Examining the Influencing Factors of Third-Party Mobile Payment Adoption: A Comparative Study of Alipay and WeChat Pay

Mu, Hong-Lei* · Lee, Young-Chan**

〈Content〉

Ⅰ. Introduction

In recent years, the development of Chinese third-party mobile payment market has experienced a shift toward diversification. The high penetration role of mobile phone and rapid development of mobile Internet together promote the further development of mobile payment at the same time. More and more business embraced the Internet electronic payment with the mobile environment in China, such as Alipay, WeChat Pay, Yeepay, 99Bill, Jdpay and so on. According to iResearch, at the third quarter of 2016, the transaction amount of the third-party mobile payment reached about $400 billion, rising 5.4% from the second quarter of 2015. The number of the transaction amount is increasing continuously. Undoubtedly, by providing these services, companies are trying to take

* Department of International Business, Dongguk University, 434478018@qq.com
** Department of Business Administration, Dongguk University, chanlee@dongguk.ac.kr, corresponding author

Share of China's Main Third-Party Mobile Payment Companies in 2015

Market Share of China's Third-Party Mobile Payment Players in Q1 2016
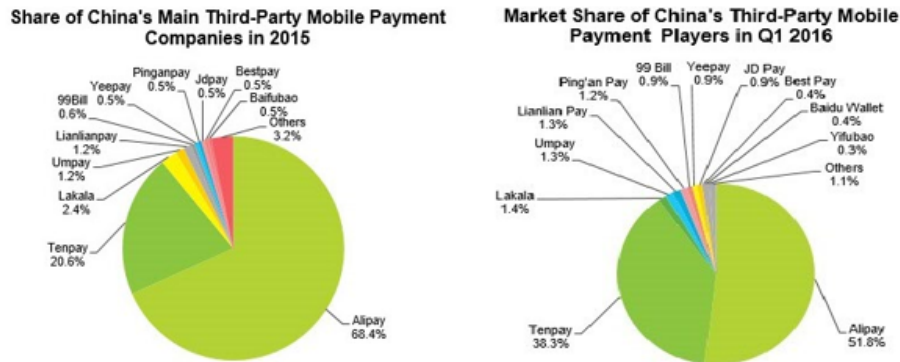
<Figure 1> Share of China's Main Third-Party Mobile Payment Companies

advantage of this new trend by leveraging their relationship with current users. However, the competition among mobile payment service providers remained fierce. As in the left picture of Figure 1 shows, Alipay took up 68.4% while Tenpay occupied 20.6% of China third-party mobile payment market in the third quarter of 2015. However, other third-party mobile payment companies such as Yeepay just took up 0.5%, Jdpay occupied only 0.5% market. Interesting thing is that the market share of third-party mobile payment platform changed a lot in the first quarter of 2016. The right picture of Figure 1 indicates that Alipay covered 51.8% while Tenpay occupied 38.3% of third-party mobile payment market. Obviously, Alipay market share decreased a lot compared with 2015 whereas Tenpay marketshare increases about two times compared a year earlier. Other third-party mobile payment companies still possess tiny market in China. Actually the reason Tenpay accounted the second most market share is that

it opened WeChat Pay and QQ, and Tencent said that the implementation of WeChat Pay has facilitated the most, especially the function of "lucky money" has attracted a lot of users. In addition, WeChat has over a billion created accounts, 700 million active users that makes it becomes one of the largest standalone messaging apps. Through the description of the figure, we pose an interesting question: *Which factors influence third-party mobile payment use intention the most and why the market share of Alipay and WeChat Pay changed a lot in just one year.*

To resolve the above questions, we conduct a comparative study of Alipay and WeChat Pay. Because Alipay and WeChat Pay occupied the most third-party mobile payment market in China thus they can represent most Chinese user's perception. Alipay and WeChat Pay have somewhat common characteristics but also have many differences. Alipay was launched in 2004 by Alibaba Group and its founder is Jack Ma. According to the analysis

research report, Alipay had the largest market share in China with more than 400 million users and control half of China's mobile payment market in 2015. However, WeChat was first released as SNS by Tencent Holdings in 2011 in China. WeChat provides functions of text messaging, hold-to-talk voice messaging, broadcast messaging, video conferencing, video games, sharing of photographs and videos and location sharing. In order to compete with other payment services companies like Alipay, WeChat officially announced to open its WeChat Payment to verify ervice accounts on its platform in 2014. Through WeChat payment application program implementation, service accounts on the platform are able to provide direct in-app payment service to users. WeChat offers payment services for both online and offline purchases. Customers are allowed to either pay for products on web pages or pay in store by scanning the QR codes of products provided by offline retailers. Tencent said the opening of its WeChat Pay to business came earlier than expected. According to the different characteristics of Alipay and WeChat Pay, and the market share changing that described above, we believe that factors influencing Alipay and WeChat Pay adoption intention are different.

The first purpose of this study is to investigate factors that are likely to influence user's intention to adopt third-party mobile payment platform. A comprehensive study about mobile payment services have used various variables to explain user's use intention based on the theory of reasoned action (TRA) or the theory of planned behavior (TPB). Variables such as simplicity, security, costs, relative advantage, individual mobility, subjective norm, trust, satisfaction, attitude towards use, perceived usefulness, perceived ease of use and so on. Among these factors, we expect to find out the most influential factors effecting user's use intention of the third-party mobile payment services. Second, we also examine whether the most influential factors have the same influence to different third-party mobile payment services by conducting comparative study of Alipay and WeChat Pay. According to Figure 1 we know that although there are various kinds of third-party mobile payment services providers, Alipay and Tenpay still occupied more than half of the market share and their market share has been changed a lot. We believe that the factors influencing Alipay and WeChat Pay are different, also will be different to other mobile payment providers. In addition, there is no previous studies examine comparative study between Alipay and WeChat Pay, we conduct this research. Finally, we would like to figure out the reasons why the market share of Alipay and WeChat Pay varied so much so that we can give indications to other small and medium third-party mobile payment platform

companies.

Ⅱ. Literature Review

2.1 Third-Party Mobile Payment

Mobile payment services are one of the most important applications needed for successful mobile e-commerce. Mobile payment means to pay for goods and services or transfer asset using a mobile device. According to Dahlberg et al. (2008), mobile payments can be realized in two ways. One provides mobile payment as a part of the system, which also referred to as third-party mobile payment. While the other involves various payment methods such as at POS terminals, at vending machines, or money transfer between consumers. The purpose of this study is the first type third-party mobile payment services. Third-party mobile payment is also a form of mobile payment where an intermediary sign a contract with various kinds of banks to handle the transaction and payment issues between a purchaser and a vendor. In China, there are mainly two forms of third-party electronic payment providers: non-independent providers such as Alipay and Tenpay; the other is independent providers such as Chinapay and 99Bill. The difference between the two is that non-independent providers initially evolved from their internal e-commerce platforms and extend their service to provide more external services. While independent providers develop independently. In this study, we chose Alipay and WeChat Pay because both of them occupied the most third-party mobile payment market in China thus they can represent most Chinese user's perception. In addition, as third-party mobile payment, although they have some common characteristics, they present in different ways.

Common characteristics of Alipay and WeChat Pay is described as below. First of all, both of them have mobile Apps and users can make a transaction through the mobile Apps directly or scan the QR code using their phone online/offline. When using the Apps, users need to register an account number first and bind a bank card. The transaction process is very easy to handle since uses only need to enter the password and the transaction will be finished. Secondly, both of them have multi-functions. Users can not only pay when shopping online/offline, but also can repay for credit card, recharge for SIM card, call and pay for a taxi, order a train ticket, pay for electricity/water bill etc. Thirdly, both of them have communication function. Since WeChat was released as a SNS, a chatting platform like Kakao Talk at first, users communicate a lot using WeChat. While although Alipay was released as a purely third-party mobile payment platform, it provides communication function as well. Alipay and WeChat Pay also present in different ways. First of all, Alipay

was lunched as third-party mobile payment platform in 2004. WeChat was released as a SNS at first, and open its payment in 2014. Secondly, WeChat Pay has a unique function —"Lucky Money", which is based on the Chinese tradition of *red envelope,* where money is given to family and friends as a gift also attracts a lot users. According to the reports, there are 2.3 billion transactions on 1 January 2016 alone. The "grouped" red envelope can be posted to a group chatting room and the application randomly assigns the amount in each envelope to each recipient. This function provides users with a lot of fun, at the same time it facilitates Tencent market share increase to the most second largest third-party mobile payment platform.

The application of mobile technologies has triggered third-party mobile payment development. To understand the adoption intention, third-party mobile payment has been examined a lot in academic field. For example, Guo et al. (2016) conducted a study to understand how a relatively successful third party mobile payment ecosystem is created and sustained through the cooperation of various actors by adopting Alipay wallet. Lu et al. (2011) developed a trust-based customer decision-making model under third-party mobile payment services context to examine whether trust in Internet payment services is likely to influence the trust in mobile payment services. Qu et al. (2015) adopted TAM and

other important variables to investigate the use intention of WeChat Pay. Zhou (2015) examined user switch from online payment to mobile payment and found that flow has the largest effect on switch intention. Most of the studies employed Alipay or WeChat Pay to investigate the behavior intention, however, there is no previous studies examine comparative study between Alipay and WeChat Pay. Thus, we conduct this research.

2.2 Trust

Trust has long been regarded as an important element in effecting consumer behavior and in uncertain environments, such as the e-commerce context (Gefen and Straub, 2003). In traditional contexts, a consumer's trust has been found to be influenced by the seller's investments in physical facilities and personnel (Doney and Cannon, 1997). In the context of e-commerce, lack of trust has also been indicated as one of the vital reasons why consumers hesitate engaging in transactions (Keen et al., 1999). Thus, one may argue that the importance of trust has been generally accepted in e-commerce because of the high degree of uncertainty of online transactions. As a matter of fact, several researchers have presented trust as a main variable of B2C e-commerce, and in various context, the antecedents of trust are also different. Table 1 summaries some previous literature reviews on

<Table 1> Literature Reviews on Trust

Reference	Content	Variables	Results
Gefen (2000)	The author mainly to examine the effects of respondents' familiarity with an e-vendor and its processes as well as the respondents' trust in the vendor in the context of inquiring about or buying books on Amazon.com.	Independent Variables: Familiarity; Disposition to trust. Mediating Variables: Trust. Dependent Variables: Inquire; Purchase	The author indicated that trust has significant influence on both the inquiry and purchase. In addition, disposition to trust has much higher influence on trust.
Gu et al. (2009)	The purpose of this research is to examine and validate determinants of users' intention in mobile banking.	Independent Variables: Social influence; System quality; Self-efficacy; Facilitating conditions; Familiarity with bank; Situational normality; Structural assurances; Calculative-based trust. Mediating Variables: PU; PEU; Trust. Dependent Variable: behavioral intention.	The paper proved that trust is one of the most vital determinants of behavioral intention.
Lu et al. (2011)	This study use Alipay as analysis context to examine use intention of mobile payment services. Particularly, they adopt trust transfer process that internet payment trust will have a positive influence on initial mobile payment trust.	Independent Variables: Internet payment trust; Initial mobile payment trust. Mediating Variables: Perceived cost; Perceived risk; Relative advantage; Compatibility; Image. Dependent Variable: Behavioral intention	The initial trust in mobile payment services directly and indirectly affects customers' intentions to use mobile payment services. In addition, they also provides empirical evidence on a dynamic trust transfer process between Internet and mobile environments.

trust. For example, Gefen (2000) showed that trust is essential in the acceptance of Internet technologies. In his paper, the author viewed familiarity and disposition to trust as antecedents of trust because familiarity may reduce uncertainty by establishing a structure, and disposition to trust is a general, inclination to display faith in humanity and to adopt a trusting stance toward others. Gu et al. (2009) also employed TAM and trust to investigate users' intention to adopt mobile banking and the results showed that trust has a very significant influence on behavioral intention. Lu et al. (2011) adopted trust transfer process and proved that initial trust in mobile payment services directly and indirectly affects customers' intentions to use mobile payment services. Through the literature reviews we can conclude that trust is essential no matter in the traditional context or in the e-commerce context. Similar to e-commerce, third-party mobile payment also involve great uncertainty

and risk. Thus it is equally important to build mobile user's trust (Varnali and Toker, 2010). Therefore, in this study, we adopt trust as one of the most important antecedents of user's use intention.

Trust has been conceptualized by previous studies in a series of methods, both theoretically and operationally (McKnight et al., 2002). According to McKnight er al. (2002), trust includes three beliefs: ability, integrity, and benevolence. This definition captures two different facets of trust in e-commerce. First, it includes the traditional view of trust (the online e-retailer), and second, it contains trust in the transaction medium. This definition is widely employed by researchers. However, in this study, under the context of third-party mobile payment, trust mainly refers to reduce user's scruple and make sure the security of transaction process as far as possible. Thus we adopt this definition and it is more fits for out study: trust is defined as a common mechanism for reducing social complexity and perceived risk of transaction through increasing the expectation of a positive outcome and perceived certainty regarding the expected behavior of trustee (Wu and Chen, 2005).

2.3 Perceived Usefulness

TAM has received substantial attention in the context of information systems literature because it has reliable instruments with good measurements, and it focuses on system or technology use. It is also one of the most powerful theories for predicting the intention to use system use (Bueno and Salmeron, 2008). TAM has two main variables: PEU and PU. It has been used in a wide range of environmental context, including e-commerce, online banking, online shopping, s-commerce, and technology-related innovations (Bueno and Salmeron, 2008; Kwahk and Lee, 2008). For instance, Gefen and Straub (2000) investigated the effect of PEU and PU on e-commerce acceptance, and results verified that PU has significant influence on intended use no matter when a web site is used for an inquiry task or used for purchasing task. Moon and Kim (2001) examined the impact of PU and PEU on consumer use of the Internet. The results demonstrated the positive relationship between PU, PEU and behavioral intention to use. Venkatesh (2000) adopted TAM to understand how the perception that PEU is an important factor influencing user acceptance and behavioral intention to use of IT forms and changes over time. The results of the study also verified that both PU and PEU have significant effect on behavioral intention to use. Table 2 summaries some previous literature reviews on PU.

<Table 2> Literature Reviews on Perceived Usefulness

Reference	Content	Variables	Results
Venkatesh (2000)	This research attempts to further the understanding of the determinants of PEU of a system by focusing on how the perceptions form and change over time with increasing experience with the system.	Independent Variables: Computer self-efficacy; Perceptions of external control; Computer anxiety; Computer playfulness; Perceived enjoyment; Objective usability. Mediating Variables: PU; PEU. Dependent Variable: behavioral intention to use.	PU has greater influence on behavioral intention to use than PEU.
Gefen and Straub (2000)	The objective of this study is to propose a theoretical explanation of the varying effects of PEU on IT adoption by differentiating between tasks that are intrinsic and tasks that are extrinsic to the IT.	Independent Variables: PEU. Mediating Variable: PU. Dependent Variables: Intended inquiry; Intended purchase.	Perceived usefulness affects intended use both when a Web site is used for an inquiry task and when a Web site is used for a purchasing task.
Moon and Kim (2001)	This study mainly to extend the TAM in the WWW context and the authors propose a new variable 'perceived playfulness' to enhance understanding of an individual's WWW acceptance behavior.	Independent Variables: PU; PEU. Mediating Variables: Attitude toward using; Behavioral intention to use. Dependent Variable: Actual usage.	All of the independent variables have significant influence on the behavioral intention to use.
Kwahk and Lee (2008)	The author examined the formation of readiness for change and its effect on the perceived technological value of an ERP system leading to its use based on TAM	Independent Variables: Perceived personal competence; Organizational commitment; Readiness for change. Mediating Variables: PU; PEU. Dependent Variable: Usage intention.	Both PU and PEU had significant influence on usage intention. Moreover, the effect of PU is much higher than PEU did.

Third-party mobile payment platform is both an IT and the channel through which users interact with e-vendors, technology-based should be another important determinant of user's use intention. The quick and convenient characteristics of third-party mobile payment services have save a lot of users' time when transfer money to others so that they view this service as a useful tool. In essence, the adoption of third-party mobile payment services should be explained by PU.

2.4 Factors Influencing Third-Party Mobile Payment

Compatibility

Compared to Alipay, WeChat Pay has a

unique function—"Lucky Money", where money is given to family and friends as a gift also attracts a lot users. According to the iResearch, there are 2.3 billion transactions on 1 January 2016 alone. This function provides users with a lot of fun, at the same time it facilitates Tencent market share to the most second largest third-party mobile payment platform. Therefore, the compatible level of the mobile payment may positively influence user's attitude, perception of usefulness, trust and behavior intention.

In addition, Innovation diffusion theory (Rogers, 1995) provides various characteristics that might have influence user's intention to adopt new technologies. These involve compatibility, relative advantage, image, complexity, trial ability, visibility, and demonstrability. Among these, compatibility has been proved to be an important variable to explain innovation adoption and diffusion (Kimberly, 1981), and have found that compatibility has positive influence on users' adoption intention (Cooper and Zmud, 1990). Compatibility encompasses the innovation and the potential user's values, current needs, and present lifestyle. The more an innovation is consistent and compatible with present value, procedures of the user, the more likely the user will adopt it (Rogers, 1995). Schultz and Slevin (1975) highlighted that technological innovations should compatible with users' existing attitudes, beliefs, and value. This is

very important in the context of third-party mobile payment services, since people's lifestyles will strongly influence their decision to adopt the new technology (Lu et al., 2011). Once compatibility satisfies user's daily requirements, users will fell that the new technology is useful and will increase the beliefs that the service is trustworthy. In view of these findings, we adopted compatibility as one of the main independent variables.

Ubiquity

According to iResearch, Alipay has operated with more than 65 financial institutions including Visa and Mastercard to provide payment services for Taobao as well as more than 460,000 Chinese businesses. Internationally, more than 300 worldwide merchants use Alipay to sell directly to Chinese consumers or visitors. It currently supports transactions in 14 major foreign currencies. The extension of Alipay is higher than WeChat Pay no matter in number of users or worldwide merchant perspective. Obviously, the ubiquity level is different between Alipay and WeChat Pay.

Compared to traditional and online payments, ubiquity is also the main advantage of third-party mobile payment. Ubiquity means, with the help of networks and Internet, users can finish payment process at anytime and anywhere (Zhou, 2012). Nowadays, with

the fast pace of life and rapid development of technology, users always expect to acquire ubiquitous mobile banking services. This particular characteristic of third-party mobile payment services might increases user's PU and trust to adopt the third-party mobile payment platform. Thus, we employed ubiquity as one of the main independent variables.

Communication

Different from other mobile payment system, both of Alipay and WeChat Pay have communication. WeChat was released as a SNS, a chatting platform like Kakao Talk at first. While although Alipay was released as a purely third-party mobile payment platform, it provides communication function also. This unique characteristic is very important for the research under the context of China and it will present a new perspective to the academic research area related to mobile payment.

Communication was proved to have considerable influence on s-commerce, e-commerce, and can be regarded as a key factors influencing consumers' purchase intention. Bock et al. (2012) found that information on e-commerce websites or e-vendors obtained through communication can help consumers' positive beliefs about trust in transaction establishments. In addition, safe transactions and communication have been examined as antecedents of trust and purchase

intention in e-commerce research (Kim and Park, 2013). Park and Kang (2003) also claimed that users are probably trust the e-vendors or online firms if they engage in continuous communication, consequently may derive the confident to use the third-party mobile payment platform. While in the context of third-party mobile payment, the reason users adopt the third-party mobile payment platform is to transfer money or asset to e-vendors conveniently. Because there is no face-to-face communication in online or mobile environments, the communication function of both Alipay and WeChat Pay can effectively facilitate users' trust on e-vendors. Hence, we adopt communication as one of the main independent variables.

Social Influence

The preference of families, friends or colleagues can influence users to adopt either Alipay or WeChat Pay. The total amount users of mobile payment also can significantly affect the degree of social influence variable on each group. According to Alibaba, Alipay has 450 million verified users in 2016 and mobile payment accounted for 71% of total payment. While WeChat Pay has over 300 million users worldwide on March of 2016.

<Table 3> Factors Influencing Third-Party Mobile Payment Services

References	Content	Variables	Results
Paul et al. (2010)	The study mainly to examine factors determining consumers' acceptance of mobile payment services.	Independent Variables: Perceived compatibility; Perceived security; Individual mobility. Mediating Variables: Attitude towards use; PU. Dependent Variables: Intention to use.	Compatibility has more significant positive influence on PU than other variables.
Zhou (2012)	This research examined the factors affecting user's mobile banking adoption based on the perspective of trust and flow experiences.	Independent Variables: Structural assurance; Ubiquity; PEU; Personal innovativeness. Mediating Variables: Trust; Flow; Usage intention. Dependent Variable: Actual usage.	Ubiquity was proved to have a positive influence on trust.
Kim and Park (2013)	The main purpose of this study is to develop a research model for examining some of the key constructs categorized as those s-commerce characteristics having positive effects on consumers' trust.	Independent Variables: Reputation; Size; Information quality; Transaction safety; Communication; WOD referrals; Economic feasibility. Mediating Variable: Trust. Dependent Variables: Purchase intention; WOM intention.	Communication has a significant positive influence on trust.
Arpaci I. (2016)	This study aims to identify the key factors affecting students' attitudes toward and intentions in using mobile cloud storage services.	Independent Variables: PEU; Perceived ubiquity; Perceived security; Perceived privacy. Mediating Variables: Trust; Subjective norm; Attitude. Dependent Variable: Intention to use.	Ubiquity was proved to have the most significant positive influence on PU than other four variables.

Social influence alleviates user's uncertainty in innovation adoption (Lu et al. 2005). Because users are generally feel uncertainty before adopting the platform or making transactions, they tend to contact with their social network to make adoption decisions. The advice from important social networks will positively influence the user's trust. Furthermore, empirical evidence indicated that social influence positively influence PU (Venkatesh and Bala, 2008). As a result, we employed social influence as a main independent variable.

Table 3 are summaries about the literature reviews on factors influencing the adoption of third-party mobile payment services. In a sum, we employed four variables, which is, compatibility, ubiquity, communication, and social influence as independent variables to examine factors influencing users' adoption intentions.
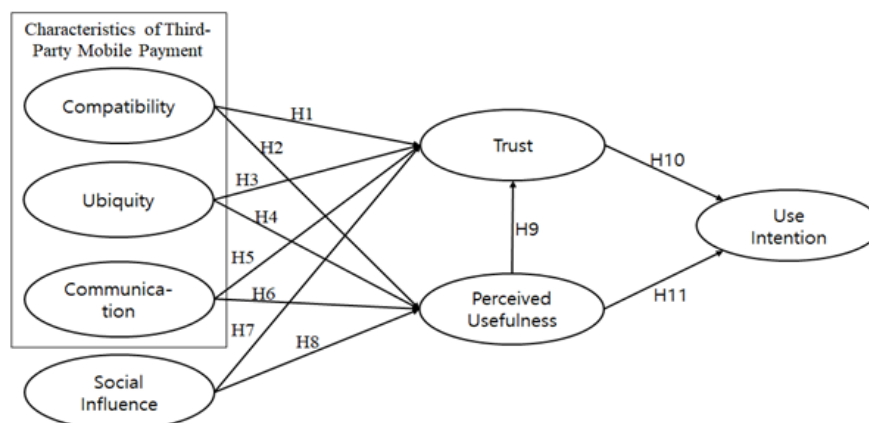
Ⅲ. Research Model and Hypotheses

First of all, based on the wide range of literature reviews and the characteristics of Alipay and WeChat Pay, we presented the proposed research model (see Figure 2). Building on mobile networks and terminals, the third-party mobile payment involves great uncertainty and risk. Thus building user's trust is a vital factor facilitating user behavior. PU has been proved to be a powerful factor influencing user's use intention. In this study, we adopt trust and PU as main mediating variables. Compatibility, ubiquity, communication and social influence have been indicated to have significant effect on trust and PU, respectively. Therefore, we employ these four variables as independent variables.

Meanwhile, we conduct a multi-group analysis between Alipay group and WeChat Pay group based on the statistical analysis results for both of the groups. To examine the different influence of the same variables, we only adopt variables which have significant effect on both of the groups. We tend to provide useful information and advice to the third-party mobile payment service providers, especially those with small third-party mobile payment market share.

Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters (Roger, 1995). A belief is that incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. In the context of mobile payment services, users who perceives benefits from using the third-party mobile payment platform may perceive more compatible. Because user's lifestyles will strongly affect their beliefs, attitudes, trust and intention toward adoption.

<Figure 2> Research Model

Previous researches have examined the relationship between compatibility and trust, PU. Agarwal and Karahanna (2000) argued that innovations perceived to be compatible with various aspects of user's experience and lifestyles are likely to reduce feelings of uncertainty and familiarity. This in turn will increase user's beliefs of trust. Extant research indicates positive influence of compatibility on both of the attitude toward adopting innovation and PU (Hardgrave et al., 2003). And according to Hardgrave et al. (2003), the effect of compatibility on PU is greater than other two variables, social pressure and complexity. Paul et al., (2010) examined factors determining consumers' acceptance of mobile payment services, and results showed that compatibility has more significant influence on PU than other variables. Thus, we hypothesis that:

H1: Compatibility of the third-party mobile payment services has a significant influence on trust.
H2: Compatibility of the third-party mobile payment services has a significant influence on PU.

Ubiquity refers to that users can access mobile payment at anytime and anywhere under the help of mobile terminals, networks and the third-party platform (Arpaci, 2016). Ubiquity can frees users from temporal limitations and ensures them to implement ubiquitous payment. However, services providers need to spend continuous effort and resources to make sure that they could offer ubiquitous services to users all the time. Only in this way ubiquity will act as a trustworthiness signal. If users cannot acquire ubiquitous and reliable services, their estimations on service providers' ability and integrity will decrease. Previous researches have also indicated that ubiquity is important to gain user's trust. For example, Lee (2005) pointed out ubiquity positively affect user's trust beliefs on the mobile payment. In addition, the third-party mobile payment system coalesce some important advantages such as flexibility, accessibility, mobility and ubiquity which enables users "always-on" connectivity. Ubiquity is not only a unique characteristic of mobile payment but also can frees users to conduct transactions. In turn, this can increase user's perceptions of usefulness about the services. Further, Arpaci (2016) has verified the significant influence of ubiquity on PU. Therefore, we hypothesis that:

H3: Ubiquity of the third-party mobile payment services has a significant influence on trust.
H4: Ubiquity of the third-party mobile payment services has a significant influence on PU.

It is argued that communication is one of the most important characteristics of s-commerce and one of the most important success factors in ERP implementation (Ramayah et al., 2007).

This is also true for the third-party mobile payment services such as Alipay and WeChat Pay, since both of them have the communication function. Communication means formal and informal processes through which users create and share information with one another to reach a consensus (Moon and Lee, 2008). It is expected that communication can facilitate transfer knowledge between parties (Amoako, 2004). Amoako et al. (2004) argues that effective communication benefits trust development and exchange of information needed, thus creating trust in turn. Bueno and Salmeron (2008) also claimed that communication can enhance user's trust toward adopting new technology. In addition, Amoako (2004) argues that the outcome of communication is dependent on factors like the frequency and accuracy of information, it has a potential influence on the usefulness of new technology. Sternad and Bobek (2013) also considered communication as an important characteristic to effect PU. Thus:

H5: Communication of the third-party mobile services has a significant influence on trust.
H6: Communication of the third-party mobile payment services has a significant influences on PU.

Social influence refers to the perceived influence from the SNS or important families and friends for a certain making-decision or behavior (Lu et al., 2005). Users usually feel uncertainty, uncomfortable toward the new technology. Empirical evidence have shown that social influence can facilitate user's trust and perception of usefulness. The advice and information transferred through the social networks may finally influence user's attitudes, behavior, and beliefs. For example, Li et al. (2008) argues that social influence significantly affect user's trusting beliefs for a new information technology. And a lot of previous studies indicate that social influence have a positive effect on PU (Hsu and Lu, 2004; Venkatesh and Davis, 2000). Moreover, Montazemi and Qahri-Saremi (2015) found that social influence has a significant positive impact on both of the trust and PU when considering online banking adoption. Users will feel that the third-party mobile payment platform is useful when they see friends, family members and colleagues use it. Therefore:

H7: Social influence has a significant influence on trust.
H8: Social influenced has a significant influence on PU.

Chen and Barnes (2007) demonstrated that a lack of trust is likely to discourage online customers from participating in e-commerce. Thus they conduct a research to investigate how online consumers develop their initial trust and purchase intentions. The results indicated that different levels of trust can

moderate the perceptions toward the web site with respect to online initial trust, which in turn was influenced by PU. The importance of trust in e-services is vital to the use intention because the existence of uncertainty in a virtual environment. Carlos et al. (2009) proposed an online financial trading model based on TAM and aims to investigate how e-investors are influenced by trust, security and privacy together with traditional TAM constructs. According to the results, PU has a significant and positive influence of 0.25 on user's trust. In addition, Casalo et al. (2007) showed that perceived usefulness had a direct and significant influence on user's trust. Thus we hypothesis that:

H9: PU significantly influence user's trust.

Trust is defined as a common mechanism for reducing social complexity and perceived risk of transaction through increasing the expectation of a positive outcome and perceived certainty regarding the expected behavior of trustee (Wu and Chen, 2005). Similar to online payment or online banking, third-party mobile payments are vulnerable to hacker attack or user's personal information or may be infected by viruses. These problems will heavy the shoulder of users and increase their uncertainty. Previous studies have identified the power influence of trust on use intention. Researchers have found that trust can

reduce the perceived risk (Teo and Liu, 2007; Wang and Chen, 2006), which perceived risk is considered as a barrier of using technology (Aladwani, 2001). Malhotra et al. (2004) provided that both trust and perceived risk significantly drive people's intention to release personal information via the Internet. Montazemi and Qahri-Saremi (2015) proposed two research model: pre-adoption stage and post-adoption stage to show the relative importance of factors influencing user's adoption of the online banking service and demonstrated that trust plays an important role in effecting use intention. Similarly, users with favorable trust toward third-party mobile payment are more likely to adopt the services. Thus:

H10: Trust toward third-party mobile payment service has a significant influence on user's use intention.

PU is defined as the "degree to which a person believes that using a particular system would enhance his job performance" (Davis, 1989). Users are actually willing to adopt third-party mobile payment if they perceive it to be useful and helpful for their work. For users of mobile payment, the benefits they acquire is the time saving to transfer money and convenience. PU has been identified to have a significant influence on system utilization because a user's belief in the

existence of use-performance relationship. For example, Al-Somali et al. (2009) investigated user's acceptance of online banking in Saudi Arabia based on the theory of TAM and found that PU significantly influence user's adoption intention. In addition, PU and PEU explained 85% of the variance in attitude towards use intention together. Schierz et al., (2010) proposed an empirical study to examine factors determining consumer's acceptance of mobile payment services and the results point out PU has a strong positive relationship with attitude towards using mobile payment services. In addition, Kim et al., (2010) proposed a mobile payment research model to investigate user's intention to adopt mobile payment services. The results indicate that the strong predictors of intention to use mobile payment are PU and PEU. Accordingly, we propose the following hypothesize:

H11: PU significantly influence use intention of third-party mobile payment services.

Ⅳ. Research Design and Analyses

4.1 Operational Definition and Measurement

To examine the effects of trust and PU on intentions to use the third-party mobile payment system, a field study technique was employed. The sampling and instrument development and validation processes are described as below.

The research model includes seven constructs. To make sure the validity of all the measurements, each construct was measured with multiple items and all of them were adopted from previous research but modified to fit for the context. There are many definition about trust in the previous studies, but to fit for this study, we adopted Wu and Chen (2005) definition: that trust is defined as a common mechanism for reducing social complexity and perceived risk of transaction through increasing the expectation of a positive outcome and perceived certainty regarding the expected behavior of trustee. And the measurements are employed from Gefen (2002b); McKnight et al. (2002) and modified to fit for this study. Definition of PU was adopted from Davis (1989), that PU is defined as the "degree to which a person believes that using a particular system would enhance his job performance", and the measurements of PU are adopted from Bhattacherjee (2001); Devaraj et al. (2002). The definition of compatibility is employed from Roger (1995), which means the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. The measurements of compatibility are adapted from Moore and

Benbasat (1991). The definition of ubiquity was employed from Arpaci (2016), he defined ubiquity as users can access mobile payment at anytime and anywhere under the help of mobile terminals, networks and the third-party platform. Measurements of ubiquity are adopted from Lee (2005) and Vatanasombut et al. (2008). Definition of communication was cited from Moon and Lee (2008), which means formal and informal processes through which users create and share information with one another to reach a consensus, and the measurements are adopted from Moon and Lee (2008). Social influence refers to the perceived influence from the SNS or important families and friends for a certain making-decision or behavior. Measurements of social influence are adopted from Shih and Fang (2006). Finally, the definition of use intention is employed from Leong et al. (2013), Miltgen et al. (2013), they defined it as users with a higher intention to adopt a new technology are more likely to become adopters and to recommend the technology to others, and the measurements of use intention are adopted from Lai and Li (2005). The questionnaire employed a five-point Likert scales anchored from "strongly disagree" (1) to "strongly agree" (5). As the questionnaire was in Chinese, we conducted a back-translation procedure to ensure consistency of the language. Table 4 shows the operational definition and measurements of the constructs.

4.2 Sampling Design and Data Collection

Empirical data for this study were collected from Chinese who has the experience using or have used Alipay or WeChat Pay. Participants needed to be familiar with Alipay or WeChat Pay because such users may be more aware of both the advantages and disadvantages of Alipay and WeChat Pay. We conduct a pilot test using Smart PLS 2.0, which includes 50 Alipay users and 82 WeChat Pay users. The result indicates that all the measurement fit for the context. And then 980 questionnaires were mainly sent out to the college students and the e-mails users randomly. To encourage participation, we give the participants a small gift as a present. Finally, we received a total of 683 replied. Data from respondents who gave incomplete or invalid answers were

<Table 4> Operational Definition and Measurement of the Variables

Variable	Definition	Measurements	Reference
Compatibility	The degree to which an innovation is perceived as being consistent with the existing values, past	Using Alipay/WeChat Pay is compatible with all aspects of my life style.	Roger (1995); Moore and Benbasat (1991)
		I think that using Alipay/WeChat Pay fits well with the way I like to transfer money.	

		Using Alipay/WeChat Pay is completely compatible with my current situation.	
	experiences, and needs of potential adopters.	I would appreciate using Alipay/WeChat Pay instead of alternative modes of payment (e.g., credit card, cash).	
Ubiquity	Users can access mobile payment at anytime and anywhere under the help of mobile terminals, networks and the third-party platform.	I can use Alipay/WeChat Pay from anywhere.	Arpaci (2016); Lee (2005); Vatanasombut et al. (2008)
		I can use Alipay/WeChat Pay at any time.	
		If needed, I can use Alipay/WeChat Pay at anytime from anywhere.	
Communicati on	Formal and informal processes through which users create and share information with one another to reach a consensus.	I can contact with e-vendors through Alipay/WeChat Pay.	Moon and Lee (2008)
		I can offer my feedback through Alipay or WeChat Pay.	
		I can acquire useful information through Alipay or WeChat Pay.	
Social Influence	The perceived influence from the SNS or important families and friends for a certain making-decision or behavior.	People important to me (friends/family/colleagues) would think that using Alipay/WeChat Pay is a good idea.	Lu et al. (2005); Shih and Fang (2006)
		People important to me (friends/family/colleagues) would think that I should use Alipay/WeChat Pay.	
		I use Alipay/WeChat Pay because many people use it.	
Trust	Trust is defined as a common mechanism for reducing social complexity and perceived risk of transaction through increasing the expectation of a positive outcome and perceived certainty regarding the expected behavior of trustee.	I think Alipay/WeChat Pay can keep their promise.	Wu and Chen (2005); Gefen (2002b); McKnight et al. (2002)
		I think Alipay/WeChat Pay is trustworthy.	
		I think Alipay/WeChat Pay think about their users.	
		I think Alipay/WeChat Pay provides good service.	
Perceived Usefulness	Degree to which a person believes that using a particular system would enhance his job performance	Alipay/WeChat Pay is a useful mode of payment.	Davis (1989); Bhattacherjee (2001); Devaraj et al. (2002)
		Using Alipay/WeChat Pay makes the handling of payment easier.	
		Alipay/WeChat Pay is value in use to me.	
		Alipay/WeChat Pay enhances my effectiveness in transferring money to others.	
Use Intention	Users with a higher intention to adopt a new	I will use Alipay/WeChat Pay on a regular basis in the future.	Leong et al. (2013);

	technology are more likely to become adopters and to recommend the technology to others	I will frequently use Alipay/WeChat Pay in the future.	Miltgen et al. (2013); Lai and Li (2005)
		I will strongly recommend others to use Alipay/WeChat Pay.	

<Table 5> Mean Value for Alipay and WeChat Pay

Independent Variables	Mean (Standard Deviation)	
	Alipay (n=372)	WeChat Pay (n=232)
Compatibility	3.91 (0.894)	3.82 (0.786)
Ubiquity	4.04 (0.796)	3.95 (0.679)
Communication	3.74 (0.864)	3.59 (0.850)
Social Influence	3.89 (0.929)	3.74 (0.798)
Trust	3.89 (0.827)	3.74 (0.833)
PU	3.99 (0.836)	3.95 (0.967)
Use Intention	4.05 (0.882)	3.98 (0.761)

<Table 6> Demographic Statistics (N=604)

Demographic categories	Range	Frequency	Percentage
Gender	Male	283	46.9%
	Female	321	53.1%
Age	20-29	277	45.9%
	30-39	206	34.1%
	40-49	97	16.1%
	50-59	22	3.6%
	≥60	2	0.3%
Occupation	Student	107	17.7%
	Office Worker	313	51.8%
	Individual Business	120	19.9%
	Others	64	10.6%
Education	Under/Junior High School	30	5.0%
	High School	116	19.2%
	Bachelor Degree	409	67.7%
	Master Degree	47	7.8%
	Doctor Degree/Higher	2	0.3%
Do you have the experience using Alipay/WeChat Pay?	Yes	588	97.4%
	No	16	2.6%
Which one do you often use?	Alipay	372	61.6%
	WeChat Pay	232	38.4%

excluded to assure the validity of the constructs. 79 questionnaires were rejected, finally the valid data are 604 (with 372 Alipay users and 232 WeChat Pay users).

Mean value and standard deviation for Alipay group and WeChat Pay group were

analyzed before conducting the statistical analysis. Table 5 shows the results. As shown, for compatibility variable, Alipay (3.91) has a relatively higher mean value than WeChat Pay (3.72), with standard deviation of 0.894 for Alipay and 0.786 for WeChat Pay. For ubiquity, Alipay (4.04) has a relatively higher mean value than WeChat Pay (3.86), with standard deviation of 0.796 for Alipay and 0.679 for WeChat Pay. For communication variable, Alipay possesses a higher mean value than WeChat Pay, with a standard deviation of 0.864 for Alipay and 0.850 for WeChat Pay. For social influence, the mean value for Alipay (3.89) is higher than WeChat Pay (3.74), with a standard deviation of 0.929 for Alipay and 0.798 for WeChat Pay.

4.3 Demographic Statistics

The demographic statistics of the sample are reported in Table 6. Among the respondents, the percentage of female (53.1%) is a little more than male (46.9%). A majority of the respondents are young people age from 20-29 (45.9%). A large number of the respondents possess a bachelor degree (67.7%) and now are engaged in office work in companies (51.8%). All the respondents have the experience using Alipay/WeChat Pay except 16 respondents, which were excluded from this study. Among 604 respondents, 61.6% often use Alipay while 38.4% often use WeChat Pay. In addition, the

demographic statistics of Alipay and WeChat Pay was listed in Table 7 and Table 8, respectively. According to Table 7, among Alipay respondents, male (53%) is a little more than female (47%), and the majority of the respondents are young people age from 20-39. Most of them are office workers (57.3%) possess a bachelor degree (69.6%). For WeChat Pay respondents, according to Table 8, female (62.9%) is more than male and majority of them are young people age from 20-29 (52.6%). 43.1% of the respondents are office workers and possess a bachelor degree (64.7%).

4.4 Reliability and Validity Test

SPSS 21.0 and Amos 21.0 was employed to assess the measurement model and to test the hypothesized structural model. This technique was chosen because it can build models more accurately than with standard multivariate statistics techniques. Futhermore, Amos 21.0 fits well for the size of this sample and the function of group analysis could help us compare well between Alipay and WeChat Pay. The acceptability of the measurement model was evaluated by the reliability of the items, consistency between items, and the model's convergent and discriminant validity. Table 9 and Table 10 shows the Cronbach's α, composite reliability, average variance extracted (AVE) of each construct for Alipay

<Table 7> Demographic Statistics of Alipay (N=372)

Demographic categories	Range	Frequency	Percentage
Gender	Male	197	53%
	Female	175	47%
Age	20-29	155	41.7%
	30-39	138	37.1%
	40-49	65	17.5%
	50-59	12	3.2%
	≥60	2	0.5%
Occupation	Student	66	17.7%
	Office Worker	213	57.3%
	Individual Business	71	19.1%
	Others	22	5.9%
Education	Under/Junior High School	6	1.6%
	High School	66	17.7%
	Bachelor Degree	259	69.6%
	Master Degree	39	10.5%
	Doctor Degree/Higher	2	0.5%
Do you have the experience using Alipay/WeChat Pay?	Yes	370	99.5%
	No	2	0.5%

<Table 8> Demographic Statistics of WeChat Pay (N=232)

Demographic categories	Range	Frequency	Percentage
Gender	Male	86	37.1%
	Female	146	62.9%
Age	20-29	122	52.6%
	30-39	68	29.3%
	40-49	32	13.8%
	50-59	10	4.3%
	≥60	0	0%
Occupation	Student	41	17.7%
	Office Worker	100	43.1%
	Individual Business	49	21.1%
	Others	42	18.1%
Education	Under/Junior High School	24	10.3%
	High School	50	21.6%
	Bachelor Degree	150	64.7%
	Master Degree	8	3.4%
	Doctor Degree/Higher	0	0%
Do you have the experience using Alipay/WeChat Pay?	Yes	218	94%
	No	14	6%

group and WeChat Pay group, respectively. From the Table 9 and Table 10 we can know that Cronbach's values for Alipay group ranged from 0.776 to 0.874, Cronbach's values for WeChat Pay group ranged from 0.750 to 0.886, which are higher than the recommendation value 0.7, indicating both of the groups possess a very good reliability of

the variables. Both of the composite reliability values for Alipay group and WeChat Pay group of the constructs were above the recommended level of 0.70, indicating adequate internal consistency. Convergent validity is demonstrated as the AVE values for the constructs. As shown in Table 9 and Table 10, AVE values for both Alipay group and WeChat Pay group were higher than the suggested threshold value of 0.50, indicating that the convergent validity for the constructs of the measurement model is adequate.

4.5 Discriminant Validity and Model Fit

Table 11 and Table 12 shows the square root of the AVE as well as the correlations between the constructs for Alipay group and WeChat Pay group, respectively. Comparing the square root of the AVE (bold figures on the diagonal) with the correlations among the constructs, the results indicate that each construct shares a larger variance with its own items than with those of the other constructs for both of the groups, thus indicating that the discriminant validity was adequate. Confirmatory factor analyses were performed using Amos 21.0 to check the validity of the measurement model. The fit of the measurement model for Alipay group and WeChat Pay group were estimated with various indices (see Table 13). According to Table 13, for Alipay group, the normalized

chi-square and the observed values for the goodness-of-fit index, comparative fit index, normed fit index, adjusted goodness of fit index were all within the recommended levels, representing a satisfactory model fit. The observed values of the root mean square residual and the root mean square error of approximation were well within the recommended cutoff values of 0.05, also indicating a satisfactory model fit. According to Table 13, for WeChat Pay group, the normalized chi-square and the observed values for the comparative fit index, adjusted goodness of fit index were within the recommended levels. While, even though goodness of fit index (GIF) = 0.886, normed fit index (NFI) = 0.881 were less than the recommended cutoff value of 0.9, these results still indicate a goodness model fit. The observed values of the root mean square residual and the root mean square error of approximation were well within the recommended cutoff values of 0.05, indicating a satisfactory model fit.

<Table 9> Convergent Validity and Reliability Test for Alipay Group

Construct	Items	Standard Estimate	S.E.	C.R.	Cronbach's	AVE
Compatibility (CMP)	CMP1	0.746	0.074	0.846	0.861	0.579
	CMP2	0.823	0.069			
	CMP3	0.816	0.067			
	CMP4	0.741	-			
Ubiquity (UBI)	UBI1	0.789	0.092	0.811	0.790	0.589
	UBI2	0.773	0.105			
	UBI3	0.683	-			
Communication (CMU)	CMU1	0.762	0.088	0.763	0.776	0.517
	CMU2	0.714	0.081			
	CMU3	0.720	-			
Social Influence (SI)	SI1	0.857	0.054	0.798	0.874	0.569
	SI2	0.803	0.053			
	SI3	0.850	-			
Trust (TST)	TST1	0.767	-	0.862	0.858	0.609
	TST2	0.803	0.07			
	TST3	0.730	0.069			
	TST4	0.801	0.072			
Perceived Usefulness (PU)	PU1	0.752	0.048	0.857	0.869	0.600
	PU2	0.816	0.063			
	PU3	0.729	0.061			
	PU4	0.778	-			
Use Intention (UI)	UI1	0.844	-	0.875	0.872	0.700
	UI2	0.828	0.053			
	UI3	0.829	0.054			

<Table 10> Convergent Validity and Reliability Test for WeChat Pay Group

Construct	Items	Standard Estimate	S.E.	C.R.	Cronbach's	AVE
Compatibility (CMP)	CMP1	0.775	0.118	0.863	0.847	0.613
	CMP2	0.810	0.113			
	CMP3	0.789	0.104			
	CMP4	0.684	-			
Ubiquity (UBI)	UBI1	0.782	0.171	0.812	0.750	0.593
	UBI2	0.716	0.165			
	UBI3	0.605	-			
Communication (CMU)	CMU1	0.772	0.106	0.772	0.776	0.531
	CMU2	0.678	0.094			
	CMU3	0.749	-			
Social Influence (SI)	SI1	0.762	0.093	0.827	0.805	0.615
	SI2	0.799	0.101			
	SI3	0.731	-			
Trust (TST)	TST1	0.760	-	0.894	0.886	0.679
	TST2	0.832	0.093			
	TST3	0.830	0.090			
	TST4	0.826	0.096			

Perceived Usefulness (PU)	PU1	0.707	0.083	0.867	0.833	0.620
	PU2	0.727	0.094			
	PU3	0.757	0.091			
	PU4	0.753	-			
Use Intention (UI)	UI1	0.797	-	0.877	0.843	0.705
	UI2	0.813	0.085			
	UI3	0.796	0.076			

<Table 11> Discriminant Validity Test for Alipay Group

	CMP	UBI	CMU	SI	TST	PU	UI
CMP	0.761						
UBI	0.579	0.767					
CMU	0.510	0.454	0.719				
SI	0.595	0.476	0.521	0.754			
TST	0.551	0.495	0.593	0.650	0.780		
PU	0.645	0.491	0.539	0.617	0.658	0.775	
UI	0.654	0.510	0.486	0.590	0.647	0.694	0.837

Note: CMP=Compatibility; UBI=Ubiquity; CMU=Communication; SI=Social Influence; TAT=Trust; PU=Perceived Usefulness; UI=Use Intention. The boldface values on the diagonal are square roots of AVEs.

<Table 12> Discriminant Validity Test for WeChat Pay Group

	CMP	UBI	CMU	SI	TST	PU	UI
CMP	0.783						
UBI	0.523	0.770					
CMU	0.406	0.433	0.729				
SI	0.528	0.452	0.522	0.784			
TST	0.444	0.365	0.469	0.517	0.824		
PU	0.524	0.500	0.466	0.518	0.576	0.787	
UI	0.561	0.535	0.476	0.552	0.620	0.672	0.839

Note: CMP=Compatibility; UBI=Ubiquity; CMU=Communication; SI=Social Influence; TAT=Trust; PU=Perceived Usefulness; UI=Use Intention. The boldface values on the diagonal are square roots of AVEs.

<Table 13> Model Fit for Alipay Group and WeChat Pay Group

Fit Index	Recommended Value	Measurement Model	
		Alipay	WeChat Pay
χ^2/DF	<3.00	1.830	1.597
GFI (goodness of fit index)	≥0.90	0.914	0.886
CFI (Comparative Fit Index)	≥0.90	0.964	0.951
NFI (normed fit index)	≥0.90	0.924	0.881
AGFI (adjusted goodness of fit index)	≥0.80	0.889	0.860
RMSEA (root mean square error of approximation)	≤0.050	0.047	0.050
RMR (root mean square residual)	≤0.050	0.038	0.043

4.6 Structural Model Assessment and Hypothesis Test

The structural model for Alipay group and WeChat Pay group (which includes hypotheses in addition to the paths between the item and its latent construct) were examined on the measurement model. Table 14 presents graphical depiction of the Amos 21.0 results of standardized path coefficients among the constructs for Alipay group and WeChat Pay group. According to Table 14, for Alipay group, all the hypotheses were supported except H1, H3 and H4. In Alipay group, the most influencing factors to trust are social influence (H7: 0.323***), and then communication (H5: 0.286***), ubiquity (H3: 0.107, p-value=0.120), compatibility (H1: -0.081, p-value=0.109) in proper order. On the other hand, the most influencing factors to PU is compatibility (H2: 0.436***), next is social influence (H8: 0.265***), communication (H6: 0.185, p-value=0.005), ubiquity (H4: 0.048, p-value=0.562) in turn. While for WeChat Pay group, all the hypotheses were supported except H1, H3 and H6. In WeChat Pay group, the most influencing factors to trust is social influence (H7: 0.204, p-value=0.041), and then communication (H5: 0.197, p-value=0.050), compatibility (H1: 0.112, p-value=0.269) and finally ubiquity (H3: -0.170, p-value=0.145). On the other hand, the most influencing factors to PU are ubiquity (H4: 0.302, p-value=0.005),

the next is compatibility (H2: 0.259, p-value=0.007), social influence (H8: 0.210, p-value=0.039) and communication (H6: 0.158, p-value=0.096). For both of the groups, PU had significant influence on trust, with path coefficient of 0.341*** and 0.469*** respectively. In addition, both trust and PU had significant influence on user's intention to use the third-party mobile payment services.

Figure 3a and Figure 3b showed the coefficient of determination (R^2) of the latent variables for Alipay group and WeChat Pay group, respectively. For Alipay group, compatibility, ubiquity, communication, social influence and PU all together explained 53% of the variance in trust. Compatibility, ubiquity, communication and social influence explained 52.5% of the variance in PU. In addition, both of the trust and PU explained 54.3% of the use intention. For WeChat Pay group, compatibility, ubiquity, communication, social influence and PU all together explained 33.8% of the variance in trust. Compatibility, ubiquity, communication and social influence explained 40.5% of the variance in PU. In addition, both of the trust and PU explained 52.9% of the use intention.
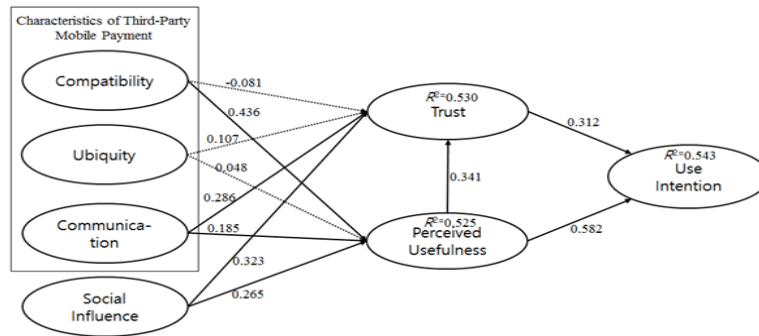
4.7 Multi-group Analysis

To further investigate whether the independent variables have different influence on various third-party mobile payment

services, we conducted a multi-group analysis by comparing Alipay and WeChat Pay based on the research model result. In order to compare the group analysis, we need to adopt the hypotheses that were "accepted" in both of Alipay group and WeChat Pay group.
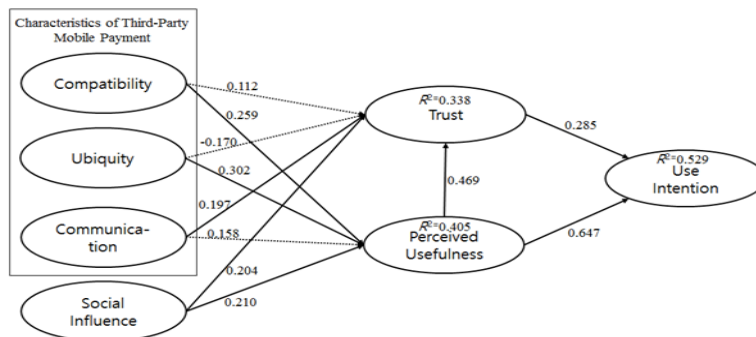
<Table 14> Hypotheses Test Result for Alipay Group and WeChat Pay Group

Hypothesis		Alipay Group			WeChat Pay Group		
		Standardized Estimate	p–Value	Result	Standardized Estimate	p–Value	Result
H1	CMP→TAT	-0.081	0.109	Rejected	0.112	0.270	Rejected
H2	CMP→PU	0.436	***	Accepted	0.259	0.007	Accepted
H3	UBI→TAT	0.107	0.120	Rejected	-0.170	0.145	Rejected
H4	UBI→PU	0.048	0.562	Rejected	0.302	0.005	Accepted
H5	CMU→TAT	0.286	***	Accepted	0.197	0.050	Accepted
H6	CMU→PU	0.185	0.005	Accepted	0.158	0.096	Rejected
H7	SI→TAT	0.323	***	Accepted	0.204	0.041	Accepted
H8	SI→PU	0.265	***	Accepted	0.210	0.039	Accepted
H9	PU→TAT	0.341	***	Accepted	0.469	***	Accepted
H10	TAT→UI	0.312	***	Accepted	0.285	***	Accepted
H11	PU→UI	0.582	***	Accepted	0.647	***	Accepted

$*p<0.05; **p<0.01; ***p<0.001$

<Figure 3a> Research Model Result (Alipay)

<Figure 3b> Research Model Result (WeChat Pay)

According to the "Result" for Alipay and WeChat Pay in Table 14, only H2, H5, H7 and H8 were all "accepted" for both of the groups. Therefore, we will examine the multi-group analysis based on these four hypotheses. The differences between Alipay and WeChat Pay can be tested using the approach suggested by Chin et al. (2003) by computing a t-statistic, which is as follows:

$$ t_{ij} = \frac{p_1 - p_2}{\sqrt{\frac{(n_1-1) \times SE_1^2 + (n_2-1) \times SE_2^2}{n_1+n_2-2}} \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} $$

Where

pi: path coefficient in structural model;

nj: sample size of dataset;

SEi: standard error of path in structural model;

tij: t-statistic with n1+n2-2 degrees of freedom.

Multi-group analysis were performed using Amos 21.0. To test the measurement invariance, a baseline model was determined first. Table 15 shows the model fit results for multi-group analysis. According to Table 15, the normalized chi-square and the observed values for the comparative fit index, normed fit index, as well as the root mean square error of approximation were all within the recommended levels, which indicates a satisfactory fit for multi-group model. Table 16 shows the statistical results of path

coefficients, standard error, sample size of Alipay group and WeChat Pay group obtained by Amos 21.0. Then t-value was calculated through the formula described above. Based on the results, the four hypotheses do exist difference between Alipay group and WeChat Pay group. For more detail, t-value for H2 was 22.13***, which means the influence of compatibility on PU for Alipay group is different from WeChat Pay group. In addition, the standardized path coefficient for Alipay was 0.436, and 0.259 for WeChat Pay. This result indicates that compatibility has a greater influence on PU for Alipay group than WeChat Pay group. T-value for H5 was 12.71***, with standardized path coefficient of 0.286, 0.197 for Alipay and WeChat Pay, respectively. This result indicates that the influence of communication on trust for Alipay group is different from WeChat Pay group, and communication has a greater effect on trust for Alipay than WeChat Pay. T-value for H7 was 17.00***, with standardized path coefficient of 0.323, 0.204 for Alipay and WeChat Pay, respectively. Through the results we can infer that the influence of social influence on trust for Alipay group is different from WeChat Pay group, and social influence has a greater effect on trust for Alipay than WeChat Pay. Finally, T-value for H8 was 7.86***, with standardized path coefficient of 0.265, 0.210 for Alipay and WeChat Pay, respectively. It means that the influence of social influence on PU for Alipay

<Table 15> Model Fit Results for Multi-group Analysis

Fit Index	Recommended Value	Measurement Model	
		Free Model	Constraint Model
χ^2/DF	<3.00	1.753	1.750
CFI (Comparative Fit Index)	≥0.90	0.957	0.957
NFI (normed fit index)	≥0.90	0.907	0.905
RMSEA (root mean square error of approximation)	≤0.050	0.035	0.035

<Table 16> Multi-group Analysis Results

Path		Category	Alipay	WeChat Pay	Differences
H2	CMP→PU	Standardized Path Coefficient	0.436	0.259	Exist
		Standard Error	0.085	0.097	
		Sample Size	372	232	
		t-value	22.13***		
H5	CMU→TAT	Standardized Path Coefficient	0.286	0.197	Exist
		Standard Error	0.069	0.090	
		Sample Size	372	232	
		t-value	12.71***		
H7	SI→TAT	Standardized Path Coefficient	0.323	0.204	Exist
		Standard Error	0.059	0.105	
		Sample Size	372	232	
		t-value	17.00***		
H8	SI→PU	Standardized Path Coefficient	0.265	0.210	Exist
		Standard Error	0.065	0.093	
		Sample Size	372	232	
		t-value	7.86***		

group is different from WeChat Pay group, and social influence has a greater influence on PU for Alipay than WeChat Pay.

Ⅴ. Conclusion

5.1 Academic Implications

This study has several theoretical implications. First of all, unlike many prior studies that attempted to extend technology adoption models to examine user's adoption intention, we developed and validated a third-party mobile payment model by capturing the additional unique characteristics of the mobile finances environment. And the results are in accordance with previous studies in many ways. First, trust positively influences intention to use, which is in accordance with Teo and Liu (2007), Gefen et al. (2003) and Wang and Chen (2006). Second, PU significantly influence intention to use, which is in accordance with Davis (1989), Adams et al. (1992). Third, compatibility has a significant impact on PU for both Alipay group

and WeChat Pay group. This is in line with Hardgrave et al. (2003). Fourth, social influence has positive impact on trust and PU for both Alipay group and WeChat Pay group. This is also accordance with previous studies Taylor and Todd (1995), Hsu and Lu (2004). Finally, the significant influence of PU on trust is accordance with Casalo et al. (2007) and Carlos (2009).

However, we also have some findings that do not conform to previous studies. For variables of compatibility and ubiquity, both of them do not have significant influence on trust in Alipay group or WeChat Pay group (H1 and H3). In other words, even if the third-party mobile payment platform fits for their lifestyle or even if they can use the platform at any time or anywhere under the Wi-Fi, users would not likely to trust the system and use it directly. This result is beyond the expectation. A possible reason for these differences could be due to the characteristics of Chinese. Chinese is a little more suspicious, especially they are oversensitive about transaction. Trust may not be increased directly even if the system is compatible with their lifestyle, or they can transfer at any time or anywhere. They would prefer to trust and use it based on their friends' or families' opinions. That is why social influence has significant as well as the largest impact on trust for both of Alipay and WeChat Pay. There is also a big difference between Alipay and WeChat Pay on PU. For Alipay,

compatibility has the largest influence on PU. In other words, if the third-party mobile payment system fits well for their lifestyle or current situation, users would consider the platform is useful and would more likely to use the platform. While for WeChat Pay, the most influencing factor on PU is ubiquity, however, ubiquity do not have influence on PU in Alipay group (H4). This probably due to users usually shopping or transfer money to e-vendors when they are free through Alipay, instead of at anytime and anywhere. However, since user's behavior has been cultivated, they would use WeChat more to communicate with friends, families no matter on the bus or on a business trip or on the way to school. Finally, communication has significant influence on PU for Alipay, while it has a weak effect for WeChat Pay (H6). A possible reason could be due to for Chinese, as a matter of fact, when transfer money to e-vendors who they do not know, they tend to ask if he is the seller or the name of their shop to make sure he is the right person. However, WeChat is a SNS at first and most people use it to chat with friends or families. Since they already know each other, even the communication function of WeChat is used more frequently than Alipay, it will not facilitate the perception of usefulness too much when transfer money.

Second implication is that, there is no empirical studies in the ISs literature have examined comparative study between Alipay

and WeChat Pay. We conducted a multi-group analysis between Alipay and WeChat Pay based on the research model. The results demonstrated that the influence of compatibility on PU, communication on trust, social influence on trust and social influence on PU for Alipay group is different from WeChat Pay group.

Third, we believe that this study provided a holistic insight into the decision-making process of third-party mobile payment. Indeed, we believe that this conceptual model is not only limited to mobile payment services but would be applicable to other contexts such as mobile banking services, mobile retailing etc.

5.2 Practical Implication

This study also has several practical implications. First, this study indicated that mobile payment service providers should pay more attention on communication and social influence, because they all strongly and positively impact users' trust. These companies should look for opportunities to increase their trust in mobile payment services. They should carefully consider the function of communication to ensure that users can inquiry or communicate when they have queries or doubts. Another important influencing factor on trust is social influence. Thus, it is wise for mobile payment service providers to strengthen advertisements to attract more users and improve trustworthiness.

They can advertise their company through the Internet, such as WeiBo (a SNS like facebook) or advertise on the press.

Second, both of compatibility and social influence have significant influence on PU for both of the groups. Thus, service providers should also pay more attention on compatibility to make sure that their service meets users' current values, needs, and lifestyles.

Third, service providers should understand the different influencing factors among different groups in mobile payment service adoption. For example, the results indicated that ubiquity has the strongest positive impact on PU for WeChat Pay. Companies like WeChat should improve the function of their platform. To create and build a more unique and convenient function for users. While firms like Alipay, such as JdPay which possess an online shopping mall, they can provide preferential policy to attract more users. For example, the users can get a chance to use discount coupon if they choose to use JdPay.

These implications are given according to the results of the unique context in Chinese market. Hopefully the above suggestions could be helpful to those companies which are providing mobile payment services.

5.3 Limitations and Future Research

To address the limitations of this study, we

point out the following issues. First, the sample was limited to users of Alipay/WeChat Pay users in China, especially the college students, the generalizability of the findings may be limited in other countries. This limitation might be a threat to the external validity of the study. Second, since measures of all constructs in the study were collected at the same time and through the same instrument, the potential for common method variance exists. In addition, the relationship between compatibility and trust, ubiquity and trust has been rejected, which is not accordance with previous studies. That may because we do not have enough theories to support these two hypotheses or there might be a mis-translation when translate English version to Chinese version. Future research should investigate other factors with enough theories and should pay more attention to the translation. Another limitation is that when items are dropped in a purely data-driven manner, the meaning of the constructs may change. Re-validating the trimmed scales with new data can be argued to increase validity of the scales. Another limitation is that requires additional study is the conceptualization of trust. Trust was chosen to fit for out study. As discussed above, there are alternative conceptualizations of trust in the management arenas. How to define trust and how to choose the appropriate one needs to pay attention. Future study should pay more attention on the definition of the construct.

References

Adams, D. A., Nelson, R. R., and Todd, P. A., "Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication," *MIS Quarterly*, Vol. 16, No. 2, 1992, pp. 227-247.

Agarwal, R. and Karahanna, E., "Time Flies When You're Having Fun: Cognitive Absorption and Beliefs about Information Technology Usage," *MIS Quarterly*, Vol. 24, No. 4, 2000, pp. 665-694.

Aladwani, A. M., "Change Management Strategies for Successful ERP Implementation," *Business Process Management*, Vol. 7, No. 3, 2001, pp. 266-275.

Al-Somali, S. A., Gholami, R. and Clegg, B., "An Investigation into the Acceptance of Online Banking in Saudi Arabia," *Technovation*, Vol. 29, No. 2, 2009, pp. 130-141.

Amoako-Gyampah, K., "ERP Implementation Factors: A Comparison of Managerial and End-user Perspectives," *Business Process Management*, Vol. 10, No. 2, 2004, pp. 171-183.

Amoako-Gyampah, K. and Salam, A. F., "An Extension of the Technology Acceptance Model in an ERP Implementation Environment," *Information & Management*, Vol. 41, No. 6, 2004, pp. 731-745.

Arpaci, I., "Understanding and Predicting

Students' Intention to Use Mobile Cloud Storage Services," *Computers in Human Behavior,* Vol. 58, 2016, pp. 150-157.

Bhattacherjee, A., "Understanding Information Systems Continuance: An Expectation Confirmation Model," *MIS Quarterly*, Vol. 25, No. 3, 2001, pp. 351-370.

Bock, G. W., Lee, J. and Kuan, H. H., "The Progression of Online Trust in the Multi-channel Retailer Context and the Role of Product Uncertainty," *Decision Support Systems,* Vol. 53, No. 1, 2012, pp. 97-107.

Bueno, S. and Salmeron, J. L., "TAM-based success modeling in ERP," I*nteracting with Computers,* Vol. 20, No. 6, 2008, pp. 515-523.

Carlos, R. J., Jose, G. J. and Jose de la V. J., "The Importance of Perceived Trust, Security and Privacy in Online Trading Systems," *Information Management & Computer Security,* Vol. 17, No. 2, 2009, pp. 96-113.

Casalo, L. V., Flavian, C. and Guinaliiu, M., "The Role of Security, Privacy, Usability and Reputation in the Development of Online Banking," *Online Information Review,* Vol. 31, No. 5, 2007, pp. 583-603.

Chen, Y. and Barnes, S., "Initial Trust and Online Buyer Behavior," *Industrial Management & Data Systems,* Vol. 107, No. 1, 2007, pp. 21-36.

Chin, W. W., Marcolin, B. L. and Newsted, P.

R., "A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and An Electronic Mail Adoption Study," *Information Systems Research,* Vol. 14, No. 2, 2003, pp. 189-217.

Cooper, R. B. and Zmud, R. W., "Information Technology Implementation Research: A Technological Diffusion Approach," *Management Science,* Vol. 36, No. 2, 1990, pp. 123-139.

Dahlberg, T., Mallat, N., Ondrus, J. and Zmijewska, A., "Pase, Present and Future of Mobile Payments Research: A Literature Review," *Electronic Commerce Research and Applications*, Vol. 7, No. 2, 2008, pp. 165-181.

Davis, F. D., "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology," *MIS Quarterly,* Vol. 13, No. 3, 1989, pp. 319-340.

Devaraj, S., Fan, M. and Kohli, R., "Antecedents of B2C Channel Satisfaction and Preference, Validating E-commerce Metrics," *Information Systems Research*, Vol. 13, No. 3, 2002, pp. 316-333.

Doney, P. M, and Cannon, J. P., "An Examination of the Nature of Trust in Buyer-Seller Relationships," *Journal of Marketing*, Vol. 61, 1997, pp. 35-51.

Gefen, D., "E-commerce: The Role of Familiarity and Trust," *Omega,* Vol. 28,

No. 6, 2000, pp. 725-737.

Gefen, D. and Straub, D. W., "The Relative Importance of Perceived Ease of Use in IS Adoption: A Study of E-commerce Adoption," *Journal of the Association for Information Systems*, Vol. 1, No. 1, 2000, pp. 8.

Gefen, D., "Nuturing Clients' Trust to Encourage Engagement Success During the Customization of ERP Systems," *Omega,* Vol. 30, No. 4, 2002b, pp. 287-299.

Gefen, D. and Straub, D. W., "Managing User Trust in B2C E-services," *E-service Journal*, Vol. 2, No. 2, 2003, pp. 7-24.

Gu, J. C., Lee, S. C. and Suh, Y. H., "Determinants of Behavioral Intention to Mobile Banking," *Expert Systems with Applications*, Vol. 36, No. 9, 2009, pp. 11605-11616.

Guo, J., Bouwman, H., "An Ecosystem View on Third-party Mobile Payment Providers: A Case Study of Alipay wallet," *info,* Vol.18, No.5, 2016, pp.56-78.

Hardgrave, B. C., Davis, F. D. and Riemenschneider, C. K., "Investigating Determinants of Software Developers' Intentions to Follow Methodologies," *Journal of Management Information Systems,* Vol. 20, No. 1, 2003, pp. 51-90.

Hsu, C. L. and Lu, H. P., "Why do People Play Online Games? An Extended TAM with Social Influences and Flow Experience," *Information &*

Management, Vol. 41, No. 7, 2004, pp. 853-868.

Keen, P., Balance, G. and Chan S., Electronic Commerce Relationships: Trust by Design. Prentice Hall PTR, 1999.

Kim, C., Mirusmonov, M. and Lee, I., "An Empirical Examination of Factors Influencing the Intention to Use Mobile Payment," *Computers in Human Behavior,* Vol.26, No.3, 2010, pp. 310-322.

Kim. S. and Park. H., "Effects of Various Characteristics of Social Commerce (S-commerce) on Consumers' Trust and Trust Performance," *International Journal of Information Management,* Vol. 33, No. 2, 2013, pp. 318-332.

Kimberly, J. R., Managerial Innovation. Handbook of Organizational Design, Vol. 1, No. 84, 1981, pp. 104.

Kwahk, K. Y. and Lee, J. N., "The Role of Readiness for Change in ERP Implementation: Theoretical Bases and Empirical Validation," *Information & Management,* Vol. 45, No. 7, 2008, pp. 474-481.

Lai, V. S. and Li, H., "Technology Acceptance Model for Internet Banking: An Invariance Analysis," *Information & Management,* Vol. 42, No. 2, 2005, pp. 373-386.

Lee, T., "The Impact of Perceptions of Interactivity on Customer Trust and Transaction Intentions in Mobile Commerce," *Electronic Commerce*

Research, Vol. 6, No. 3, 2005, pp. 165-180.

Leong, L. Y., Hew, T. S., Tan, G. W. and Ooi, K. B., "Predicting the Determinants of the NFC-enabled Mobile Credit Card Acceptance: A Neural Networks Approach," *Expert Systems With Applications,* Vol. 40, No. 14, 2013, pp. 5604-5620.

Li, X., Hess, T. J., and Valacich, J. S., "Why do We Trust New Technology? A Study of Initial Trust Formation with Organizational Information Systems," *Journal of Strategic Information Systems,* Vol. 17, No. 1, 2008, pp. 39-71.

Lu. J., Yao. J. E. and Yu. C. S., "Personal Innovativeness, Social Influences and Adoption of Wireless Internet Services Via Mobile Technology," *The Journal of Strategic Information Systems,* Vol. 14, No. 3, 2005, pp. 245-268.

Lu, Y., Yang, S., Chau, P. Y. and Cao, Y., "Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective," *Information & Management,* Vol. 48, No. 8, 2011, pp. 393-403.

Malhotra, N. K., Kim, S. S. and Agarwal, J., "Internet Users' Information Privacy Concerns (IUIPC): the Construct, the Scale, and A Causal Model," *Information Systems Research,* Vol. 15, No. 4, 2004, pp. 336-355.

McKnight, D. H., Choudhury, V. and Kacmar, C., "Developing and Validating Trust Measures for E-Commerce: An Integrative Typology," *Information Systems Research,* Vol. 13, No. 2, 2002, pp. 334-359.

Miltgen, C. L., Popovic, A. and Oliveira, T., "Determinants of End-user Acceptance of Biometrics: Integrating the 'Big 3' of Technology Acceptance with Privacy Context," *Decision Support Systems,* Vol. 56, 2013, pp. 103-114.

Montazemi, A. R. and Qahri-Saremi, H., "Factors Affecting Adoption of Online Banking: A Meta-Analytic Structural Equation Modeling Study," *Information & Management*, Vol. 52, No. 2, 2015, pp. 210-226.

Moon, J. M. and Kim, Y. G., "Extending the TAM for a World-Wide-Web Context," *Information & Management,* Vol. 38, No. 4, 2001, pp. 217-230.

Moon, Y. J. and Lee, J. H., "A Study on the Performance of Online Community Reputation, Social Presence, Interactivity, Playfulness: Mediating Role of Trust and Flow," *The E-Business Studies*, Vol. 9, No. 1, 2008, pp. 75-99.

Moore, G. C. and Benbasat, I., "Development of An Instrument to Measure the Perceptions of Adopting An Information Technology Innovation," *Information Systems Research*, Vol. 2, No. 3, 1991, pp. 192-222.

Park, C. and Kang, B. G., " Factors Influencing on Trust Toward E-commerce by Consumer Experience of Online Buying," *Information Systems Review,* Vol. 5, 2003, pp. 81-95.

Paul, G. S., Oliver S. and Bernd W. W., "Understanding Consumer Acceptance of Mobile Payment Service: An Empirical Analysis," *Electronic Commerce Research and Applications,* Vol. 9, No. 3, 2010, pp. 209-216.

Qu, Y., Rong, W., Ouyang, Y., Chen, H., and Xiong, Z., "Social Aware Mobile Payment Service Popularity Analysis: The Case of WeChat Payment in China," *Asia-Pacific Services Computing Conference, Springer International Publishing,* 2015, pp. 289-299.

Ramayah, T., Roy, M. H., Arokiasamy, S., Zbib, I. and Ahmed, Z. U. "Critical Success Factors for Successful Implementation of Enterprise Resource Planning Systems in Manufacturing Organizations," *International Journal of Business and Systems Research,* Vol. 2, No. 3, 2007, pp. 276-297.

Rogers, E. M., Diffusion of Innovations. Free Press, New York, NY, 1995.

Schierz, P. G., Schilke, O. and Wirtz, B. W., "Understanding Consumer Acceptance of Mobile Payment Services: An Empirical Analysis," *Electronic Commerce Research and Applications,* Vol. 9, No. 3, 2010, pp. 209-206.

Schultz, R. L. and Slevin, D. P., Implementing Operations Research Management Science, New York: American Elsevier, 1975.

Shih, Y. Y. and Fang, K., "Effects of Network Quality Attributes on Customer Adoption Intentions of Internet Banking," *Total Quality Management & Business Excellence,* Vol. 17, No. 1, 2006, pp. 61-77.

Sternad, S. and Bobek, S., "Impacts of TAM-based External Factors on ERP Acceptance," *Fuel Processing Technology,* Vol. 9, 2013, pp. 33-42.

Teo, T. S. and Liu, J., "Consumer Trust in E-commerce in the United States, Singapore and China," *Omega,* Vol. 35, No. 1, 2007, pp. 22-38.

Varnali, K. and Toker, A., "Mobile Marketing Research: The-state-of-the-art," *International Journal of Information Management,* Vol. 30, No. 2, 2010, pp. 144-151.

Vatanasombut, B., Igbaria, M., Stylianou, A. C. and Roders, W., "Information Systems Continuance Intention of Web-based Applications Customers: The Case of Online Banking," *Information & Management,* Vol. 45, No. 7, 2008, pp. 419-428.

Venkatesh, V. and Davis, F. D., "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science,* Vol. 46, No. 2, 2000, pp. 186-204.

Venkatesh, V., "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model," *Information Systems Research,* Vol. 11, No. 4, 2000, pp. 342-365.

Venkatesh V, and Bala, H., "Technology Acceptance Model 3 and A Research Agenda on Interventions," *Decision Sciences*, Vol. 39, No. 2, 2008, pp. 273-315.

Wang, E. T. and Chen, J. H., "Effects of Internal Support and Consultant Quality on the Consulting Process and ERP System Quality," *Decision Support Systems,* Vol. 42, No. 2, 2006, pp. 1029-1041.

Wu, L. and Chen, J. l., "An Extension of Trust and TAM Model with TPB in the Initial Adoption of Online Tax: An Empirical Study," *International Journal of Human-Computer Studies,* Vol. 62, No. 6, 2005, pp. 784-808.

Zhou, T., "Examining Mobile Banking User Adoption from the Perspectives of Trust and Flow Experience," *Information Technology and Management,* Vol. 13, No. 1, 2012, pp. 27-37.

Zhou, T., "An Empirical Examination of Users' Switch from Online Payment to Mobile Payment," *International Journal of Technology and Human Interaction*, Vol. 11, No. 1, 2015, pp. 55-66.

무홍레이 (Mu, Hong-Lei)

동국대학교 일반대학원 경영학 석사학위를 취득하고 현재 동 대학원 국제비즈니스협동과정 박사과정에 재학 중이다. 주요 관심분야는 핀테크, 전자상거래, 모바일 쇼핑 등이다.

이 영 찬 (Lee, Young-Chan)

서강대학교 경영학사, 동 대학원에서 경영학 석사 및 박사학위를 취득하였다. 현재 동국대학교 경주캠퍼스 경영학부 교수로 재직하고 있으며, Annals of Management Science, The Open Operational Research Journal의 Editorial Board, 한국경영학회 MIS 분야 대표 편집위원으로 활동 중이다. 주요 관심 분야는 기업성과측정, 데이터마이닝, 복잡계 이론, 다기준의사결정 등이다.

<Abstract>

Examining the Influencing Factors of Third-Party Mobile Payment Adoption: A Comparative Study of Alipay and WeChat Pay

Mu, Hong-Lei* · Lee, Young-Chan**

Purpose

The first purpose of this study is to investigate factors that are likely to influence user's intention to adopt third-party mobile payment platform. A comprehensive study about mobile payment services have used various variables to explain user's use intention based on the theory of reasoned action (TRA) or the theory of planned behavior (TPB). Variables such as simplicity, security, costs, relative advantage, individual mobility, subjective norm, trust, satisfaction, attitude towards use, perceived usefulness, perceived ease of use and so on. Among these factors, we expect to find out the most influential factors effecting user's use intention of the third-party mobile payment services. Second, we also examine whether the most influential factors have the same influence to different third-party mobile payment services by conducting comparative study of Alipay and WeChat Pay.

Design/methodology/approach

Empirical data for this study were collected from Chinese who has the experience using or have used Alipay or WeChat Pay. Participants needed to be familiar with Alipay or WeChat Pay because such users may be more aware of both the advantages and disadvantages of Alipay and WeChat Pay. We conduct a pilot test using Smart PLS 2.0, which includes 50 Alipay users and 82 WeChat Pay users. The result indicates that all the measurement fit for the context. And then 980 questionnaires were mainly sent out to the college students and the e-mails users randomly. To encourage participation, we give the participants a small gift as a present. Finally, we received a total of 683 replied. Data from respondents who gave incomplete or invalid answers were excluded to assure the validity of the constructs. 79 questionnaires were rejected, finally the valid data are 604 (with 372 Alipay users and 232 WeChat Pay users).

Findings

The results suggest that users' intention is determined by their trust on third-party mobile payment service and perceived usefulness of use. Comparative study results also indicated that the factors have different influence on Alipay group and WeChat Pay group, which offers a new aspect for academic field, and provides useful information to mobile payment service providers in China.