UNDERSTANDING CUSTOMER INTENTION TO USE MOBILE PAYMENT SERVICES IN NANJING, CHINA

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ABSTRACT

Aim/Purpose	This study examines the factors that influence customer intention to use mobile payment service in Nanjing, China. It also gains a deeper understanding and better insight of Chinese consumer behavior.
Background	Mobile payments services represent a tremendously interesting paradox in the world of telecommunications. Although, they are convenient, quick and easy but there is not still enough evidence on how successful this practice is. In Nanjing, China, consumer intention to use mobile payment is still questionable and remains as a skeptical consideration.
Methodology	A survey was conducted in Nanjing, China where 612 respondents were interviewed by self-administered survey. The modified Theory of Reasoned Action (TRA) and Technology Acceptance Model (TAM) were applied in this study. Descriptive analysis, exploratory factor analysis and multiple regressions were used to accomplish the objective.
Contribution	This research provides an insight to the mobile telecommunication industry, marketers, decision makers and academics on the factors that encourage consumers to use mobile payment.
Findings	Four factors that influence the consumer behavioral intention were determined in this study (perceived risk, perceived usefulness, subjective norm and attitude). The results of multiple regression indicate that all four variables significantly influence customer intention to use mobile payment in Nanjing, China, however subjective norm has relatively high impact as compared to others.

Recommendations for Practitioners	In order to build a positive expression of the brand, mobile service providers are suggested to enhance the persuasion of the application. As customers provide their privacy information to register for the mobile payment services, providers should strengthen their security system. This not only shapes consumer trust but also prevent privacy leakage. Secondly, mobile payment application providers can imply policies for protecting customer rights from potential risk to increase their agreement of the application. These will lead to unexpected losses financially.
Recommendation for Researchers	It is recommended to make a comparison study between two Mobile payment platforms by examining constructs such as usefulness, ease of use, perceived risk as well as security risk, financial risk, social risk and time risk between Alipay and Wechat payment system in China.
Impact on Society	Various forms of mobile payment have been adopted by Chinese consumers due to convenience, speed and ease of use. Even though mobile payment does not replace physical payment cards but it has been acting as a substitute for paper-based payment method and it is driving demand and consumer usage. However, there the potential for data to leak creates some level of insecurity and skepticism for Chinese costumers.
Future Research	To have an in depth understanding about the consumer intention to use mobile payment, it is recommended to determine the current customers' satisfaction level by adopting the SERQUAL model. Qualitative and quantitative research with focus group will be a good approach to get a deeper understanding on the factors that influence consumer to use mobile payment services rather than others payment methods. It is also important to get more information regarding customer satisfaction towards the mobile payment platform.
Keywords	Mobile payment, intention, attitude, perceived risk, perceived usefulness

INTRODUCTION

Mobile communication has been one of the biggest development sectors in the IT industry. It would be named as the UMTS (Universal Mobile Telecommunications System), which is a new third generation system after GSM (cellular) and DECT (cordless). UMTS offers services involving almost every business with plenty functions than today's system (Horn & Preneel, 1998). The definition of mobile payment can be described as "a type of payment transaction processing in which the payee uses mobile communication techniques in conjunction with mobile devices for initiation, authorization, or completion of payment" (Goeke & Pousttchi, 2010). In other words, customers are able to buy goods, enjoy services and pay bills through a mobile device (Dahlberg et al., 2008). Mobile payment is an individual service between machines which is not necessary communicates others. It is a convenient way for customers to pay for goods and services. Moreover, M-payment services are classified as goal-directed services. M-payment services can be divided into three categories (Nysveen, 2005). First of all, M-payment services, which are widely used to make payment for SMS messages, MMS message and ringtones. Secondly, those services that act as an electronic purse to make payments for physical services such as tickets of bus, train and cinema. Thirdly, M-payment services that help customers to pay bills (e.g. telephone bills and other utility bills) on time. Due to the economy and technology growth, mobile phone has become a common electronic device for majority of society. Smartphones are an avoidable part of life and since they provide connection, communication and knowledge, they have become part of individual's identity (Pousttchi & Wiedemann 2007). In general, smartphones and their applications are capable to boost efficiency and productivity by providing services such as tracking deliveries and paying bills. The ability of implementing different services at the same time (multi-choice electric wallet) has made mobile payment more convenient as compared to personal physical wallets (Tartiana et al., 2016).

China's mobile phone market has grown rapidly after their access to the World Trade Organization (WTO). In 2012, China's mobile phone market had surpassed the United States' smartphone market share and US domestic smartphone production. China manufactures and exports around 208 million units of smartphone in a year which is almost 21 percent of the entire global smartphone market share. As at the end of 2015, there were 380 million smartphone users in China. In just three year time, the number of smartphone users is estimated to 675 million (2018) which exceeds almost half of the population. Due to this growth, China home grown smartphone brands such as Huawei, Xiaomi and Lenovo have become more popular among the Chinese costumers as they offer good values and prices. As a result, Chines costumers have embraced mobile payments to perfume some their financial activities via smartphones. Mobile payments have made major inroads as a medium of settlement in Chinese cities. Aside from restaurants, grocery stores, and department stores, the mobile payments have gained popularity in the vegetable markets and small scale vendors in China. In 2016, mobile payment transactions hit US$5.5 trillion, making China the largest mobile payments market in the world (TheStar Online, Dec 2017). Currently "Alipay" and "WeChat" are two main Mobile payment companies in China. Alipay is the mobile payment which is an affiliate of Alibaba Group Holding and has remained as the first preferred payment system among Chinese consumers since 2014 (Maggie, 2018). WeChat Pay which is controlled by Tencent Holdings has been ranked the second most popular payment option. According to Arvidsson (2014), mobile payment supplies economic benefits to the costumers as it has significant lower costs than cash-based services and existing card payments. Given the convenience of mobile payment and the fact that most of prior studies focus on the settings of Western and developed countries (Fisk et al., 2010), there is indeed a need to explore Chinese costumer intention to use mobile payment services in the context of emerging markets.

MATERIAL AND METHOD

CONCEPTUAL FRAMEWORK

A combination of the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA) are used in this study (see Figure 1). TAM is used in this study because it attempts to explain the consumer decision making process which relate to technology acceptance behavior; while TRA is used in this study because shows that behavior is proximally determined by the behavioral intention and has a strong prediction of utility for a wide range of human behavior. For instance, researchers have used the combination of these two models to predict consumers' intention and acceptance of mobile payment services in Sweden (Hauff, 2011), Pakistan (Aslam et al., 2017) and Spanish (Cabanillas et al., 2014). The modified TAM and TRA models postulate four conceptually independent determinants of consumer intention to use mobile payment service: perceived risks, perceived usefulness, customer attitude and subjective norm. According to Batra and Sinha (2000), perceived risk is the uncertainty a costumer might have while making the payment through mobile. In this study, perceived risk defines as perception towards security or privacy risk, financial risk, social risk and time risk. According to Hauff (2011), perceived security is the one of the main factors that influences costumer intention to use mobile payment service. Perceived usefulness often concludes as a component involving effectiveness and efficiency. While, in the further studies and application in practices, the motivation of perceived usefulness is not related to effectiveness and efficiency only, but it also relevant to availability, sociability, reassurance, and instrumentality (Nysveen, 2005). Perceived usefulness in this study has been used to measure an individual's belief on how this service can improve their living standard. Subjective norm assesses the social pressure on individuals to perform or not to perform certain behavior, for example, the motivation to comply with others' views. In case of M-payment services, friends, government, social media and family can be pointed out as strong motivation which may increase individual's intention to use M-payment services. Several studies have shown that subjective norm is an important factor which influences customer intention to use M-payment services (Agarwal & Karahanna, 2000; Gu et al., 2009; Venkatesh & Davis, 2000).

According to Fishbein & Ajzen (1975), attitude can be defined as "an individual's positive or negative feelings about performing the target behavior". According to Nysyeen (2005), a positive attitude would increase the customer intention to use mobile services. The combination of these components can be a key point to attract more customers to the functionality of smartphones (Dahlberg et al., 2008). Therefore, intention is described as the costumers' willingness to try and the individual's effort to perform a particular behavior.
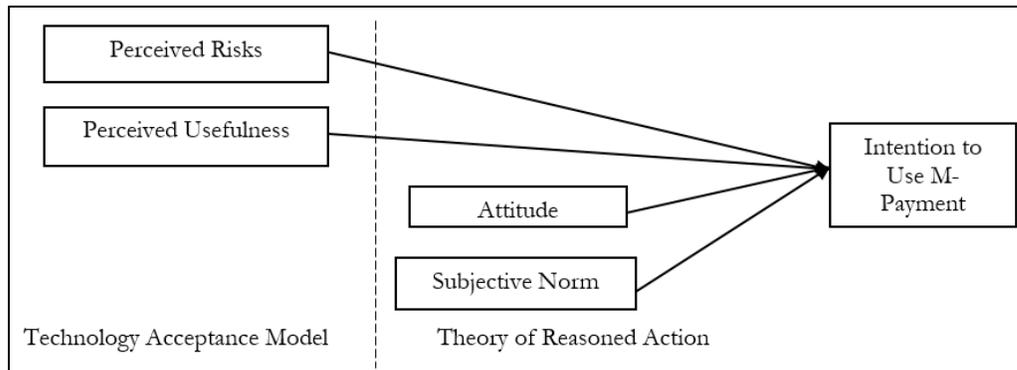

Figure 1. Conceptual Framework of TAM and TRA with Application towards Intention to Use Mobile Payment among the Consumers in Nanjing, China
(Source: Modified model from Davis, et. al., 1989, and Fishbein and Ajzen, 1975)

HYPOTHESIS TESTING

The focus of this study is to find the relationship between the components in Theory of Reasoned Action (TRA) such as attitude and subjective norms and the components in Technology Acceptance Model (TAM) such as perceived risks and perceived usefulness which influence consumers' intention to use mobile payment service in Nanjing, China. Four hypotheses were formulated to identify the relationship between the components and intention to use mobile payment in different aspects.

1) H_{01}: Perceived risk of an individual has no influence on their intention to use mobile payment service.
2) H_{02}: Perceived usefulness of an individual has no influence on their intention to use mobile payment service.
3) H_{03}: Attitude of individual has no influence on their intention to use mobile payment service.
4) H_{04}: Subjective norm has no influence on costumer intention to use mobile payment service.

SAMPLE AND QUESTIONNAIRE

The targeted respondents for this research were those who are currently using smartphone. The simple random sampling was applied is this study as respondents were randomly selected at public places in Nanjing, China. Around 700 questionnaires were distributed, however 612 were completed. Data were collected from Chines respondents using a self-administered questionnaire (SAQ). A five point Likert scale from 'Strongly Disagree' to 'Strongly Agree' was used in this study to gauge the customer intention to use mobile payment service. The questionnaire was divided into six sections and it consisted of the statements that addressed and measured the components of Technology Acceptance Model (TAM) and Theory Reasoned Action (TRA). Section A asked about the respondents' personal information such as age, income, marital status, gender and education level. Section B measured their attitude towards mobile payment service. Section C measured the subjective norm and in section D, respondents were asked the perceived risks of mobile payment. Section E measured the usefulness of mobile payment service.

METHOD OF ANALYSIS

Descriptive statistics, reliability test, exploratory factor analysis (EFA) and multiple regression were used to analyze the information gathered from the questionnaire. Descriptive analysis was used to describe the respondents' socio-demographic profile in this study. Reliability analysis was carried out to test the internal consistency of a measure (Field, 2005). Exploratory factor analysis was used to test the validity of the interview questions and to reduce the items in the questionnaire. Multiple regression analysis was employed to test the relationship between extracted factors and their influence on intention to use mobile payment services. Therefore, to accomplish the main purpose of this study, a model was employed:

$y = b_0 + b_1\chi_1 + b_2\chi_2 + b_3\chi_3 + b_4\chi_4 + e_i$
Where,
y = Consumer intention
b_0 = regression constant
b_k = coefficient on the kth predictor
χ_1 = Perceived risk
χ_2 = Perceived usefulness
χ_3 = Attitude
χ_4 = Subjective norm
e_i = error term

RESULTS

The Cronbach's alpha value which gets from reliability analysis was 0.977 and this showed that there was internal consistency among the TRA and TAM. This indicates that the model is fit for this study.

SOCIO-DEMOGRAPHIC INFORMATION

As shown in Table 1, the socio-demographic profile of the consumers from Nanjing, China. The result showed that 43.1 percent of the respondents were male and 56.9 percent of the respondents were female. As can be seen in Table 1 majority of the respondents were married (56.5 percent) and only 43.5 percent were single. In terms of monthly income, the result shows that 45.1 percent earned less than 4,000 RMB, 33 percent earn between 4,001 to 6,000 RMB, 11.4 percent earn between 6,001 – 8,000 RMB, 5.6 percent earn more than 10,001 RMB and only 4.9 percent had monthly income between 8,001 to 10,000 RMB. The education level of the respondents was categorized into four categories where 38.9 percent had diploma and below, 56.9 percent of them graduated with bachelor degree and 4.2 percent had their master's or doctor of philosophy degree. With regards to age, the result showed that most of the respondents were between 26 to 35 years (33.3 percent).

Table 1. Demographic Profile of Respondents (n=612)

Characteristic	Percentage	Characteristic	Percentage
Gender		Age	
Male	43.1	25 and below	28.1
Female	56.9	26 - 35	33.3
		36 - 45	17.0
Marital Status		46 and above	21.6
Single	43.5		
Married	56.6	Monthly Income	
		Less than 4,000 RMB*	45.1
Education level		4,001- 6,000 RMB	33.0
Diploma and below	38.9	6,001- 8,000 RMB	11.4
Tertiary Education	56.9	8,001- 10,000 RMB	4.9
Higher Tertiary Education	4.2	Above 1,0001 RMB	5.6

Source: Survey , *1RMB= $0.16UD

EXPLORATORY FACTOR ANALYSIS

As mentioned earlier, factor analysis was used to uncover the latent factors underlying respondents' intention to use mobile payment services. Respondents answered 30 statements which were all five point Likert scale measuring their attitudes, subjective norm, perceived risk, perceived usefulness and intention towards the mobile payment services. The results from factor analysis show that out of 30 statements, there were only 23 statements that related to their intention. Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and Barlett's test of Sphericity were first performed on all the statements to confirm the appropriateness of conducting factors analysis. In this study, the result of KMO test reached the values of at least 0.955 (see Table 2) which indicates that the sampling adequacy and factor analysis can be carried out by using the 23 statements.

Table 2. Kaiser-Meyer-Olkin (KMO) and Barlett's test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.955
Bartlett's Test of Sphericity	Approxi Chi-square	7529.112
	Df	253
	Significance	0.000

The varimax rotation and the factor loading from the principal component of 23 statements were obtained. From the results of the rotated factor matrix, only item with a factor loading of at least 0.5 and above are considered as a significance items. The factor loading for five factors is from 0.538 to 0.854 (see Table 3). The factors were named based on the sub- variables which fall within each factors. The five latent factors which account for about 81.745 percent of the total variance are summarized as follow.

Attitude toward Mobile Payment

The factor was composed by five sub-variables within the 18.802 percent of total variance. "I believe I can save time by using mobile payment services" (0.763) and "I think that using mobile payment services fits well with my life style" (0.763) have the same factor loading. This followed by "Given choice between mobile payment and other payment methods, I prefer mobile payment services because it enables me to finish my task more quickly" has followed those two (0.750). The two other statements are "Using mobile payment services is compatible with the way I like to be" (0.746) and "I believe that using mobile payment services is convenient" (0.706). From the result, it is clearly shows that respondents have positive attitude towards mobile payment as it can save their time and fit their lifestyle. They also agree that compared to other methods of payment, mobile payment is faster. According to Cabanillas, Luna and Rios (2017), attitude is the main factor which influence consumer to adopt NFC mobile payment system.

Intention to Use Mobile Payment

This factor has a total 18.346 percent of the variance and comprises of five sub-variables; "I will consider using mobile payment services if I had seen someone else using before trying it myself" (0.754). This is followed by "I intend to use mobile payment services if I do not face any technical problems while using the internet" (0.726), "I will consider using mobile payment services if I have an easy access to the internet" (0.696), "Given the opportunity, I will use mobile payment services" (0.679) and "I will consider using mobile payment services if there was no one around to tell me what to do as I go" (0.664). The results show that the consumers are more likely to use mobile payment service because there is an existence intention which affects their behavior.

Table 3. Results of Exploratory Factor Analysis

Items	Factor Loading				
	F1	F2	F3	F4	F5
Costumers' attitude toward mobile payment					
I believe I can save time by using mobile payment services.	0.763				

I think that using mobile payment services fits well with my life style.	0.763				
Given choice between mobile payment and other payment methods, I prefer mobile payment services because it enables me to finish my task more quickly.	0.750				
Using mobile payment services is compatible with the way I like to be.	0.746				
I believe that using mobile payment services is convenient.	0.706				
Variance (percent of explained)	**18.802**				
Intention to use mobile payment service					
I will consider using mobile payment services if I had seen someone else using before trying it myself.		0.754			
I intend to use mobile payment services if I do not face any technical problems while using the internet.		0.726			
I will consider using mobile payment services if I have an easy access to the internet.		0.696			
Given the opportunity, I will use mobile payment services.		0.679			
I will consider using mobile payment services if there was no one around to tell me what to do as I go.		0.664			
Variance (percent of explained)		**18.346**			
Perceived Usefulness					
Mobile payment services save me time.			0.779		
Mobile payment services allow for a faster usage of mobile applications (e.g. ticket purchase, bill payment).			0.720		
Mobile payment services are a useful mode of payment.			0.672		
Mobile payment services bring one more choice for customers in a payment process.			0.663		
Mobile payment services enable me to accomplish my daily tasks more quickly.			0.621		
Variance (percent of explained)			**17.418**		
Perceived Risk					
The risk of abuse of confidential information (e.g. credit card number, bank account data) is low when using mobile payment services.				0.854	
The risk of an unauthorized third party overseeing the payment process is low.				0.805	
I would find mobile payment services secure in conducting my payment transactions.				0.799	
The risk of losing money when making payment using mobile is low.				0.784	
Variance (percent of explained)				**15.897**	
Subjective Norm					
My family thinks I should use the mobile payment services.					0.799
The government encouragements make me think the best way to make payment is through using mobile payment services.					0.735
Social media makes me aware of the concept of mobile payment.					0.540
People who are important to me would recommend using mobile payment services.					0.538
Variance (percent of explained)					**11.282**
Total Percentage of Variance					**81.745**

Perceived Usefulness

This factor explain 17.418 of a total variance and consists of five sub-variables; "Mobile payment services save me time" (0.779) has the highest factor loading followed by "Mobile payment services allow for a faster usage of mobile applications (e.g. ticket purchase, bill payment)" (0.720), "Mobile payment services are a useful mode of payment" (0.672), "Mobile payment services bring one more choice for customers in a payment process" (0.663) and "Mobile payment services enable me to accomplish my daily tasks more quickly" (0.621). The results show that most of the respondents perceive mobile payment as a useful tool as it is more convenient than traditional payment methods in terms of portability. Hayashi in 2012 concluded that mobile payment had eliminated the inconvenience of carrying multiple plastic cards by enabling consumers to link mobile payments to their card accounts.

Perceived Risk

Perceived risk is the fourth factor which has a total variance of 15.897 with four sub-variables; "The risk of abuse of confidential information (e.g. credit card number, bank account data) is low when using mobile payment services." (0.854), followed by "The risk of an unauthorized third party overseeing the payment process is low" (0.805), "The risk of an unauthorized third party overseeing the payment process is low" (0.799) and "The risk of an unauthorized third party overseeing the payment process is low" (0.784). The results indicate that customers have confidence toward protecting their privacy information by providers.

Subjective Norm

Subjective norm has a variance of 11.282 and consists of four sub-variables; "My family think I should use the mobile payment service" (0.799) followed by "The government encouragements make me think the best way to make payment is through using mobile payment services" (0.735), "Social media makes me aware of the concept of mobile payment" (0.540), "People who are important to me recommend using mobile payment services" (0.538). The results indicate that customers are easily influenced by the society such as government, social media, friends and family.

The Cronbach's Alpha was used to measure the reliability of 23 relevant variables. A measure of internal reliability consistency is determined by using the Cronbach's Alpha score. Five latent factors are identified and have sufficient internal reliability consistency as indicated by Cronbach's Alpha scores which shows in Table 4. Cronbach's alpha value which gets from reliability analysis for each latent factor was above 0.8. This showed that there was internal consistency among items.

Table 4. Cronbach's alpha for each latent factor

Dimensions	Cronbach's Alpha
Customers' Intention	0.951
Perceived Risk	0.899
Perceived Usefulness	0.933
Subjective Norm	0.913
Attitude	0.940

MULTIPLE REGRESSION ANALYSIS

Multiple regression are used in this study to explain the dependent variable (Y) such as costumer intention to use mobile payment is estimated from several independent variables (X) such as attitude, subjective norm, perceived risks and perceived usefulness. As shows in Table 5, the adjusted R square value is 0.803 which indicates that the four factors contributed 80.3 percent of the variation in "intention to use mobile payment service". The assumption of the independent has almost certainly been met since the value of Durbin-Watson is 1.920 which is very close to 2. Therefore, we can conclude that there is no first order linear auto-correlation in the data. The regression model is statistical-

ly sufficient with F-value of 311.507 (p-value= 0.000). It indicates that all four independent variables that used in this study are simultaneously significant to the dependent variable. Each factors tested in different dimensions and without any multi-collinearity with the tolerance rate is more than 0.1 (Menard, 1995) and variance inflation factor (VIF) is less than 10 (Myers, 1990). As shown in Table 5, the results show that out of four constructs only perceived risk is significant at 90% (α =0.1). The other three variables such as attitude, perceived usefulness and subjective norm are significant at a 99% level (α =0.01). Subjective norm has a much larger (β =0.499) than perceived usefulness (β=0.376) and attitude (β=0.151) indicating that subjective norm is the main predicting construct in the model. Previous studies have also explained the direct influence of subjective norm on individual's intention and behavior (Rezai et al., 2017; Phuah & Lee, 2017). According to Shatskikh (2013), subjective norm plays a key point for customers' acceptance of the intention to use mobile payment. M-payment creates satisfaction among costumers; firstly because it is convenient and second, it consumes less time and energy especially when the service provider is well-known by the costumers (Forsythe & Shi, 2003). It means that when there are fewer risks involved, customers are able to form positive attitude. While the predictions on perceived risk shows very low significant level compared to others constructs, it also has a a lower impact (β=-0.047) than others constructs. It could be due the fact that the two service provider companies (Alipay and Wechat) have built a trustworthy image and the respondents are likely to be convinced by the benefits they perceive to be associated to M payment rather than the risks.

Table 5. Multiple regression of Customer Intention to Use Mobile Payment

Independent Variables		Unstandardized Coefficients (B)	T Value	P Value	Collinearity Statistics	
					Tolerance	VIF
Constant		0.080	0.624	0.533		
Attitude		0.151	3.225	0.001***	0.306	3.273
Perceived Risk		-0.047	-1.733	0.084*	0.600	1.667
Perceived Usefulness		0.376	7.050	0.000***	0.279	3.588
Subjective Norm		0.499	11.894	0.000***	0.334	2.991
R^2	0.805	Adjusted R^2	0.803	Durbin Watson		1.920

***Statistically significant at the 0.01 level, **at the 0.05 level and *at the 0.10 level

CONCLUSION

The results of this study indicate that the two major mobile payment and wallet providers in China (Alipay and Wechat) have been able to reassure customers on the benefits which associated to these activities rather than the risk. As China's domestic mobile market is growing rapidly, new companies are entering to the market and the competition is increasing. Therefore, there is a possibility that customer attitude toward mobile payment service would change frequently in a short time. To build customer trust and strong brand image, the providers are required to enhance the persuasion of the application. To avoid privacy leaks accidents, service providers need to strengthen their security system to protect customer information. Moreover, mobile payment application providers can imply policies for protecting customer's rights from potential risk to increase their agreement of the application. The current study emphasizes the fact that attitude plays a vital role is shaping costumer intention and therefor it is necessary to mitigate the financial, technical, security and privacy risks that are associated with M-payment.

On the other hand, this study points out the importance of perceived usefulness. Thus, the Mobile payment service providers can add more comprehensive functions into their applications to enhance the usefulness of the payment system. Nowadays, most e-payment applications have similar functions. Agile development enables service providers to support future needs of the M-payments and to ensure costumers that M- payment application is not only a simple e-wallet, but also it is a convenient life style.

Today's technology allows digital marketing to engage with customers personally and customers are also able to obtain information immediately and easily. M-payment service can offer on time, personalized deals through content marketing. Using content to educate customers will enhance the customer recognition and satisfaction. M-payment service providers need to explore their customers' opinions especially on their current product as well as future ideas. By doing so, the customers will become more engaged with the services and brands. To achieve more accurate result of the study, it is suggested to determine the current customers' satisfaction level by adopting the SERQUAL model. It is recommended to determine the consumer expected services and perceived services provided by the M-payment service providers to have a clear picture of customer satisfaction level and their challenges in using the M-payment services.

REFERENCES

Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS quarterly*, 665-694.

Apanasevic, T., Markendahl, J., & Arvidsson, N. (2016). Stakeholders' expectations of mobile payment in retail: lessons from Sweden. *International Journal of Bank Marketing*, *34*(1), 37-61.

Arvidsson, N. (2014). Consumer attitudes on mobile payment services--results from a proof of concept test. *International Journal of Bank Marketing*, *32*(2), 150-170.

Aslam, W., Ham, M., & Arif, I. (2017). Consumer Behavioral Intentions towards Mobile Payment Services: An Empirical Analysis in Pakistan. *Market-Tržište*, *29*(2), 161-176.

Batra, R., & Sinha, I. (2000). Consumer-level factors moderating the success of private label brands. *Journal of retailing*, *76*(2), 175-191.

Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, *7*(2), 165-181.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, *35*(8), 982-1003.

Field, A. (2005). *Discovering statistics using SPSS*. Sage publications.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.

Fisk, R., Grove, S., Harris, L. C., Keeffe, D. A., Daunt, K. L., Russell-Bennett, R., & Wirtz, J. (2010). Customers behaving badly: a state of the art review, research agenda and implications for practitioners. *Journal of Services Marketing*, *24*(6), 417-429.

Forsythe, S. M., & Shi, B. (2003). Consumer patronage and risk perceptions in Internet shopping. *journal of Business research*, *56*(11), 867-875.

Goeke, L., & Pousttchi, K. (2010, June). A scenario-based analysis of mobile payment acceptance. In *Mobile Business and 2010 Ninth Global Mobility Roundtable (ICMB-GMR), 2010 Ninth International Conference on* (pp. 371-378). IEEE.

Gu, J. C., Lee, S. C., & Suh, Y. H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605–11616. Retrieved from https://doi.org/10.1016/j.eswa.2009.03.024

Hauff, J. (2011). *Consumer acceptance of mobile payment services*. Bachelor Thesis from Handelshogskolan Vid Goteborgs Universitet, Department of Business Administration. Retrieved from https://gupea.ub.gu.se/bitstream/2077/25614/3/gupea_2077_25614_3.pdf

Hayashi, F. (2012). Mobile payments: What's in it for consumers?. *Economic Review-Federal Reserve Bank of Kansas City*, 35.

Horn, G., & Preneel, B. (1998, September). Authentication and payment in future mobile systems. In *European Symposium on Research in Computer Security* (pp. 277-293). Springer, Berlin, Heidelberg.

Liébana-Cabanillas, F., Ramos de Luna, I., & Montoro-Ríos, F. (2017). Intention to use new mobile payment systems: a comparative analysis of SMS and NFC payments. *Economic research-Ekonomska istraživanja*, *30*(1), 892-910.

Maggie, Z. (January 25, 2018). China moves further towards cashless society as payment giants Alipay, WeChat Pay gain ground. *South China Morning Post*. Retrieved from http://www.scmp.com/business/companies/article/2130400/china-moves-further-towards-cashless-society-payment-giants

Menard, S. (1995). *Applied logistic regression analysis. Sage University paper series on quantitative applications in the social sciences*. Thousand Oaks, CA: Sage.

Myers, R. H. (1990). Classical and modern regression with applications. Boston: PWS and Kent Publishing Company.

Nysveen, H., Pedersen, P. E., & Thorbjørnsen, H. (2005). Intentions to use mobile services: Antecedents and cross-service comparisons. *Journal of the academy of marketing science*, *33*(3), 330.

Phuah, K. T., & Lee, G. K. (2017). Consumers' Intention to Use E-Grocery in Klang Valley, Malaysia. *Proceeding of the 6th International Conference on Social Sciences Research 2017*, 267-276.

Pousttchi, K., & Wiedemann, D. G. (2007). What influences consumers' intention to use mobile payments. *LA Global Mobility Round table*, 1-16.

Rezai, G., Teng, P. K., Shamsudin, M. N., Mohamed, Z., & Stanton, J. L. (2017). Effect of perceptual differences on consumer purchase intention of natural functional food. *Journal of Agribusiness in Developing and Emerging Economies*, *7*(2), 153-173.

Shatskikh, A. (2013). *Consumer acceptance of mobile payments in restaurants*. University of South Florida.

The Start Online (December 18, 2017). Alipay, Wechat Pay shake up payments market Retrieved from https://www.thestar.com.my/business/business-news/2017/12/18/alipay-wechat-pay-shake-up-payments-market/#A6UrPYd3QFW2KhZT.99

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204.

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