payment APP, which one do users prefer to choose, and what are the factors that affect users' choice of mobile payment APP, these are the key issues that mobile payment operators should pay attention to. Based on this background, the paper constructs a theoretical research model of mobile payment APP users' willingness to use from a new perspective and based on the stimulus-organism-response (SOR) model, and designs a questionnaire according to the research model to conduct empirical research to find out China Mobile Influencing factors of payment APP users' willingness to use.

Research on mobile payments began as early as 2000 (Migliore et al., 2022). Literature reviews and searches on platforms like Google Scholar reveal that common theories in mobile payment research include the Technology Acceptance Model (TAM), Extended Technology Acceptance Model (Extended TAM), Theory of Reasoned Action (TRA), Theory

of Planned Behavior (TPB), Diffusion of Innovations (DOI), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Dahlberg et al., 2015; Karsen et al., 2019; Leong et al., 2022; Migliore et al., 2022). Dahlberg et al. (2015) argue that exploring more relevant theories is essential for enhancing the rigor of mobile payment research. Since 2018, some scholars have begun using SOR theory, but related research still needs to be expanded. As of February 2024, fewer than 20 studies have applied SOR theory to mobile payments, conducted by researchers such as Li et al. (2023), Leong et al. (2022), and Chen et al. (2019, 2023). To address this gap and aid mobile payment stakeholders in making informed strategic decisions, this study investigates the willingness to use mobile payment in China based on SOR theory.

2.4 Stimulus-Organism-Response Theory (S-O-R Theory)

In 1974, scholars Mehrabian and Russell first proposed the Stimulus-Organism-Response (SOR) theory, which was based on the Stimulus-Response (S-R) model and evolved from some modifications.

In 1914, John Watson broke through the inherent thinking of traditional psychological research that regards consciousness as the research object, and innovatively proposed the Stimulus-Response (S-R) model (See Figure 2.12). He believed that internal or external stimuli would directly lead to the behavior or performance of the individual. But throughout the research process, the S-R model treats people's mental activities as a "black box" that is not considered and explained.

Figure 2.12 Stimulus-Response (S-R) model

Source: John Waston（1914）

As research progressed, many scholars criticized the S-R model, arguing that it fails to explain individual behavior scientifically and that the internal motivations behind such

behavior deserve more focus. In response, Mehrabian and Russell (1974) introduced an intermediary variable called "Organism O" to the S-R model and proposed the Stimulus-Organism-Response (S-O-R) theory (see Figure 2.13). This theory posits that various external stimuli trigger psychological activities in individuals, influencing their behavior. Initially, the S-O-R model was primarily used in psychological research, but its application has expanded as the research has developed.

The S-O-R model is popular among scholars studying consumer behavior. It explains how consumer behavior is generated, where S stands for stimulus—external influences affecting users or consumers. These stimuli can include product characteristics, prices, and social environment factors. Environmental stimuli are divided into two categories: macro factors like culture and economy, and personal recommendations from friends and family. O represents the Organism, which encompasses the individual's psychological and behavioral activities that occur between receiving external stimuli and producing a response, including cognition and emotion (Jiang, 2021). R stands for Response, referring to the consumer's actions resulting from external stimuli and psychological processes, such as making a purchase, adopting, or rejecting a product.

Figure 2.13 Stimulus-Organism-Response (S-O-R) Theory

Source: Mehrabian and Russell（1974）

In recent years, with the development of the economy and the popularization of the Internet, the research and application of the SOR model has gradually expanded. Scholars in the field of information systems also use the SOR model as the theoretical basis for the study of consumer behavior in online shopping, and take the network characteristics as the external Stimulus (S) takes subjective factors such as cognition or emotion of individual users as organism (O), while response (R) usually selects variables such as participation, use, and

purchase (Jiang, 2021).

The relevant research based on the S-O-R model is shown in the table below:

Table 2.1 Related Research Based on S-O-R Model as Theoretical Basis

stimulus latent variable	organism latent variable	response latent variable	source
S	O	R	
Product (any specific product, any form of product),Cost, Risk, Expected Level of Confirmation	Value、Importance	Participate	Arora.R(1982)
Product(any specific product, any form of product)	Shopping Fun、Situational Impulse	Purchase Behaviour	Floh et al. (2013)
Social Influence	Human Interaction、perceived Pleasure	Desire to Buy	Zhang et al. (2019)
Social Influence、Interactivity	Social Support、Social Presence	Willingness to Participate	Zhang et al.(2014)
Product(any specific product, any form of product)	Satisfaction	Willingness to Use	Zhang et al.(2019)
Product(any specific product, any form of product)、Logistics	Trust	Repeat Purchase Intent	Wang(2020)
Product(any specific product, any form of product)、Social Influence	Perceived Value、Satisfaction	Willingness to Use	Jiang(2021)

2.5 Literature Review on the willingness to use mobile payment APP

Liu (2011) examined the factors influencing consumers' willingness to use mobile payments by integrating the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Innovation Diffusion Theory (IDT). He analyzed aspects like compatibility, perceived usefulness, ease of use, system security, subjective norms, behavioral control, attitudes, and demographics. Bao (2016) focused on third-party mobile payment satisfaction, identifying factors that affect user satisfaction, such as expectations, perceived quality, value, and risk, while aiming to enhance overall satisfaction. Zhang (2016) conducted an empirical study on factors affecting the intention to continue using mobile payments, employing the UTAUT model and considering cognitive risk, satisfaction, and intention. He identified variables like effort expectations, expected utility, social influence, cognitive risk,

and satisfaction. Ji (2016) also used the UTAUT model to investigate factors affecting willingness to use mobile payments, incorporating payment scenarios, perceived risk, and social influence. He analyzed how these factors impact willingness to use based on questionnaire data. Xie (2017) analyzed mobile payment users' willingness to use through the TAM framework, integrating innovation diffusion and perceived risk. He identified perceived usefulness, ease of use, compatibility, and demographic factors as direct influences on willingness. Cai (2017) studied factors affecting third-party mobile payment user satisfaction, focusing on perceived usefulness, user expectations, perceived risk, quality, and value, to identify which factors significantly impact satisfaction and how to improve it. Li (2018) investigated factors influencing third-party mobile payment users' continued usage, constructing a model based on the Expectation Confirmation Model (ECM-ISC) and the Value-based Adoption Model (VAM). Key factors included expected confirmation, perceived usefulness, ease of use, risk, satisfaction, and value, verified through statistical analysis. Tang (2019) researched rural user satisfaction with third-party mobile payments in Shaanxi, developing a satisfaction model that included user expectations, perceived quality, value, risk, platform image, and satisfaction, supported by empirical data analysis.

Yang (2021) explored mobile payment from the perspective of perceived value theory, identifying five dimensions: functional value, preferential value, service value, perceived risk, and perceived cost. He analyzed the correlation between these dimensions and users' willingness to use mobile payment at Bank A's D branch, aiming to provide targeted recommendations for the bank's mobile payment services. Ying (2021) utilized the Unified Theory of Acceptance and Use of Technology (UTAUT) and incorporated theories like valence theory and trust tendency to develop an Alipay usage intention model. This model includes factors such as performance expectations, effort expectations, social influence, perceived benefits, perceived risks, trust, and service quality, and examines how gender and experience moderate the intention to use. Jiang (2021) applied the Stimulus-Organism-Response (S-O-R) theory to construct a model analyzing third-party mobile payment APP users' willingness to use. Her research focused on user experience, social influence, perceived value, and satisfaction, validated using SPSS and AMOS software. Floh and Madlberger (2013) studied consumer

impulse buying behavior using the S-O-R theory, establishing a model that highlighted how website design and navigation positively impact impulse purchasing intentions. Similarly, Zhang and Wei (2019) constructed a model based on S-O-R theory, demonstrating that consumers' social networks affect interpersonal interactions, which in turn influence their buying desires.

On the other hand, the visual appeal of shopping websites influences consumers' perceived pleasure, which in turn fosters impulse buying. Zhang et al. (2014) employed the S-O-R model to investigate how technical features of websites affect users' virtual perception and willingness to engage in social business behavior. Their empirical analysis revealed that perceived interactivity, personalization, and sociality indirectly influence users' willingness to participate. In another study, Zhang Hai et al. (2019) applied the S-O-R model to examine the usage intention of mobile government APP users. Their findings indicated a significant direct correlation between perceived usefulness, satisfaction, and users' willingness to use the app. Moreover, the app's information quality, system quality, and service quality indirectly affect users' willingness. Wang (2020) also utilized the S-O-R model to explore consumers' repeat purchase intentions on B2C cross-border e-commerce platforms, constructing a model that links consumers' overall shopping experience, trust, and repeat purchase intention.

Parboteeah et al. (2019) used the S-O-R model, focusing on e-commerce's key features, to study impulse buying behavior. They identified webpage characteristics as stimuli and perceived usefulness and pleasure as internal cognitive and emotional responses. Wang and Chang (2013) also applied the S-O-R model to investigate how online browsing intensity, perceived judgment, and product-related risks affect consumers' decision-making processes. Park and Lennon used the S-O-R framework to examine purchase intention, treating brand and promotions as external stimuli and perceived value as an internal stimulus. Their research indicated that value and store image positively influence purchase intention (Park & Lennon, 2009). Building on previous models and S-O-R theory, Kim and Lennon (2010) created a model analyzing the online consumption environment's effect on consumers' reactions. Their findings showed a positive relationship between perceived information and pleasure, while the quality of information and products negatively affected e-shopping risks and purchasing decisions.

Based on the S-O-R theory, Huo (2008) examined how the supermarket retail environment affects customers' evaluations, emotions, and behaviors. Yang (2009) constructed an S-O-R model to analyze the impact of electronic store atmosphere, webpage design, perceived quality, and purchase intention. In 2014, Yang developed a travel consumer purchasing decision model, analyzing how situational stimuli in online travel, physical fitness characteristics, emotions, and other factors influence female tourists' consumption behavior. Liu et al. (2020) created a model based on S-O-R theory that includes trust, perceived value, and risk as key variables, studying their relationships with decision-making. Feng and Lu (2020) focused on the strong presence of live broadcasts, integrating trust and flow experience theories with the S-O-R model to develop a research model for consumer impulse buying intention.

Mehrabian and Russell (1974) introduced the S-O-R model to examine the link between consumer emotions and behavior, ultimately determining decision-making after emotional responses are triggered. The model comprises stimulus-response factors, including marketing mix variables and other environmental inputs. An emotional response is the expression of feelings triggered by external stimuli (Bakker et al., 2014), while a cognitive response is a deliberate mental process that occurs in response to external stimuli (Lysonski, 1989). Adelaar et al. (2003) noted that when an external situation stimulates an individual, their emotions change, influencing whether they are inclined to engage in a particular behavior.

The S-O-R theory is commonly used in consumer behavior research to understand intentions and actions, particularly in sectors like retail and tourism. It effectively illustrates the process of external stimulation, consumer psychology, and behavioral responses. Recognizing its advantages, scholars have applied the S-O-R framework to studies on mobile payment. Researchers such as Li et al. (2023), Jiang (2021), and Chen et al. (2019) have found that users' willingness to use mobile payment is influenced by external stimuli like product features and the social environment (including system usefulness, ease of use, service quality, cost, risk, and expectation confirmation), as well as internal factors such as perceived value and satisfaction. Thus, using the S-O-R model to investigate the willingness to use mobile payment in China is appropriate.

Research shows that perceived value and satisfaction are internal psychological states

influencing users' willingness to use mobile payment (Li et al., 2023; Jiang, 2021; Chen et al., 2019; Chen et al., 2023a). Thus, this study considers perceived value and satisfaction as organisms and the willingness to use as the response. Jiang (2021) and Chen et al. (2023a) support using external stimulus factors like product characteristics (image, usefulness, ease of use, service quality), cost, risk, and confirmation. Similarly, Li et al. (2023) and Kim & Park (2019) advocate for including product factors and social influence as external stimuli.

This study builds on existing research by proposing the following variables: external stimulus factors including mobile application (image, usefulness, ease of use, service quality), cost, risk, confirmation, and social influence. It also identifies satisfaction and perceived value as internal psychological activities. The willingness to use is considered the behavioral response of the organism (Chen et al., 2023a; Chen et al., 2023b; Fang, 2014; Jiang, 2021; Li et al., 2023; Mehrabian & Russell, 1974).

2.6 Analysis of Influencing Factors

Based on the S-O-R theory, the paper selects mobile Payment application (Image, Usefulness, Ease of Use, Service Quality), Cost, Risk, people factor (Expected Level of Confirmation), and environmental factor (Social Influence) As external stimuli, Perceived Value and Satisfaction are regarded as the body's psychological response to external stimuli, and the Willingness to Use is regarded as the behavioral response generated after the psychological response.

2.6.1 Mobile payment application

Regarding the research on mobile payment application, some scholars gave the definition of mobile payment application as shown in the table below.

Table 2.2 Definition of mobile payment application

Constructs	Literature support	Definition
Mobile payment application	Wang et al.(2019)	Mobile payment application requires users to disclose highly personal information, such as their bank account, identity number, phone number, and home address, to process and complete their transactions
Mobile payment application	Yang(2018)	Mobile payment application is a kind of financial application, which can help users quickly complete the receipt and payment of goods or service through smart phones
Mobile payment application	Rahardja et al. (2023), Fang et al.(2017)	Mobile payment application has performance attributes, such as ease of use, service quality and so on. Performance attributes of Mobile payment application is one of critical external stimuli influencing the users' psychological involvement, leading to their behavioral engagement

Each product or service can be viewed as a bundle of product/service attributes. The attributes differ across industries and the importance of each attribute also varies (Hong and Slevitch, 2018).

Combined with previous studies, the definition of mobile payment application (mobile payment APP) in this study is, Mobile payment application is a kind of financial application, which can help users quickly complete the receipt and payment of goods or service through smart phones.

Mobile payment application is combined with the Mobile Payment Application's image, usefulness, ease of use, service quality. It refers to Mobile Payment Application's information such as effective product's information and high-quality service quality, which can establish a positive customer experience, increase customers' perception of product value, satisfaction, and thus enhance customers' willingness to use products.

2.6.1.1 Image

Image refers to the unified image characteristics of products in design, development, research, circulation and use, which is the result of the unity of the internal quality image of the product and the external visual image of the product.

The image focuses on a systematic design centered around product design. It serves as a means to convey the corporate spirit and the product's function, structure, shape, color, material, and interface through associated signs, graphics, and text. This includes concepts related to technology, materials, modeling, processing, production equipment, packaging, marketing, and advertising, all unified to create a cohesive sensory image. This image reflects the product's internal quality and its external visual and social perceptions, aligning with consumer needs for individuality and social identity. It enhances and communicates the corporate image, showcasing the company's personality across reputation, brand awareness, strategy, service, employee quality, and culture.

The product image has three components: the visual image, the quality image, and the social image. The visual image involves how people recognize a product through their senses—sight, touch, and taste—focusing on aspects like appearance, color, and material. This represents the initial stage of the product image. The quality image reflects the product's essential quality and is shaped by users' experiences with its functionality, performance, and service during consumption. This image transitions from material attributes to deeper meanings. The social image, meanwhile, is intangible and arises from the external perceptions of the product, representing its most dynamic aspect.

Consumers encounter thousands of products daily, leading to constantly changing perceptions of product images. To establish a clear product image, it is essential to consistently capture consumers' attention and ensure they derive specific benefits and satisfaction from using a product or service. This process helps create unique impressions and understandings in their minds. The more distinct the product image features are, the easier it is for consumers to recognize and remember them. Consequently, this clarity plays a significant role in measuring user satisfaction with the product and influences user satisfaction with mobile payment apps in China.

Regarding the research on image, some scholars gave the definition of image, as shown in the table below.

Table 2.3 Definition observed variable image of mobile payment application

Literature support	Constructs	Definition	Items
Tang(2019)	Image	Image can be expressed as popularity, reputation, design.	(1)Popularity, (2)Reputation, (3)Design
Global Encyclopedia(2022)	Image	Image refers to the unified image characteristics of products in design, development, research, circulation and use, which is the result of the unity of the internal quality image of the product and the external visual image of the product	(1)Popularity, (2)Reputation, (3)Design

Combined with previous studies, the definition of image in this study is, image refers to the unified image characteristics of products in design, development, research, circulation and use, which is the result of the unity of the internal quality image of the product and the external visual image of the product.

Tang (2019), Global Encyclopedia(2022) believes that mobile payment can be measured from three perspectives: Popularity, Reputation, Design .

2.6.1.2 Usefulness

Mobile payment products are a modern payment method that significantly changes people's lives and work. They offer advantages over traditional payment methods, such as convenience, speed, efficiency, easy account tracking, reduced risk of counterfeit currency, and flexible transaction amounts. With many mobile e-commerce and offline merchants accepting mobile payments, the ecosystem around these transactions is becoming more established. Users can add funds to mobile payment apps and use them anytime, enhancing their previously limited payment options, which improves their work efficiency and quality of life. These benefits attract new users as they recognize the product's usefulness and positive impact on their daily activities, leading to increased customer satisfaction.

Davis (1989), Bhattacherjee (2001) considered perceived usefulness as the core factor of the expectation confirmation model, and its meaning is the degree to which individuals subjectively believe that using a specific system will improve job performance.

Regarding the research on image, some scholars gave the definition of usefulness, as

shown in the table below.

Table 2.4Definition observed variable usefulness of mobile payment application

Literature support	Constructs	Definition	Items
Duane et al.(2014)	Perceived usefulness	Perceived usefulness can be expressed as convenience,payment efficiency	(1)Convenience, (2)Payment efficiency
Thakur and Srivastava(2014)	Perceived usefulness	Perceived usefulness can be expressed as convenience, payment efficiency	(1)Convenience, (2)Payment efficiency
Wiese and Humbani(2019), Setterstrom et al.(2013)	Usefulness	Usefulness represents the benefits that are enjoyed by users of mobile payment apps and the construct has long been accepted as having a profound impact on the continuance intention	(1)Convenience, (2) Useful
Li(2018)	Usefulness	Usefulness refers to the extent to which users can complete payment activities quickly, conveniently and effectively during the process of using mobile payment	(1)Mobility, (2)Convenience, (3)Payment efficiency

Combined with previous studies, the definition of usefulness in this study is, usefulness refers to the fact that in the process of using the mobile payment APP, because the mobile payment APP can quickly and conveniently complete the payment activities, the user thinks that the use of the mobile payment APP is a useful product. It can improve the quality of life and work efficiency.

For the measurement of usefulness, combined with table 2.4 and the classic scale proposed by the scholar Davis (1989) measures usefulness from the aspect of job performance. It has a good verification effect. The core function of mobile payment is payment, and users will value its mobility, convenience and payment efficiency. The paper adopts the viewpoints put forward by Davis (1989), Bhattacherjee (2001) , Fu (2014), and Li (2018), and the characteristics of mobile payment are improved accordingly.

In addition, according to table 2.4, we can know: usefulness can be expressed as Mobility, convenience, Payment efficiency.

2.6.1.3 Ease of Use

Ease of use refers to the fact that a product is meant for users to be easy to learn and use, reduce memory burden, etc (Fu, 2014). Ease of use refers to consumers' subjective perceptions of the degree of effort required to use a product or service and the ease of operation. If it takes a long time or a lot of effort for users to learn how to use mobile payment, users will feel that the value of the product is greatly reduced, and it will also reduce user satisfaction with the product (Li, 2018).

Regarding the research on ease of use, some scholars gave the definition of ease of use, as shown in the table below.

Table 2.5 Definition observed variable ease of use of mobile payment application

Literature support	Constructs	Definition	Items
Thakur and Srivastava(2014), Davis (1989), Davis et al.(1989), Thompson et al. (1991)	Perceived ease of use	Perceived ease of use can be expressed as ease of operation, easy to learn	(1)Ease of operation, (2) Easy to learn
Hong and Slevitch(2018)	Ease of Use	Ease of use refers to the effort required to use technology and the complexity of the process of service delivery. this attribute (ease of use) is a critical factor in motivating customers to utilize new technology	(1)Ease of operation, (2) Easy to learn
Duane et al.(2014), Schierz et al. (2010)	Ease of Use	Ease of use has been documented as being an imminent acceptance driver of mobile application	(1)Ease of operation, (2) Easy to learn
Li(2018)	Ease of Use	Ease of Use is defined as the user's subjective perception of the effort and difficulty of using mobile payment.	(1)Ease of operation, (2) Easy to learn

Combined with previous studies, the definition of ease of use in this study is, ease of Use is defined as the user's subjective perception of the effort and difficulty of using mobile payment.

Combined with table 2.5 and the research scales proposed by Davis (1989), Taylor & Todd (1995), and Li (2018) to obtain the Ease of Use measurement items of mobile payment

APP. Ease of use can be expressed as ease of operation, easy to learn.

2.6.1.4 Service Quality

Regarding the research on service quality, some scholars gave the definition of service quality, as shown in the table below.

Table 2.6 Definition observed variable service quality of mobile payment application

Literature support	Constructs	Definition	Items
Rahardja et al.(2023)	Service Quality	Good service quality can be reflected in the ability of the mobile pay ment service to deliver the promised service precisely, reliably, quickly, and accurately in real-time, as well as the ability to create customer confidence and confidence when making transactions	(1)Comprehensiveness, (2) Promptness (3)Professional
Jiang(2021)	Service Quality	Service quality can be expressed as comprehensiveness, promptness, professional	(1)Comprehensiveness, (2) Promptness (3)Professional

Combined with previous studies, the definition of service quality in this study is, service quality refers to the service quality that users feel when using the mobile payment APP, including the timeliness of the service, the comprehensiveness of the service and the professionalism of the service, etc.

According to table 2.6, the paper measures the service of the mobile payment APP from the dimensions of comprehensiveness, promptness, and professional [18].

In summary, the observed variables included in the latent variable mobile payment application are shown in Figure 2.14.

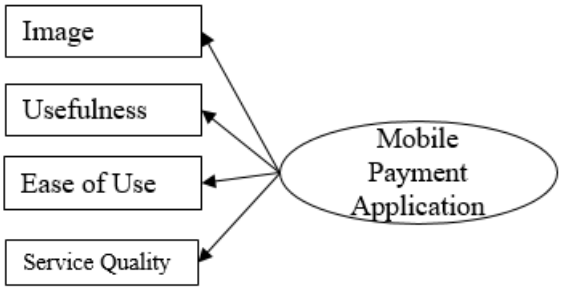


Figure 2.14 Latent variable mobile payment application and its observed variable

In summary, the measurement of the product is shown in the table below:

Table 2.7 Product Measurement

Latent Variable	Observed variable	Item	Label	Questionnaire Items	Source
Mobile payment application	Image	Popularity	A1	The mobile payment APP is well-known and used by many people	Tang (2019), Global Encyclopedia(2022)
		Reputation	A2	The mobile payment APP company has a good reputation	Tang (2019), Global Encyclopedia(2022)
		Design	A3	The mobile payment APP design is simple, clear and beautiful	Tang (2019), Global Encyclopedia(2022)
	Usefulness	Mobility	B1	This mobile payment allows me to break through time and place restrictions and make payment activities anytime, anywhere	Davis (1989), Bhattacherjee (2001), Fu (2014), Li (2018)
		Convenience	B2	This mobile payment app allows me to avoid the inconvenience and hassle of having to carry cash or credit cards to make purchases	Davis (1989), Bhattacherjee (2001), Fu (2014), Li (2018), Duane et al.(2014), Thakur and Srivastava(2014), Wiese and Humbani(2019);Setterstrom et al.(2013)

Latent Variable	Observed variable	Item	Label	Questionnaire Items	Source
		Payment Efficiency	B3	This mobile payment APP allows me to conduct transfers, payments, shopping and other behaviors more conveniently and quickly	Davis (1989), Bhattacherjee (2001), Fu (2014), Li (2018), Duane et al.(2014), Thakur and Srivastava(2014)
			B4	This mobile payment app can help me improve my quality of life	Davis (1989), Bhattacherjee (2001), Fu (2014), Li (2018), Duane et al.(2014), Thakur and Srivastava(2014)
	Ease of Use	Ease of Operation	C1	I can use this mobile payment APP to make payments proficiently	Davis (1989), Taylor & Todd (1995), Li (2018)
		Easy to Learn	C2	For me, the use and operation process of this mobile payment app is easy	Davis (1989), Taylor & Todd (1995), Li (2018), Thakur and Srivastava(2014), Hong and Slevitch(2018), Duane et al.(2014)
			C3	Use this mobile payment APP to complete the transaction and payment is simple and fast	Davis (1989), Taylor & Todd (1995), Li (2018), Thakur and Srivastava(2014), Hong and Slevitch(2018), Duane et al.(2014)
	Service Quality	Comprehensiveness	D1	The services provided by this mobile payment APP are timely and comprehensive	Jiang (2021), Rahardja et al.(2023)
		Promptness	D2	The mobile payment APP can respond to feedback information and questions in a timely manner	Jiang (2021), Rahardja et al.(2023)
		Professional	D3	The mobile payment APP provides professional service support	Jiang (2021), Rahardja et al.(2023)

2.6.2 Cost

As a mobile value-added service, mobile payment will generate data traffic charges when using mobile payment service? Do consumers incur high-rate handling fees in such activities as transaction payment, transfer, and cash withdrawal? These direct transaction costs are all concerns (Liu, 2011).

When users use mobile payment, they will consider various costs. Especially consumers who are accustomed to using traditional payment methods, they will assess the additional costs of the change in payment methods, such as the cost of purchasing mobile devices. The cost of mobile devices includes that when using mobile payment services, users may need to replace mobile devices such as mobile phones and phone cards (Liu, 2011).

Regarding the research on cost, some scholars gave the definition of cost, as shown in the table below.

Table 2.8 Latent Variable and observed variables of Cost

Researcher	Latent Variable	Definition	Observed Variable	Area
Jen-Her Wua and Shu-Ching Wanga(2005)[	Cost	The possible expenses of using Mobile mommerce. i.e., equipment cost, transaction fee.	(1)equipment cost, (2)transaction fee	mobile commerce
Lin,Wang and Huang(2019);	Perceived fee	A perceived fee is the cost of a customer's payment for a product or service	(1)Extra Cost, (2)Transaction Cost	mobile payment
Jiang(2021)	Cost	Cost refers to all the expenses incurred by the buyer in the process of using the product. i.e., Extra Cost, Transaction Cost.	(1)Extra Cost, (2)Transaction Cost	mobile payment

Combined with previous studies, the definition of cost in this study is, cost refers to all the expenses incurred by the user in the process of using the mobile payment application. Cost include Extra Cost and Transaction Cost.

a) Extra Cost

Extra cost refer to the cost incurred due to the use of mobile payment APP that require corresponding equipment, such as the cost of replacing mobile phones, SIM cards and other mobile devices.

b) Transaction Cost

Transaction cost refer to the transaction cost incurred by using mobile payment APP, including data traffic fees, transaction fees, etc.

According to table 2.8 and the research scale proposed by Liu (2011) and Jiang (2021), combined with the characteristics of China's mobile payment APP, the paper measures cost from extra cost and transaction cost.

In summary, the observed variables included in the latent variable cost are shown in Figure 2.15.

Figure 2.15 Latent variable cost and its observed variable

In summary, cost measurement items are shown in the table below.

Table 2.9 Cost Measurement

Latent Variable	Observed variable	Label	Questionnaire Items	Source
Cost	Extra Cost	E1	If using this mobile payment App needs to spend money to buy a new phone, it is difficult for me to accept	Liu (2011), Jiang (2021), Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)

Latent Variable	Observed variable	Label	Questionnaire Items	Source
Cost	Extra Cost	E2	If using this mobile payment APP needs to spend money to a new SIM card, it is difficult for me to accept	Liu (2011), Jiang (2021) , Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)
Cost	Transaction Cost	E3	If using this mobile payment APP to cost functional charge, it is difficult for me to accept	Liu (2011), Jiang (2021) , Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)
		E4	If using this mobile payment consumes a lot of data traffic fee, it is difficult for me to accept	Liu (2011), Jiang (2021) , Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)
		E5	If I use this mobile payment App to increase the transaction fee, it is difficult for me to accept	Liu (2011), Jiang (2021) , Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)

2.6.3 Risk

Risk refers to the adverse consequences that users may bring when using mobile payment, including financial loss, security threat, information disclosure, etc.

Bauer(1960) believes that product risk refers to the possibility of adverse or uncertain consequences that consumers perceive when purchasing a product or service. Not all consumers will perceive risks, but adverse consequences will occur once consumers perceive them.

Pavlou and Featherman (2003) divided the perceived risk in the network environment into six dimensions: performance, finance, time, psychology, society and privacy, which can be applied to the mobile Internet environment. Mobile payment involves personal finance, privacy, information and many other aspects, and security is the primary consideration for users. Once aware of a security threat to a certain payment product and service, users will reduce the value recognition and satisfaction of the product and service, or even stop using it. It can be seen that

security risk is an important dimension to measure perceived risk.

Regarding the research on risk, some scholars gave the definition of risk, as shown in the table below.

Table 2.10 Latent Variable and observed variables of Risk

Researcher	Latent Variable	Definition	Observed Variable	Area
Cai(2017)	Risk	Risk refers to the adverse consequences that users may bring when using mobile payment, including Financial Loss, Security Threat, Information Disclosure, etc. Mobile payment involves many aspects such as personal finance, privacy, information, etc.	(1)Financial risk，(2)Security risk，(3)Privacy risk	mobile payment
Park et al.(2018)	Perceived risk	Perceived risk is considered to be one of the crucial factors in the mobile transaction environment, which is highly affected by financial and security concerns	(1)financial risk, (2)security risk	mobile payment
Chang et al.(2021)	Perceived risk	The literature on perceived risks has focused on the key risk categories: financial, privacy, performance, psychological, time, and security	(1)financial risk, (2) privacy risk, (3)performance risk, (4)psychological risk, (5)time risk, (6)security risk	mobile payment
Lin,Wang and Huang(2019),Cao et al.(2018)	Security risk	smartphone users also express concerns regarding security risks, such as personal privacy and data leakage, when using smart phones to make payment	(1)financial risk,(2) privacy risk, (3)security risk	mobile payment

Researcher	Latent Variable	Definition	Observed Variable	Area
Karjaluoto et al.(2018);Thakur and Srivastava (2014)	Perceived risk	In the fied of mobile payment, Perceived risk refers to the three important dimensions -security, privacy and monetary risk.	(1)monetary risk,(2)privacy risk,(3)security risk	mobile payment

Risk refers to the adverse consequences that users may bring when using mobile payment, including Financial Loss, Security Threat, Information Disclosure, etc. Mobile payment involves many aspects such as personal finance, privacy, information, etc. Risk is the first factor that users will consider. Once they realize that a certain payment product or service has a security threat, users will reduce the value recognition and satisfaction of the product and service, or even stop using it (Cai, 2017; Chang et al., 2021).

Combined with previous studies, the definition of risk in this study is, Risk refers to the adverse consequences that users may bring when using mobile payment, including Financial Loss, Security Threat, Information Disclosure, etc. Mobile payment involves many aspects such as personal finance, privacy, information, etc.

Risk can be expressed as financial risk， security risk, privacy risk.

a) Financial Risk

Financial risk means that the use of mobile payment APP may cause economic loss, such as system errors leading to deductions of excess amounts.

b) Security Risk

Security risk refer to the possible security risk and security threat brought by the use of mobile payment APPs, such as tampering of transaction information, poisoning of mobile phones, interruption of data transmission, etc.

c) Privacy Risk

Privacy risk refers to the use of mobile payment APP that may lead to user information leakage, password theft, etc.

Based on table 2.10 and the research results of Pavlou and Featherman (2003), Yang (2016), Cai (2017), and Li (2018), the paper measures mobile payment application from financial risk, security risk, privacy risk.

In summary, the observed variables included in the latent variable risk are shown in Figure 2.16.

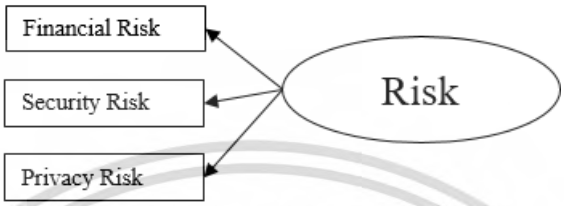


Figure 2.16 Latent variable risk and its observed variable

In summary, risk measurement items are shown in the table below.

Table 2.11 Risk Measurement

Latent Variable	Observed variable	Label	Questionnaire Items	Source
Risk	Financial risk	F1	The use of this mobile payment APP may cause economic losses, such as system errors resulting in deduction of excess amount	Peter and Tarpey (1975), Yang (2016), Cai (2017) , Li (2018), Chang et al. (2021),Featherman & Pavlou (2003),Thakur and Srivastava (2014)
	Security risk	F2	There may be security issues when using this mobile payment APP, such as tampering with transaction information, mobile phone poisoning, interruption of data transmission, etc.	Peter and Tarpey (1975), Yang (2016), Cai (2017) , Li (2018), Thakur and Srivastava (2014)
	Privacy risk	F3	Using this mobile payment APP may lead to my information leakage and password theft	Peter and Tarpey (1975), Yang (2016), Cai (2017) , Li (2018), Chang et al. (2021), Featherman & Pavlou (2003),Thakur and Srivastava (2014)

2.6.4 Confirmation

Expectation refers to people's expectations or measurement standards for products or services with a certain emotional cognitive color, while confirmation refers to people's recognition and satisfaction based on the comparison of their feelings after using a product or receiving a service and their previous expectations (Li, 2018). In the research of expectation confirmation theory, scholar Oliver proposed the Expectation Confirmation Theory (ECT) in 1980 based on the previous research results, which means that consumers compare their pre-purchase expectations (Expectation) with the actual post-purchase performance. Perceived Performance to measure the degree to which their initial expectations are confirmed, this degree of difference will directly affect consumer satisfaction, and satisfaction will be the reference for consumers to decide whether to continue purchasing next time (Oliver, 1980). Subsequently, Oliver conducted further research on this theory, which has been widely recognized by scholars, and has been widely used in research on consumer satisfaction and purchasing behavior (Oliver, 1993; Oliver et al., 2008).

Oliver (1980) defined the degree of expectation confirmation in ECM theory as the gap between the actual performance perceived by the user after using the product and the expectation before use. On this basis, Bhattacherjee (2001) extended the research to the use of information systems by users, and pointed out that the degree of expectation confirmation is the degree of consistency between the actual use performance of the information system perceived by users and the expectations before use.

Regarding the research on confirmation, some scholars gave the definition of confirmation, as shown in the table below.

Table 2.12 Latent Variable and observed variables of Confirmation

Researcher	Latent Variable	Definition	Observed Variable	Area
Bhattacherjee (2001)	Confirmation	The congruence between expectation of online banking division use and its actual performance	(1)experience, (2)service, (3) expectation confirmation	online banking

Researcher	Latent Variable	Definition	Observed Variable	Area
Li(2018)	Confirmation	Confirmation refers to the degree of consistency between the actual use performance of the information system perceived by users and the expectations before use	(1)experience, (2) expectation confirmation	mobile payment
Ashraf et al.(2020)	Confirmation of expectations	Confirmation of expectations refers to the congruence between expectation of online product recommendation use and its actual performance.	(1)experience, (2)service, (3) expectation confirmation	online product recommendation
Shang and Wu(2017)	Confirmation	The extent to which users perceive that their initial expectations of an application during actual use is confirmed	(1)experience	mobile shopping
Chiu,Cho,and Chi(2020)	confirmation of expectations	Confirmation of expectations refers to the degree of the perceived congruence between the expectations of the IT product/service and its actual performance	(1)experience, (2)service, (3) expectation confirmation	fitness and health apps

Combined with previous studies, the definition of confirmation in this study is, Confirmation is the degree of consistency between the actual use performance of the information system perceived by users and the expectations before use.

Confirmation can be expressed as experience, expectation confirmation.

a) Experience

Experience is the actual feeling of the user using the mobile payment APP.

b) Expectation Confirmation

Expectation confirmation is the degree to which the user achieves the expected effect by using the mobile payment APP.

Combined with Table 2.12 and the measurement scales of scholars Oliver (1980),

Bhattacherjee (2001), Li (2018), and Li (2018), combined with the characteristics of China's mobile payment APP, and compiled the confirmation measurement items of the paper.. Confirmation can be expressed as experience, expectation confirmation.

In summary, the observed variables included in Confirmation of latent variable are shown in Figure 2.17.

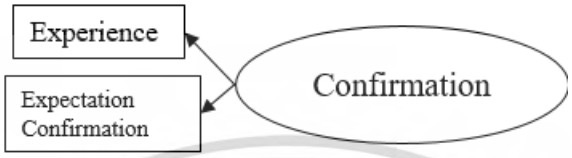


Figure 2.17 Latent Variable Confirmation and its observed Variables

In summary, the confirmation measurement items are shown in the table 2.13:

Table 2.13 Confirmation Measurement

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Confirmation	Experience	G1	This mobile payment works better than I expected	Li(2018), Bhattacherjee (2001), Ashraf et al.(2020);Shang and Wu(2017);Chiu, Cho, and Chi(2020)
		G2	The mobile payment APP is safer and more convenient to use than I expected	Li(2018), Bhattacherjee (2001), Ashraf et al.(2020);Shang and Wu(2017);Chiu, Cho, and Chi(2020)
		G3	This mobile payment app offers more benefits than I expected	Li(2018), Bhattacherjee (2001), Ashraf et al.(2020);Shang and Wu(2017);Chiu, Cho, and Chi(2020)
	Expectation confirmation	G4	In general, my expectations for this mobile payment app have been basically met	Li(2018), Bhattacherjee (2001), Ashraf et al.(2020);Shang and Wu(2017);Chiu, Cho, and Chi(2020)

2.6.5 Social Influence

Consumers often consider the thoughts and behaviors of people close to them—like family, friends, and colleagues—a standard for their own. The attitudes of these individuals or groups toward mobile payment can influence consumers' willingness to adopt it (Ji, 2016).

Scenes to be used refer to specific situations where users can make purchases using mobile payment apps at various times and locations. Jiang (2021) noted that as the mobile payment industry grows, Scenes to be used have expanded from initial online shopping to include transportation, shopping, healthcare, entertainment, and more. When common payment scenarios in users' daily lives support a particular payment app, they may perceive that using it provides certain benefits, thereby increasing its perceived value.

Regarding the research on social influence, some scholars gave the definition of social influence, as shown in the table below.

Table 2.14 Latent Variable and observed variables of Social influence

Researcher	Latent Variable	Definition	Observed Variable	Area
Venkatesh et al. (2003)	Social influence	Social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system	(1)Subjective Norm, (2)Social Factors, (3) One's image or status	Information technology
Baabdullah et al.(2019)	Social influence	Social influence is defined as the extent to which an individual perceives that important others believe he or she should apply the new system.	(1)Influence, (2)Important, (3)Opinions	Banking Industry

Researcher	Latent Variable	Definition	Observed Variable	Area
Oliveira(2016), Venkatesh et al. (2003)	Social influence	Social influence reflects the effect of environmental factors such as opinions of a user's friends, relatives, and superiors on behavior	(1)Influence, (2)Important, (3)Opinions	Mobile payment
Patil et al.(2020) ,Baishya & Samalia(2020),Venkatesh et al.(2012)	Social influence	Social influence is defined as the degree to which the consumer perceives that important others (e.g. family, friends, colleagues etc.) in their life believe that they should use a specific technology	(1)Closely	Mobile payment
Jiang(2021)	Social influence	Social influence refers to certain changes in the behavior of users after being influenced by external environmental factors.	(1)Network Externality(Network Externality include influence and importance) ,(2)Scenes to be used	Mobile payment

Combined with previous studies, the definition of Social influence in this study is, Social influence refers to certain changes in the behavior of users after being influenced by external environmental factors.

Social influence can be expressed as Network Externality, Scenes to be used.

a) Network Externality

Network Externality include influence and importance. Influence refers to the people who influence the user's consumption, such as family and friends. Those who may influence consumers to use mobile payment app. Importance refers to the degree of importance consumers give to mobile payment app in their purchasing actions, which means that it is very important for me to use mobile payment app.

b) Scenes to be used

Scenes to be used refer to specific scenarios where users can complete consumption

through mobile payment APP at different times and consumption places.

Combined with Table 2.14 and scholars Venkatesh. Morris & Davis (2003), Peng.et.al (2011), Yang et al (2012), Ji (2016), Zhang (2016) , Jiang (2021), combined with the characteristics of China's mobile payment APP, the social influence measurement items of the paper have been compiled. Social influence can be expressed as Network Externality, Scenes to be used.

In summary, the observed variables included in the latent variable social influence are shown in Figure 2.18.

Figure 2.18 Latent variable social influence and its observed variables

In summary, the social influence measurement items are shown in the table2.15:

Table 2.15 Social Influence Measurement

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Social Influence	Network Externality	H1	Important people in my life expects me to use this mobile payment App	Zhang(2016), Venkatesh. · Morris & Davis (2003), Jiang(2021),Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H2	The country, social media encourages and recommends me to use this mobile payment App	Zhang(2016), Venkatesh. · Morris & Davis (2003) , Jiang(2021),Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Social Influence	Network Externality	H3	Using this mobile payment is a trend and I want to be a part of it	Zhang(2016), Venkatesh. · Morris & Davis (2003) , Jiang(2021),Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H4	Using this mobile payment APP can better communicate and integrate with a specific group and win recognition	Yang et al (2012), Peng et al (2011) , Yang et al (2012), Ji (2016) , Jiang(2021),Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
	Scenes to be used	H5	This mobile payment APP is supported in common daily life scenarios such as shopping, medical care, and transportation. These advantages make me more willing to use mobile payment	Jiang (2021) ,Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H6	With the gradual enrichment of mobile payment applicable scenarios, the frequency of my use of this payment APP gradually increase	Jiang (2021) ,Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H7	I hope that the mobile payment APP can be used in more and richer scenarios in the future	Jiang (2021) ,Oliveira(2016);,Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)

2.6.6 Perceived Value

Research on users' perceived value stems from the Customer Perceived Value (CPV) introduced by Zeithaml (1988). He suggested that perceived value arises from the balance

between perceived benefits and perceived effort, a notion widely accepted by scholars. Anderson and Gerbing (1988) described perceived value as a relative utility linked to the price paid, encompassing aspects like economy, technology, service, and social interests. Gale and Wood (1994) emphasized that perceived value comes from quality management, comparing price and quality. Day (1994) viewed perceived value as the trade-off between perceived benefits and costs; transactions occur if benefits exceed costs. Parasuraman and Grewal (2000) defined perceived value as accumulating various values, including transaction and use value. Chen and Dubinsky (2003) focused on the net benefit perceived by customers after comparing expected utility with costs. Dorotic et al. (2011) defined perceived value as the difference between acquisition and transaction effects, where transaction effects compare expected monetary costs with actual expenditures, and acquisition effects compare perceived benefits with actual payments. Dong et al. (1999) described perceived value as comparing the utility obtained versus the costs incurred when using products or services. Deng et al. (2010) considered perceived value as the user's overall evaluation of a product or service's utility, influencing the need for improvements.

Regarding the research on perceived value, some scholars gave the definition of perceived value, as shown in the table below.

Table 2.16 Latent Variable and observed variables of Perceived value

Researcher	Latent Variable	Definition	Observed Variable	Area
Karjaluoto et al.(2018)	Perceived Value	Perceived Value is defined as the global evaluation of the consumer regarding the utility of the product based on the perception of what is received in exchange for what is given.	(1)Utilitarian, (2)Hedonic	Financial Service

Researcher	Latent Variable	Definition	Observed Variable	Area
Zeithaml (1988)	Perceived Value	Perceived value is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given. Perceived value is the consumer's measurement of the product in many aspects, including function, service, cost and so on	(1)Price value, (2)Use value	Consumer Perceptions
Lin et al.(2019),Kim et al. (2007)	Perceived Value	Perceived value is defined as the assessment of the total utility of a product or service driving consumer behaviors regarding information systems.	(1)Commercial value, (2)Use value	Mobile payment
Cabanillas et.al.(2020)	Perceived Value	Perceived value is defined as the result of the consumer's comparison of the perceived benefits versus the perceived sacrifices	(1)Use value	Mobile payment
Jiang(2021), Li(2018)	Perceived Value	Perceived value is a subjective perception produced by customers by comparing their perceived gains and perceived losses in the experience of consuming products or receiving services. It is a subjective overall judgment and evaluation of a product or service.	(1)Use value, (2)Commercial value	Mobile payment

Combined with previous studies, the definition of perceived value in this study is, Perceived value is a consumer's subjective cognition of a product, and it is the overall cognition and feeling of all factors such as product, service and cost. It is a subjective overall judgment

and evaluation of a product or service.

Perceived value can be expressed as Use value, Commercial value.

a) Use Value

Use value is the use value consumers feel for mobile payment app.

b) Commercial Value

Commercial value is the price value consumers feel when using mobile payment app.

Combined with Table 2.16 and the measurement scales of scholars Bao (2016), Cai (2017), Li (2018), Jiang (2021), combined with the characteristics of China's mobile payment APP, and compiled the measurement items of the paper's perceived value. Perceived value can be expressed as Use value, Commercial value.

In summary, the observed variables included in the perceived value of latent variables are shown in Figure 2.19.

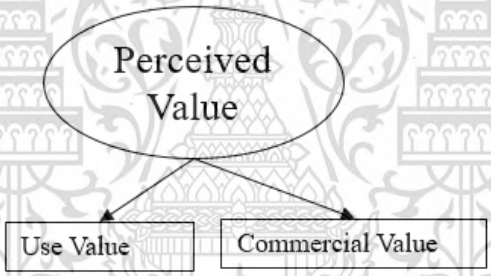


Figure 2.19 Latent variable perceived value and its observed variables

In summary, perceived value measurement items are as follows shown in table2.17.

Table 2.17 Perceived Value Measurement

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Perceived Value	Use Value	I1	I feel that many friends around me are using this mobile payment APP, and using this APP can enhance social interaction	Bao (2016), Cai (2017), Li (2018), Jiang (2021), Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Perceived Value	Use Value	I2	I think this mobile payment APP has high use value	Bao (2016), Cai (2017), Li (2018), Jiang (2021) ,Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I3	This mobile payment APP can improve the efficiency of my payment	Bao (2016), Cai (2017), Li (2018), Jiang (2021), Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I4	I think using this mobile payment app is more convenient than other payment methods	Bao (2016), Cai (2017), Li (2018), Jiang (2021), Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
	Commercial Value	I5	Overall, this mobile payment app is valuable to me	Bao (2016), Cai (2017), Li (2018), Jiang (2021), Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I6	This mobile payment APP is good value for price paid taking into account its quality an benefits	Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost	Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)

2.6.7 Satisfaction

Research on satisfaction began in consumer behavior, with early scholars primarily focusing on this area. Most definitions of satisfaction are based on the expectation confirmation theory, highlighting the comparison between pre-consumption expectations and post-consumption experiences. Kotler and Kellard (1995) defined satisfaction as the result of a customer's perception of a product's performance compared to their expectations, leading to feelings of pleasure or disappointment. Oliver et al. (1997) described customer satisfaction as a cognitive process that compares perceived performance with expectations, indicating whether consumers' feelings after using a product or service align with their expected psychological state based on prior experiences. In China's mobile payment context, this paper defines satisfaction as the psychological pleasure users experience when their actual feelings,

influenced by external factors such as products, people, and the environment, meet or exceed their expectations.

Regarding the research on satisfaction, some scholars gave the definition of satisfaction, as shown in the table below.

Table 2.18 Latent Variable and observed variables of Satisfaction

Researcher	Latent Variable	Definition	Observed Variable	Area
Ashraf et al.(2020), Bhattacherjee (2001)	Customer Satisfaction	Satisfaction isa psychological or affective state related to and resulting from a cognitive appraisal of the expectation performance discrepancy	(1)Satisfied, (2)Pleased	online product recommendation
Yu, et al.(2016)	Satisfaction	Satisfaction refers to the post-choice evaluative and affective responses of users to their experiences with mobile payment	(1)Satisfied, (2)Pleased	Mobile payment
Chiu et al.(2020), Bhattacherjee (2001b)	Satisfaction	satisfaction is a crucial determinant of their postadoption behavior of IT products/services	(1)Satisfied, (2)Pleased, (3)Dlighted	Fitness and health app
Wu and Wu(2019), Oliver(1980)	Satisfaction	Satisfaction refers to a transitory, experience-related impression of a product that evaluates an individual's pleasure level while using the product	(1)Satisfied, (2)Pleased	Library self-service technology
Jiang(2021)	Satisfaction	Satisfaction is defined as the psychological pleasure that users get after being stimulated by external stimuli, such as product, people, environment and other factors, the actual feeling that they get meets or exceeds the expectations before use sense.	(1)Satisfied, (2)Pleased	Mobile payment

Combined with previous studies, the definition of satisfaction in this study is,

satisfaction is defined as the psychological pleasure that users get after being stimulated by external stimuli, such as products, people, environment and other factors, the actual feeling that they get meets or exceeds the expectations before use sense.

Satisfaction can be expressed as Satisfied, Pleased.

a) Satisfied

Satisfied means that the user is satisfied with using the mobile payment APP.

b) Pleased

Pleased means that the user is in a happy mood when using the mobile payment APP.

The paper refers to the research scales of scholars Bhattacherjee (2001), Hong et al. (2006), Zhang (2016), Li (2018), Jiang (2021), combined with the characteristics of China Mobile Payment, compiled the satisfaction measurement project of China Mobile Payment APP.

In summary, the observed variables included in latent variable satisfaction are shown in Figure 2.20.

Figure 2.20 Latent variable satisfaction and its observed variables

In summary, satisfaction measurement items are shown in the table 2.19.

Table 2.19 Satisfaction Measurement

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
	Satisfied	J2	After using this mobile payment app, I am overall satisfied	Bhattacherjee (2001), Hong et al. (2006),Zhang(2016), Li(2018), Jiang (2021), Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Satisfaction	Pleased	J3	I think this mobile payment app brings me pleasure	Bhattacherjee (2001), Hong et al. (2006),Zhang(2016), Li(2018), Jiang (2021), Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)
		J4	I think I am pleased with the specific feature and functionalities of the mobile payment APP	Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)
	Pleased	J5	I think I am pleased with the reliability and durability of the mobile payment APP	Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)
		J6	I think I am pleased with the overall quality of the mobile payment APP	Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)

2.6.8 Willingness to Use

Willingness originally stemmed from the concept of behavior. For consumers, the main goal of all actions, including decision-making and purchasing, is to satisfy their needs. Dodds (1991) defined willingness to use as the subjective likelihood of consumers deciding to purchase a specific product or service. Engel, Blackwell, and Miniard (2001) noted that consumers' willingness to use is dynamic, making it challenging to predict purchasing behavior accurately; they also linked product value to willingness. According to Hellier (2003), willingness to use reflects consumers' judgment on the likelihood of repeated product or service use. Zhao (2006) argued that willingness determines how a person behaves towards a product or service, emphasizing that understanding willingness is crucial for predicting consumer behavior. Chen (2015) defined willingness to use as the user's intention to use or purchase products or services merchants offer.

Today, scholars agree that consumer willingness is an important indicator to measure consumers' psychological activities, and most scholars basically agree that willingness to use can be used to predict the use behavior of potential consumers (Liu, 2010).

Regarding the research on willingness to use, some scholars gave the definition of willingness to use, as shown in the table below.

Table 2.20 Latent Variable and observed variables of Willingness to use

Researcher	Latent Variable	Definition	Observed Variable	Area
Hong and Slevitch(2018)	Willingness to use	Willingness to ues refers to an individual's openness to opportunity, that is, his/her willingness to perform a certain behavior in a situation that is conducive to that behavior	(1) Be willing to use	Self-Service Kiosks
Junsawang(2022)	Willingness to use	Willingness to use refers to assessing to what extent an individual has deliberately eatablished plans for their future activities using self-service technology innovation	(1)Continue to use, (2)Intention to use , (3) Intention to adopt	Self-service technology innovation
Shang and Wu(2017), Bhattacherjee (2001) , Bhattacherjee et al. (2008)	Continuance intention	Users' intentions to continue using related application services and willingness to pay	(1)Continue to use, (2)Recommend to use	Mobile shopping
Quan et al.(2019)	Willingness to use	Willingness to use is reflected in the extent to which consumers are willing to accept and use payment application	(1)Be willing to use, (2)Recommend to use, (3)Continue to use	Mobile payment
Jiang(2021)	Willingness to use	Willingness to use refers to the psychological activity of the user's intention to use or purchase the products or services provided by the merchants	(1)Be willing to use, (2)Recommend to use, (3)Continue to use	Mobile payment

Combined with previous studies, the definition of willingness to use in this study is, willingness to use refers to the psychological activity of the user's intention to use or purchase the products or services provided by the merchants.

Willingness to use can be expressed as Be willing to use, Recommend to use，

Continue to use.

a) Be Willing to Use

Be Willing to Use is whether customers are willing to use mobile payment APP.

b) Recommend to Use

Recommend to Use is whether the customer is willing to recommend to others to use the mobile payment APP.

c) Continue to Use

Continue to Use is whether the customer is willing to continue to use the mobile payment APP.

Combined with table 2.20 and the research scales of scholars Ji (2016) and Jiang (2021), combined with the characteristics of China's mobile payment, the paper compiled the willingness to use measurement of China's mobile payment APP. Willingness to use can be expressed as Be willing to use, Recommend to use，Continue to use.

In summary, the observed variables included in the latent variable willingness to use are shown in Figure 2.21.

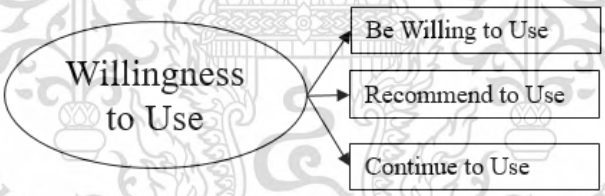


Figure 2.21 Latent variable willingness to use and its observed variable

In summary, willingness to use measurement items are shown in the table2.21.

Table 2.21 Willingness to Use Measurement

Latent Variable	Observed variable	Question number	Questionnaire Items	Source
Willingness to Use	Be Willing to Use	K1	I would like to use this mobile payment app to pay	Ji (2016), Jiang (2021) ,Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K2	In the future, I will gradually increase the frequency of using this mobile payment APP	Ji (2016), Jiang (2021) ,Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
Willingness to Use	Recommend to Use	K3	I would recommend the mobile payment APP to my friends ,family, or colleagues	Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K4	I would suggest the mobile payment APP to other who might benefit from it	Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K5	I have confident in recommending the mobile payment APP to others	Ji (2016), Jiang (2021) ,Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
	Continue to Use	K6	I am planning to continue using the mobile payment APP in the future	Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K7	I foresee myself using the mobile payment APP on an ongoing basis	Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K8	There are other payment methods that can be selected in the future, I will weigh the pros and cons before deciding whether I am willing to continue to use the mobile payment APP	Ji (2016), Jiang (2021) ,Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)

2.7 Model Framework

Through the review of mobile payment, mobile payment APP, purchase willingness to use and related theories, S-O-R theory and literature review of mobile payment APP willingness to use in the second chapter, the paper builds a model of influencing factors of China's mobile payment APP user willingness to use based on S-O-R theory.

This paper uses the stimulus-organism-response (S-O-R) model to guide its research. It suggests that external factors can change individual behavior through psychological reactions. The external stimuli include the mobile payment application (image, usefulness, ease of use, and service), cost, risk, confirmation, and social influence. The user's psychological activities consider perceived value and satisfaction, leading to the final response: the willingness to use. The theoretical framework is illustrated in Figure 2.22.

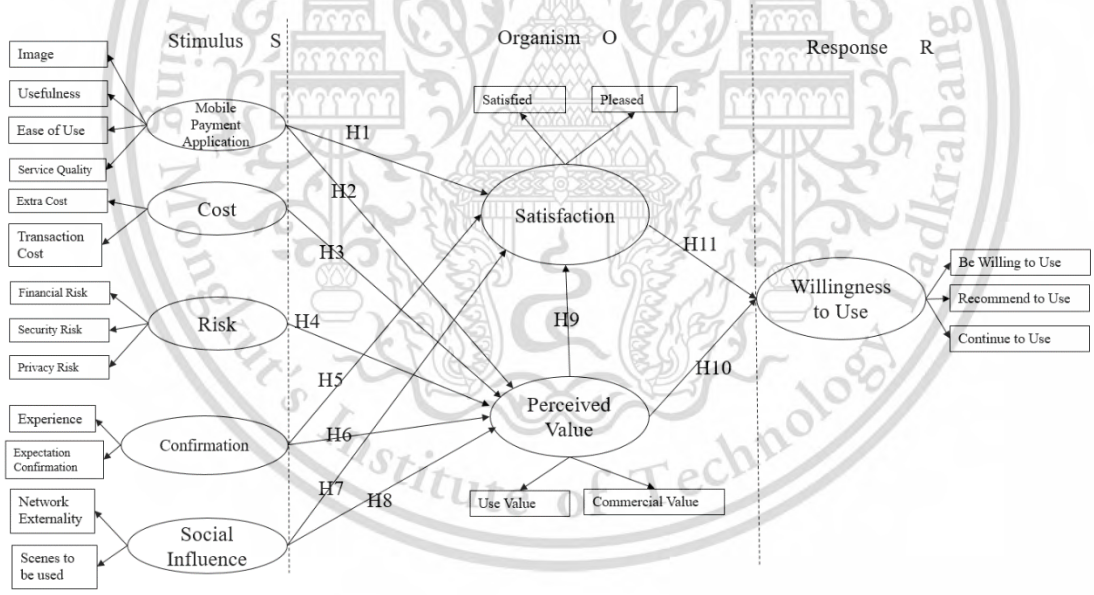


Figure 2.22 Model Framework

2.8 Research Hypothesis

A total of 11 hypotheses were proposed in this study, and the 11 hypotheses are shown in the table below.

Table 2.22 Research Hypothesis

H1：Mobile payment application positively affects satisfaction of mobile payment APP users
H2：Mobile payment application positively affects perceived value of mobile payment APP users
H3：Cost negatively affects perceived value of mobile payment APP users
H4：Risk negatively affects perceived value of mobile payment APP users
H5：Confirmation positively affects the satisfaction of mobile payment APP users
H6：Confirmation positively affects the perceived value of mobile payment APP users
H7：Social influence positively affects satisfaction of mobile payment APP users
H8：Social influence positively affects perceived value of mobile payment APP users
H9：Perceived value positively affects satisfaction of mobile payment APP users
H10：Perceived value positively affects mobile payment APP users' willingness to use
H11：Satisfaction positively affects mobile payment APP users' willingness to use

2.8.1 Mobile payment application

2.8.1.1 Image

According to Rahi (2022) and Nguyen and Leclerc (2011), a product's image is the customer's association when they hear the product's name. Wellyan (2016) emphasizes that a positive image enhances customer satisfaction (Wellyan, 2016; Kim et al., 2011). Tang (2019) studied rural users in Shaanxi Province, China, combining the Chinese customer satisfaction model and perceived risk theory to create a theoretical satisfaction model regarding third-party mobile payment. His empirical analysis revealed that image positively influences user satisfaction. Similarly, Zhang (2013) found that image affects customer satisfaction in online shopping within the B2C model. Xu (2001) also discovered that greater recognition of a product's image leads to higher user satisfaction, confirming that image positively impacts satisfaction.

2.8.1.2 Usefulness

Many scholars, including Ashraf et al. (2020) and Wang (2012), agree that usefulness is a crucial predictor of satisfaction and significantly influences users' willingness to use a product. In the context of the Internet and mobile technology, people are more likely to accept new technologies if they find them useful (Ferreira et al., 2023; Shin et al., 2010; Lee,

2010; Weng et al., 2017; Limayem & Cheung, 2011; Liebana-Cabanillas et al., 2020; Khlaif et al., 2023). Li (2018) studied the factors influencing the willingness to use third-party mobile payment. Using the Expectation Confirmation Model of IS Continuance (ECM-ISC) and the Value-based Adoption Model (VAM), he developed a model based on data from a questionnaire survey. Statistical analysis with SPSS22.0 and AMOS22.0 confirmed that usefulness positively impacts satisfaction and perceived value. Similarly, Wu and Huang (2015) found that usefulness enhances satisfaction and perceived value in the context of retail enterprises' use of mobile social media. Additionally, Bhattacherjee (2001) also found that usefulness positively influences user satisfaction. Kim et al. (2007) discovered that usefulness affects perceived value among mobile Internet users.

2.8.1.3 Ease of Use

Many scholars, including Liebana-Cabanillas et al. (2020) and Mun et al. (2017), emphasize that users prefer technologies that are easy to operate. Ease of use is crucial for mobile payments; applications must be simple for users to accept. Complex payment processes require more effort, and users favor easy-to-learn and use mobile payments. Thus, ease of use is a critical factor in mobile payment (Flavian et al., 2020; Rahardja et al., 2023; An et al., 2023; Quan et al., 2023; Alshurafat et al., 2023; Ferreira et al., 2023). Li (2018) studied the factors influencing the willingness to use third-party mobile payments. Using the Expectation Confirmation Model of IS Continuance (ECM-ISC) and the Value-based Adoption Model (VAM), he developed a model based on questionnaire data analyzed with SPSS22.0 and AMOS22.0. The research found that ease of use positively impacts satisfaction and perceived value. Cho (2016) found a similar effect on user satisfaction in smartphone fitness apps. Leimeister et al. (2009) confirmed that ease of use enhances satisfaction among users of virtual network platforms. Hong et al. (2006) also established that ease of use positively affects satisfaction through empirical research within the ECM-ISC framework. Yi et al. (2015) verified that ease of use influences citizens' willingness to use mobile reading services. Wang and Wang (2010) found a positive relationship between ease of use and perceived value in mobile hotel reservation systems. Liu and Tang (2015) discovered that ease of use positively affects perceived value among consumers.

2.8.1.4 Service Quality

Scholars like Chaveesuk et al. (2018) and Rahardja et al. (2023) agree that higher service quality enhances user satisfaction, particularly in mobile payment. For users, excellent service quality significantly boosts satisfaction. It reflects a service provider's timeliness, comprehensiveness, and professionalism capabilities. If providers fail to deliver timely and high-quality services, consumers may be deterred (Zhou, 2013; Ferreira et al., 2023; Zhong & Chen, 2023; Fetra et al., 2023). Jiang (2021) studied the factors influencing third-party mobile payment app users' willingness to use, using the stimulus-organism-response (S-O-R) theory. From the perspective of user experience and social influence, he constructed a theoretical model that was analyzed through data collection and statistical software SPSS 21.0 and AMOS 21.0. The research found that product service positively affects satisfaction. Xu (2001) also found that service quality positively impacts satisfaction when examining China's customer satisfaction index. Patti (2013) demonstrated that higher service levels increase user satisfaction. Wang and Li (2015) discovered that service quality positively affects satisfaction among stadium tourists. Similarly, Li (2012) found that higher service levels in commercial banking correlate with increased user satisfaction.

Based on these, the paper proposes the following hypotheses:

H1：Mobile payment application positively affects satisfaction of mobile payment APP users.

H2：Mobile payment application positively affects perceived value of mobile payment APP users.

Hypotheses H1, H2 are shown in Figure 2.23.

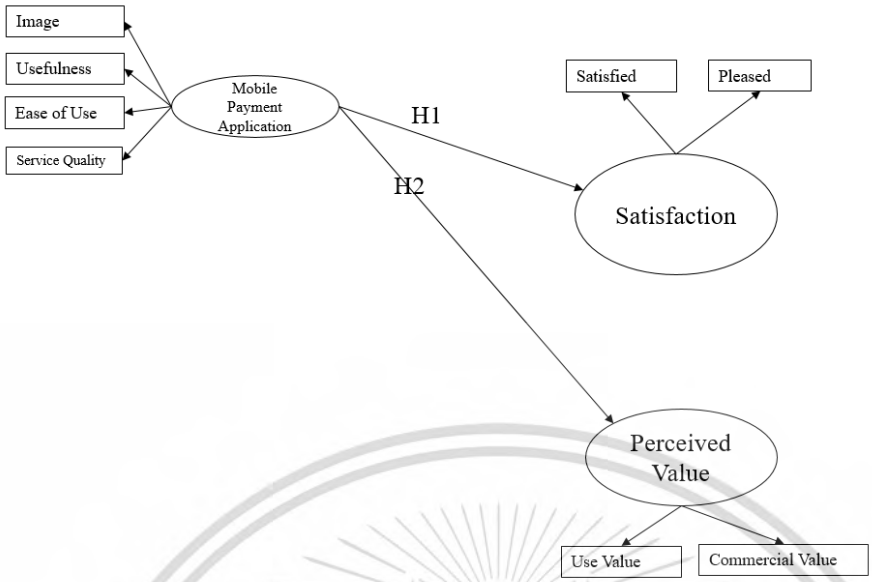


Figure 2.23 Hypotheses H1, H2

2.8.2 Cost

Many scholars such as Kim et al. (2007), Lu et al. (2011) and Zhong and Chen (2023) agree that buyers will consider various costs related to transactions. In a payment environment, if costs are high, users develop a lower perceived value for the payment system. In mobile payment, cost is a factor that customers are more concerned about. If operators can effectively reduce user costs, they can attract more users to a certain extent (Fan et al., 2005; Zhong & Chen, 2023; Verkijika &Neneh, 2021; Wu & Yu, 2023; Lu et al., 2011; Hsiao, 2011; Yu et al., 2016). Jiang (2021) conducted research on the influencing factors of third-party mobile payment APP users' willingness to use, based on the stimulus-organism-response (S-O-R) theory, from the perspective of user experience and social influence, constructed a third-party mobile payment. The theoretical model of the formation mechanism of APP users' willingness to use is analyzed and verified through data collection and statistical analysis software SPSS 21.0 and AMOS 21.0. Through research, it is found that cost negatively affects perceived value. Liu and Tang (2015) based on TAM and VAM theoretical models, carried out a research on the impact of perceived value on consumers' willingness to shop on mobile. Through research, it is found that cost negatively affects users' perceived value. Zhou, Lu and Zhang (2009) conducted

a research on mobile commerce user acceptance behavior based on perceived value and trust. Through empirical research, it was found that cost negatively affects users' perceived value.

Based on these, the paper proposes the following hypothesis:

H3：Cost negatively affects perceived value of mobile payment APP users.

Hypothesis H3 is shown in Figure 2.24.

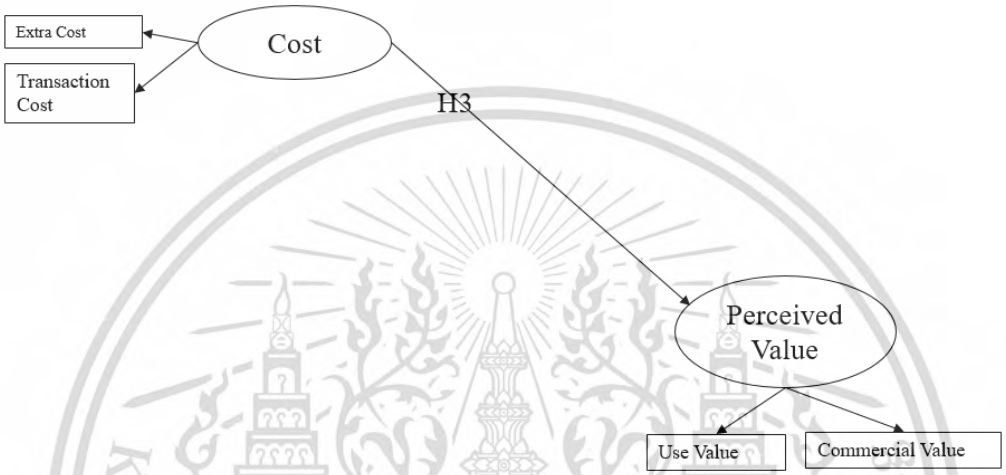


Figure 2.24 Hypothesis H3

2.8.3 Risk

Hu et al. (2023) and Gupta et al. (2023) Many scholars agree that in the payment environment, buyers will consider various risks. If the risk is high, users develop a lower perceived value for the payment system. In mobile payments, risk is a factor that users are very concerned about. If operators can reduce the risks that users may face, they can attract more users to a certain extent. Cai (2017) conducted a research on the influencing factors of third-party mobile payment user satisfaction. Based on the ACSI model, she builds a third-party mobile payment user satisfaction factor model, and uses empirical analysis to verify the path and degree of influence of each factor variable on user satisfaction. Finally, she proposes to improve the effective improvement of third-party mobile payment enterprises Countermeasures and suggestions for user satisfaction. Through research, it is found that risk negatively affects perceived value .Liu and Tang (2015) based on TAM and VAM theoretical models, carried out a research on the impact of perceived value on consumers' willingness to shop on mobile.

Through research, it is found that risk negatively affects users' perceived value. Zhou, Lu and Zhang (2009) conducted a research on user acceptance behavior of mobile commerce based on perceived value and trust, and found through empirical research that risk negatively affects users' perceived value.

Based on these, the paper proposes the following hypothesis:

H4：Risk negatively affects perceived value of mobile payment APP users.

Hypothesis H4 is shown in Figure 2.25.

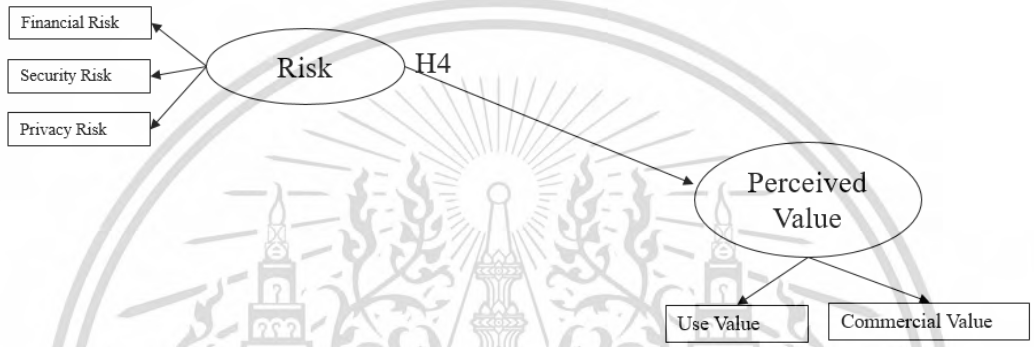


Figure 2.25 Hypothesis H4

2.8.4 Confirmation

According to the views of many scholars such as Chiu, Cho, and Chi (2020) and Ashraf et al. (2020), the degree of expectation confirmation is the degree of consistency between the actual usage performance of the information system perceived by users and their pre-use expectations. Confirmation can be expressed as experience, expectation confirmation. Many scholars agree that expectation confirmation is very important in intention to use. Confirmation plays a positive role in both satisfaction and perceived value (Gunawan et al., 2022).

Zhang (2016) conducted a study based on the UTAUT model and found that confirmation positively impacts satisfaction. Li (2018) studied the factors influencing continued willingness to use third-party mobile payments, integrating technology acceptance, expectation confirmation, and satisfaction theories to build a structural equation model. Independent variables included expectation confirmation, perceived usefulness, ease of use,

entertainment, satisfaction, habit, and subjective norms, with a willingness to use as the dependent variable. Data analysis using SPSS21.0 and AMOS22.0 revealed that confirmation positively affects satisfaction.

Li (2018) studied the factors influencing the continued use of third-party mobile payments using the Expectation Confirmation Model (ECM-ISC) and Value-based Adoption Model (VAM). Data collected via surveys were analyzed with SPSS22.0 and AMOS22.0, showing that confirmation positively impacts satisfaction and perceived value. Tang (2019) studied rural users in Shaanxi Province, China, using a theoretical model based on the Chinese customer satisfaction model and perceived risk theory. Empirical analysis revealed that confirmation positively impacts both satisfaction and perceived value.

Based on this, the paper proposes the following hypotheses:

H5：Confirmation positively affects the satisfaction of mobile payment APP users.

H6：Confirmation positively affects the perceived value of mobile payment APP users.

Hypotheses H5, H6 are shown in Figure 2.26.

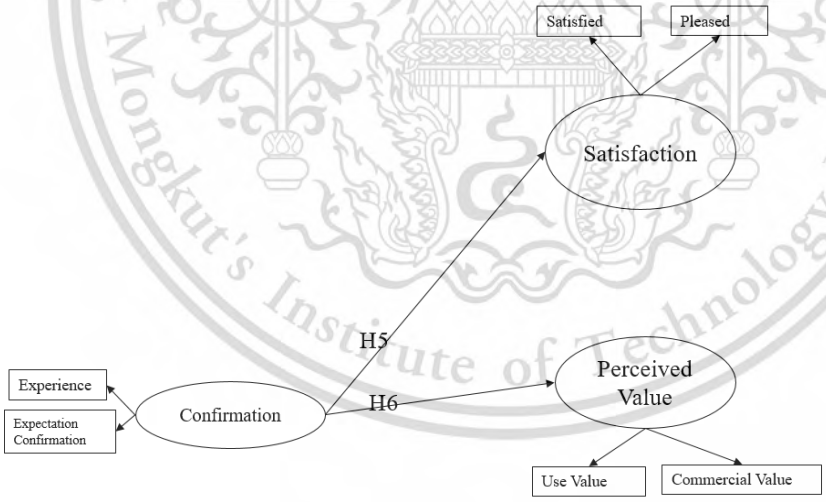


Figure 2.26 Hypotheses H5, H6

2.8.5 Social Influence

Fan et al. (2005), Mun et al. (2017), and Lin et al. (2019) found that consumers frequently seek advice on mobile payments from family, friends, and colleagues. Positive

recommendations from these sources can boost consumers' satisfaction, perceived value, and thus enhance the willingness to use mobile payments. This finding is supported by other scholars, including Toh et al. (2008), Shin (2007), Kurnia et al. (2006), and Li et al. (2023).

Anderson (1993) found that consumers' use of mobile services is influenced by their social environment and the people around them, with satisfaction increasing when a new technology is already used or recommended by others. Venkatesh (2003) identified social influence as including subjective norms, social factors, and image. Wais and Clemons (2008) also noted that social influence affects consumer satisfaction. Zhang (2016) confirmed through an empirical study that social influence positively impacts satisfaction in mobile payment use.

Jiang (2021) studied the factors influencing third-party mobile payment app users' willingness to use, using the stimulus-organism-response (S-O-R) theory. By analyzing data with SPSS 21.0 and AMOS 21.0, the research found that social influence positively impacts perceived value.

Based on this, the paper proposes the following hypotheses:

H7：Social influence positively affects satisfaction of mobile payment APP users.

H8：Social influence positively affects perceived value of mobile payment APP users.

Hypotheses H7, H8 are shown in Figure 2.27.

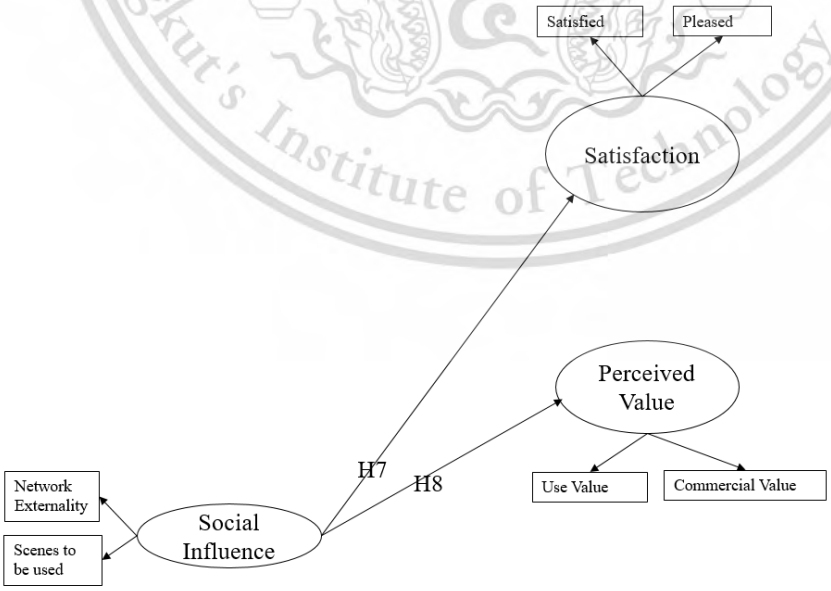


Figure 2.27 Hypotheses H7, H8

2.8.6 Perceived Value

Roy (2016) noted that value is perceived during transactions or use, influencing willingness to use. Zeithaml (1988) stated that perceived value is subjective; different people may value the same product or service differently. Zhong and Chen (2023) emphasized that perceived value is crucial for determining user satisfaction and is a competitive advantage for companies. Li et al. (2023) also highlighted its significance in mobile payments, asserting that perceived value enhances satisfaction and willingness to use. Numerous studies have shown that perceived value positively affects satisfaction and willingness to use (Sweeney & Soutar, 2001; Roy, 2016; Turel et al., 2007).

Bao (2016) developed a third-party mobile payment satisfaction model based on the American Customer Satisfaction Index (ACSI) to identify the factors influencing satisfaction in this area. His research found that perceived value positively impacts satisfaction. Similarly, Cai (2017) studied the factors affecting user satisfaction with third-party mobile payments, using the ACSI model to create a model for influencing factors. Through empirical analysis, he examined how each factor affects user satisfaction and proposed targeted strategies to help mobile payment companies enhance user satisfaction. His findings also confirmed that perceived value positively affects satisfaction. Jiang (2021) researched the factors influencing users' willingness to use third-party mobile payment apps. Using the stimulus-organism-response (S-O-R) theory and focusing on user experience and social influence, she developed a theoretical model to analyze this willingness. The model was validated through data collection and statistical analysis using SPSS 21.0 and AMOS 21.0. The findings showed that perceived value positively impacts satisfaction.

Li (2018) studied the factors influencing third-party mobile payment users' willingness to continue using the service. He developed a model based on the Expectation Confirmation Model of IS Continuance (ECM-ISC) and the Value-based Adoption Model (VAM). Data was collected through a questionnaire and analyzed using SPSS 22.0 and AMOS 22.0. The research found that perceived value positively affects willingness to use. Jiang (2021) also researched the factors affecting third-party mobile payment app users' willingness to use.

She created a theoretical model based on the stimulus-organism-response (S-O-R) theory, focusing on user experience and social influence. Her model was validated through data collection and statistical analysis with SPSS 21.0 and AMOS 21.0. The study similarly found that perceived value positively impacts willingness to use.

Based on this, the paper proposes the following hypotheses:

H9: Perceived value positively affects satisfaction of mobile payment APP users.

H10: Perceived value positively affects mobile payment APP users' willingness to use.

Hypotheses H9, H10 are shown in Figure 2.28.

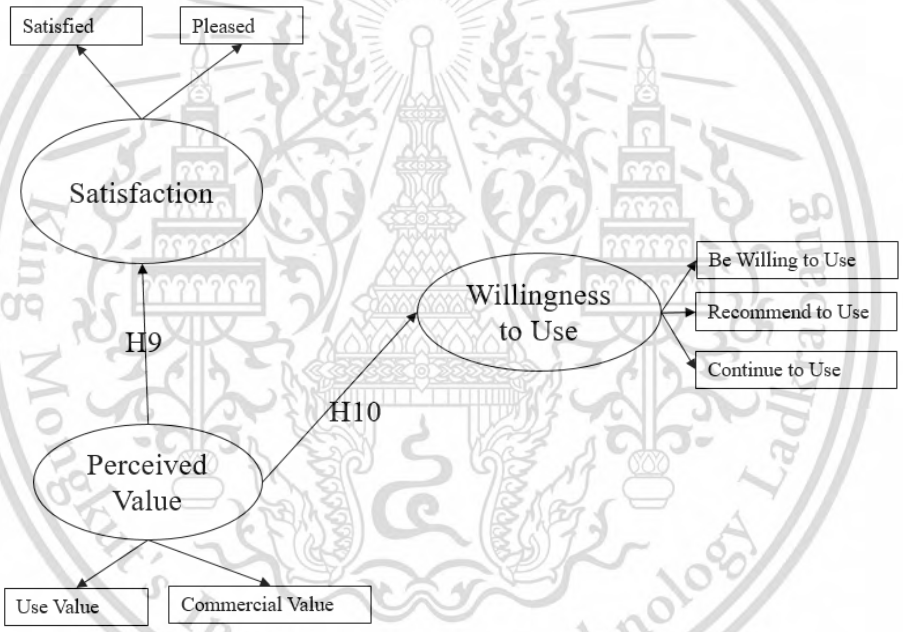


Figure 2.28 Hypotheses H9, H10

2.8.7 Satisfaction

Morris and Venkatesh (2006) define satisfaction as a consumer's evaluation of the satisfaction level of a product or service. Ashraf et al. (2020) identify satisfaction as a critical factor influencing willingness to use, a finding supported in various contexts. Ferreira et al. (2023) note that satisfaction directly affects willingness to use; when consumers are satisfied, they are more likely to enjoy using technology or services. Zhong and Chen (2023) emphasize

the importance of satisfaction in mobile payments. Similarly, Hong and Slevitch (2018) and Wang (2012) agree that satisfaction positively impacts willingness to use, particularly in the internet and mobile technology environments.

Users evaluate information systems based on their experiences, which reflects their satisfaction level, and this is true for users of the China Mobile Payment APP. When satisfied, users are much more likely to continue using the app; disappointment may lead them to reduce or stop using it altogether. The China Mobile Payment APP offers convenience and efficiency, transforming traditional payment habits and enhancing users' quality of life, contributing to their satisfaction. Thus, satisfaction is crucial in understanding users' willingness to use the app. Zhang (2016) conducted an empirical study using the UTAUT model and found that satisfaction positively impacts willingness to use mobile payment. Li (2018) explored the factors influencing the continued willingness of third-party mobile payment users, utilizing the Expectation Confirmation Model of IS Continuance (ECM-ISC) and the Value-based Adoption Model (VAM) to create a model for analyzing user willingness. Data collected through a survey was analyzed using SPSS22.0 and AMOS22.0, revealing that satisfaction positively influences willingness to use. Similarly, Jiang (2021) investigated the factors affecting third-party mobile payment APP users' willingness to use, applying the stimulus-organism-response (S-O-R) theory and considering user experience and social influence. Her analysis, also conducted with SPSS 21.0 and AMOS 21.0, confirmed that satisfaction positively affects willingness to use.

Based on this, the paper proposes the following hypothesis:

H11: Satisfaction positively affects mobile payment APP users' willingness to use.

Hypothesis H11 is shown in Figure 2.29.

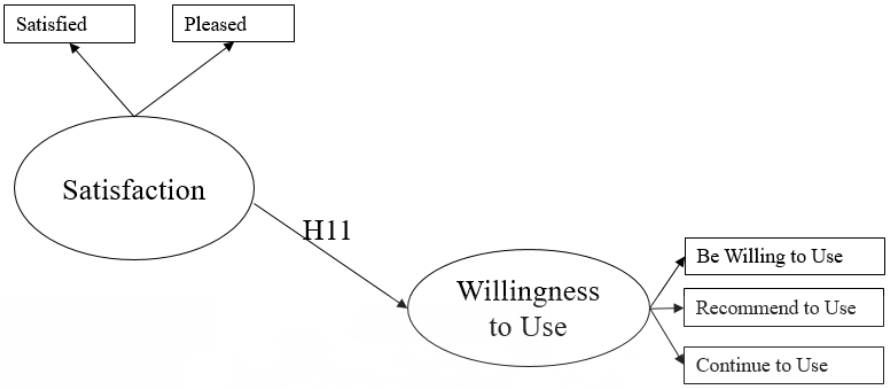


Figure 2.29 Hypothesis H11

CHAPTER 3

RESEARCH METHODOLOGY

The main research method of the thesis is quantitative research. The paper collects secondary data and theoretical basis by reading books, journals, and related research papers and constructs a research framework model based on the S-O-R theory of the influencing factors of China's mobile payment APP users' willingness to use. Obtain primary data through a questionnaire survey, use SPSS software and AMOS software to conduct quantitative analysis on the primary data according to the principle of statistical analysis, and test the selected factors and the constructed framework model. Quantitative research guidelines are as follows:

3.1 Population

3.2 Sampling Size

3.3 Sampling Method

3.4Variables

3.5 Research Instruments and scales

3.6Quality of the Instruments

3.7Data Collection

3.8Data Analysis

3.9Statistic for Analysis

3.10 Ethical Consideration

3.1 Population

According to the China Statistics Bureau, by the end of 2023, China's population was 1.41 billion, of which the population over the age of 18 reached 1.162 billion. According to iResearch, as of December 2020, the number of mobile payment users in China reached 854 million. Therefore, the research population of this paper is Chinese users and potential Chinese users who use mobile payment. According to the "Regulations on the Registration of Real Identity Information of Telephone Users" issued by the Ministry of Industry and Information

Technology of the People's Republic of China, the minimum age requirement for opening a mobile phone account is over ten years old. Minors who have reached the age of 10 but have not yet reached the age of 18 can open a mobile phone account with the supervisor's consent. Eighteen years of age is regarded as an adult, and an adult has an independent personality and thought. In addition, according to data released by China's Jiangsu Provincial Communications Administration, the Internet penetration rate among teenagers has reached 97.8%. Combining these characteristics, in China, people over the age of 18 basically have independent mobile phones and can use mobile payments.

Therefore, the population of this study is Chinese people over the age of 18.

A sample is a portion of a population drawn from a population. The sample is the people drawn by this study, that is, the Chinese who fill out the questionnaire of this study.

3.2 Sampling Size

The sample size for this study was determined by using the ratio to the variable data.

Stevens J. (1996) stated that considering the number of measurement parameters required by the size of the sample or population, the estimated variables in the study should be 20 samples per 1 variable. Schumacker and Lomax (2010) believed that in the analysis of structural equation model, SEM needs a larger sample size than other methods.

Hair (2006) found that by applying a sample size that is large enough to be used for data analysis by structural equation models with the data distribution is a normal curve and multicollinearity. There are 20 observed variables in this paper, so the minimum sample size is 400 (20*20=400). Schumacker and Lomax (2010) argue that, depending on the sample size considered, Amos software can be used to help analyze the relationship between variables.

Schumacker and Lomax (2010) believed that in the analysis of structural equation modeling, SEM needs a larger sample size than other methods. Considering the large population in China, the sample size of this study is about 1.5 times the minimum sample size, that is about 600 (400*1.5=600).

3.3 Sampling Method

China is the country with the largest number of mobile payment users in the world. The sampling method used in this study is random sampling. In this study, questionnaire filling links are generated from the Questionnaire Star platform, and the data are collected through the WeChat group, QQ group, Zhihu, and other social platforms. Chinese mobile payment users from 31 provinces could fill in the questionnaire, and the number of questionnaires is about 600. The 31 provinces in mainland China are shown in the table below.

Table 3.1 31 Provinces (Municipalities) in Mainland China

Serial Number	Province(or Municipality)	Serial Number	Province(or Municipality)
1	Beijing	17	Shanxi Province
2	Shanghai	18	Anhui Province
3	Tianjin	19	Hubei Province
4	Chongqing	20	Hunan Province
5	Heilongjiang Province	21	Jiangsu Province
6	Jilin Province	22	Sichuan Province
7	Liaoning Province	23	Guizhou Province
8	Inner Mongolia	24	Yunnan Province
9	Hebei Province	25	Guangxi Province
10	Xinjiang	26	Tibet
11	Gansu province	27	Zhejiang Province
12	Qinghai Province	28	Jiangxi Province
13	Shaanxi Province	29	Guangdong Province
14	Ningxia	30	Fujian Province
15	Henan Province	31	Hainan
16	Shandong Province		

3.4 Variables

Through the collection, collation, reading and research of books, yearbooks, literature, theories, Journals and other materials related to the subject, the framework relationship between the following latent variables is proposed. As shown in the table below:

Table 3.2 Variables

Latent Variable	Observed variable	Question number	Questionnaire Items
Mobile payment application	Image	A1	The mobile payment APP is well-known and used by many people
		A2	The mobile payment APP company has a good reputation
		A3	The mobile payment APP design is simple, clear and beautiful
Mobile payment application	Usefulness	B1	This mobile payment allows me to break through time and place restrictions and make payment activities anytime, anywhere
		B2	This mobile payment app allows me to avoid the inconvenience and hassle of having to carry cash or credit cards to make purchases
		B3	This mobile payment APP allows me to conduct transfers, payments, shopping and other behaviors more conveniently and quickly
		B4	This mobile payment app can help me improve my quality of life
	Ease of Use	C1	I can use this mobile payment APP to make payments proficiently
		C2	For me, the use and operation process of this mobile payment app is easy
		C3	Use this mobile payment APP to complete the transaction and payment is simple and fast
	Service Quality	D1	The services provided by this mobile payment APP are timely and comprehensive
		D2	The mobile payment APP can respond to feedback information and questions in a timely manner
		D3	The mobile payment APP provides professional service support
Cost	Extra Cost	E1	If using this mobile payment App needs to spend money to buy a new phone, it is difficult for me to accept
		E2	If using this mobile payment APP needs to spend money to a new SIM card, it is difficult for me to accept
	Transaction Cost	E3	If using this mobile payment APP to cost functional charge, it is difficult for me to accept
		E4	If using this mobile payment consumes a lot of data traffic fee, it is difficult for me to accept
		E5	If I use this mobile payment App to increase the transaction fee, it is difficult for me to accept

Latent Variable	Observed variable	Question number	Questionnaire Items
Risk	Financial Risk	F1	The use of this mobile payment APP may cause economic losses, such as system errors resulting in deduction of excess amount
	Security Risk	F2	There may be security issues when using this mobile payment APP, such as tampering with transaction information, mobile phone poisoning, interruption of data transmission, etc.
	Privacy Risk	F3	Using this mobile payment APP may lead to my information leakage and password theft
Confirmation	Experience	G1	This mobile payment works better than I expected
		G2	The mobile payment APP is safer and more convenient to use than I expected
		G3	This mobile payment app offers more benefits than I expected
	Expectation Confirmation	G4	In general, my expectations for this mobile payment app have been basically met
Social Influence	Network Externality	H1	Important people in my life expects me to use this mobile payment App
		H2	The country, social media encourages and recommends me to use this mobile payment App
		H3	Using this mobile payment is a trend and I want to be a part of it
		H4	Using this mobile payment APP can better communicate and integrate with a specific group and win recognition
	Scenes to be used	H5	This mobile payment APP is supported in common daily life scenarios such as shopping, medical care, and transportation. These advantages make me more willing to use mobile payment
		H6	With the gradual enrichment of mobile payment applicable scenarios, the frequency of my use of this payment APP gradually increase
		H7	I hope that the mobile payment APP can be used in more and richer scenarios in the future
Perceived Value	Use Value	I1	I feel that many friends around me are using this mobile payment APP, and using this APP can enhance social interaction
		I2	I will choose to use a mobile payment app with a larger number of users
		I3	This mobile payment APP can improve the efficiency of my payment
		I4	I think using this mobile payment app is more convenient than other payment methods

Latent Variable	Observed variable	Question number	Questionnaire Items
	Commercial Value	I5	Overall, this mobile payment app is valuable to me
		I6	This mobile payment APP is good value for price paid taking into account its quality an benefits
		I7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost
Satisfaction	Satisfaction	J1	I think using this third-party mobile payment app is the right decision
		J2	After using this mobile payment app, I am overall satisfied
	Pleased	J3	I think this mobile payment app brings me pleasure
		J4	I think I am pleased with the specific feature and functionalities of the mobile payment APP
		J5	I think I am pleased with the reliability and durability of the mobile payment APP
		J6	I think I am pleased with the overall quality of the mobile payment APP
Willingness to Use	Be Willing to Use	K1	I would like to use this mobile payment app to pay
		K2	In the future, I will gradually increase the frequency of using this mobile payment APP
	Recommend to Use	K3	I would recommend the mobile payment APP to my friends ,family, or colleagues
		K4	I would suggest the mobile payment APP to other who might benefit from it
		K5	I have confident in recommending the mobile payment APP to others
	Continue to Use	K6	I am planning to continue using the mobile payment APP in the future
		K7	I foresee myself using the mobile payment APP on an ongoing basis
		K8	There are other payment methods that can be selected in the future, I will weigh the pros and cons before deciding whether I am willing to continue to use the mobile payment APP

3.5 Research Instruments and scales

The research instrument of this thesis is the questionnaire. By creating a questionnaire,

obtaining first-hand data, and using SPSS software and AMOS software to analyze the data, in order to determine the factors that affect users' use of China Mobile Payment APP. In order to ensure the rationality of the questionnaire design. The questionnaire created in this paper follows the following principles.

First, read a large number of theories, journals, books, and papers related to the topic, and design the structure of the questionnaire. Ensure that the questionnaire design is well-founded.

Second, research theories, journals, books, and papers related to the topic, and determine latent variables, observed variables, and research frameworks. And analyze the relationship between latent variables, the relationship between latent variables and observed variables.

Third, samples within the group are obtained as randomly as possible。

Fourth, ensure that volunteer participants fill in according to their true wishes during the filling process to ensure the authenticity of the data.

Fifth, use statistical analysis tools to analyze the validity of the collected data to ensure the rationality and validity of the data.

Based on relevant theories, periodicals, and literature research, the thesis establishes a research framework model. The model contains a total of 8 latent variables, including: Mobile payment application, Cost, Risk, Confirmation, Social Influence, Perceived Value, Satisfaction, Willingness to Use. 20 observed variables, for each observed variable, 3-5 question items were designed, together with the personal data of the respondents, to form a questionnaire. The structure of the questionnaire consists of the following two parts:

Part I: Basic personal information of volunteer participants. For example, gender, age, education, occupation, monthly income, used mobile payment APP, etc.

Part II: Questions about latent variable research.

3.5.1 Mobile payment application

Mobile payment application including Image、Usefulness、Ease of Use、Service Quality .

First, the question about Image, as shown in the table below：

Table 3.3 Questionnaire items of Image

Question number	Questionnaire items		1	2	3	4	5	6	7	
A1	The mobile payment APP is well-known and used by many people	strongly disagree								strongly agree
A2	The mobile payment APP company has a good reputation	strongly disagree								strongly agree
Question number	Questionnaire items		1	2	3	4	5	6	7	
A3	The mobile payment APP design is simple, clear and beautiful	strongly disagree								strongly agree

Second, the question about Usefulness, as shown in the table below:

Table 3.4 Questionnaire items of Usefulness

Question number	Questionnaire items		1	2	3	4	5	6	7	
B1	This mobile payment allows me to break through time and place restrictions and make payment activities anytime, anywhere	strongly disagree								strongly agree
B2	This mobile payment app allows me to avoid the inconvenience and hassle of having to carry cash or credit cards to make purchases	strongly disagree								strongly agree

Question number	Questionnaire items		1	2	3	4	5	6	7	
B3	This mobile payment APP allows me to conduct transfers, payments, shopping and other behaviors more conveniently and quickly	strongly disagree								strongly agree
B4	This mobile payment app can help me improve my quality of life	strongly disagree								strongly agree

Third, the questions about Ease of Use are shown in the table below:

Table 3.5 Questionnaire items about Ease of Use

Question number	Questionnaire items		1	2	3	4	5	6	7	
C1	I can use this mobile payment APP to make payments proficiently	strongly disagree								strongly agree
C2	For me, the use and operation process of this mobile payment app is easy	strongly disagree								strongly agree
C3	Use this mobile payment APP to complete the transaction and payment is simple and fast	strongly disagree								strongly agree

Fourth, the questions about Service Quality are shown in the table below:

Table 3.6 Questionnaire items of Service Quality

Question number	Questionnaire items		1	2	3	4	5	6	7	
D1	The services provided by this mobile payment APP are comprehensive	strongly disagree								strongly agree
D2	The mobile payment APP can respond to feedback information and questions in a timely manner	strongly disagree								strongly agree
D3	The mobile payment APP provides professional service support	strongly disagree								strongly agree

3.5.2 Cost

The questions about Cost, as shown in the table below.

Table 3.7 Questionnaire items of Cost

Question number	Questionnaire items		1	2	3	4	5	6	7	
E1	If using this mobile payment App needs to spend money to buy a new phone, it is difficult for me to accept	strongly disagree								strongly agree

Question number	Questionnaire items		1	2	3	4	5	6	7	
E2	If using this mobile payment APP needs to spend money to a new SIM card, it is difficult for me to accept	strongly disagree								strongly agree
E3	If using this mobile payment APP to cost functional charge, it is difficult for me to accept	strongly disagree								strongly agree
E4	If using this mobile payment consumes a lot of data traffic fee, it is difficult for me to accept	strongly disagree								strongly agree
E5	If I use this mobile payment App to increase the transaction fee, it is difficult for me to accept	strongly disagree								strongly agree

3.5.3 Risk

The questions about Risk are shown in the table below:

Table 3.8 Questionnaire items of Risk

Question number	Questionnaire items		1	2	3	4	5	6	7	
F1	The use of this mobile payment APP may cause economic losses, such as system errors resulting in deduction of excess amount	strongly disagree								strongly agree
F2	There may be security issues when using this mobile payment APP, such as tampering with transaction information, mobile phone poisoning, interruption of data transmission, etc.	strongly disagree								strongly agree
F3	Using this mobile payment APP may lead to my information leakage and password theft	strongly disagree								strongly agree

3.5.4 Confirmation

About the Confirmation, as shown in the table below:

Table 3.9 Questionnaire items of Confirmation

Question number	Questionnaire items		1	2	3	4	5	6	7	
G1	This mobile payment works better than I expected	strongly disagree								strongly agree
G2	The mobile payment APP is safer and more convenient to use than I expected	strongly disagree								strongly agree

Question number	Questionnaire items		1	2	3	4	5	6	7	
G3	This mobile payment app offers more benefits than I expected	strongly disagree								strongly agree
G4	In general, my expectations for this mobile payment app have been basically met	strongly disagree								strongly agree

3.5.5 Social Influence

About the Social Influence, as shown in the table below:

Table 3.10 Questionnaire items of Social Influence

Question number	Questionnaire items		1	2	3	4	5	6	7	
H1	Important people in my life expects me to use this mobile payment App	strongly disagree								strongly agree
H2	The country, social media encourages and recommends me to use this mobile payment App	strongly disagree								strongly agree
H3	Using this mobile payment is a trend and I want to be a part of it	strongly disagree								strongly agree
H4	Using this mobile payment APP can better communicate and integrate with a specific group and win recognition	strongly disagree								strongly agree

Question number	Questionnaire items		1	2	3	4	5	6	7	
H5	This mobile payment APP is supported in common daily life scenarios such as shopping, medical care, and transportation. These advantages make me more willing to use mobile payment	strongly disagree								strongly agree
H6	With the gradual enrichment of mobile payment applicable scenarios, the frequency of my use of this payment APP gradually increase	strongly disagree								strongly agree
H7	I hope that the mobile payment APP can be used in more and richer scenarios in the future	strongly disagree								strongly agree

3.5.6 Perceived Value

About Perceived Value is shown in the table below:

Table 3.11 Questionnaire items of Perceived Value

Question number	Questionnaire items		1	2	3	4	5	6	7	
I1	I feel that many friends around me are using this mobile payment APP, and using this APP can enhance social interaction	strongly disagree								strongly agree
I2	I think this mobile payment APP has high use value	strongly disagree								strongly agree
I3	This mobile payment APP can improve the efficiency of my payment	strongly disagree								strongly agree
I4	I think using this mobile payment app is more convenient than other payment methods	strongly disagree								strongly agree
I5	Overall, this mobile payment app is valuable to me	strongly disagree								strongly agree
I6	This mobile payment APP is good value for price paid taking into account its quality an benefits.	strongly disagree								strongly agree
I7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost.	strongly disagree								strongly agree

3.5.7 Satisfaction

About Satisfaction, as shown in the table below:

Table 3.12 Questionnaire items of Satisfaction

Question number	Questionnaire items		1	2	3	4	5	6	7	
J1	I think using this third-party mobile payment app is the right decision	strongly disagree								strongly agree
J2	After using this mobile payment app, I am overall satisfied	strongly disagree								strongly agree
J3	I think this mobile payment app brings me pleasure	strongly disagree								strongly agree
J4	I think I am pleased with the specific feature and functionalities of the mobile payment APP	strongly disagree								strongly agree
J5	I think I am pleased with the reliability and durability of the mobile payment APP	strongly disagree								strongly agree
J6	I think I am pleased with the overall quality of the mobile payment APP	strongly disagree								strongly agree

3.5.8 Willingness to Use

About Willingness to Use is shown in the table below:

Table 3.13 Questionnaire items of Willingness to Use

Question number	Questionnaire items		1	2	3	4	5	6	7	
K1	I would like to use this mobile payment app to pay	strongly disagree								strongly agree

Question number	Questionnaire items		1	2	3	4	5	6	7	
K2	In the future, I will gradually increase the frequency of using this mobile payment APP	strongly disagree								strongly agree
K3	I would recommend the mobile payment APP to my friends ,family, or colleagues	strongly disagree								strongly agree
K4	I would suggest the mobile payment APP to other who might benefit from it	strongly disagree								strongly agree
K5	I have confident in recommending the mobile payment APP to others	strongly disagree								strongly agree
K6	I am planning to continue using the mobile payment APP in the future	strongly disagree								strongly agree
K7	I foresee myself using the mobile payment APP on an ongoing basis	strongly disagree								strongly agree
K8	There are other payment methods that can be selected in the future, I will weigh the pros and cons before deciding whether I am willing to continue to use the mobile payment APP	strongly disagree								strongly agree

The correspondence between latent variables and observed variables and the literature sources of observed variables are shown in the table below:

Table 3.14 Questionnaire Structure

Latent Variable	Observed variable	Question number	Number of questions	Source
Mobile payment application	Image	A1	3	Tang (2019), Global Encyclopedia(2022)
		A2		
		A3		
	Usefulness	B1	4	Davis (1989), Bhattacherjee (2001), Fu (2014), Li (2018), Duane et al.(2014), Thakur and Srivastava(2014), Wiese and Humbani(2019);Setterstrom et al.(2013)
		B2		
		B3		
		B4		
	Ease of Use	C1	3	Davis (1989), Taylor & Todd (1995), Li (2018), Thakur and Srivastava(2014), Hong and Slevitch(2018), Duane et al.(2014)
		C2		
		C3		
	Service Quality	D1	3	Jiang (2021), Rahardja et al.(2023)
		D2		
		D3		
Cost	Extra Cost	E1	5	Liu (2011), Jiang (2021), Jen-Her Wua and Shu-Ching Wanga(2005), Lin,Wang and Huang(2019)
		E2		
	Transaction Cost	E3		
		E4		
		E5		
Risk	Financial Risk	F1	3	Peter and Tarpey (1975), Yang (2016), Cai (2017) , Li (2018), Chang et al. (2021),Featherman & Pavlou (2003),Thakur and Srivastava (2014)
	Security Risk	F2		
	Privacy Risk	F3		
Confirmation	Experience	G1	4	Li(2018), Bhattacherjee (2001), Ashraf et al.(2020);Shang and Wu(2017);Chiu, Cho, and Chi(2020)
		G2		
		G3		
	Expectation Confirmation	G4		

Latent Variable	Observed variable	Question number	Number of questions	Source
Social Influence	Network Externality	H1	7	Zhang(2016), Venkatesh. □ Morris & Davis (2003),Yang et al(2012), Peng et al (2011) , Yang et al (2012), Ji (2016) , Jiang(2021), Oliveira(2016),Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H2		
		H3		
		H4		
	Scenes to be used	H5		Jiang (2021), Oliveira(2016), Venkatesh et al. (2003),Baabdullah et al.(2019);,Patil et al.(2020),Baishya &Samalia(2020),Venkatesh et al.(2012)
		H6		
		H7		
Perceived Value	Use Value	I1	7	Bao (2016), Cai (2017), Li (2018), Jiang (2021) ,Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I2		
		I3		
		I4		
	Commercial Value	I5		Zeithaml (1988), Lin et al.(2019),Kim et al. (2007) ,Cabanillas et.al.(2020)
		I6		
		I7		
Latent Variable	Observed variable	Question number	Number of questions	Source
Satisfaction	Satisfaction	J1	6	Bhattacherjee (2001), Hong et al. (2006),Zhang (2016), Li (2018), Jiang (2021), Ashraf et al.(2020); Yu, et al.(2016), Chiu et al.(2020),Bhattacherjee (2001b),Wu and Wu(2019),Oliver(1980)
		J2		
	Pleased	J3		
		J4		
		J5		
		J6		
Willingness to Use	Be Willing to Use	K1	8	Ji (2016), Jiang (2021), ,Quan et al.(2019),Hong and Slevitch(2018),Junsawang(2022),Shang and Wu(2017), Bhattacherjee (2001) ,Bhattacherjee et al. (2008)
		K2		
	Recommend to Use	K3		
		K4		
		K5		
	Continue to Use	K6		
		K7		
		K8		

The paper adopts the 7-point Likert scale method to score the volunteer participants' attitudes towards the observed variables. The scoring criteria are shown in the table below:

Table 3.15 The Scoring Criteria

point	Agreement
7	strongly agree
6	somewhat agree
5	agree
4	moderate
3	disagree
2	somewhat disagree
1	strongly disagree

The interpretation of variables in the 7-point scale is based on classification interval calculation and classification principles. Therefore, each distance difference interval will be used in the evaluation criteria of the variables shown in Table 3.16.

Table 3.16 The Evaluation Criteria for Likert Scale Questions

Score Interval (Mean)	Agreement
6.50-7.00	strongly agree
5.50-6.49	somewhat agree
4.50-5.49	agree
3.50-4.49	moderate
2.50-3.49	disagree
1.50-2.49	somewhat disagree
1.00-1.49	strongly disagree

3.6 Quality of the Instruments

In the research, the questionnaire used as a tool in this research and examined the quality of the equipment as below.

3.6.1 Validity checking

Test for content validity by finding the consistency of the Index of Item Objective

Congruence (IOC) between the questions of each variable used in the measurement (Rovinelli & Hambleton,1977), then select proposal with an IOC>0.5,used the formula to calculate the value.

$$IOC=\sum r/N$$

Where

IOC: The summary of all the points from experts and specialists

N: Number of experts and specialists

1: The aforementioned questions were measured for objectives.

0：Not confident that the aforementioned questions were measured for objectives.

-1: The aforementioned questions were not measured for objectives.

The IOC has a value between -1 and +1.Therefore, a good question should be closed to 1.Any question that has an IOC less than 0.50, should be revised or eliminated.

1: Experts' opinions agree that the questions correspond to the content.

0: Experts' opinions are not confident that the questions correspond to the content.

-1: Experts' opinions agree that the questions do not correspond to the content.

3.6.2 Reliability checking

Reliability checking by using questionnaire to collect data with Chinese mobile payment APP users for testing (Pre-Test) amount of 100 questionnaire results to check the power of each item and total by considering the correlation coefficient or corrected item total correlation(CITC) by providing questions with classification power more than 0.5, is considered to be sufficient quality and taken to find the whole confidence value(Reliability) by the Cronbanch Alpha and by using the empirical variable questionnaire with confidence value greater than 0.7 and above is considered high confidence. This study uses a measure on internal consistency by using the method of determining the coefficient of reliability or internal consistency called "Cronbach's Alpha" which is the method that has been developed from the formula (Hair.2006) into an alpha coefficient. It can be used with a non-systemic score of 0-1, such as the rating scale, etc. The formula is as follows

$$\alpha=[K/(K-1)] \times[1-\sum i^2/t^2]$$

Where

α: Reliability coefficient

K: Number of questions

i^2:Variance of scores for each question

t^2: The aforementioned

When calculating Cronbach's alpha coefficient from the 30 questionnaires that were used in the experiment, it was then used to collect the actual data.

3.7 Data Collection

The collection of data includes the collection of primary data and the collection of secondary data.

Primary data is also called raw data. Secondary data is also called secondary data. Secondary data is mainly obtained through books, journals, websites, disclosed reports, and related research. Primary data is mainly obtained by creating and distributing questionnaires.

3.8 Data Analysis

As the completed questionnaires, the researcher has to examine the basis data for compliance with the analysis agreement. For the statistic testing in the level of significance and acceptable error (α) is 0.05. The procedure and statistic for analysis as following below.

First, in the basis of statistics analysis of sample distribution by using descriptive statistics, i.e., percentage, mean, and the basis statistical analysis for developing the model. This research consisted of 12 variables for acknowledging the distribution and variation of the structural equation model. Descriptive statistics in the research include SD, mean, coefficient of variation, skewness, and kurtosis from AMOS.

Second, the relationship analysis among the variables. AMOS is the main program to use and another, Pearson's correlation coefficient. The factors of the structural equation model as basis data. The table shows the consideration criteria of the correlation coefficient as follow.

Third, for suitability measurement of the data, KMO is considered for testing

congruence between empirical data and the conceptual framework.

Fourth, examined congruence of the conceptual framework by using the AMOS and also obtained the theories, concepts, and review of relevant literatures.

Table 3.17 Evaluation Criteria for Correlation

Correlation coefficient(r)	The relationship level
r>0.8	Very high
0.6<r<0.8	Quite high
0.4<r<0.6	Moderate
0.2<r<0.4	Quite low
R<0.2	Low

3.9 Statistic for Analysis

In the research, the researcher used the Structural Equation Modeling (SEM),which is a model that combines the principles of statistical analysis of two types together, namely path analysis and factor analysis(Brown,2006).Hair et. Al.(2006) explain that structural equation model is a multivariable analysis technique which combines the factor analysis and multiple regressions, allows researchers to greatly benefit from the SEM technique, and is used to examine the relationships between variables in the conceptual framework. The most popular statistical programs used in SEM inspection are AMOS.

The program of AMOS software is used for analyzing data in this research for.

First, studying the relationship between latent variables by testing the theoretical basis.

Second, Analyzing the relationship between latent variables and observed variables.

By examining the quality of the measurement, the AMOS program increase the opportunity to analyze variable and covariance by applying this technique to confirm factor analysis (Confirmatory Factor Analysis: CFA) to check the harmony, accuracy or consistency of the gauge construction. The objective of the technique id for testing the hypothesis of the relationship between latent variables and Manifest variables (Ullman,2001).

Analysis of joint variables in this research study, the researcher uses techniques to

analyze the variable of all variables by studying the overall picture according to the equation to confirm the completeness or failure to introduce indicators or empirical variables used to create theoretical variables as well as the relevant statistics to assess the consistency of the conceptual framework and the empirical data, as shown in the following table.

Table 3.18 Statistics for Evaluating the Consistency of the Conceptual Framework with Empirical Data,

Statistic	Symbol	Objective	Statistic for the conceptual framework with empirical data
Chi-square	λ^2	To test the null hypothesis, the conceptual framework is consistent with the empirical data	p>0.05
Relative Chi-square	λ^2/df	To prove the conceptual framework is consistent with empirical	λ^2/df <3.00
Goodness of Fit Index	GFI	To measure the level of harmonious harmony between 0-1.00	≥0.90
Comparative Fit Index	CFI	To measure the level of harmonious harmony to compare perfectly between 0-1.00	≥0.90
Adjusted Goodness of Fit Index	AGFI	To measure the level of harmonious harmony between 0-1.00	≥0.90
Root Mean Square Residual	RMR	To measure the error of the conceptual framework in the form of the mean square with a value between 0-100	<0.08
Root Mean Square Error of Approximation	RMSEA	To inform the tolerances of the conceptual framework, the root form of the mean square of the estimated error between0-100	<0.08

Source: Nogueira et.al (2016); Rigdon (1996); Chaveesuk et. al (2022); Schumacker & Lomax (2010)

3.10 Ethical Consideration

The data collection is for this research only. No asking personal questions and personal information was not shared with others. There are efforts to prevent participants from harming

and respect their dignity in all areas. Finally, the researcher of this research project received full consent from all respondents and should be certified by Ethics in Human research before asking questions in the survey.

CHAPTER 4

RESEARCH RESULTS

This study is based on the SOR model. The purpose is to find out the factors that affect the willingness to use mobile payment APP in China, to examine the direct, indirect and comprehensive impact of variables on the willingness to use mobile payment from the user's perspective, and to provide suggestions for China mobile payment APP operators and other relevant units. Targeted suggestions for improvements.

This study used an online survey to obtain data. The survey targets were mobile payment users in China. The data was collected from December 2023 to January 2024. The sample size was 650 people and there were 608 valid questionnaires. The structure of the questionnaire consists of two parts: Part 1: Basic personal information of the respondent. For example, gender, age, education, occupation, monthly income, mobile payment apps used, etc. Part 2: Issues about latent variable research. These structures were developed from previous literature. The survey respondents included mobile payment users in 31 provinces (municipalities) in China. 7-point Likert scale was used to rate the volunteer participants' attitudes about the observed variables, from 1 (strongly disagree) to 7 (strongly agree). In addition, this study established 11 hypotheses, 8 latent variables and 20 observed variables.

Research results guidelines are as follows:

4.1Socio-Demographgic Information

4.2 Opinion Level of the User

4.3 Data Analysis

4.4Correlation Coefficient

4.5 The Kaiser-Meyer-Olkin (KMO)

4.6 Confirmatory Factor Analysis (CFA)

4.7 The Structral Equation Model

4.1 Socio-Demographgic Information

Characteristics of the research sample data shows the socio-demographic information of the 608 respondents, as shown in Table 4.1.

Table 4.1Charaterstic of the Study Sample

		Frequency	Percent
Region	Zhejiang	90	14.8
	Jiangsu	78	12.83
	Hubei	60	9.87
	Hebei	52	8.55
	Anhui	48	7.89
	Fujian	38	6.25
	Shandong	38	6.25
	Henan	28	4.61
	Guangdong	22	3.62
	Sichuan	18	2.96
	Hunan	15	2.47
	Shanxi	15	2.47
	Jiangxi	13	2.14
	Shaanxi	13	2.14
	Hainan	12	1.97
	Heilongjiang	11	1.81
	Chongqing	10	1.64
	Liaoning	9	1.48
	Tianjin	8	1.32
	Guangxi	7	1.15
	Yunnan	6	0.99
	Beijing	5	0.82
	Ji Lin	4	0.66
	Guizhou	3	0.49
	Shanghai	2	0.33
	Gansu	1	0.16
	Qinghai	1	0.16
	Xinjiang	1	0.16
	Inner Mongolia	0	0
	Tibet	0	0
	Ningxia	0	0
Gender	Male	351	57.73

		Frequency	Percent
	Female	257	42.27
Age	18-25 years old	96	15.79
		Frequency	Percent
Age	26-35 years old	192	31.58
	36-45 years old	174	28.62
	46-60 years old	125	20.56
	over 60 years old	21	3.45
Highest education	High school and below	99	16.28
	college	184	30.26
	Undergraduate	244	40.13
	Master's degree and above	81	13.32
Occupation	Student	99	16.28
	Government agencies, institutions	51	8.39
	State-owned enterprises	74	12.17
	Private Enterprise	224	36.84
	Individual business	109	17.93
	Other	51	8.39
Monthly disposable income	Below 2000 RMB	157	25.82
	2000-3000 RMB	113	18.59
	3000-5000 RMB	242	39.80
	5000-8000 RMB	68	11.18
	More than 8000 RMB	28	4.61
Mobile payment APP you have used	Alipay	557	91.61
	Tenpay (WeChat Pay)	552	90.79
	Digital RMB APP	63	10.36
	Cloud Quick Pass	228	37.5
	Yi pay	147	24.18
	Other mobile payment app	57	9.38
	None of the above	0	0.00
The years since you started using mobile payment	Less than half a year	7	1.15
	Half a year to a year	14	2.30
	One to three years	41	6.74
	More than three years	546	89.80
Your most commonly used mobile payment app	Alipay	300	49.34
	Tenpay (WeChat Pay)	284	46.71
	Digital RMB APP	9	1.48
	Cloud Quick Pass	7	1.15
	Yi pay	4	0.66
	Other mobile payment app	4	0.66

In terms of regions, the top five are Zhejiang, Jiangsu, Hubei, Hebei, and Anhui. The proportions were 14.8%, 12.83%, 9.87%, 8.55%, and 7.89%, respectively. In China, Inner Mongolia, Tibet, and Ningxia are remote regions, and these three places did not respond, accounting for 0.

It can be seen from the demographic descriptive statistics of the questionnaire survey in this study that among genders, males account for a relatively high proportion of 57.73%, while female account for a relatively low proportion of 42.27%.

In terms of age, the ages of respondents to this questionnaire are mainly concentrated in 26-35 years old and 36-45 years old, with the proportions of 31.58% and 28.62% respectively, while the age of respondents to the questionnaire is the proportion of people older than 60 Relatively low, at 3.45%.

Among the highest education, 30.26% and 40.13% of the questionnaire respondents respectively stated that their educational qualifications were college and undergraduate, while the proportion of questionnaire respondents were high school and below, master's degree and above. Relatively low, were 16.28% and 13.32% respectively.

In terms of occupation, the occupations of the respondents to the questionnaire are mainly concentrated in private enterprises, with a proportion of 36.84%, while the occupations of the respondents to the questionnaire are in government agencies and institutions. The proportion is relatively low at 8.39%.

Among the monthly disposable income, the proportion of questionnaire respondents with monthly disposable income of 3000-5000 RMB is relatively high at 39.8%, while the monthly disposable income is greater than 8000 RMB The proportion of people who have used mobile payment apps is relatively low, at 4.61%.

Among the mobile payment app they have used, respondents to the questionnaire said that the mobile payment app they have used are mainly Alipay and Tenpay (WeChat Pay), and their proportions are both higher than 90%. The proportion of respondents who said that the mobile payment APP they have used is a digital RMB APP is relatively low, at 9.38%.

Among the years they have used mobile payment APP, respondents to the questionnaire said that they have used mobile payment APP for The proportion of people who

have used it for more than three years is relatively high at 89.8%; while the proportion of people who have used it for less than half a year, half a year to one year, and one to three years are all less than 10%.

Among the most commonly used mobile payment tools, the questionnaire survey respondents said that the most commonly used mobile payment tools are mainly Alipay and Tenpay(WeChat Pay), with their proportions as high as 49.34% and 46.71% respectively. Respondents in the questionnaire said that the most commonly used mobile payment tools are digital RMB APP, Cloud QuickPass, and Yipay. The proportion of people using payment and other mobile payment APPs is relatively low, both below 5%.

4.2 Opinion Level of the User

This study has a total of 8 latent variables, including: Mobile payment application, Cost, Risk, Confirmation, Social Influence, Perceived Value, Satisfaction, Willingness to Use. All observed variables were measured using 7-point Likert scale, and their average values are expressed as follows:

Mean value between 6.50-7.00 is 'strongly agree'

Mean value between 5.50-6.49 is 'somewhat agree'

Mean value between 4.50-5.49 is 'agree'

Mean value between 3.50-4.49 is 'moderate'

Mean value between 2.50-3.49 is 'disagree'

Mean value between 1.50-2.49 is 'somewhat disagree'

Mean value between 1.00-1.49 is 'strongly disagree'

Descriptive analysis of these variables is as follows:

4.2.1 Mobile payment application

The latent variable Mobile Payment Application (MPA) contains four observation variables: Image (I), Usefulness (U), Ease of Use (EU), Service Quality (SQ). Table 4.2 shows the description of Mobile Payment Application (MPA) Statistical analysis, mean and standard deviation.

Table 4.2 The Mean and Standard Deviation of Mobile Payment Application (MPA)

Mobile Payment Application (MPA)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Image(I)									
A1	4(0.66%)	14(2.30%)	62(10.20%)	106(17.43%)	178(29.28%)	149(24.51%)	95(15.63%)	5.08	1.33
A2	2(0.33%)	22(3.62%)	51(8.39%)	122(20.07%)	155(25.49%)	136(22.37%)	120(19.74%)	5.13	1.38
A3	1(0.16%)	13(2.14%)	46(7.57%)	94(15.46%)	170(27.96%)	147(24.18%)	137(22.53%)	5.32	1.31
Usefulness(U)									
B1	1(0.16%)	8(1.32%)	29(4.77%)	96(15.79%)	149(24.51%)	158(25.99%)	167(27.47%)	5.51	1.26
B2	1(0.16%)	19(3.13%)	52(8.55%)	107(17.60%)	161(26.48%)	146(24.01%)	122(20.07%)	5.19	1.35
B3	3(0.49%)	12(1.97%)	44(7.24%)	95(15.63%)	156(25.66%)	148(24.34%)	150(24.67%)	5.36	1.34
B4	3(0.49%)	12(1.97%)	44(7.24%)	93(15.30%)	158(25.99%)	152(25.00%)	146(24.01%)	5.35	1.34
Ease of Use (EU)									
C1	4(0.66%)	10(1.64%)	31(5.10%)	80(13.16%)	141(23.19%)	166(27.30%)	176(28.95%)	5.54	1.31
C2	1(0.16%)	20(3.29%)	60(9.87%)	109(17.93%)	163(26.81%)	132(21.71%)	123(20.23%)	5.14	1.38
C3	3(0.49%)	10(1.64%)	43(7.07%)	89(14.64%)	157(25.82%)	155(25.49%)	151(24.84%)	5.39	1.32
Service Quality (SQ)									
D1	3(0.49%)	10(1.64%)	41(6.74%)	94(15.46%)	134(22.04%)	150(24.67%)	176(28.95%)	5.47	1.36
D2	0(0%)	18(2.96%)	52(8.55%)	116(19.08%)	143(23.52%)	158(25.99%)	121(19.90%)	5.21	1.35
D3	2(0.33%)	8(1.32%)	44(7.24%)	111(18.26%)	161(26.48%)	133(21.88%)	149(24.51%)	5.33	1.32
Overall								5.31	1.33

The average score of each question item in Image (I) is between 5.08-5.23, which belongs to 'agree', indicating that users will give priority to mobile payment APP with high visibility, good reputation, and simple and beautiful design when choosing mobile payment.

Usefulness(U) The average score of each question item is between 5.19-5.51, which belongs to 'agree' and 'somewhat agree', indicating that when choosing mobile payment, users will give priority to mobile payment methods that can break through time and location restrictions. A mobile payment method that is convenient, fast and can improve the quality of life.

Ease of Use (EU) The average score of each question item is between 5.14-5.51,

which belongs to 'agree', indicating that users will give priority to easy to operate mobile payment APP when choosing mobile payment.

Service Quality (SQ) The average score of each question item is between 5.27-5.47, which belongs to 'agree', indicating that when choosing mobile payment, users will give priority to mobile payment APP with professional, comprehensive services and quick problem solving.

Mobile Payment Application (MPA) has an average score of 5.31, which belongs to 'agree', and the standard deviation is 1.33. When choosing mobile payment, mobile payment APP with high recognition will be given priority.

4.2.2 Cost

The latent variable Cost(C) contains two observed variables: Extra Cost (EC), Transaction Cost (TC). Table 4.3 shows the descriptive analysis, mean and standard deviation of Cost(C).

Table 4.3 The Mean and Standard Deviation of Cost(C)

Cost (C)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Extra Cost (EC)									
E1	0(0%)	4(0.66%)	33(5.43%)	89(14.64%)	142(23.36%)	148(24.34%)	192(31.58%)	5.60	1.25
E2	2(0.33%)	17(2.80%)	36(5.92%)	126(20.72%)	153(25.16%)	140(23.03%)	134(22.04%)	5.25	1.34
Transaction Cost (TC)									
E3	1(0.16%)	5(0.82%)	31(5.10%)	86(14.14%)	154(25.33%)	178(29.28%)	153(25.16%)	5.52	1.21
E4	1(0.16%)	11(1.81%)	45(7.40%)	109(17.93%)	167(27.47%)	140(23.03%)	135(22.20%)	5.29	1.31
E5	0(0%)	13(2.14%)	50(8.22%)	86(14.14%)	182(29.93%)	136(22.37%)	141(23.19%)	5.32	1.31
Overall								5.40	1.28

The average score of each question item in Extra Cost (EC) is between 5.25-5.60, which belongs to 'agree' and 'somewhat agree', indicating that it is difficult for users to accept that they need to spend money to buy new smart phones and SIM cards before they can use mobile payment APP.

The average score of each question item in Transaction Cost (TC) is between 5.29-5.52, which belongs to 'agree' and 'somewhat agree', indicating that it is difficult for users to accept that it needs to add functional charging items and consume a lot of traffic data if they

use mobile payment APP.

The average Cost(C) score is 5.40, which belongs to 'agree', and the standard deviation is 1.28, indicating that it is unacceptable for users to spend high cost to use mobile payment.

4.2.3 Risk

The latent variable Risk(R) contains three observed variables: Financial Risk(FR), Security Risk(SR), Privacy Risk(PR). Table 4.4 shows the descriptive analysis, mean and standard deviation of Cost(C).

Table 4.4 The Mean and Standard Deviation of Risk(R)

Risk(R)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Financial Risk(FR)									
F1	1(0.16%)	13(2.14%)	42(6.91%)	101(16.61%)	149(24.51%)	153(25.16%)	149(24.51%)	5.37	1.33
Security Risk(SR)									
F2	1(0.16%)	10(1.64%)	34(5.59%)	107(17.60%)	133(21.88%)	147(24.18%)	176(28.95%)	5.48	1.32
Privacy Risk(PR)									
F3	1(0.16%)	14(2.30%)	46(7.57%)	96(15.79%)	161(26.48%)	135(22.20%)	155(25.49%)	5.35	1.35
Overall								5.40	1.33

The average score of the Financial Risk (FR) question item is 5.37, which belongs to 'agree', indicating that it is difficult for users to accept that if using mobile payment APP easily cause financial losses.

The average score of the Security Risk (SR) question item is 5.48, which belongs to 'agree', indicating that indicating that it is difficult for users to accept that if using mobile payment APP faces security risk.

The average score of Privacy Risk(PR) question items is 5.35, which belongs to 'agree', indicating that it is difficult for users to accept that if using mobile payment APP easy to occur information leakage.

The average Risk(R) score is 5.40, which belongs to 'agree', and the standard deviation is 1.33, indicating t that it is difficult for users to accept that if using mobile payment APP faces a high degree of risk.

4.2.4 Confirmation

The latent variable Confirmation (Confi) contains two observed variables: Experience (Confi E), Expectation Confirmation (Confi EC). Table 4.5 shows the descriptive analysis, mean and standard deviation of Confirmation (Confi).

Table 4.5 The Mean and Standard Deviation of Confirmation (Confi)

Confirmation (Confi)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Experience (Confi E)									
G1	2(0.33%)	6(0.99%)	44(7.24%)	82(13.49%)	162(26.64%)	161(26.48%)	151(24.84%)	5.44	1.28
G2	0(0%)	9(1.48%)	37(6.09%)	74(12.17%)	155(25.49%)	152(25.00%)	181(29.77%)	5.56	1.28
G3	1(0.16%)	7(1.15%)	34(5.59%)	85(13.98%)	148(24.34%)	151(24.84%)	182(29.93%)	5.55	1.28
Expectation Confirmation (Confi EC)									
G4	2(0.33%)	14(2.30%)	34(5.59%)	112(18.42%)	154(25.33%)	140(23.03%)	152(25.00%)	5.35	1.33
Overall								5.48	1.29

The average score of each question item in Experience (Confi E) is between 5.44-5.56, which belongs to 'agree' and 'somewhat agree', indicating that users will give priority to the actual efficiency of mobile payment when choosing mobile payment, and the actual benefits are higher than expected.

The average score of the question items of Expectation Confirmation (Confi EC) is 5.35, which belongs to 'agree', indicating that users will give priority to mobile payment APP that can meet expected expectation when choosing mobile payment.

The average Confirmation (Confi) score is 5.48, which belongs to 'agree', and the standard deviation is 1.29. When choosing mobile payment, priority will be given to mobile payment APP with high expectation for confirmation.

4.2.5 Social Influence

The latent variable Social Influence (SI) contains two observed variables: Network Externality (NE), Scenes to be used (Su). Table 4.6 shows the descriptive analysis of Social Influence (SI), mean and standard deviation.

Table 4.6 The Mean and Standard Deviation of Social Influence (SI)

Social Influence (SI)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Network Externality (NE)									
H1	4(0.66%)	10(1.64%)	40(6.58%)	116(19.08%)	139(22.86%)	169(27.80%)	130(21.38%)	5.31	1.32
H2	5(0.82%)	21(3.45%)	47(7.73%)	120(19.74%)	137(22.53%)	137(22.53%)	141(23.19%)	5.20	1.44
H3	3(0.49%)	9(1.48%)	40(6.58%)	90(14.80%)	144(23.68%)	173(28.45%)	149(24.51%)	5.43	1.31
H4	0(0%)	6(0.99%)	45(7.40%)	95(15.63%)	132(21.71%)	151(24.84%)	179(29.44%)	5.50	1.31
Scenes to be used (Su)									
H5	3(0.49%)	9(1.48%)	31(5.10%)	96(15.79%)	131(21.55%)	169(27.80%)	169(27.80%)	5.51	1.31
H6	2(0.33%)	5(0.82%)	39(6.41%)	102(16.78%)	164(26.97%)	146(24.01%)	150(24.67%)	5.40	1.27
H7	2(0.33%)	15(2.47%)	55(9.05%)	126(20.72%)	155(25.49%)	141(23.19%)	114(18.75%)	5.13	1.35
Overall								5.35	1.33

The average score of each question item in Network Externality (NE) is between 5.20-5.50, which belongs to 'agree' and 'somewhat agree', indicating that when choosing mobile payment, users will give priority to mobile payment app recommended by important people and recommended by their country.

The average score of each question item in Scenes to be used (Su) is between 5.13-5.51, which belongs to 'agree' and 'somewhat agree', indicating that users will give priority to using mobile payment app with rich scenarios when choosing mobile payment.

The average Social Influence (SI) score is 5.35, which belongs to 'agree', and the standard deviation is 1.33. When choosing mobile payment, priority will be given to mobile payment app recommended by important people and with rich usage scenarios.

4.2.6 Perceived Value

The latent variable Perceived Value (PV) contains two observed variables: Use Value (UV), Commercial Value (CV). Table 4.7 shows the descriptive analysis, mean and standard deviation of Perceived Value (PV).

Table 4.7 The Mean and Standard Deviation of Perceived Value (PV)

Perceived Value (PV)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Use Value (UV)									
I1	1(0.16%)	14(2.30%)	27(4.44%)	82(13.49%)	157(25.82%)	157(25.82%)	170(27.96%)	5.52	1.29
I2	1(0.16%)	16(2.63%)	27(4.44%)	80(13.16%)	170(27.96%)	154(25.33%)	160(26.32%)	5.47	1.29
I3	1(0.16%)	8(1.32%)	19(3.13%)	91(14.97%)	138(22.70%)	168(27.63%)	183(30.10%)	5.62	1.23
I4	4(0.66%)	10(1.64%)	50(8.22%)	112(18.42%)	140(23.03%)	151(24.84%)	141(23.19%)	5.29	1.36
Commercial Value (CV)									
I5	2(0.33%)	12(1.97%)	43(7.07%)	113(18.59%)	134(22.04%)	161(26.48%)	143(23.52%)	5.34	1.34
I6	3(0.49%)	17(2.80%)	56(9.21%)	117(19.24%)	165(27.14%)	113(18.59%)	137(22.53%)	5.16	1.40
I7	3(0.49%)	14(2.30%)	63(10.36%)	101(16.61%)	169(27.80%)	136(22.37%)	122(20.07%)	5.16	1.37
Overall								5.37	1.33

The average score of each question item in Use Value (UV) is between 5.29-5.62, which belongs to 'agree' and 'somewhat agree', indicating that users will give priority to mobile payment app with high value when choosing mobile payment.

The average score of each question item in Commercial Value (CV) is between 5.16-5.34, which belongs to 'agree', indicating that users will give priority to mobile payment app with high commercial value when choosing mobile payment.

The average value (PV) score is 5.37, which belongs to 'agree', and the standard deviation is 1.33. When choosing mobile payment, priority will be given to mobile payment APP with high use value and high commercial value.

4.2.7 Satisfaction

The latent variable Satisfaction (Satisf) contains two observed variables: Satisfied(S), Pleased(P). Table 4.8 shows the descriptive analysis, mean and standard deviation of Satisfaction (Satisf).

Table 4.8 The Mean and Standard Deviation of Satisfaction (Satisf)

Satisfaction (Satisf)	Level of Opinion							Mean	SD
	1	2	3	4	5	6	7		
Satisfied (S)									
J1	7(1.15%)	6(0.99%)	49(8.06%)	104(17.11%)	146(24.01%)	151(24.84%)	145(23.85%)	5.32	1.37
J2	2(0.33%)	15(2.47%)	47(7.73%)	131(21.55%)	137(22.53%)	142(23.36%)	134(22.04%)	5.22	1.37
Pleased (P)									
J3	4(0.66%)	14(2.30%)	54(8.88%)	113(18.59%)	144(23.68%)	142(23.36%)	137(22.53%)	5.23	1.39
J4	6(0.99%)	15(2.47%)	62(10.20%)	114(18.75%)	154(25.33%)	140(23.03%)	117(19.24%)	5.11	1.40
J5	5(0.82%)	13(2.14%)	48(7.89%)	114(18.75%)	148(24.34%)	136(22.37%)	144(23.68%)	5.25	1.39
J6	4(0.66%)	11(1.81%)	54(8.88%)	104(17.11%)	145(23.85%)	152(25.00%)	138(22.70%)	5.27	1.37
Overall								5.23	1.38

The average score of each question item in Satisfied (S) is between 5.22-5.32, which belongs to 'agree', indicating that users will give priority to mobile payment APP that make them feel satisfied when choosing mobile payment.

The average score of each question item in Pleased (P) is between 5.11-5.27, which belongs to 'agree', indicating that users will give priority to mobile payment app that make them feel happy when choosing mobile payment.

The average Satisfaction (Satisf) score is 5.23, which belongs to 'agree', and the standard deviation is 1.38. When choosing mobile payment, mobile payment APP with high satisfaction will be given priority.

4.2.8 Willingness to Use

The latent variable Willingness to Use (WU) contains three observed variables: Be Willing to Use (BWU), Recommend to Use (RU), Continue to Use (CU). Table 4.9 shows the descriptive properties of Willingness to Use (WU) Analysis, mean and standard deviation.

Table 4.9 The Mean and Standard Deviation of Willingness to Use (WU)

Willingness to Use (WU)	Level of Opinion							M	SD
	1	2	3	4	5	6	7		
Be Willing to Use (BWU)									
K1	2(0.33%)	10(1.64%)	30(4.93%)	85(13.98%)	166(27.30%)	154(25.33%)	161(26.48%)	5.48	1.27
K2	1(0.16%)	7(1.15%)	43(7.07%)	87(14.31%)	161(26.48%)	150(24.67%)	159(26.15%)	5.44	1.29
Recommend to Use (RU)									
K3	3(0.49%)	21(3.45%)	47(7.73%)	101(16.61%)	173(28.45%)	146(24.01%)	117(19.24%)	5.18	1.36
K4	0(0%)	9(1.48%)	38(6.25%)	91(14.97%)	131(21.55%)	167(27.47%)	172(28.29%)	5.52	1.29
K5	1(0.16%)	8(1.32%)	33(5.43%)	86(14.14%)	145(23.85%)	145(23.85%)	190(31.25%)	5.57	1.29
Continue to Use (CU)									
K6	5(0.82%)	9(1.48%)	54(8.88%)	114(18.75%)	160(26.32%)	149(24.51%)	117(19.24%)	5.19	1.34
K7	3(0.49%)	7(1.15%)	45(7.40%)	89(14.64%)	156(25.66%)	151(24.84%)	157(25.82%)	5.42	1.32
K8	4(0.66%)	9(1.48%)	33(5.43%)	89(14.64%)	160(26.32%)	156(25.66%)	157(25.82%)	5.45	1.30
Overall								5.41	1.31

The average score of each question item in Be Willing to Use (BWU) is between 5.44-5.48, which belongs to 'agree', indicating that users are more willing to use mobile payment.

The average score of each question item in Recommend to Use (RU) is between 5.18-5.57, which belongs to 'agree' and 'somewhat agree', indicating that users are more willing to recommend to use mobile payment APP.

The average score of each question item in Continue to Use (CU) is between 5.19-5.45, which belongs to 'agree', indicating that users are more willing to continue to use mobile payment APP.

The average Willingness to Use (WU) score is 5.41, which belongs to 'agree', and the standard deviation is 1.31, indicating that users have a strong willingness to use mobile payment APP.

4.3 Data Analysis

Statistical analysis of sample distribution uses descriptive statistical analysis methods,

such as percentage, mean, standard deviation, and some basic analysis of the model, etc. 8 latent variables and 20 observed variables are considered here. Identify distributions and changes in structural equation models by identifying variables. Descriptive statistical analysis includes standard deviation, mean, kurtosis, skewness, etc. The kurtosis and skewness are used to test the normal distribution of the data. It is generally believed that when the absolute value of skewness is less than 2 and the absolute value of kurtosis is less than 5, the data conforms to the normal distribution.

4.3.1 Basic Statistical Value of Mobile Payment Application (MPA)

Model1: Mobile Payment Application (MPA) contains four observation variables: (1) Image (I), the mean is 5.176, the standard deviation is 1.156, the skewness is -0.440, and the kurtosis is -0.267. (2) Usefulness (U), the mean is 5.354, the standard deviation is 1.119, the skewness is -0.522, and the kurtosis is -0.349. (3) Ease of Use (EU), the mean is 5.359, the standard deviation is 1.161, and the skewness is -0.584, kurtosis is 0.121. (4) Service Quality (SQ), the mean is 5.334, the standard deviation is 1.176, the skewness is -0.456, and the kurtosis is -0.440. The skewness of the four sub-variables The degree ranges from -0.584 to -0.440, and the kurtosis ranges from -0.440 to -0.121. The average value of the skewness of the four sub-variables is -0.461, and the average value of the kurtosis is -0.427. This set of data conforms to the normal distribution.

Table 4.10 Mobile Payment Application (MPA) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
MPA	I	5.176	1.156	-0.440	-0.267
	U	5.354	1.119	-0.522	-0.349
	EU	5.359	1.161	-0.584	-0.121
	SQ	5.334	1.176	-0.456	-0.440
	Overall	5.309	0.984	-0.461	-0.427

4.3.2 Basic Statistical Value of Cost (C)

Model2: Cost (C) contains two observed variables: (1) Extra Cost (EC), the mean is 5.424, the standard deviation is 1.127, the skewness is -0.467, and the kurtosis is 0.507. (2)

Transaction Cost (TC), the mean is 5.375, the standard deviation is 1.105, the skewness is -0.384, and the kurtosis is -0.549. The skewness of the two sub-variables ranges from -0.467 to -0.384, and the kurtosis ranges from -0.549 to - between 0.507. The average value of the skewness of the two sub-variables is -0.343, and the average value of the kurtosis is -0.553. This set of data conforms to the normal distribution.

Table 4.11 Cost (C) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
C	EC	5.424	1.217	-0.467	-0.507
	TC	5.375	1.105	-0.384	-0.549
	Overall	5.395	1.024	-0.343	-0.553

4.3.3 Basic Statistical Value of Risk (R)

Model3: Risk (R) contains three observation variables: (1) Financial Risk (FR), with a mean of 5.367, a standard deviation of 1.327, a skewness of -0.504, and a kurtosis of -0.445. (2) Security Risk (SR), the mean is 5.477, the standard deviation is 1.323, the skewness is -0.531, and the kurtosis is -0.504 (3) Privacy Risk (PR), the mean is 5.347, the standard deviation is 1.348, and the skewness is -0.476, and the kurtosis is 0.494. The skewness of the three sub-variables ranges from -0.531 to -0.476, and the kurtosis ranges from -0.504 to -0.445. The average value of the skewness of the three sub-variables is -0.505, and the average value of the kurtosis is -0.472. This set of data conforms to the normal distribution.

Table 4.12 Risk (R) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
R	FR	5.367	1.327	-0.504	-0.445
	SR	5.477	1.323	-0.531	-0.504
	PR	5.347	1.348	-0.476	-0.494
	Overall	5.397	1.167	-0.505	-0.472

4.3.4 Basic Statistical Value of Confirmation (Confi)

Model4: Confirmation (Confi) contains two observation variables: (1) Experience (ConfiE), the mean is 5.517, the standard deviation is 1.104, the skewness is -0.585, and the kurtosis is -0.235. (2) Expectation Confirmation (ConfiEC), the mean is 5.352, the standard deviation is 1.333, the skewness is -0.488, and the kurtosis is -0.355. The skewness of the two sub-variables is between -0.585 to -0.488, and the kurtosis is between -0.355 to -0.235 between. The average value of the skewness of the two sub-variables is -0.580, and the average value of the kurtosis is -0.073. This set of data conforms to the normal distribution.

Table 4.13 Confirmation (Confi) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
Confi	ConfiE	5.517	1.104	-0.585	-0.235
	ConfiEC	5.352	1.333	-0.488	-0.355
	Overall	5.476	1.057	-0.580	-0.073

4.3.5 Basic Statistical Value of Social Influence (SI)

Model5: Social Influence (SI) contains two observation variables: (1) Network Externality (NE), with a mean of 5.361, a standard deviation of 1.116, a Skewness of 0.519, and a Kurtosis of -0.429. (2) Scenes to be used (Su), the mean is 5.347, the standard deviation is 1.146, the skewness is -0.472, and the kurtosis is -0.242. The skewness of the two sub-variables is between -0.519 and -0.472, and the kurtosis is - Between 0.429 and -0.242. The average value of the skewness of the two sub-variables is -0.496, and the average value of the kurtosis is -0.287. This set of data conforms to the normal distribution.

Table 4.14 Social Influence (SI) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
SI	NE	5.361	1.160	-0.519	-0.429
	Su	5.347	1.146	-0.472	-0.242
	Overall	5.355	1.053	-0.496	-0.287

4.3.6 Basic Statistical Value of Perceived Value (PV)

Model6: Perceived Value (PV) contains two observed variables: (1) Use Value (UV), the mean is 5.475, the standard deviation is 1.103, the skewness is -0.638, and the kurtosis is -0.006. (2) Commercial Value (CV), the mean is 5.218, the standard deviation is 1.211, the skewness is -0.394, and the kurtosis is -0.474. The skewness of the two sub-variables is between -0.638 and -0.394, and the kurtosis is between -0.474 and -0.006. The average value of the skewness of the two sub-variables is 0.493, and the average value of the kurtosis is -0.188. This set of data conforms to the normal distribution.

Table 4.15 Perceived Value (PV) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
PV	UV	5.475	1.103	-0.638	0.006
	CV	5.218	1.211	-0.394	-0.474
	Overall	5.365	1.052	-0.493	-0.188

4.3.7 Basic Statistical Value of Satisfaction (Satisf)

Model6: Satisfaction (Satisf) contains two observed variables: (1) Satisfied (S), the mean is 5.267, the standard deviation is 1.296, the skewness is -0.470, and the kurtosis is -0.384. (2) Pleased (P), the mean is 5.216, the standard deviation is 1.206, the skewness is -0.415, and the kurtosis is -0.547. The skewness of the two sub-variables is between -0.470 and -0.415, and the kurtosis is between -0.547 and -0.384 between. The average value of the skewness of the two sub-variables is -0.442, and the average value of the kurtosis is -0.446. This set of data conforms to the normal distribution.

Table 4.16 Satisfaction (Satisf) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
Satisf	S	5.267	1.296	-0.470	-0.384
	P	5.216	1.206	-0.415	-0.547
	Overall	5.233	1.123	-0.442	-0.446

4.3.8 Basic Statistical Value of Willingness to Use (WU)

Model8: Willingness to Use (WU) contains three observed variables: (1) Be Willing to Use (BWU), the mean is 5.463, the standard deviation is 1.210, the skewness is -0.562, and the kurtosis is -0.158. (2) Recommend to Use (RU), the mean is 5.423, the standard deviation is 1.143, the skewness is -0.517, the kurtosis is -0.357 (3) Continue to Use (CU), the mean is 5.350, the standard deviation is 1.146, Skewness is -0.590, and Kurtosis is -0.161. The skewness of the three sub-variables ranges from -0.590 to -0.517, and the kurtosis ranges from -0.357 to -0.161. The average value of the skewness of the three sub-variables is -0.516, and the average value of the kurtosis is -0.026. This set of data conforms to the normal distribution.

Table 4.17 Willingness to Use (WU) Statistical Values

Latent Variable	Observed variable	Mean	SD	Skewness	Kurtosis
WU	BWU	5.463	1.210	-0.562	-0.158
	RU	5.423	1.143	-0.517	-0.357
	CU	5.350	1.146	-0.590	0.161
	WUa	5.406	0.989	-0.516	0.026

4.4 Correlation Coefficient

The correlation coefficient measures the degree of correlation between two variables. The correlation degree standard of the correlation coefficient is shown in the table below.

Table 4.18 The Creteria for the Correlation Coefficient

Correlation coefficient	Relationship level
r＞0.8	Very high
0.6＜r＜0.8	Quite high
0.4＜r＜0.6	Moderate
0.2＜r＜0.4	Quite low
r＜0.2	low

Source： Taweerat(1997)

The relevant analysis results are shown in the table below. It can be seen from the

Pearson correlation coefficient test that there is a significant positive correlation between MPA, Confi, SI and PV ($p<0.01$), and there is a significant negative correlation between C, R and PV ($p<0.01$). There is a significant positive correlation between MPA, Confi, SI and Satisf ($p<0.01$), there is a significant positive correlation between PV and Satisf ($p<0.01$), and there is a significant positive correlation between PV, Satisf and WU. Correlation ($p<0.01$), it can be seen that the relationship between variables in this study has received preliminary support, and the research hypothesis can be further tested.

Table 4.19 The Result of Correlation Coefficient

	MPA	C	R	Confi	SI	PV	Satisf	WU
MPA	1							
C	-.143**	1						
R	-.174**	.100*	1					
Confi	.161**	-.126**	-.127**	1				
SI	.219**	-.137**	-.142**	.184**	1			
PV	.420**	-.405**	-.406**	.416**	.401**	1		
Satisf	.503**	-.181**	-.171**	.444**	.414**	.563**	1	
	MPA	C	R	Confi	SI	PV	Satisf	WU
WU	.174**	-.179**	-.195**	.155**	.140**	.572**	.559**	1

**. Correlation is significant at the 0.01 level

*. Correlation is significant at the 0.05 level

4.5 The Kaiser-Meyer-Olkin (KMO)

The Kaiser-Meyer-Olkin (KMO) is considered for testing compatibility between empirical data and the conceptual framework for data sitability measurement.Base on data validation using KMO statistics and determining whether the correlation matrix is an identity matrix or a variable matrix.

As can be seen from the result table below, Apporox.Chi-Square is equal to 19698.313, and the P value is less than 0.01, indicating that the data is suitable for component analysis.

Table 4.20 KMO and Barlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's test of Sphericity		
	Apporox.Chi-Square	df	Sig
0.928	19698.313	1378	0.000

4.6 Confirmatory Factor Analysis (CFA)

4.6.1 Confirmatory Factor Analysis (CFA): Mobile Payment Application (MPA)

MPA contains four variables: I, U, EU, and SQ. Hypothetical validity analysis results of confirmatory factor analysis (CFA) of the four variables I, U, EU, and SQ. The results of the analysis are shown in Figure 4.1 and it was found that the structure is consistent with the empirical data, considering that the chi-square is 0.725, df = 2, the chi-square value/degrees of freedom is 0.362, and the goodness-of-fit index (GFI) is 0.999, since it is a saturated model. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, U has the highest weight value, which is 0.813, followed by I, SQ and EU, with factor weight values of 0.805, 0.797 and 0.787 respectively. From the perspective of convergent validity, the factor loadings of MPA corresponding to each question are all greater than 0.5, indicating that the questions corresponding to each latent variable are highly representative. In addition, the average variance variation AVE of each latent variable is 0.641, greater than 0.5, and the combined reliability CR is 0.877, greater than 0.7, indicating ideal convergent validity.

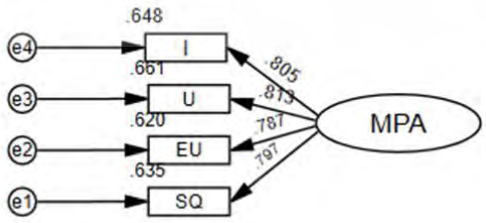


Figure 4.1 CFA of MPA

4.6.2 Confirmatory Factor Analysis (CFA): Cost (C)

C contains two variables TC and EC. Hypothetical validity analysis results of confirmatory factor analysis (CFA) of TC and EC variables. The results of the analysis are shown in Figure 4.2 and it was found that the structure is consistent with the empirical data, considering that the chi-square is 10.159, df = 1, the chi-square value/degrees of freedom is 10.159 because it is a saturated model, the goodness-of-fit index (GFI) is 0.983. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, TC has the highest weight value of 0.844, followed by EC with a factor weight value of 0.766. From the perspective of convergent validity, the factor loadings of C corresponding to each question are greater than 0.5, indicating that the questions corresponding to each latent variable have a high representativeness. In addition, the average variance variation AVE of each latent variable is 0.650, which is greater than 0.5, and the combined reliability CR is 0.787, which is greater than 0.7, indicating that the convergent validity is ideal.

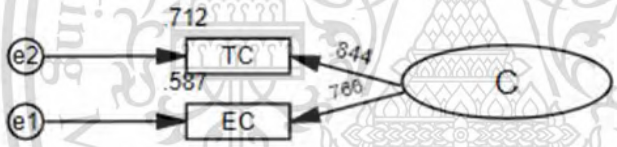


Figure 4.2 CFA of C

4.6.3 Confirmatory Factor Analysis (CFA): Risk (R)

R contains three variables: FR, SR, and PR. Hypothetical validity analysis results of confirmatory factor analysis (CFA) of FR, SR, and PR variables. The analysis results are shown in Figure 4.3, and the structure was found to be consistent with the empirical data, considering that the chi-square was 4.669, df = 3, the chi-square value/degrees of freedom was 1.556, GFI=0.995, IFI=0.998, RMSEA=0.030. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, SR has the highest weight value of 0.789, followed by FR with a factor weight value of 0.783, and finally PR with a factor weight value of 0.779. From the perspective of convergent validity, the factor loadings of R

corresponding to each question are all greater than 0.5, indicating that each The questions corresponding to the latent variables are highly representative. In addition, the average variance variation AVE of each latent variable is 0.614, which is greater than 0.5, and the combined reliability CR is 0.827, which is greater than 0.7, indicating that the convergent validity is ideal.

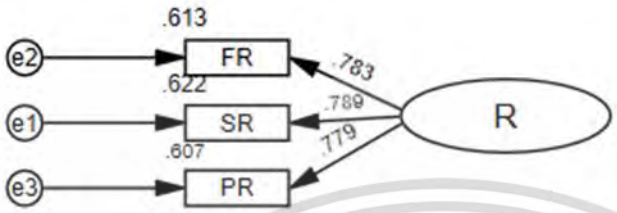


Figure 4.3 CFA of R

4.6.4 Confirmatory Factor Analysis (CFA): Confirmation (Confi)

Confi contains two variables, ConfiE and ConfiEC. Hypothetical validity analysis results of confirmatory factor analysis (CFA) of ConfiE and ConfiEC variables. The results of the analysis are shown in Figure 4.4 and it was found that the structure is consistent with the empirical data, considering that the chi-square is 3.942, df = 1, the chi-square value/degrees of freedom is 3.942, GFI=0.993, IFI=0.988, RMSEA=0.070. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, ConfiE has the highest weight value of 0.868, followed by ConfiEC with a factor weight value of 0.719. From the perspective of convergent validity, the factor loadings of Confi corresponding to each question are greater than 0.5, indicating that the questions corresponding to each latent variable have high representativeness. In addition, the average variance variation AVE of each latent variable is 0.635, which is greater than 0.5, and the combined reliability CR is 0.775, which is greater than 0.7, indicating that the convergent validity is ideal.

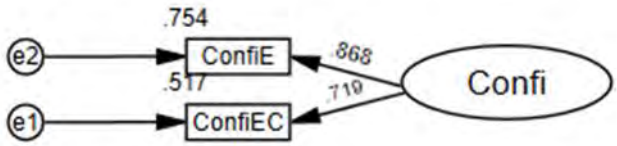


Figure 4.4 CFA of Confi

4.6.5 Confirmatory Factor Analysis (CFA)：Social Influence (SI)

SI contains two variables NE and Su. Hypothesis validity analysis results of confirmatory factor analysis (CFA) of NE and Su variables. The analysis results are shown in Figure 4.5, and it was found that the structure is consistent with the empirical data, considering that the chi-square is 3.497, df = 1, the chi-square value/degrees of freedom is 3.497, GFI=0.994, IFI=0.993, RMSEA=0.064. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, Su has the highest weight value of 0.836, followed by NE with a factor weight value of 0.826. From the perspective of convergent validity, the factor loadings of SI corresponding to each question are all greater than 0.5, indicating that the questions corresponding to each latent variable have high representativeness. In addition, the average variance variation AVE of each latent variable is 0.691, greater than 0.5, and the combined reliability CR is 0.817, greater than 0.7, indicating ideal convergent validity.

Figure 4.5 CFA of SI

4.6.6 Confirmatory Factor Analysis (CFA)：Perceived Value (PV)

PV contains two variables, UV and CV. Hypothesis validity analysis results of confirmatory factor analysis (CFA) for UV and CV variables. The analysis results are shown in

Figure 4.6, and it was found that the structure is consistent with the empirical data, considering that the chi-square is 2.277, df = 1, the chi-square value/degrees of freedom is 2.277, GFI=0.996, IFI=0.996, RMSEA=0.046. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, UV has the highest weight value of 0.876, followed by CV, with a factor weight value of 0.797. From the perspective of convergent validity, the factor loadings of PV corresponding to each question are all greater than 0.5, indicating that the questions corresponding to each latent variable have high representativeness. In addition, the average variance variation AVE of each latent variable is 0.701, which is greater than 0.5, and the combined reliability CR is 0.824, which is greater than 0.7, indicating that the convergent validity is ideal.

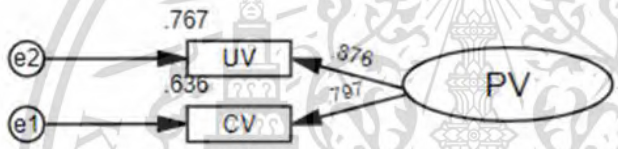


Figure 4.6 CFA of PV

4.6.7 Confirmatory Factor Analysis (CFA): Satisfaction (Satisf)

Satisf contains two variables S and P. Hypothetical validity analysis results of confirmatory factor analysis (CFA) of S and P variables. The results of the analysis are shown in Figure 4.7 and it was found that the structure is consistent with the empirical data, considering that the chi-square is 0.301 with df = 1 and the chi-square value/degrees of freedom is 0.301 since it is a saturated model, (AGFI) is 0.999. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, P has the highest weight value of 0.820, followed by S, with a factor weight value of 0.763. From the perspective of convergent validity, the factor loadings of Satisf corresponding to each question are greater than 0.5, indicating that the questions corresponding to each latent variable have a high representativeness. In addition, the average variance variation AVE of each latent variable

is 0.627, greater than 0.5, and the combined reliability CR is 0.771, greater than 0.7, indicating ideal convergent validity.

Figure 4.7 CFA of Satisf

4.6.8 Confirmatory Factor Analysis (CFA): Willingness to Use (WU)

WU contains three variables: CU, RU, and BWU. Hypothesis validity analysis results of confirmatory factor analysis (CFA) for CU, RU, and BWU variables. The analysis results are shown in Figure 4.8, and it was found that the structure is consistent with the empirical data, considering that the chi-square is 11.031, df = 3, the chi-square value/degrees of freedom is 3.677, GFI=0.988, IFI=0.986, RMSEA=0.066. Considering the factor loadings, the factor weights were found to be statistically significant at the 0.05 level. Therefore, RU has the highest weight value of 0.819, followed by CU with a factor weight value of 0.814, and finally BWU with a factor weight value of 0.769. From the perspective of convergent validity, the factor loadings of Wu corresponding to each topic are all greater than 0.5, indicating that each The questions corresponding to the latent variables are highly representative. In addition, the average variance variation AVE of each latent variable is 0.642, greater than 0.5, and the combined reliability CR is 0.843, greater than 0.7, indicating ideal convergent validity.

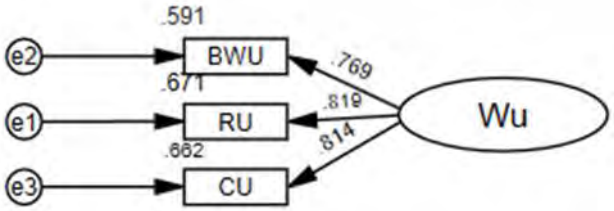


Figure 4.8 CFA of WU

According to the overall model measurement of CFA results, the measurement results show that GFI=0.974, AGFI=0.961, NFI=0.971, IFI=0.996, CFI=0.996, RMR=0.031, RMSEA=0.016. These values all passed the standard.

Table 4.21 The Overall Measurement Model of Factors Involving Willingness to use Mobile Payment Application

Indices	Threshold	Statistic values
λ^2/df	≤3.0	1.154
GFI	≥0.90	0.974
AGFI	≥0.90	0.961
NFI	≥0.90	0.971
TLI	≥0.90	0.995
IFI	≥0.90	0.996
CFI	≥0.90	0.996
RMR	＜0.08	0.031
RMSEA	≤0.08	0.016
Conclusion		Model Fit

As can be seen from the table below, the factor loadings of MPA, C, R, Confi, SI, Satisf, PV, and WU corresponding to each question are all greater than 0.5, indicating that the questions corresponding to each latent variable are highly representative. In addition, the average variance variation AVE of each latent variable is greater than 0.5, and the combined reliability CR is greater than 0.7, indicating ideal convergent validity.

Table 4.22 CFA Factor Loading

Variables		Factor loading				t	R Squared	AVE	CR	α
Latent Variable	Observed variable	Betaβ	Estimate	S.E.	p					
MPA	SQ	0.796	1.000				0.633	0.641	0.877	0.877
	EU	0.785	0.974	0.048	***	20.344	0.616			
	U	0.810	0.969	0.046	***	21.101	0.657			
	I	0.811	1.001	0.047	***	21.117	0.657			
C	TC	0.793	1.000				0.630	0.579	0.733	0.730
	EC	0.728	1.011	0.101	***	10.058	0.530			

Variables		Factor loading				t	R Squared	AVE	CR	α
Latent Variable	Observed variable	Betaβ	Estimate	S.E.	p					
R	PR	0.819	1.000				0.671	0.649	0.847	0.847
	SR	0.799	0.957	0.049	***	19.627	0.638			
	FR	0.799	0.961	0.049	***	19.637	0.639			
Confi	ConfiEC	0.722	1.000				0.522	0.584	0.737	0.726
	ConfiE	0.804	0.922	0.068	***	13.480	0.646			
SI	Su	0.802	1.000				0.643	0.656	0.792	0.792
	NE	0.818	1.032	0.073	***	14.084	0.669			
Satisf	P	0.816	1.000				0.665	0.616	0.762	0.760
	S	0.753	0.992	0.050	***	19.854	0.567			
PV	CV	0.819	1.000				0.671	0.672	0.804	0.802
	UV	0.820	0.911	0.040	***	22.700	0.672			
WU	CU	0.781	1.000				0.610	0.581	0.806	0.805
	RU	0.800	1.022	0.053	***	19.361	0.640			
	BWU	0.703	0.951	0.056	***	16.982	0.495			

4.7 The Structral Equation Model

The study constructs a model of Mobile Payment APP users' willingness to use. There are 8 latent variables, including Mobile Payment Application, Cost, Risk Confirmation, Social Influence, Satisfaction, Perceived Value, Willingness to Use. This model use Amos Model analysis to testing the hypotheses with empirical data by Structural Equation Model Analysis (SEM). The meanings of the symbols used in the structural equation model are shown in Table 4.23. The meanings of the abbreviations of variables used in statistical analysis are shown in Table 4.24.

Table 4.23 The symbol used for structural equation model

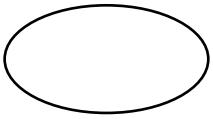
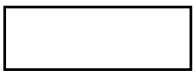
	=Latent Variable
	=Observed Variable
	=Casual Relationship
	=Non Casual Relationship

Table 4.24 The abbreviations of variables used in statistical analysis

Kind of Variable	Abbreviation	Meaning
Latent Variable	MPA	Mobile Payment Application
Observed Variable	I	Image
Observed Variable	U	Usefulness
Observed Variable	EU	Ease of Use
Observed Variable	SQ	Service Quality
Latent Variable	C	Cost
Observed Variable	EC	Extra Cost
Observed Variable	TC	Transaction Cost
Latent Variable	R	Risk
Observed Variable	FR	Financial Risk
Observed Variable	SR	Security Risk
Observed Variable	PR	Privacy Risk
Latent Variable	Confi	Confirmation
Observed Variable	ConfiE	Experience
Observed Variable	ConfiEC	Expectation Confirmation
Latent Variable	SI	Social Influence
Observed Variable	NE	Network Externality
Observed Variable	Su	Scenes to be used
Latent Variable	PV	Perceived Value

Kind of Variable	Abbreviation	Meaning
Observed Variable	UV	Use Value
Observed Variable	CV	Commercial Value
Latent Variable	Satisf	Satisfaction
Observed Variable	S	Satisfied
Observed Variable	P	Pleased
Latent Variable	WU	Willingness to Use
Observed Variable	BWU	Be Willing to Use
Observed Variable	RU	Recommend to Use
Observed Variable	CU	Continue to Use

As can be seen from Table 4.25, GFI=0.946, AGFI=0.924, NFI=0.932, TLI=0.945, IFI=0.957, CFI=0.957, RMR=0.066, AMSEA=0.051. All indicators meet the standards, indicating that the model is suitable.

Table 4.25 Goodness of Fit

Indices	Threshold	Statistic values
λ^2/df	≤3.0	2.601
GFI	≥0.90	0.946
AGFI	≥0.90	0.924
NFI	≥0.90	0.932
TLI	≥0.90	0.945
IFI	≥0.90	0.957
CFI	≥0.90	0.957
RMR	＜0.08	0.066
RMSEA	≤0.08	0.051
Conclusion		Model Fit

As can be seen from Figure 4.9 and Table 4.26, all 11 hypotheses passed the test and all hypotheses were established.

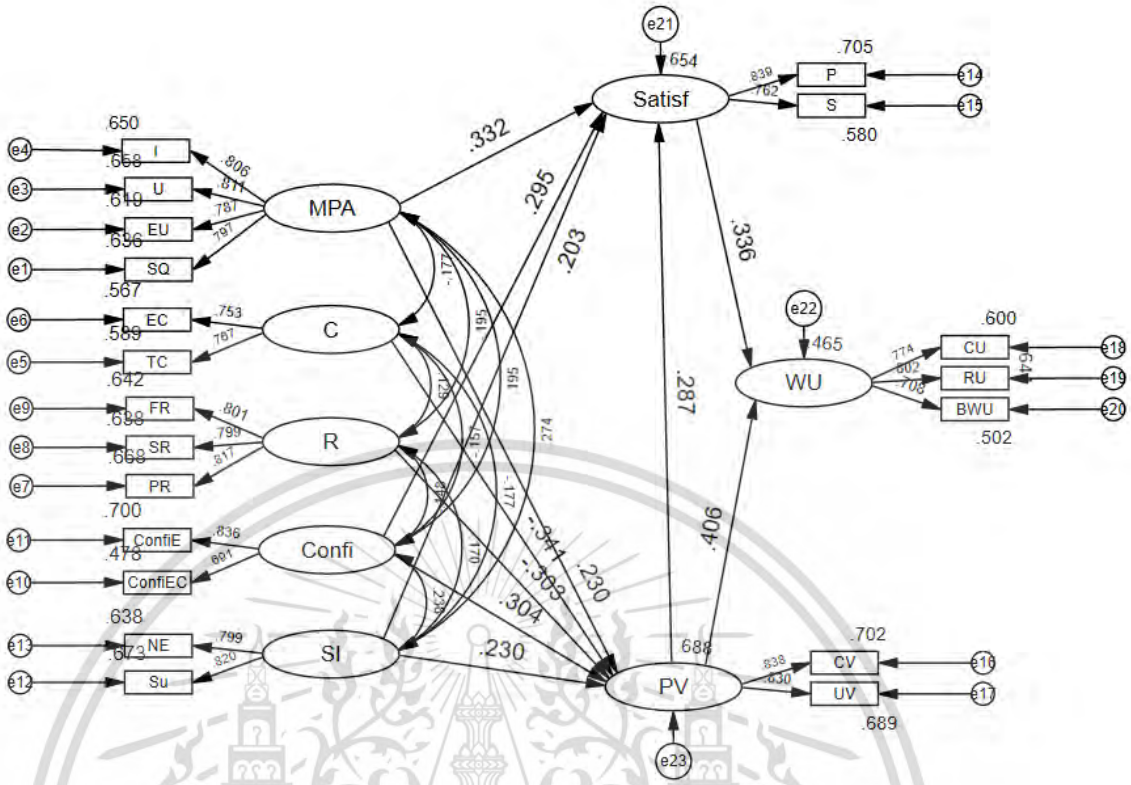


Figure 4.9 Empirical Model

Table 4.26 Relative Influence of Items (Regression Weight)(n=608)Results of Empirical Model

Hyp	路径	β	S.E.	C.R.	P
H1	MPA->Satisf	0.332	0.047	7.544	***
H2	MPA->PV	0.230	0.042	5.985	***
H3	C->PV	-0.341	0.054	-7.577	***
H4	R->PV	-0.303	0.035	-7.910	***
H5	Confi->Satisf	0.295	0.054	5.994	***
H6	Confi->PV	0.304	0.047	7.158	***
H7	SI->Satisf	0.203	0.050	4.400	***
H8	SI->PV	0.230	0.045	5.538	***
H9	PV->Satisf	0.287	0.057	4.973	***
H10	PV->WU	0.406	0.058	6.070	***
H11	Satisf->WU	0.336	0.059	4.977	***

It can be seen from the structural equation model path coefficient table (Table 4.26).

4.7.1 Hypothesis1 (H1) ： Mobile payment application positively affects satisfaction of mobile payment APP users

MPA has a significant positive impact on Satisf ($p<0.05$), and its standardized coefficient is 0.332. When the MPA is higher, its Satisf is also higher, so the hypothesis H1 can be accepted. Therefore, this study demonstrates that a higher level of Mobile payment application would result in a higher satisfaction of mobile payment APP users.This hypothesis is accepted based on the results, which show that Mobile payment application have a positive influence on satisfaction of mobile payment APP users.

4.7.2 Hypothesis2 (H2) ： Mobile payment application positively affects perceived value of mobile payment APP users

MPA has a significant positive impact on PV ($p<0.05$), and its standardized coefficient is 0.23. When the MPA is higher, its PV is also higher, so the hypothesis H2 can be accepted. Therefore, this study demonstrates that a higher level of Mobile payment application would result in a higher perceived value of mobile payment APP users.This hypothesis is accepted based on the results, which show that Mobile payment application have a positive influence on perceived value of mobile payment APP users.

4.7.3 Hypothesis3 (H3) ： Cost negatively affects perceived value of mobile payment APP users

C has a significant negative impact on PV ($p<0.05$), and its standardized coefficient is -0.341. When C is higher, its PV is also lower, so hypothesis H3 can be accepted. Therefore, this study demonstrates that a higher level of Cost would result in a lower perceived value of mobile payment APP users.This hypothesis is accepted based on the results, which show that Cost have a negative influence on perceived value of mobile payment APP users.

4.7.4 Hypothesis4 (H4) ： Risk negatively affects perceived value of mobile payment APP users

R has a significant negative impact on PV ($p<0.05$), and its standardized coefficient is -0.303. When R is higher, its PV is also lower, so hypothesis H4 can be accepted. Therefore, this study demonstrates that a higher level of Risk would result in a lower perceived value of mobile payment APP users.This hypothesis is accepted based on the results, which show that

Risk have a negative influence on perceived value of mobile payment APP users.

4.7.5 Hypothesis5 (H5) ： Confirmation positively affects the satisfaction of mobile payment APP users

Confi has a significant positive impact on Satisf ($p<0.05$), and its standardized coefficient is 0.295. When Confi is higher, its Satisf is also higher, so the hypothesis H5 can be accepted. Therefore, this study demonstrates that a higher level of Confirmation would result in a higher satisfaction of mobile payment APP users.This hypothesis is accepted based on the results, which show that Confirmation have a positive influence on satisfaction of mobile payment APP users.

4.7.6 Hypothesis6 (H6) ： Confirmation positively affects the perceived value of mobile payment APP users

Confi has a significant positive impact on PV ($p<0.05$), and its standardized coefficient is 0.304. When Confi is higher, its PV is also higher, so the hypothesis H6 can be accepted. Therefore, this study demonstrates that a higher level of Confirmation would result in a higher perceived value of mobile payment APP users.This hypothesis is accepted based on the results, which show that Confirmation have a positive influence on perceived value of mobile payment APP users.

4.7.7 Hypothesis7 (H7) ： Social influence positively affects satisfaction of mobile payment APP users

SI has a significant positive impact on Satisf ($p<0.05$), and its standardized coefficient is 0.203. When the SI is higher, its Satisf is also higher, so the hypothesis H7 can be accepted. Therefore, this study demonstrates that a higher level of Social influence would result in a higher satisfaction of mobile payment APP users.This hypothesis is accepted based on the results, which show that Social influence have a positive influence on satisfaction of mobile payment APP users.

4.7.8 Hypothesis8 (H8) ： Social influence positively affects perceived value of mobile payment APP users

SI has a significant positive impact on PV ($p<0.05$), and its standardized coefficient is 0.23. When the SI is higher, its PV is also higher, so the hypothesis H8 can be accepted.

Therefore, this study demonstrates that a higher level of Social influence would result in a higher perceived value of mobile payment APP users.This hypothesis is accepted based on the results, which show that Social influence have a positive influence on perceived value of mobile payment APP users.

4.7.9 Hypothesis9 (H9) ： Perceived value positively affects satisfaction of mobile payment APP users

PV has a significant positive impact on Satisf ($p<0.05$), and its standardized coefficient is 0.287. When the PV is higher, its Satisf is also higher, so the hypothesis H9 can be accepted. Therefore, this study demonstrates that a higher level of Perceived value would result in a higher satisfaction of mobile payment APP users.This hypothesis is accepted based on the results, which show that Perceived value have a positive influence on satisfaction of mobile payment APP users.

4.7.10 Hypothesis10 (H10) ： Perceived value positively affects mobile payment APP users' willingness to use

PV has a significant positive impact on WU ($p<0.05$), and its standardized coefficient is 0.406. When the PV is higher, its WU is also higher, so the hypothesis H10 can be accepted. Therefore, this study demonstrates that a higher level of Perceived value would result in a higher willingness to use of mobile payment APP users.This hypothesis is accepted based on the results, which show that Perceived value have a positive influence on willingness to use of mobile payment APP users.

4.7.11 Hypothesis11 (H11) ： Satisfaction positively affects mobile payment APP users' willingness to use

Satisf has a significant positive impact on WU ($p<0.05$), and its standardized coefficient is 0.336. When Satisf is higher, its WU is also higher, so the hypothesis H11 can be accepted. Therefore, this study demonstrates that a higher level of Satisfaction would result in a higher willingness to use of mobile payment APP users.This hypothesis is accepted based on the results, which show that Satisfaction have a positive influence on willingness to use of mobile payment APP users.

4.7.12 Direct effects and Indirect effects

Through the BOOTSTRAP test (Table 4.27), it can be seen that among the direct effects, PV and Satisf have a direct effect on WU, and the direct effect of PV on WU is relatively high, which is 0.406; among the indirect effects, MPA, Confi, SI, C , R all have indirect effects on WU, among which Satisf has a mediating effect on the effects of MPA, Confi, and SI on WU; PV has a mediating effect on the effects of MPA, Confi, SI, C, and R on WU; among the total effects, PV has the largest total effect on WU, and the total effect of PV on WU is 0.502, while C and R have the largest effect on WU. The total effect is relatively low. The total effect of R on WU is the lowest, and the total effect of R on WU is -0.152.

Table 4.27 Summary of Direct Influence and Indirect Influence and Total Influence on WU

Variable	Direct Influence	Indirect Influence through other varibles	Total Influence
MPA	-	0.227 (0.111+0.094+0.022)	0.227
Confi	-	0.251 (0.099+0.123+0.029)	0.251
SI	-	0.184 (0.068+0.094+0.022)	0.184
C	-	-0.171 (-0.138-0.033)	-0.171
R	-	-0.152 (-0.123-0.029)	-0.152
PV	0.406	0.096	0.502
Satisf	0.336	-	0.336

It can be seen from Table 4.28 that MPA, Confi, SI, C, and R all have a direct impact on PV, and they all have a positive impact on PV, while C and R have a negative impact on PV. In addition, it can also be seen that Confi has the largest positive impact on PV, followed by MPA and SI. The negative effect of C on PV is the greatest.

Table 4.28 Summary of Direct Influence and Total Influence on PV

Variable	Direct Influence	Total Influence
MPA	0.230	0.230
Confi	0.304	0.304
SI	0.230	0.230
C	-0.341	-0.341
R	-0.303	-0.303

It can be seen from Table 4.29 that MPA, Confi, SI, and PV all directly impact Satisf, and MPA, Confi, SI, and PV all positively impact on Satisf. MPA has the largest positive impact on Satisf, followed by Confi, PV, and SI. In addition, it can be seen that C and R do not directly affect Satisf, but C and R indirectly negatively affect Satisf through PV.

Table 4.29 Summary of Direct Influence and Indirect Influence and Total Influence on Satisf

Variable	Direct Influence	Indirect Influence through other varibles	Total Influence
MPA	0.332	0.066(0.230*0.287)	0.398
Confi	0.295	0.087(0.304*0.287)	0.382
SI	0.203	0.066(0.230*0.287)	0.269
C	-	-0.098 (-0.341*0.287)	-0.098
R	-	-0.087 (-0.303*0.287)	-0.087
PV	0.287	-	0.287

CHAPTER 5

CONCLUSION AND DISCUSSION

Conclusion and discussion guidelines are as follows:

5.1Conclusion

5.2 Discussion

5.3 Implication

5.4 Limitation and Recommendation

5.1 Conclusion

Based on the S-O-R (stimulus-organism-response) theoretical model, the paper constructs a model of Mobile Payment APP users' willingness to use. There are 8 latent variables, including Mobile Payment Application, Cost, Risk, Confirmation, Social Influence, Satisfaction, Perceived Value, Willingness to Use. This study used some statistical tests, including descriptiving, correlation analysis, data reliability and validity analysis, Confirmatory Factor Analysis (CFA),and Structural Equation Modeling(SEM). The research showed that all the hypotheses of the paper passed the test. That is, Mobile Payment Application positively affects mobile payment APP users' satisfaction; Mobile Payment Application positively affects mobile payment APP users' perceived value; Cost negatively affects mobile payment the perceived value of APP users; Risk negatively affects mobile payment the perceived value of APP users; Confirmation positively affects the satisfaction of mobile payment APP users; Confirmation positively affects the perceived value of mobile payment APP users; Social influence positively affects the satisfaction of mobile payment APP users; Social influence positively affects the perceived value of mobile payment APP users; Perceived value Positively affects the satisfaction of mobile payment APP users; Perceived value positively affects mobile payment APP users' willingness to use; Satisfaction positively affects mobile payment APP users' willingness to use. At the same time, it can also be found that: Satisfaction, Perceived

Value directly affects Willingness to Use; Mobile Payment Application, Confirmation, Social Influence indirectly affects Willingness to Use through Satisfaction; Mobile Payment Application, Cost, Risk, Confirmation, Social Influence indirectly affects Willingness to use through Perceived Value.

5.2 Discussion

In this section, the research hypotheses are discussed in more detail, and the specific descriptions are as follows.

5.2.1 Influence of Mobile Payment Application

Mobile Payment Application has a positive impact on Satisfaction, the coefficient β is 0.332, and the p value is less than 0.001. Therefore, H1 is accepted. Mobile Payment Application has a positive impact on Perceived Value, the coefficient β is 0.230, and the p value is less than 0.001. Therefore, H2 is accepted. Mobile Payment Application has four observation variables, including Image, Usefulness, Ease of Use, and Service Quality.

According to Rahi (2022) and Nguyen and Leclerc (2011), image is a customer's association when a product's name comes into mind. The author, like Wellyan (2016), believes that a good image is very important, users for simple, creative, well-known image is easy to generate a good impression and make users more profound memory. A good image can improve customer satisfaction (Wellyan, 2016; Kim et al., 2011). Mobile payment operators should design a unique, distinctive, concise and creative image combined with the characteristics of the product, so as to deepen the first impression of the product to users, and thus improve customer satisfaction.

Many scholars, such as Ashraf (2020) and Wang (2012), agree that usefulness is a crucial predictor of satisfaction, and it plays a vital role in users' willingness to use. In the Internet and mobile technology environment, when people face a new technology, if the new technology is useful to them, it will improve user satisfaction and perceived value, then people will be more likely to accept it (Ferreira et al., 2023; Wang, 2012; Shin et al., 2010; Lee, 2010; Weng et al., 2017; Limayem et al, 2011; Liebana-Cabanillas et al., 2020; Khlaif et al.,2023).

These findings indicate that mobile payment operators need to develop products that meet the actual needs of users according to their practical needs, such as breaking through the restrictions of time and place to realize transaction payment anytime and anywhere. Significantly improve user payment efficiency, improve user quality of life and so on.

Many scholars, such as Liebana-Cabanillas et al. (2020) and Mun et al. (2017), also pointed out that users are more inclined to use easily operated technologies. Ease of use is essential in mobile payments, and mobile payment applications must be easy to use so that people can accept them more easily. Complex mobile payments require more effort from users. Users prefer mobile payments that are easy to learn and operate. So ease of use is critical in mobile payment (Flavian et al.,2020; Rahardja et al.,2023; An et al., 2023; Quan et al., 2023; Alshurafat et al.,2023; Ferreira et al., 2023). Usefulness and ease of use are product performance that users value very much (Thakur & Srivastava, 2014; Setterstrom et al., 2013). These studies show that mobile payment operators need to design products that are user-friendly and easy to operate and use. For example, it is easy to learn, simple to use and operate, and customers can quickly master the payment operation method and quickly complete the transaction payment product.

Many scholars, such as Chaveesuk et al. (2018) and Rahardja et al. (2023), agree that higher service quality can improve user satisfaction in the Internet technology environment. Especially in mobile payment, for users, excellent service quality makes it easier to improve user satisfaction. Service quality can reflect the service provider's service capabilities in terms of timeliness, comprehensiveness, and professionalism of services. If service providers cannot provide timely, comprehensive, and high-quality services, consumers will be deterred. Therefore, mobile payment operators must consider improving service quality (Chaveesuk et al., 2018; Rahardja et al., 2023; Zhou, 2013; Ferreira et al.,2023; Zhong & Chen, 2023; Fetra et al.,2023; Rahardja et al.,2023). These research results show that how to improve the quality of service mobile payment operators need to consider. For example, mobile payment operators can improve service quality from comprehensiveness, timeliness and professionalism. Provide users with comprehensive services and professional technical support, and can respond to user feedback in a timely manner.

The more prominent the product image features are, the easier it is to gain consumer recognition. Therefore, this factor is one factor that measures user satisfaction with products and is also one of the factors influencing user satisfaction of China Mobile Payment APP. When users feel that the product is useful and can bring good changes to their work and life, they will deeply feel the value of the product, and at the same time, customer satisfaction with the product will be improved (Li, 2018). If it takes a long time or much effort for users to learn how to use mobile payment, users will feel that the product's value is significantly reduced, reducing user satisfaction with the product (Li, 2018). Li (2012) conducted a study on commercial bank satisfaction evaluation and found through research that the higher the product's service level, the higher the user satisfaction will be. In summary, mobile payment operators should design a unique, distinctive, concise, and creative image based on the product's characteristics when designing the product image. According to the practical needs of users, the development of products that meet the actual needs of users, such as breaking the restrictions of time and place, can realize the transaction and payment of users anytime and anywhere. Significantly improve user payment efficiency, quality of life, and so on. Design user-friendly, easy-to-operate, and use products. For example, it is easy to learn, simple to use and operate, and customers can quickly master the payment operation method and quickly complete the transaction payment product. In addition, mobile payment operators can improve service quality through the comprehensiveness, timeliness, and professionalism of service quality. Provide users with comprehensive services and professional technical support and promptly respond to feedback. These initiatives can improve the Satisfaction and Perceived Value of Mobile Payment applications.

In summary, this study found that Mobile Payment Application has a positive impact on Satisfaction; Mobile Payment Application has a positive impact on Perceived Value.

5.2.2 Influence of Cost on Perceived Value

Cost has a negative impact on Perceived Value, the coefficient β is -0.341, and the p value is less than 0.001. Therefore, H3 is accepted.

Cost has two observation variables, including Extra Cost and Transaction Cost. Extra Cost refers to the cost incurred because the use of mobile payment APP requires corresponding

equipment, such as the cost of replacing mobile phones, mobile phone cards and other mobile devices. Transaction Cost refers to the transaction fees incurred by using mobile payment APP, including data traffic fees, transaction fees, etc. Many scholars, including Kim et al. (2007), Lu et al. (2011), and Zhong and Chen (2023), agree that buyers consider various transaction costs. In payment environments, high costs lead to a lower perceived value of the payment system. Cost is especially important to customers in mobile payments. If operators can effectively reduce costs, they can attract more users (Fan et al., 2005; Lin et al., 2019; Zhong & Chen, 2023; Verkijika & Neneh, 2021; Wu & Yu, 2023; Lu et al., 2011; Hsiao, 2011; Yu et al., 2016). Liu and Tang (2015) studied the impact of perceived value on consumers' mobile shopping intentions using the TAM and VAM models, finding that costs negatively affect perceived value. Similarly, Zhou et al. (2009) examined mobile commerce acceptance and found that costs negatively impact users' perceived value.

In summary, this study found that Cost has a negative impact on Perceived Value. The costs that may be incurred by using mobile payment APPs are mainly concentrated in replacement of mobile phones, replacement of mobile phone cards, mobile phone data charges, handling fees, etc.(Liu, 2011; Jiang, 2021; Wu & Wang, 2005; Lin et al.,2019). Mobile payment operators can focus on the costs of replacing mobile phones, replacing mobile phone cards, mobile phone data charges, and handling fees to reduce the costs for mobile payment users.

5.2.3 Influence of Risk on Perceived Value

Risk has a negative impact on Perceived Value, the coefficient β is -0.303, and the p value is less than 0.001. Therefore, H4 is accepted.

Risk has three observation variables: Financial Risk, Security Risk, and Privacy Risk. Financial Risk refers to the possible financial losses caused by mobile payment apps, such as system errors that lead to deductions of excess amounts. Security Risk refers to the possible security risks and security threats caused by mobile payment APP, such as tampering transaction information, phone poisoning, interruption of data transmission, etc. Privacy Risk means using mobile payment apps may lead to user information leakage, password theft, etc.

Hu et al. (2023) and Gupta et al. (2023) agree that buyers will consider various risks

in the payment environment. High risk leads to a lower perceived value of the payment system among users. In mobile payments, users are particularly concerned about risk. Liu and Tang (2015) examined how perceived value affects consumers' willingness to use mobile shopping using the TAM and VAM models, finding that risk negatively impacts perceived value. Similarly, Zhou et al. (2009) studied mobile commerce acceptance based on perceived value and trust and found that risk also negatively affects users' perceived value.

In summary, this study found that Risk has a negative impact on Perceived Value. If operators can reduce the risks that users may face, they can attract more users to a certain extent. The risks that may exist in mobile payment are mainly Financial Risk, Security Risk, and Privacy Risk. Mobile payment operators can focus on Financial Risk, Security Risk, and Privacy Risk to reduce the risks that mobile payment users may face through technological improvement (Hu et al.,2023; Gupta et al.,2023; Nguyen & Nguyen, 2022). Reduce the occurrence of payment risk accidents, such as avoiding the occurrence of payment system errors resulting in the deduction of excess amount or transaction information tampering, mobile phone poisoning, information leakage, password theft risk accidents.

5.2.4 Influence of Confirmation

Confirmation has a positive impact on Satisfaction, the coefficient β is 0.295, and the p value is less than 0.001. Therefore, H5 is accepted. Confirmation has a positive impact on Perceived Value, the coefficient β is 0.304, and the p value is less than 0.001. Therefore, H6 is accepted. Confirmation has two observation variables, including Experience and Expectation Confirmation. Experience is the actual feeling of users using mobile payment APP. Expectation confirmation is the degree to which users achieve expected results when using mobile payment app.

According to the views of many scholars such as Chiu et al. (2020) and Ashraf et al. (2020), the degree of expectation confirmation is the degree of consistency between the actual usage performance of the information system perceived by users and their pre-use expectations. Confirmation can be expressed as experience, expectation confirmation (Shang & Wu, 2017; Li, 2018). Many scholars agree that expectation confirmation is very important in willingness to use. Expectation confirmation has a positive effect on both satisfaction and perceived value.

Expectation confirmation will affect willingness to use through the mediation of satisfaction, and confirmation will also affect willingness to use through the mediation of perceived value (Gunawan et al., 2022; Li, 2018). As a mobile operator, you can increase the willingness of mobile payment users to use by increasing the degree of expected confirmation. Zhang (2016) conducted an empirical study on the factors influencing the willingness to continue using mobile payment based on the UTAUT model and found through research that the degree of expectation confirmation positively affects satisfaction. Tang (2019) found through research that: the degree of expectation confirmation positively affects satisfaction; the degree of expectation confirmation positively affects perceived value. These results show that improving Confirmation can effectively improve Satisfaction and Perceived Value. Mobile payment operators need to focus on improving the degree of Confirmation. Mobile payment operators can combine previous research on product performance, cost, and risk to make the actual benefits of customers greater than the expected expectations of products to enhance the degree of Confirmation and thus improve satisfaction and perceived value.

In summary, this study found that Confirmation has a positive impact on Satisfaction; Confirmation has a positive impact on Perceived Value.

5.2.5 Influence of Social Influence

Social Influence has a positive impact on Satisfaction, the coefficient β is 0.203, and the p value is less than 0.001. Therefore, H7 is accepted. Social Influence has a positive impact on Perceived Value, the coefficient β is 0.230, and the p value is less than 0.001. Therefore, H8 is accepted.

Social Influence has two observation variables, including Network Externality and Scenes to be used. Network Externality includes influence and importance. Influence refers to people who influence user consumption, such as family, friends, etc. Those who may influence consumers to use mobile payment apps. Importance refers to the degree of attention that consumers give to mobile payment APPs in their purchasing actions, which means that it is very important for me to use mobile payment APPs. Scenes to be used refer to specific scenarios in which users can complete consumption through mobile payment APP at different times and consumption places.

Fan et al. (2005), Mun et al. (2017), and Lin et al. (2019) found that consumers often seek advice about mobile payment from relatives, friends, and colleagues. Positive experiences and recommendations from these contacts enhance consumers' satisfaction and perceived value, making them more willing to use mobile payment. Other scholars, including Toh et al. (2008), Shin et al. (2007), Kurnia et al. (2006), and Li et al. (2023), agree with this conclusion. Zhang (2016) studied factors affecting the willingness to use mobile payment based on the UTAUT model and found that social influence positively impacts satisfaction. Similarly, Jiang (2021) investigated the factors influencing third-party mobile payment app users' willingness to use and found that social influence enhances perceived value. These research results show that social influence plays an important role in satisfaction and perceived value. Mobile payment operators can incorporate social influence into their marketing strategies to maximize the influence of products on users' social groups, and constantly expand the application scenarios of products, so that users can use it in stores, vegetable markets, taxi rides, hospitals, etc. Friends and relatives are recommending the same mobile payment APP.

In summary, this study found that Social Influence has a positive impact on Satisfaction; Social Influence has a positive impact on Perceived Value.

5.2.6 Influence of Perceived Value

Perceived Value has a positive impact on Satisfaction, the coefficient β is 0.287, and the p value is less than 0.001. Therefore, H9 is accepted. Perceived Value has a positive impact on Willingness to Use, the coefficient β is 0.406, and the p value is less than 0.001. Therefore, H10 is accepted.Perceived Value has two observation variables, including Use Value and Commercial Value.

Roy (2016) noted that value is perceived in transactions and use, influencing willingness to use. Zeithaml (1988) highlighted that perceived value is subjective; different people may perceive the same product or service differently. Zhong and Chen (2023) argue that perceived value significantly affects user satisfaction and helps companies attract customers. Li et al. (2023) state that perceived value is crucial in mobile payments, enhancing satisfaction and willingness to use. Numerous studies confirm that perceived value positively impacts satisfaction and willingness to use (Sweeney et al., 2001; Roy, 2016; Turel et al., 2007). Jiang

(2021) found that for third-party mobile payment app users, perceived value positively affects satisfaction. Similarly, Li (2018) discovered that perceived value influences the willingness to use third-party mobile payment app.

In summary, this study found that Perceived Value has a positive impact on Satisfaction; Perceived Value has a positive impact on Willingness to Use. According to the previous research, improving mobile payment products, improving confirmation, improving social influence, and reducing cost and risk can enhance the perceived value. The methods to improve mobile payment products, enhance confirmation, enhance social influence, and reduce cost and risk are the same as mentioned above.

5.2.7 Influence of Satisfaction on Willingness to Use

Satisfaction has a positive impact on Willingness to Use, the coefficient β is 0.336, and the p value is less than 0.001. Therefore, H11 is accepted. Satisfaction has two observation variables, including Satisfied and Pleased.

Morris and Venkatesh (2006) defined satisfaction as a consumer's evaluation of a product or service's quality. Ashraf et al. (2020) emphasized that satisfaction is crucial for willingness to use, a finding supported across various contexts. Ferreira et al. (2023) noted that satisfaction directly influences willingness to use. When satisfaction is high, it can enhance consumers' enjoyment, leading to a greater willingness to adopt technology or services. Zhong and Chen (2023) highlighted the importance of satisfaction in mobile payments. Hong and Slevitch (2018) found that satisfaction positively affects willingness to use, while Wang (2012) identified it as a key factor in the Internet and mobile technology landscape. Zhang (2016) conducted an empirical study using the UTAUT model and discovered that satisfaction positively influences the intention to continue using mobile payments. Similarly, Li (2018) found that satisfaction positively affects third-party mobile payment users' intention to continue using the service.

In summary, this study found that satisfaction has a positive impact on Willingness to Use. According to the previous research, improving mobile payment products, improving the degree of confirmation, and improving social influence can all improve satisfaction. The methods to improve mobile payment products, enhance the degree of confirmation, and

enhance social influence are the same as described above.

5.3 Implication

5.3.1Thoretical Implication

The theoretical significance of this study is twofold. First, it proposes a conceptual framework for mobile payment based on SOR theory. This framework examines how external factors (such as mobile payment applications, cost, risk, confirmation, and social influence) stimulate users' inner psychology (like perceived value and satisfaction), leading to their behavioral response (such as willingness to use). The SOR model effectively illustrates the entire process of users' willingness to engage with mobile payment. Second, it enriches the existing literature on mobile payment. Given that mobile payment is a crucial payment method in China and globally, this study is an important reference for scholars interested in mobile payment research.

Overall, the model and findings of this study are important for understanding the factors influencing mobile payment application usage. Based on SOR theory, it develops a new conceptual framework for mobile payment, expanding theoretical development in this area and offering new insights and directions for future researchers.

5.3.2 Practical Implication

This study has two practical implications. First, mobile payment operators should understand the factors influencing users' willingness to use mobile payment. The results indicate that satisfaction and perceived value are vital factors, as both positively affect willingness to use. Mobile payment application, confirmation, and social influence enhance willingness to use through satisfaction and perceived value, while cost and risk negatively impact willingness to use through perceived value. Second, based on these findings, operators should address customer needs, as different customers have varying requirements. They must understand their customer base to evaluate their products' image, usefulness, ease of use, and service quality in relation to mobile payment application. This understanding helps entrepreneurs effectively sell to customers. Additionally, operators should regularly assess customer needs and responses as behaviors change.

Mobile payment operators can use the results of this study to improve their mobile payment application offerings to meet the highest needs of their customers. The detail methods are as follows:

First, mobile payment operators should design a unique, distinctive, concise, and creative image based on the product's characteristics. According to the practical needs of users, the development of products that meet the actual needs of users, such as breaking the restrictions of time and place, can realize the transaction and payment of users anytime and anywhere. Significantly improve user payment efficiency, quality of life, and so on. Design user-friendly, easy-to-operate, and use products. For example, it is easy to learn, simple to use and operate, and customers can quickly master the payment operation method and quickly complete the transaction payment product. In addition, mobile payment operators can improve service quality through the comprehensiveness, timeliness, and professionalism of service quality. Provide users with comprehensive services and professional technical support and promptly respond to user feedback. These initiatives can improve the Satisfaction and Perceived Value of Mobile Payment application.

Second, the possible cost arising from using a mobile payment app mainly concentrated on replacing mobile phones, mobile phone cards, mobile data charges, handling fees, etc. Mobile payment operators can focus on the cost of replacing mobile phones, replacing mobile phone cards, mobile phone data charges, and handling fees to reduce the cost of mobile payment users. These initiatives can raise the level of Perceived Value.

Third, if operators can reduce the risk that users may face, they can attract more users to a certain extent. The possible risk of mobile payment mainly focus on Financial Risk, Security Risk, and Privacy Risk. Mobile payment operators can focus on Financial Risk, Security Risk, and Privacy Risk and reduce the risks that mobile payment users may face through technological improvement. Reduce payment risk accidents, such as avoiding payment system errors resulting in deducting excess amount or transaction information tampering, mobile phone poisoning, information leakage, and password theft risk accidents. These initiatives can raise the level of Perceived Value.

Fourth, enhancing the degree of confirmation can effectively enhance Satisfaction

and Perceived Value. Mobile payment operators need to focus on improving the degree of Confirmation. Mobile payment operators can combine previous research on product performance, cost, and risk to make the actual benefits of customers greater than the expected expectations of products to enhance the degree of Confirmation and thus improve satisfaction and perceived value.

Fifth, social influence plays a vital role in satisfaction and perceived value. Mobile payment operators can incorporate social influence into their marketing strategies to maximize the influence of products on users' social groups while constantly expanding the application scenarios of products so that users can use it in stores, vegetable markets, taxi rides, hospitals, etc. Friends and relatives are recommending the same mobile payment APP. These measures can improve the Satisfaction and Perceived Value of social influence.

These actions as above, as external stimuli (S), will stimulate users, improve user satisfaction and perceived value (O), and thus increase user’s willingness to use (R).

5.4 Limitation and Recommendation

This study has several limitations and recommendations. First, the respondents are from China, so further research is needed to determine if the findings apply to other countries. Second, data collection relied primarily on online surveys; future studies could benefit from combining online and offline surveys and interviews. Third, the data analysis mainly used CFA and SEM, and future research could explore other methods for comparison.

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APPENDIX

APPENDIX A

Announcement

KMITL Business School

King Mongkut's Institute of Technology Ladkrabang

Result of Dissertation Outline Approval

(Ms. Shulan Chen)

KMITL Business School, King Mongkut's Institute of Technology Ladkrabang, with the approval of the Dissertation Proposal Committee, would like to announce the research topic and approve the Dissertation outline of the Doctor of Philosophy Program in Industrial Business Administration (International Program), which was approved on 7 June 2023 to proceed as follows:

Ms. Shulan Chen, Student ID 63611113, is allowed to do a Dissertation on the topic of "FACTORS INFLUENCING WILLINGNESS TO USE CHINESE MOBILE PAYMENT APPLICATION: S-O-R THEORY" with Assoc. Prof. Dr. Singha Chaveesuk as a main advisor and Assoc. Prof. Dr. Womchanok Chaiyasoonthorn as a co-advisor.

In this regard, the student is required to research and write a Dissertation by consulting with her advisors to complete it within the stipulated time in the regulations of King Mongkut's Institute of Technology Ladkrabang.

Announced on July 18, 2023

(Assistant Professor Dr.Poramate Asawaruangpipop)

Acting Dean of KMITL Business School

2023/07/18 Time 12:26:30 Non-PKI Server Sign-LN Signature

Code : QQA1A-EMAMA-AOADA-ANwBD

APPENDIX B

NIDA Clinical Trials Network

Certificate of Completion

is hereby granted to

Shulan Chen

to certify your completion of the six-hour required course on:

GOOD CLINICAL PRACTICE

MODULE:	STATUS:
Introduction	N/A
Institutional Review Boards	Passed
Informed Consent	Passed
Confidentiality & Privacy	Passed
Participant Safety & Adverse Events	Passed
Quality Assurance	Passed
The Research Protocol	Passed
Documentation & Record-Keeping	Passed
Research Misconduct	Passed
Roles & Responsibilities	Passed
Recruitment & Retention	Passed
Investigational New Drugs	Passed

Course Completion Date: 30 September 2021

CTN Expiration Date: 30 September 2024

Tracee Williams, Training Coordinator
NIDA Clinical Coordinating Center

Good Clinical Practice, Version 5, effective 03-Mar-2017

This training has been funded in whole or in part with Federal funds from the National Institute on Drug Abuse, National Institutes of Health, Department of Health and Human Services, under Contract No. HHSN272012010000024C.

APPENDIX C

伦理道德批准函

Approval Letter of Ethics Verification

陈淑兰，泰国先皇理工大学商学院在读博士，学号 63611113，项目研究主题：中国移动支付使用意愿的影响因素研究：基于 S-O-R 理论。该项目研究方案科学合理，数据收集方案没有违反人类伦理道德。

Shulan Chen, PhD student of Business School of King Mongkut's Institute of Technology Ladkrabang, Thailand. Student ID 63611113. Study title: Factors Influencing Willingness to Use Chinese Mobile Payment Application: S-O-R Theory. The research plan of this project is scientific and reasonable, and the data collection plan does not violate human ethics.

研究主题：中国移动支付使用意愿的影响因素研究：基于 S-O-R 理论

Study title: Factors Influencing Willingness to Use Chinese Mobile Payment Application: S-O-R Theory

首席调查员：陈淑兰

Principal investigator: Shulan Chen

合作研究者：Singha. Chaveesuk 博士. 副教授
Wornchanok Chaiyasoonthorn 博士. 副教授

Co-Investigator: Assoc. Prof. Singha Chaveesuk
Assoc. Prof. Wornchanok Chaiyasoonthorn

审查的文件：
1. 申请表第 1 版 日期：2023 年 12 月 9 日
2. 研究方案第 1 版 日期：2023 年 12 月 9 日
3. 知情同意书第 1 版 日期：2023 年 12 月 9 日
4. 调查信息表第 1 版 日期：2023 年 12 月 9 日
5. 研究者简历 日期：2023 年 12 月 9 日

Document reviewed:
1. Submission form version 1. Date 9 December, 2023
2. Full protocol/proposal version 1. Date 9 December, 2023
3. Informed consent form version 1. Date 9 December, 2023
4. Participant information sheet version 1. Date 9 December, 2023
5. Curriculum Vitae

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日期：2023年12月15日
Date: 15 December, 2023

APPENDIX D

RESEARCH INSRUMENT

Questionnaire

Chinese Mobile Payment Landscape: A Stimulus–Organism–Response Model Examining Influencers on Customers' Willingness to Use This Technology

This questionnaire is a part of the research of the Doctor of Philosophy Program in Industrial Business Administration, Faculty of Administration and Management, King Mongkut's Institute of Technology Ladkrabang.This questionnaire consists of 54 questions divied into 2 parts as the following:

Questionnaire on Chinese Mobile Payment Landscape: A Stimulus–Organism–Response Model Examining Influencers on Customers' Willingness to Use This Technology

Dear Ladies/Gentlemen:

Thank you very much for taking the time to take this survey. The data collected by this questionnaire is mainly used for thesis writing and data analysis, and will not be used for any commercial purpose, and will keep personal information confidential.

This study takes users who have experience in mobile payment (including but not limited to Alipay, WeChat Pay, digital RMB APP, Cloud Quick Pass, Yi pay, etc.) Now it is necessary collect data through questionnaires. Please answer based on your real experience and feelings. Thank you for your cooperation!

Part 1 Basic personal information

（1）Your gender：

□Male □Female

（2）Your age:

□18-25 years old □26-35 years old □36-45 years old □46-60 years old □over 60

years old

（3）Your highest education：

□High school and below □college □Undergraduate □Master's degree and above

（4）Your occupation：

□Student □Government agencies, institutions □State-owned enterprises □Private Enterprise □Individual business □Other

（5）Your monthly disposable income：

□Below 2000 RMB □2000-3000 RMB □3000-5000 RMB □5000-8000 RMB □More than 8000 RMB

（6）Mobile payment APP you have used: (Multiple choice)

□Alipay □Tenpay (WeChat Pay) □Digital RMB APP □Cloud Quick Pass □Yi pay □Other mobile payment app

□None of the above (End this questionnaire)

（7）The number of years since you started using mobile payment platform：

□Less than half a year □Half a year to a year □One to three years □More than three years

（8）Your most commonly used mobile payment tool: (Single choice)

□Alipay □Tenpay (WeChat Pay) □Digital RMB APP □Cloud Quick Pass □Yi pay □Other mobile payment app

Part 2 If you need to make a mobile payment now, there are multiple payment apps to choose from, and you choose one of them for payment. Please make a choice based on the factors and psychological activities you may consider when deciding to choose this APP, and the degree of agreement with the following questions.

1-7 represent the degree of consent by weak to strong, with

1 -strongly disagree, 2 -somewhat disagree, 3 -disagree, 4- moderate, 5- agree, 6- somewhat agree, 7 -strongly agree.

(Please choose according to your true feelings.)

Question number	Questionnaire items	1	2	3	4	5	6	7
A1	The mobile payment APP is well-known and used by many people							
A2	The mobile payment APP company has a good reputation							
A3	The mobile payment APP design is simple, clear and beautiful							
B1	This mobile payment allows me to break through time and place restrictions and make payment activities anytime, anywhere							
B2	This mobile payment app allows me to avoid the inconvenience and hassle of having to carry cash or credit cards to make purchases							
B3	This mobile payment APP allows me to conduct transfers, payments, shopping and other behaviors more conveniently and quickly							
B4	This mobile payment app can help me improve my quality of life							
C1	I can use this mobile payment APP to make payments proficiently							
C2	For me, the use and operation process of this mobile payment app is easy							
C3	Use this mobile payment APP to complete the transaction and payment is simple and fast							
D1	The services provided by this mobile payment APP are comprehensive							

Question number	Questionnaire items	1	2	3	4	5	6	7
D2	The mobile payment APP can respond to feedback information and questions in a timely manner							
D3	The mobile payment APP provides professional service support							
E1	If using this mobile payment App needs to spend money to buy a new phone, it is difficult for me to accept							
E2	If using this mobile payment APP needs to spend money to a new SIM card, it is difficult for me to accept							
E3	If using this mobile payment APP to cost functional charge, it is difficult for me to accept							
E4	If using this mobile payment consumes a lot of data traffic fee, it is difficult for me to accept							
E5	If I use this mobile payment App to increase the transaction fee, it is difficult for me to accept							
F1	The use of this mobile payment APP may cause economic losses, such as system errors resulting in deduction of excess amount							
F2	There may be security issues when using this mobile payment APP, such as tampering with transaction information, mobile phone poisoning, interruption of data transmission, etc.							
F3	Using this mobile payment APP may lead to my information leakage and password theft							

Question number	Questionnaire items	1	2	3	4	5	6	7
G1	This mobile payment works better than I expected							
G2	The mobile payment APP is safer and more convenient to use than I expected							
G3	This mobile payment app offers more benefits than I expected							
G4	In general, my expectations for this mobile payment app have been basically met							
H1	Important people in my life expects me to use this mobile payment App							
H2	The country, social media encourages and recommends me to use this mobile payment App							
H3	Using this mobile payment is a trend and I want to be a part of it							
H4	Using this mobile payment APP can better communicate and integrate with a specific group and win recognition							
H5	This mobile payment APP is supported in common daily life scenarios such as shopping, medical care, and transportation. These advantages make me more willing to use mobile payment							
H6	This mobile payment APP is good value for price paid taking into account its quality an benefits.							
Question	Questionnaire items	1	2	3	4	5	6	7

number								
H7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost.							
I1	I feel that many friends around me are using this mobile payment APP, and using this APP can enhance social interaction							
I2	I think this mobile payment APP has high use value							
I3	This mobile payment APP can improve the efficiency of my payment							
I4	I think using this mobile payment app is more convenient than other payment methods							
I5	Overall, this mobile payment app is valuable to me							
I6	This mobile payment APP is good value for price paid taking into account its quality an benefits							
I7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost							
J1	I think using this mobile payment app is the right decision							
J2	After using this mobile payment app, I am overall satisfied							
J3	I think this mobile payment app brings me pleasure							
Question	Questionnaire items	1	2	3	4	5	6	7

number								
J4	I think I am pleased with the specific feature and functionalities of the mobile payment APP							
J5	I think I am pleased with the reliability and durability of the mobile payment APP							
J6	I think I am pleased with the overall quality of the mobile payment APP							
K1	I would like to use this mobile payment app to pay							
K2	In the future, I will gradually increase the frequency of using this mobile payment APP							
K3	I would recommend the mobile payment APP to my friends ,family, or colleagues							
K4	I would suggest the mobile payment APP to other who might benefit from it							
K5	I have confident in recommending the mobile payment APP to others							
K6	I am planning to continue using the mobile payment APP in the future							
K7	I foresee myself using the mobile payment APP on an ongoing basis							
K8	There are other payment methods that can be selected in the future, I will weigh the pros and cons before deciding whether I am willing to continue to use the mobile payment APP							

Suggestions of respondents:

APPENDIX E

INSRUMENT'S RELIABILITY AND VALIDITY

Three experts checked the quality of the questionnaires in this research. The instruments for the IOC have been determined for each question and attribute. A formula to calculate the value (R.C. Turner & Carlson, 2003)

IOC=∑r/N

Where

IOC: The summary of all the points from experts and specialists

N: Number of experts and specialists

1: The questions were measured for objectives.

0：Not confident that the questions were measured for objectives.

-1: The questions were not measured for objectives.

The IOC has a value between -1 and +1.Therefore, a good question should be closed to 1.Any question that has an IOC less than 0.50, should be revised or removed.

1: Experts' opinions agree that the questions correspond to the content.

0: Experts' opinions are not confident that the questions correspond to the content.

-1: Experts' opinions agree that the questions are not in accordance with the content.

The IOC standards criterion is as follow:

a.The validity factor of questions with IOC values between 0.5 and 1.00.

b.Questions with an IOC value of less than 0.5 must be revised or removed.

The consistengcy and validity of instrument have verified the questionnaires by one expert and two professors with knowledge and experience in business and technology to review, consider, and advise the questionnaire details as simple to comprehend and achieve with the point of research view. Three experts (Asst. Prof. Dr. Paneepan Sombat; Dr.Vasu Keeratiwtisest; Dr. Bilal Khalid) examined the questionnaire using expert sores to find the consistency index between the question and the index of item objective congruence (IOC).

Part 1 Basic personal information

（1）Your gender：

□Male □Female

（2）Your age:

□18-25 years old □26-35 years old □36-45 years old □46-60 years old □over 60 years old

（3）Your highest education：

□High school and below □college □Undergraduate □Master's degree and above

（4）Your occupation：

□Student □Government agencies, institutions □State-owned enterprises □Private Enterprise □Individual business □Other

（5）Your monthly disposable income：

□Below 2000 RMB □2000-3000 RMB □3000-5000 RMB □5000-8000 RMB □More than 8000 RMB

（6）Mobile payment APP you have used: (Multiple choice)

□Alipay □Tenpay (WeChat Pay) □Digital RMB APP □Cloud Quick Pass □Yi pay □Other mobile payment app

□None of the above (End this questionnaire)

（7）The number of years since you started using mobile payment platform：

□Less than half a year □Half a year to a year □One to three years □More than three years

（8）Your most commonly used mobile payment tool: (Single choice)

□Alipay □Tenpay (WeChat Pay) □Digital RMB APP □Cloud Quick Pass □Yi pay □Other mobile payment app

Part 2 Questions about wiilingness to use Chinese Mobile Payment Application.

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
A1	The mobile payment APP is well-known and used by many people	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
A2	The mobile payment APP company has a good reputation and the company has strong funds	1	1	0	0.67	The mobile payment APP company has a good reputation
A3	The mobile payment APP design is simple, clear and beautiful	1	1	1	1	
B1	This mobile restrictions and make payment activities anytime, anywhere payment allows me to break through time and place	1	1	1	1	
B2	This mobile payment app allows me to avoid the inconvenience and hassle of having to carry cash or credit cards to make purchases	1	1	1	1	
B3	This mobile payment APP allows me to conduct transfers, payments, shopping and other behaviors more conveniently and quickly	1	1	1	1	
B4	This mobile payment app can help me improve my quality of life	1	1	1	1	
C1	I can use this mobile payment APP to make payments proficiently	1	1	1	1	
C2	For me, the use and operation process of this mobile payment app is easy	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
C3	Use this mobile payment APP to complete the transaction and payment is simple and fast	1	1	1	1	
D1	The services provided by this mobile payment APP are comprehensive	1	1	1	1	
D2	The mobile payment APP can respond to feedback information and questions in a timely manner	1	1	1	1	
D3	The mobile payment APP provides professional service support	1	1	1	1	
E1	If using this mobile payment app requires money to replace the phone, it is difficult for me to accept	1	1	0	0.67	If using this mobile payment App needs to spend money to buy a new phone, it is difficult for me to accept
E2	If using this mobile payment APP needs to spend money to replace the phone card, it is difficult for me to accept	1	1	0	0.67	If using this mobile payment APP needs to spend money to a new SIM card, it is difficult for me to accept

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
E3	If I use this mobile payment APP to add functional charging items, it is difficult for me to accept	1	1	0	0.67	If using this mobile payment APP to cost functional charge, it is difficult for me to accept
E4	If using this mobile payment consumes a lot of traffic, it is difficult for me to accept	1	1	0	0.67	If using this mobile payment consumes a lot of data traffic fee, it is difficult for me to accept
E5	If I use this mobile payment app to increase the handling fee, it is difficult for me to accept	1	1	0	0.67	If I use this mobile payment App to increase the transaction fee, it is difficult for me to accept
F1	The use of this mobile payment APP may cause economic losses, such as system errors resulting in deduction of excess amount	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
F2	There may be security issues when using this mobile payment APP, such as tampering with transaction information, mobile phone poisoning, interruption of data transmission, etc.	1	1	1	1	
F3	Using this mobile payment APP may lead to my information leakage and password theft	1	1	1	1	
G1	This mobile payment works better than I expected	1	1	1	1	
G2	The mobile payment APP is safer and more convenient to use than I expected	1	1	1	1	
G3	This mobile payment app offers more benefits than I expected	1	1	1	1	
G4	In general, my expectations for this mobile payment app have been basically met	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
H1	The key people in my life want me to use this mobile payment app	1	0	1	0.67	Important people in my life expects me to use this mobile payment App
H2	The country, social media encourages and recommends me to use this mobile payment app	1	1	1	1	
H3	Using this mobile payment is a trend and I want to be a part of it	1	1	1	1	
H4	Using this mobile payment APP can better communicate and integrate with a specific group and win recognition	1	1	1	1	
H5	This mobile payment APP is supported in common daily life scenarios such as shopping, medical care, and transportation. These advantages make me more willing to use mobile payment	1	1	1	1	
H6	This mobile payment APP is good value for price paid taking into account its quality an benefits	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
H7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost.	1	1	1	1	
I1	I feel that many friends around me are using this mobile payment APP, and using this APP can enhance social interaction	1	1	1	1	
I2	I think this mobile payment APP has high use value	1	1	1	1	
I3	This mobile payment APP can improve the efficiency of my payment	1	1	1	1	
I4	I think using this mobile payment app is more convenient than other payment methods	1	1	1	1	
I5	Overall, this mobile payment app is valuable to me	1	1	1	1	
I6	This mobile payment APP is good value for price paid taking into account its quality an benefits	1	1	1	1	
I7	I recognize the value of mobile payment APP based on the benefits it provides in relation to its cost	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
J1	I think using this mobile payment app is the right decision	1	1	1	1	
J2	After using this mobile payment app, I am overall satisfied	1	1	1	1	
J3	I think this mobile payment app brings me pleasure	1	1	1	1	
J4	I think I pleased with the specific feature and functionalities of the mobile payment APP	1	1	1	1	
J5	I think I pleased with the reliability and durability of the mobile payment APP	1	1	1	1	
J6	I think I pleased with the overall quality of the mobile payment APP	1	0	1	0.67	I think I am pleased with the overall quality of the mobile payment APP
K1	I would like to use this mobile payment app to pay	1	1	1	1	
K2	In the future, I will gradually increase the frequency of using this mobile payment APP	1	1	1	1	

Item	Question	Opinion of			IOC	Revision
		Expert1	Expert2	Expert3		
K3	I would recommend the mobile payment APP to my friends ,family, or colleagues	1	1	1	1	
K4	I would suggest the mobile payment APP to other who might benefit from it	1	1	1	1	
K5	I have confident in recommending the mobile payment APP to others	1	1	1	1	
K6	I will continue using the mobile payment APP in the future	1	-1	1	0.33	I am planning to continue using the mobile payment APP in the future
K7	I foresee myself using the mobile payment APP on an ongoing basis	1	1	1	1	
K8	There are other payment methods that can be selected in the future, I will weigh the pros and cons before deciding whether I am willing to continue to use the mobile payment APP	1	1	1	1	

Cronbach's alpha coefficient has been used to measure reliability estimates. The constructs and subscales are higher than minimum desirable of 0.6, and these findings thus exceed Kline(2011) indicated that the reliability is considered excellent when it

is >0.9,adequate if >0.8,and acceptable if >0.5.The constructs exceed the minimum acceptable threshold at 0.733,which is accepted because it is above0.60. First with a pilot study sample (n=100). The results are showed below:

Case Processing Summary

		N	%
Cases	Valid	100	100
	Excluded[a]	0	0
	Total	100	100

a. Listwise deletion based on all variables in the procedure

Reliability Statistics

Cronbach's Alpha	N of Items
0.929	53

Table of Results reliability test

Variables		Factor loading				t	R Squared	AVE	CR	Cronbach's alpha
Latent Variable	Observed variable	Betaβ	非标准化	S.E.	p					
MPA	SQ	0.840	1.000				0.705	0.593	0.853	0.851
	EU	0.760	0.883	0.105	***	8.404	0.577			
	U	0.692	0.750	0.101	***	7.430	0.479			
	I	0.780	0.903	0.104	***	8.706	0.608			
C	TC	0.785	1.000				0.617	0.644	0.784	0.783
	EC	0.820	0.990	0.182	***	5.449	0.672			
R	PR	0.816	1.000				0.667	0.664	0.855	0.855
	SR	0.816	0.914	0.110	***	8.301	0.665			
	FR	0.812	0.940	0.114	***	8.271	0.659			
Confi	ConfiEC	0.778	1.000				0.606	0.642	0.782	0.773
	ConfiE	0.824	0.874	0.166	***	5.277	0.679			
SI	Su	0.891	1.000				0.794	0.782	0.877	0.877
	NE	0.877	0.960	0.121	***	7.951	0.770			
Satisf	P	0.779	1.000				0.606	0.655	0.792	0.786
	S	0.839	1.230	0.141	***	8.737	0.704			
PV	CV	0.806	1.000				0.650	0.583	0.736	0.733
	UV	0.719	0.829	0.104	***	8.007	0.517			
WU	CU	0.726	1.000				0.528	0.512	0.758	0.753
	RU	0.763	0.936	0.140	***	6.674	0.583			
	BWU	0.653	0.927	0.159	***	5.824	0.426			

APPENDIX F

CFA ANALYSIS RESULT

Analysis Summary

Date and Time

Date: January 31 2024

Time: 21:04:05

Title

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.

Sample size = 608

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables

SQ

EU

U

I

TC

EC

PR

SR

FR

ConfiEC

ConfiE

Su

N_E

P

S

CV

UV

CU

RU

BWU

Unobserved, exogenous variables

MPA

e1

e2

e3

e4

C

e5

e6

R

e7

e8

e9

Confi

e10

e11

SI

e12

e13

Satisf

e14

e15

PV

e16

e17

WU

e18

e19

e20

Variable counts (Group number 1)

Number of variables in your model: 48

Number of observed variables: 20

Number of unobserved variables: 28

Number of exogenous variables: 28

Number of endogenous variables: 20

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	28	0	0	0	0	28
Labeled	0	0	0	0	0	0
Unlabeled	12	28	28	0	0	68
Total	40	28	28	0	0	96

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 210

Number of distinct parameters to be estimated: 68

Degrees of freedom (210 - 68): 142

Result (Default model)

Minimum was achieved

Chi-square = 163.856

Degrees of freedom = 142

Probability level = .101

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SQ	<---	MPA	1.000				
EU	<---	MPA	.974	.048	20.344	***	
U	<---	MPA	.969	.046	21.101	***	
I	<---	MPA	1.001	.047	21.117	***	
TC	<---	C	1.000				
EC	<---	C	1.011	.101	10.058	***	
PR	<---	R	1.000				
SR	<---	R	.957	.049	19.627	***	
FR	<---	R	.961	.049	19.637	***	
ConfiEC	<---	Confi	1.000				
ConfiE	<---	Confi	.922	.068	13.480	***	
Su	<---	SI	1.000				
N_E	<---	SI	1.032	.073	14.084	***	
P	<---	Satisf	1.000				
S	<---	Satisf	.992	.050	19.854	***	
CV	<---	PV	1.000				
UV	<---	PV	.911	.040	22.700	***	
CU	<---	WU	1.000				
RU	<---	WU	1.022	.053	19.361	***	
BWU	<---	WU	.951	.056	16.982	***	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
SQ	<---	MPA	.796
EU	<---	MPA	.785
U	<---	MPA	.810
I	<---	MPA	.811
TC	<---	C	.793
EC	<---	C	.728
PR	<---	R	.819
SR	<---	R	.799
FR	<---	R	.799

			Estimate
ConfiEC	<---	Confi	.722
ConfiE	<---	Confi	.804
Su	<---	SI	.802
N_E	<---	SI	.818
P	<---	Satisf	.816
S	<---	Satisf	.753
CV	<---	PV	.819
UV	<---	PV	.820
CU	<---	WU	.781
RU	<---	WU	.800
BWU	<---	WU	.703

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
MPA	<-->	C	-.146	.042	-3.458	***	
MPA	<-->	R	-.207	.050	-4.150	***	
MPA	<-->	Confi	.180	.047	3.842	***	
MPA	<-->	SI	.230	.044	5.202	***	
C	<-->	R	.122	.050	2.440	.015	
C	<-->	Confi	-.139	.047	-2.952	.003	
C	<-->	SI	-.147	.044	-3.348	***	
R	<-->	Confi	-.176	.056	-3.166	.002	
R	<-->	SI	-.177	.051	-3.452	***	
Confi	<-->	SI	.221	.049	4.470	***	
MPA	<-->	Satisf	.563	.055	10.284	***	
C	<-->	Satisf	-.214	.048	-4.441	***	
R	<-->	Satisf	-.229	.056	-4.090	***	
Confi	<-->	Satisf	.557	.062	8.932	***	
SI	<-->	Satisf	.481	.055	8.766	***	
MPA	<-->	PV	.464	.052	8.998	***	
C	<-->	PV	-.458	.054	-8.544	***	
R	<-->	PV	-.542	.061	-8.857	***	
Confi	<-->	PV	.513	.060	8.509	***	
SI	<-->	PV	.459	.054	8.536	***	
MPA	<-->	WU	.172	.041	4.153	***	
C	<-->	WU	-.182	.043	-4.267	***	

			Estimate	S.E.	C.R.	P	Label
R	<-->	WU	-.233	.050	-4.656	***	
Confi	<-->	WU	.163	.046	3.514	***	
SI	<-->	WU	.145	.043	3.414	***	
Satisf	<-->	PV	.703	.062	11.421	***	
Satisf	<-->	WU	.626	.057	11.074	***	
PV	<-->	WU	.629	.056	11.155	***	

Correlations: (Group number 1 - Default model)

			Estimate
MPA	<-->	C	-.179
MPA	<-->	R	-.201
MPA	<-->	Confi	.200
MPA	<-->	SI	.268
C	<-->	R	.127
C	<-->	Confi	-.165
C	<-->	SI	-.182
R	<-->	Confi	-.166
R	<-->	SI	-.175
Confi	<-->	SI	.250
MPA	<-->	Satisf	.613
C	<-->	Satisf	-.249
R	<-->	Satisf	-.211
Confi	<-->	Satisf	.588
SI	<-->	Satisf	.532
MPA	<-->	PV	.500
C	<-->	PV	-.527
R	<-->	PV	-.496
Confi	<-->	PV	.538
SI	<-->	PV	.504
MPA	<-->	WU	.206

			Estimate
C	<-->	WU	-.233
R	<-->	WU	-.236
Confi	<-->	WU	.189
SI	<-->	WU	.177
Satisf	<-->	PV	.722
Satisf	<-->	WU	.712
PV	<-->	WU	.710

Variances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
MPA			.874	.077	11.282	***	
C			.767	.095	8.035	***	
R			1.217	.107	11.325	***	
Confi			.926	.107	8.687	***	
SI			.844	.087	9.660	***	
Satisf			.966	.085	11.401	***	
PV			.983	.084	11.745	***	
WU			.799	.074	10.749	***	
e1			.506	.038	13.464	***	
e2			.516	.038	13.744	***	
e3			.429	.033	13.032	***	
e4			.457	.035	13.015	***	
e5			.451	.075	6.052	***	
e6			.694	.082	8.486	***	
e7			.598	.055	10.825	***	
e8			.632	.054	11.711	***	
e9			.635	.054	11.686	***	
e10			.848	.076	11.208	***	
e11			.431	.055	7.825	***	
e12			.468	.058	8.026	***	
e13			.445	.061	7.320	***	
e14			.486	.042	11.496	***	
e15			.727	.052	13.941	***	

			Estimate	S.E.	C.R.	P	Label
e16			.482	.038	12.592	***	
e17			.398	.032	12.556	***	
e18			.511	.040	12.805	***	
e19			.470	.039	12.156	***	
e20			.738	.051	14.587	***	

Squared Multiple Correlations: (Group number 1 - Default model)

			Estimate
BWU			.495
RU			.640
CU			.610
UV			.672
CV			.671
S			.567
P			.665
N_E			.669
Su			.643
ConfiE			.646
ConfiEC			.522
FR			.639
SR			.638
PR			.671
EC			.530
TC			.630
I			.657
U			.657
EU			.616
SQ			.633

Notes for Group/Model (Group number 1 - Default model)

The following covariance matrix is not positive definite (Group number 1 - Default model)

	WU	PV	Satisf	SI	Confi	R	C	MPA
WU	.799							
PV	.629	.983						
Satisf	.626	.703	.966					
SI	.145	.459	.481	.844				
Confi	.163	.513	.557	.221	.926			
R	-.233	-.542	-.229	-.177	-.176	1.217		
C	-.182	-.458	-.214	-.147	-.139	.122	.767	

	WU	PV	Satisf	SI	Confi	R	C	MPA
MPA	.172	.464	.563	.230	.180	-.207	-.146	.874

This solution is not admissible.

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change

Minimization History (Default model)

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	27		-.542	9999.000	6163.328	0	9999.000
1	e*	17		-.638	2.729	2799.207	20	.603
2	e	8		-.124	.560	1883.422	6	.990
3	e	5		-.052	.564	1310.724	5	.688
4	e	0	1355.942		.812	471.372	5	.884
5	e	0	589.285		.555	280.494	3	.000
6	e	0	630.085		.640	177.706	1	.899
7	e	0	516.665		.160	164.064	1	1.063
8	e	0	523.942		.023	163.857	1	1.020
9	e	0	516.217		.001	163.856	1	1.001

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	68	163.856	142	.101	1.154
Saturated model	210	.000	0		
Independence model	20	5676.623	190	.000	29.877

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.031	.974	.961	.658

Model	RMR	GFI	AGFI	PGFI
Saturated model	.000	1.000		
Independence model	.404	.374	.308	.339

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.971	.961	.996	.995	.996
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.747	.726	.744
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	21.856	.000	57.740
Saturated model	.000	.000	.000
Independence model	5486.623	5244.035	5735.562

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.270	.036	.000	.095
Saturated model	.000	.000	.000	.000
Independence model	9.352	9.039	8.639	9.449

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.016	.000	.026	1.000
Independence model	.218	.213	.223	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	299.856	304.730	599.748	667.748
Saturated model	420.000	435.051	1346.137	1556.137
Independence model	5716.623	5718.057	5804.827	5824.827

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.494	.458	.553	.502
Saturated model	.692	.692	.692	.717

Model	ECVI	LO 90	HI 90	MECVI
Independence model	9.418	9.018	9.828	9.420

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	633	683
Independence model	24	26

Execution time summary

Minimization: .029

Miscellaneous: .434

Bootstrap: 4.444

Total: 4.907

APPENDIX G

SEM ANALYSIS RESULT

Analysis Summary

Date and Time

Date: February 1 2024

Time: 15:38:02

Title

Groups

Group number 1(Group number 1)

Notes for Group (Group number 1)

The model is recursive.

Sample size = 608

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables

SQ

EU

U

I

TC

EC

PR

SR

FR

ConfiEC

ConfiE

Su

N_E

P

S

CV

UV

CU

RU

BWU

Unobserved, endogenous variables

Satisf

PV

WU

Unobserved, exogenous variables

MPA

e1

e2

e3

e4

C

e5

e6

R

e7

e8

e9

Confi

e10

e11

SI

e12

e13

e14

e15

e16

e17

e18

e19

e20

e21

e22

e23

Variable counts (Group number 1)

Number of variables in your model: 51

Number of observed variables: 20

Number of unobserved variables:31

Number of exogenous variables: 28

Number of endogenous variables: 23

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	31	0	0	0	0	31
Labeled	0	0	0	0	0	0
Unlabeled	23	10	28	0	0	61
Total	54	10	28	0	0	92

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 210

Number of distinct parameters to be estimated: 61

Degrees of freedom (210 - 61): 149

Result (Default model)

Minimum was achieved

Chi-square = 387.493

Degrees of freedom = 149

Probability level = .000

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PV	<---	MPA	.249	.042	5.985	***	
PV	<---	C	-.408	.054	-7.577	***	
PV	<---	R	-.279	.035	-7.910	***	
PV	<---	Confi	.334	.047	7.158	***	
PV	<---	SI	.249	.045	5.538	***	
Satisf	<---	MPA	.358	.047	7.544	***	
Satisf	<---	Confi	.325	.054	5.994	***	
Satisf	<---	SI	.218	.050	4.400	***	
Satisf	<---	PV	.286	.057	4.973	***	
WU	<---	PV	.355	.058	6.070	***	
WU	<---	Satisf	.294	.059	4.977	***	
SQ	<---	MPA	1.000				
EU	<---	MPA	.974	.048	20.333	***	
U	<---	MPA	.968	.046	21.049	***	
I	<---	MPA	.994	.048	20.902	***	
TC	<---	C	1.000				
EC	<---	C	1.081	.112	9.647	***	
PR	<---	R	1.000				
SR	<---	R	.959	.049	19.556	***	
FR	<---	R	.965	.049	19.600	***	
ConfiEC	<---	Confi	1.000				
ConfiE	<---	Confi	1.002	.090	11.135	***	
Su	<---	SI	1.000				
N_E	<---	SI	.985	.082	12.071	***	
P	<---	Satisf	1.000				
S	<---	Satisf	.975	.054	18.201	***	
CV	<---	PV	1.000				
UV	<---	PV	.902	.042	21.502	***	

			Estimate	S.E.	C.R.	P	Label
CU	<---	WU	1.000				
RU	<---	WU	1.034	.058	17.751	***	
BWU	<---	WU	.966	.060	16.210	***	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PV	<---	MPA	.230
PV	<---	C	-.341
PV	<---	R	-.303
PV	<---	Confi	.304
PV	<---	SI	.230
Satisf	<---	MPA	.332
Satisf	<---	Confi	.295
Satisf	<---	SI	.203
Satisf	<---	PV	.287
WU	<---	PV	.406
WU	<---	Satisf	.336
SQ	<---	MPA	.797
EU	<---	MPA	.787
U	<---	MPA	.811
I	<---	MPA	.806
TC	<---	C	.767
EC	<---	C	.753
PR	<---	R	.817
SR	<---	R	.799
FR	<---	R	.801
ConfiEC	<---	Confi	.691
ConfiE	<---	Confi	.836
Su	<---	SI	.820
N_E	<---	SI	.799
P	<---	Satisf	.839
S	<---	Satisf	.762
CV	<---	PV	.838
UV	<---	PV	.830
CU	<---	WU	.774

			Estimate
RU	<---	WU	.802
BWU	<---	WU	.708

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
MPA	<-->	C	-.140	.041	-3.390	***	
MPA	<-->	R	-.202	.050	-4.041	***	
MPA	<-->	Confi	.168	.045	3.738	***	
MPA	<-->	SI	.242	.045	5.310	***	
C	<-->	R	.120	.049	2.462	.014	
C	<-->	Confi	-.123	.044	-2.810	.005	
C	<-->	SI	-.141	.044	-3.226	.001	
R	<-->	Confi	-.150	.052	-2.868	.004	
R	<-->	SI	-.176	.052	-3.360	***	
Confi	<-->	SI	.206	.048	4.257	***	

Correlations: (Group number 1 - Default model)

			Estimate
MPA	<-->	C	-.177
MPA	<-->	R	-.195
MPA	<-->	Confi	.195
MPA	<-->	SI	.274
C	<-->	R	.129
C	<-->	Confi	-.157
C	<-->	SI	-.177
R	<-->	Confi	-.148
R	<-->	SI	-.170
Confi	<-->	SI	.238

Variances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
MPA			.878	.078	11.284	***	
C			.717	.094	7.643	***	
R			1.212	.107	11.282	***	
Confi			.847	.110	7.706	***	
SI			.883	.097	9.099	***	
e23			.321	.042	7.598	***	
e21			.354	.048	7.368	***	
e22			.420	.047	8.997	***	

			Estimate	S.E.	C.R.	P	Label
e1			.503	.038	13.273	***	
e2			.512	.038	13.559	***	
e3			.427	.033	12.834	***	
e4			.467	.036	12.999	***	
e5			.501	.075	6.718	***	
e6			.640	.088	7.234	***	
e7			.603	.056	10.862	***	
e8			.632	.054	11.682	***	
e9			.629	.054	11.566	***	
e10			.927	.086	10.785	***	
e11			.366	.071	5.161	***	
e12			.429	.070	6.093	***	
e13			.486	.070	6.963	***	
e14			.429	.048	8.957	***	
e15			.704	.056	12.468	***	
e16			.436	.041	10.568	***	
e17			.377	.034	10.961	***	
e18			.525	.044	11.837	***	
e19			.465	.043	10.740	***	
e20			.728	.053	13.752	***	

Squared Multiple Correlations: (Group number 1 - Default model)

			Estimate
PV			.688
Satisf			.654
WU			.465
BWU			.502
RU			.644
CU			.600
UV			.689
CV			.702
S			.580
P			.705
N_E			.638
Su			.673
ConfiE			.700
ConfiEC			.478
FR			.642

			Estimate
SR			.638
PR			.668
EC			.567
TC			.589
I			.650
U			.658
EU			.619
SQ			.636

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.249	.334	-.279	-.408	.249	.000	.000	.000
Satisf	.289	.420	-.080	-.117	.430	.286	.000	.000
WU	.173	.242	-.123	-.179	.215	.439	.294	.000
BWU	.167	.234	-.118	-.173	.208	.424	.284	.966
RU	.179	.251	-.127	-.185	.222	.454	.304	1.034
CU	.173	.242	-.123	-.179	.215	.439	.294	1.000
UV	.224	.302	-.252	-.368	.225	.902	.000	.000
CV	.249	.334	-.279	-.408	.249	1.000	.000	.000
S	.282	.410	-.078	-.114	.419	.279	.975	.000
P	.289	.420	-.080	-.117	.430	.286	1.000	.000
N_E	.985	.000	.000	.000	.000	.000	.000	.000
Su	1.000	.000	.000	.000	.000	.000	.000	.000
ConfiE	.000	1.002	.000	.000	.000	.000	.000	.000
ConfiEC	.000	1.000	.000	.000	.000	.000	.000	.000
FR	.000	.000	.965	.000	.000	.000	.000	.000
SR	.000	.000	.959	.000	.000	.000	.000	.000
PR	.000	.000	1.000	.000	.000	.000	.000	.000
EC	.000	.000	.000	1.081	.000	.000	.000	.000
TC	.000	.000	.000	1.000	.000	.000	.000	.000
I	.000	.000	.000	.000	.994	.000	.000	.000
U	.000	.000	.000	.000	.968	.000	.000	.000
EU	.000	.000	.000	.000	.974	.000	.000	.000
SQ	.000	.000	.000	.000	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.230	.304	-.303	-.341	.230	.000	.000	.000
Satisf	.269	.382	-.087	-.098	.398	.287	.000	.000
WU	.184	.252	-.152	-.171	.227	.502	.336	.000
BWU	.130	.178	-.108	-.121	.161	.356	.238	.708
RU	.147	.202	-.122	-.137	.182	.403	.269	.802
CU	.142	.195	-.118	-.133	.176	.389	.260	.774
UV	.191	.252	-.251	-.283	.191	.830	.000	.000
CV	.193	.254	-.254	-.285	.193	.838	.000	.000
S	.205	.291	-.066	-.074	.303	.218	.762	.000
P	.226	.321	-.073	-.082	.334	.241	.839	.000
N_E	.799	.000	.000	.000	.000	.000	.000	.000
Su	.820	.000	.000	.000	.000	.000	.000	.000
ConfiE	.000	.836	.000	.000	.000	.000	.000	.000
ConfiEC	.000	.691	.000	.000	.000	.000	.000	.000
FR	.000	.000	.801	.000	.000	.000	.000	.000
SR	.000	.000	.799	.000	.000	.000	.000	.000
PR	.000	.000	.817	.000	.000	.000	.000	.000
EC	.000	.000	.000	.753	.000	.000	.000	.000
TC	.000	.000	.000	.767	.000	.000	.000	.000
I	.000	.000	.000	.000	.806	.000	.000	.000
U	.000	.000	.000	.000	.811	.000	.000	.000
EU	.000	.000	.000	.000	.787	.000	.000	.000
SQ	.000	.000	.000	.000	.797	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.249	.334	-.279	-.408	.249	.000	.000	.000
Satisf	.218	.325	.000	.000	.358	.286	.000	.000
WU	.000	.000	.000	.000	.000	.355	.294	.000
BWU	.000	.000	.000	.000	.000	.000	.000	.966
RU	.000	.000	.000	.000	.000	.000	.000	1.034
CU	.000	.000	.000	.000	.000	.000	.000	1.000
UV	.000	.000	.000	.000	.000	.902	.000	.000
CV	.000	.000	.000	.000	.000	1.000	.000	.000
S	.000	.000	.000	.000	.000	.000	.975	.000
P	.000	.000	.000	.000	.000	.000	1.000	.000
N_E	.985	.000	.000	.000	.000	.000	.000	.000
Su	1.000	.000	.000	.000	.000	.000	.000	.000

	SI	Confi	R	C	MPA	PV	Satisf	WU
ConfiE	.000	1.002	.000	.000	.000	.000	.000	.000
ConfiEC	.000	1.000	.000	.000	.000	.000	.000	.000
FR	.000	.000	.965	.000	.000	.000	.000	.000
SR	.000	.000	.959	.000	.000	.000	.000	.000
PR	.000	.000	1.000	.000	.000	.000	.000	.000
EC	.000	.000	.000	1.081	.000	.000	.000	.000
TC	.000	.000	.000	1.000	.000	.000	.000	.000
I	.000	.000	.000	.000	.994	.000	.000	.000
U	.000	.000	.000	.000	.968	.000	.000	.000
EU	.000	.000	.000	.000	.974	.000	.000	.000
SQ	.000	.000	.000	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.230	.304	-.303	-.341	.230	.000	.000	.000
Satisf	.203	.295	.000	.000	.332	.287	.000	.000
WU	.000	.000	.000	.000	.000	.406	.336	.000
BWU	.000	.000	.000	.000	.000	.000	.000	.708
RU	.000	.000	.000	.000	.000	.000	.000	.802
CU	.000	.000	.000	.000	.000	.000	.000	.774
UV	.000	.000	.000	.000	.000	.830	.000	.000
CV	.000	.000	.000	.000	.000	.838	.000	.000
S	.000	.000	.000	.000	.000	.000	.762	.000
P	.000	.000	.000	.000	.000	.000	.839	.000
N_E	.799	.000	.000	.000	.000	.000	.000	.000
Su	.820	.000	.000	.000	.000	.000	.000	.000
ConfiE	.000	.836	.000	.000	.000	.000	.000	.000
ConfiEC	.000	.691	.000	.000	.000	.000	.000	.000
FR	.000	.000	.801	.000	.000	.000	.000	.000
SR	.000	.000	.799	.000	.000	.000	.000	.000
PR	.000	.000	.817	.000	.000	.000	.000	.000
EC	.000	.000	.000	.753	.000	.000	.000	.000
TC	.000	.000	.000	.767	.000	.000	.000	.000
I	.000	.000	.000	.000	.806	.000	.000	.000
U	.000	.000	.000	.000	.811	.000	.000	.000
EU	.000	.000	.000	.000	.787	.000	.000	.000
SQ	.000	.000	.000	.000	.797	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.000	.000	.000	.000	.000	.000	.000	.000
Satisf	.071	.096	-.080	-.117	.071	.000	.000	.000
WU	.173	.242	-.123	-.179	.215	.084	.000	.000
BWU	.167	.234	-.118	-.173	.208	.424	.284	.000
RU	.179	.251	-.127	-.185	.222	.454	.304	.000
CU	.173	.242	-.123	-.179	.215	.439	.294	.000
UV	.224	.302	-.252	-.368	.225	.000	.000	.000
CV	.249	.334	-.279	-.408	.249	.000	.000	.000
S	.282	.410	-.078	-.114	.419	.279	.000	.000
P	.289	.420	-.080	-.117	.430	.286	.000	.000
N_E	.000	.000	.000	.000	.000	.000	.000	.000
Su	.000	.000	.000	.000	.000	.000	.000	.000
ConfiE	.000	.000	.000	.000	.000	.000	.000	.000
ConfiEC	.000	.000	.000	.000	.000	.000	.000	.000
FR	.000	.000	.000	.000	.000	.000	.000	.000
SR	.000	.000	.000	.000	.000	.000	.000	.000
PR	.000	.000	.000	.000	.000	.000	.000	.000
EC	.000	.000	.000	.000	.000	.000	.000	.000
TC	.000	.000	.000	.000	.000	.000	.000	.000
I	.000	.000	.000	.000	.000	.000	.000	.000
U	.000	.000	.000	.000	.000	.000	.000	.000
EU	.000	.000	.000	.000	.000	.000	.000	.000
SQ	.000	.000	.000	.000	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	SI	Confi	R	C	MPA	PV	Satisf	WU
PV	.000	.000	.000	.000	.000	.000	.000	.000
Satisf	.066	.087	-.087	-.098	.066	.000	.000	.000
WU	.184	.252	-.152	-.171	.227	.096	.000	.000
BWU	.130	.178	-.108	-.121	.161	.356	.238	.000
RU	.147	.202	-.122	-.137	.182	.403	.269	.000
CU	.142	.195	-.118	-.133	.176	.389	.260	.000
UV	.191	.252	-.251	-.283	.191	.000	.000	.000
CV	.193	.254	-.254	-.285	.193	.000	.000	.000
S	.205	.291	-.066	-.074	.303	.218	.000	.000
P	.226	.321	-.073	-.082	.334	.241	.000	.000
N_E	.000	.000	.000	.000	.000	.000	.000	.000
Su	.000	.000	.000	.000	.000	.000	.000	.000

	SI	Confi	R	C	MPA	PV	Satisf	WU
ConfiE	.000	.000	.000	.000	.000	.000	.000	.000
ConfiEC	.000	.000	.000	.000	.000	.000	.000	.000
FR	.000	.000	.000	.000	.000	.000	.000	.000
SR	.000	.000	.000	.000	.000	.000	.000	.000
PR	.000	.000	.000	.000	.000	.000	.000	.000
EC	.000	.000	.000	.000	.000	.000	.000	.000
TC	.000	.000	.000	.000	.000	.000	.000	.000
I	.000	.000	.000	.000	.000	.000	.000	.000
U	.000	.000	.000	.000	.000	.000	.000	.000
EU	.000	.000	.000	.000	.000	.000	.000	.000
SQ	.000	.000	.000	.000	.000	.000	.000	.000

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
e22	<-->	e23	60.232	.198
e22	<-->	e21	50.578	.190
e10	<-->	e22	24.624	-.173

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change

Minimization History (Default model)

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	19		-.536	9999.000	6074.482	0	9999.00
1	e*	10		-.126	2.866	2775.467	20	.544
2	e*	2		-.283	1.948	954.826	4	.691
3	e	0	122.880		.675	533.250	5	.879
4	e	0	55.115		.860	430.027	2	.000
5	e	0	52.675		.311	388.997	1	1.062
6	e	0	52.521		.080	387.499	1	1.026
7	e	0	52.292		.005	387.493	1	1.003
8	e	0	52.358		.000	387.493	1	1.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	61	387.493	149	.000	2.601
Saturated model	210	.000	0		
Independence model	20	5676.623	190	.000	29.877

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.066	.946	.924	.671
Saturated model	.000	1.000		
Independence model	.404	.374	.308	.339

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.932	.913	.957	.945	.957
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.784	.731	.750
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	238.493	184.087	300.572
Saturated model	.000	.000	.000
Independence model	5486.623	5244.035	5735.562

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.638	.393	.303	.495
Saturated model	.000	.000	.000	.000
Independence model	9.352	9.039	8.639	9.449

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.051	.045	.058	.352
Independence model	.218	.213	.223	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	509.493	513.865	778.513	839.513
Saturated model	420.000	435.051	1346.137	1556.137
Independence model	5716.623	5718.057	5804.827	5824.827

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.839	.750	.942	.847
Saturated model	.692	.692	.692	.717
Independence model	9.418	9.018	9.828	9.420

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	280	301
Independence model	24	26

Execution time summary

Minimization:.060

Miscellaneous: .651

Bootstrap: 10.368

Total: 11.079

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