# A Study of Consumer Intention of Mobile Payment in Hong Kong, Based on Perceived Risk, Perceived Trust, Perceived Security and Technological Acceptance Model

Wai Han Wong
The Business School, Edinburgh Napier University, Edinburgh, Scotland, United Kingdom
Email: waihan1110@hotmail.com

Wing Ying Mo
Division of Commerce, City University of Hong Kong, Hong Kong, China
Email: dr.katherine.mo@gmail.com

***Abstract*—This research paper is understanding the situations of mobile payment service in Hong Kong; and study whether consumer intention is affected by Perceived Risk, Perceived Trust, Perceived Security and Technology Acceptance Model. Qualitative and quantitative research are the main methodology in this research. Data of survey were collected in school and online system from 121 participants. The results indicated that all variables affected the consumer intention by using SPSS. The results show an effective way to improve the security system of mobile payment, which encourages the consumer intention to use mobile payment. The Government and enterprise are needed to provide some activities in order to encourage consumers to use mobile payment services. This is an empirical study to understand the mobile payment situation in Hong Kong and it looks into the factors that influence consumers' intention to use the mobile payment system. There is a clear requirement for further research with perceived enjoyment and attitude.**

***Index Terms*—mobile payment, perceived risk, perceived trust, perceived security, technological acceptance model**

## I. Introduction

In recent decades, electronic commerce has become more popular in the world. It was a global phenomenon that it allowed consumers to carry out online transactions everywhere and every time. Electronic Payment referred to a digital payment method for online transaction. It was conducted by the Internet but there were several types of E-payment, such as online credit card transaction, online stored value systems, and mobile payment systems and so on. In recent years, transaction through online credit card, electronic wallet and mobile payment system were prevailing in Electronic Payment System.

Manuscript received November 1, 2018; revised April 29, 2019.

Mobile Payment has grown rapidly and there was a prevailing trend in China. According to a website in Statista - The Statistic portal [1], the box showed the value of the transaction between the leading 50 digital economies in the world market. It compared to the other countries, China has the highest transaction value than other countries, and this trend was driving to Hong Kong. The statistics portal stated that there were more people to use mobile payment service in Hong Kong. The transaction value of Hong Kong was USD 528.7 million in 2017. These information were attractive to do this topic in Hong Kong.

The survey was to investigate the development of mobile payment, especially to know the situation of developing mobile payment system in Hong Kong, and what factors were affecting the intention of consumers to Use Mobile Payment system, and finally what the implications were to markers.

Taking into account the past considerations, we defined the introduction. This research structured as follows. It carried out the relevant literature review and find out the relationships of these variables. Besides, it also formalizes the hypothesis and research model. After explained the processes of data collection and the methodology, it carried out the analysis, conclusion and recommendation.

## II. Initial Review of Literature

### A. Background of Mobile Payment

Mobile payment was a payment method by using Mobile devices. Moye [2] said that Coca Cola are piloting vending machines that let consumers buy drinks by using mobile payment.

Currently, most of mobile payment systems were using point of sale (POS) dependent, such as Apple pay and Alipay. Thus, it will mainly focus on the POS-dependent mobile payments services in this research since


doi: 10.18178/joams.7.2.33-38

POS-dependent was currently the most popular in the market.

### B. Constructs of the Conceptual Research Model

#### 1). Technology Acceptance Model (TAM)

TAM was founded by Davis [3]. Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Consumer intention (CI) are the components of model.

#### 2). Perceived Risk (PR)

Some studies mentioned that Perceived risk was a fatal component affecting buyer to make a decision of purchase in a business-to-consumer e-commerce environment [4]. Bauer [5] stated that perceived risk would influence consumer's decision on purchase.

#### 3). Perceived Trust (PT)

According to Doney and Cannon [6], perceived trust was a complex concept in the marketing and social psychology area. Gefen et al. [7] summarized and defined trust as the affection, which is reflected in the confidence and sense of security to another party, and mention that consumer did not purchase a product online because the belief of the poor safety. Some scholars mentioned that trust may affect people's attitude for using a technological device highly than by ease of use [4]. Therefore, perceived security was a factor affecting perceived trust. Moreover, perceived trust was another key component that affected consumer's intention to use Mobile payment.

#### 4). Perceived Security (PS)

Mobile payment is different with electronic payment on account of the differences in the technologies, since they created a variety of new risks on security, such as the risk of mobile devices might be stolen, lost and damaged [8]. Mallat et al. [9] mentioned that Perceived Security strongly affected consumer intention to use mobile payment. Consumers did not purchase products online since they did not have any confidence of online business [10].

### C. Formulation of Hypotheses

#### 1). Technology Acceptance Model ($H_1$, $H_2$, $H_3$)

Over the years, scholars have also used the technology acceptance model to investigate users' acceptance towards different types of technological applications such as mobile data services [11], and mobile commerce [12]. Moreover, Zhou et al. [13] also stated that both perceived usefulness and perceived ease of use directly affect the consumer intention.

Although most of shops offer the use of mobile payment in Hong Kong, those shops only show the logos or equipment of mobile payment services. It implicated that perceived usefulness of mobile payment is low because consumers do not know the shops allow to use mobile payment. Consumers do not know that it can use mobile payment, so the intention of using mobile payment will be low too. In addition, it is not difficult to pay by using mobile payment, just scan the QR code only [14]. From above studies, the hypotheses are that:

$H_1$: Perceived Ease of Use has a positive impact on perceived usefulness.

$H_2$: Perceived Ease of Use has a positive impact on consumer intention to use mobile payment.

$H_3$: Perceived Usefulness has a positive impact on consumer intention to use mobile payment.

#### 2). Perceived Risk ($H_4$)

According to Zhou et al. [15], there are about 76% people who refused shopping through online system. It is because of the high risk. In the case of mobile payment in Hong Kong, the perceived risk increased, the intention to use mobile payment will be decreased. Financial risk and performance risk are the main risks of mobile payment in Hong Kong. Therefore, the hypothesis was conducted and showed as below:

$H_4$: Perceived Risk has a negative impact on consumer intention to use mobile payment.

#### 3). Perceived Security and Perceived Trust ($H_5$)

Shin [16] mentioned that perceived security and perceived trust are important for m-commerce. There are two ways which show perceived security and perceived trust cannot separate. First, it is perceived can enhance perceived security [17]. Second, it is perceived security can increase perceived trust. From above studies, it is believed that perceived security and perceived trust are related in m-commerce. It will study the hypothesis about perceived security has a positive impact on perceived trust. Because there is not this information in past, it needs to test this hypothesis. Therefore, the hypothesis of perceived security and perceived trust is shown below:

$H_5$: Perceived Security has a positive impact on Perceived Trust.

#### 4). Perceived Security ($H_6$)

Gefen et al. [10] mention that the beliefs regarding the safety of conducting business on the Internet affects consumer not to purchase online. A study mention that perceived security has highly affected on consumer intention to use mobile payment [9]. However, the problems of security are common issue that appearing in Hong Kong, such security problem in Hong Kong marathon payment system [18] and gaps of mobile payment security exposed at a Hong Kong university [19]. Thus, security problem of mobile payment is the main issues affect the consumer intention in Hong Kong.

$H_6$: Perceived Security has a positive impact on consumer intention to use mobile payment.

#### 5). Perceived Trust ($H_7$)

Pavlou [20] added that trust is one consideration of B2C e-commerce. It showed that trust in both online technologies and e-tailer influence the consumers' beliefs regarding the safety of shopping online.

In case of mobile payment in Hong Kong, the trust of the mobile payment service provider is the most important factor. Because Hong Kong citizens are mainly focus on the brand reputation, and reputation are equal to the trust of brand or service providers. Apple co. is a good reputation brand, so Apple pay is the most popular mobile payment services in Hong Kong. Samsung pay is the second one in Hong Kong. Thus, perceived trust is influencing the consumers' intention.

$H_7$: Perceived Trust has a positive impact on consumer intention to use mobile payment.

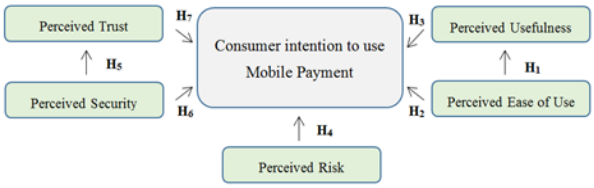



Figure 1. Final conceptual research model

## III. Research Methodology

### A. Data Collection

Primary and secondary data will be collected in this research. Both data collection helps better understanding on the issue of mobile payment system and reviews the influencing factors of consumer intention, namely TAM, perceived risk, perceived trust, perceived security, and the hypotheses between them. In addition, to have in-depth insight into the case of m-payment, it would be collected the background information of the case.

### B. Survey Instrument

In this survey, it would conduct online survey and face-to-face survey. It would be used 7-point scales and categorical data in target and classification questions. It included additional questions in order to collect personal information (Table I).

TABLE I. Questionnaire Design

| **Target Questions** (Cooper & Schindler, 2014). | | | | |
|---|---|---|---|---|
| Variable | Type | No. | Types of Data | Researcher |
| Independent Dependent | Perceived Usefulness | 3 | 7-point Likert Scale (Wilson, 2006) | Davis (1989) |
| Dependent | Perceived Ease of Use | 3 | | |
| Dependent | Perceived Risk | 4 | | Lawonk (2014) |
| Independent Dependent | Perceived Trust | 3 | | Kim et. al. (2010) |
| Dependent | Perceived Security | 3 | | Shah et. al. (2014) |
| Independent | Consumer Intention | 3 | | Lawonk (2014) |
| **Classification Questions** (Cooper & Schindler, 2014). | | | | |
| Additional Questions | | 2 | Categorical Data (Marston, 2010) | N/A |
| Personal information | | 3 | | Lawonk (2014) |

For the target, this survey will focus the population by age group, which is 18 to 34 and 35 to 64 years old. Because of these two groups are the legal majority age and the largest age population group. Moreover, the sample size of this survey is 119.

## IV. Results

### A. Final Survey

In this research, it was conducted to investigate the relationship between consumer intentions of using mobile payment in Hong Kong and perceived risk, perceived security, perceived trust, and TAM by analysing customers of mobile payment's frequency distribution of gender, age, and education level. The survey is comprised of a sample of 121 respondents from Hong Kong people, and the response rate was 96.03 (Table II).

TABLE II. Summary of 121 Sample Respondents

| Variables | Information | Frequency | Percent (%) |
|---|---|---|---|
| Survey Methods | Face-to-face survey | 40 | 33.1% |
| | Online survey | 81 | 66.9% |
| Have you ever heard before? | (1) Yes | (1) 119 | (1) 98.3% |
| | (2) No | (2) 2 | (2) 1.7% |
| Have you ever used? | (1) Yes | (1) 81 | (1) 66.9% |
| | (2) No | (2) 40 | (2) 33.1% |
| Gender | (1) Male | (1) 60 | (1) 49.6% |
| | (2) Female | (2) 61 | (2) 50.4% |
| Age | (3) 18 – 25 years old | (1) 57 | (1) 47.1% |
| | (4) 26 – 35 years old | (2) 27 | (2) 22.3% |
| | (5) 36 – 45 years old | (3) 20 | (3) 16.5% |
| | (6) 46 – 55 years old | (4) 14 | (4) 11.6% |
| | (7) 56 – 65 years old | (5) 3 | (5) 2.5% |
| Education level | (1) High school or below | (1) 13 | (1) 10.7% |
| | (2) Associate college degree / Higher Diploma | (2) 27 | (2) 22.3% |
| | (3) Bachelor Degree | (3) 57 | (3) 47.1% |
| | (4) Post graduate education or above | (4) 24 | (4) 19.8% |
| | (5) Other, please specify | (5) 0 | (5) 0% |
| **Total** | | 121 | 100% |

### B. Reliability Test

TABLE III. Reliability Test Result of Servey Methods (N=121)

| Survey Methods | Cronbach's Alpha | N. of item |
|---|---|---|
| Online Survey | 0.781 | 19 |
| Face-to-face Survey | 0.785 | 19 |
| Total | 0.781 | 19 |

Both methods are acceptance but regarded to low reliability, that are 0.781 and 0.785. Moreover, all factors are above 0.7 that means all factors are reliable (Table 3).

### C. Factor Analysis

The K.M.O. value of the data set is 0.878 is greater than 0.5 which means that Factor Analysis can be suitable to conduct at 95% confidence level.

77.652% of variation in the data set can be illustrated by five factors. All factors are important since the eigenvalues of factors are larger than one. The eigenvalues of factor 1 (PS, PT) is 8.533 that involves 44.912% of variance. The eigenvalues of factor 2 (CI) is 2.037 which consists 10.718% of variance. The eigenvalues of factor 3 (PEOU) is 1.729 which consists 9.1% of variance. The eigenvalues of factor 4 (PU) is 1.271 which consists 6.69% of variance. The eigenvalues of factor 5 (PR) is 1.184 which consists 6.232% of variance. Perceived Security and Perceived Trust is the most important factor.

### D. Multiple Regression Model

TABLE IV. Results of All Regression Models (N=121)

| Dependent variable | PU | PT | CI |
|---|---|---|---|
| Multiple R | 0.576 | 0.8333 | 0.565 |
| $R^2$ | 0.332 | 0.694 | 0.320 |
| Standard error | 1.035 | 0.763 | 1.131 |
| F(sig) | 59.080 (0.000) | 133.964 (0.000) | 27.710 (0.000) |
| Ind. Var. B t (sig) VIF | | Ind. Var. B t (sig) VIF | Ind. Var. B t (sig) VIF |
| PEOU 0.538 7.686(0.000) 1.000 | | PS3 0.515 6.183(0.000) 2.711 | PS 0.355 4.270 (0.000) 1.227 |
| | | PS1 0.364 4.293(0.000) 2.711 | PU 0.333 3.669 (0.000) 1.227 |
| Constant 2.301 5.987(0.000) | | Const 0.813 3.259(0.001) | Const 1.348 2.892(0.005) |

Note: All variables (Dependent variable and Independence variables (Ind.var.)) were measured on a 7-point Likert scale, 1=strongly disagreed and 7=strongly agreed.

*1) Model summary*

In this research, there are three regression models, and all regression models are well explained by their variables (Table 4). The first regression model is the relationship between Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). The Model Summary Table shows that PEOU can explain 33.2% variation in PU for the regression model. Moreover, the second regression model is the relationship between Perceived Trust (PT) and Perceived Security (PS). It shows that PS can explain 69.4% of the variation in PT for the regression model. For the last regression model, there are 32% of the variation in Consumer Intention (CI) can be explained by five variables that are PEOU, PU, PR, PT, and PS for the regression model.

*2) Coefficient table*

In this research, the p-value of three coefficient tables are less than 0.05, so all regression model rejected H0. These factors should be retained in the regression model since it is a major factor at 5% significant level. PEOU should be retained in the regression model one. PS should be retained in the regression model two. PS and PU are retained in the regression model three.

## *E. Correlation Test for H1 to H7*

TABLE V. THE PEARSON CORRELATION RELATIONSHIP BETWEEN VARIABLES

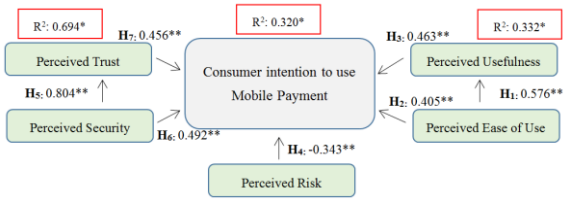
| | This research (N=121) | |
|---|---|---|
| | r** | Strength of correlation |
| $H_1$: PEOU & PU | 0.576 | Moderate positive |
| $H_2$: PEOU & CI | 0.405 | Moderate positive |
| $H_3$: PU & CI | 0.463 | Moderate positive |
| $H_4$: PR & CI | -0.343 | Weak negative |
| $H_5$: PS & PT | 0.804 | Very strong positive |
| $H_6$: PS & CI | 0.492 | Moderate positive |
| $H_7$: PT & CI | 0.456 | Moderate positive |
| Notes: Correlation test with ** are at the 0.01 significant. | | |

In this study, all hypotheses are correlated to each other variables since r are higher than 0.1 no matter is positive or negative. In this research, hypotheses are between weak negative, moderate positive and very strong positive correlation (Table V).

Most of hypotheses are positively correlated to another variable, only H4 is weak negatively correlated to other variable, which correlation coefficients (r) is -0.343 (Table V). This result is similar with Davis' [3] research, so this result is close to the reality.

## *F. Hypothesis Testing by Using Correlation and Regression Analysis*

It shows the variables relationship in the previous part. Having combined the outcomes of the correction and regression models, it will show the outcomes of correlation and regression analysis used to test hypotheses in coming part.




Notes:
Correlation Test with ** are at 1% significant level (p<0.01).
Regression Model with * are at 5% significant level (p<0.05).

Figure 2. Research model with analysis results

TABLE VI. RESULT OF THE RESEARCH HYPOTHESES

| Hypotheses | | Correlation (r**) | Test Result |
|---|---|---|---|
| $H_1$ | Perceived ease of use has a positive impact on perceived usefulness. | 0.576 | Supported |
| $H_2$ | Perceived ease of use has a positive impact on consumer intention to use mobile payment. | 0.405 | Supported |
| $H_3$ | Perceived usefulness has a positive impact on consumer intention to use mobile payment. | 0.463 | Supported |
| $H_4$ | Perceived risk has a strongly impact on consumer intention to use mobile payment. | -0.343 | Supported |
| $H_5$ | Perceived ease of use security has a positive impact on perceived trust. | 0.804 | Supported |
| $H_6$ | Perceived security has a positive impact on consumer intention to use mobile payment. | 0.492 | Supported |
| $H_7$ | Perceived trust has a positive impact on consumer intention to use mobile payment. | 0.456 | Supported |

Notes: ** are at 1% significant level (correlation Test)

The regression model result shows 32% the explained variation in Consumer Intention ($R^2$) at 95% confidence level and correlation is at 99% confidence level.

PS and PU are the two main significant factors that influence on consumer Intention, and PS is more significant than PU. It is found that consumers are concerning the PS when they are deciding to use mobile payment. Once PS increases, it would lead to increase CI.

# V. CONCLUSION AND RECOMMENDATIONS

## *A. Conclusion*

The main objectives of this research were to (1) understand the mobile payment development and situation in Hong Kong, and (2) identify any relationships between these factors. To achieve these two objectives, a research model comprising five variables (PR, PT, PS, PU and PEOU) and three dependent variables (PU, PT and CI) was proposed.

From the research, it found that Hong Kong citizens generally accepted mobile payment, but mobile payment has not yet become widely used in daily life (Table 2). PEOU, PU, PR, PT and PS were determined to be significant and it affects the intention to use mobile payment (Table 6). In these five factors, PS and PT had strongly related (Table 5). Moreover, PS and PU were the main factors that affecting consumer intention to use mobile payment service (Table 4). It indicates that mobile payment security of Hong Kong does not provide a good performance on consumers' perception, and it is

similar with the real situation. There is some news related to the m-payment security problem in Hong Kong, and showing that m-payment is not secure, such as security problem of Hong Kong marathon payment system [18] and M-payment security gaps found at a Hong Kong university [19]. Therefore, it is the reasons why mobile payment has not yet become widely used in daily life. It should improve the mobile payment security first, and second is to increase the mobile payment usefulness in order to make mobile payment became widely used in daily life.

### *B. Recommendations*

Since perceived security and perceived usefulness are important to mobile payment *(M-Payment)*, it need to improve these two factors.

*1) Improve the Security System of Mobile payment*

This research proved that perceived security and perceived trust of consumer perception is strongly related (r**=0.804). It can increase the level of perceived trust in m-payment when the perceived security was increased. Moreover, perceived security is one of the important factors affecting the consumers' intention to use mobile payment services. It is match with the past researchers that Perceived security has strongly impact on consumers' intention [9]. Based on research, it should increase the level of perceived security so as to raise the level of perceived trust. At the end, it increases the number of consumers to use mobile payment. Thus, it should improve the security system of mobile payment.

Most people said that password protection does not protect the security of e-transactions since it is only some numbers, and easy for stoke it. Thus, some scholars suggested to use fingerprints, facial features and iris recognition in order to instead of the password protection to improve the security system of m-payment [21].

*2) To Enhance the Usefulness of Mobile payment*

Perceived usefulness is the second important factor that affecting the consumer intention. It means that perceived usefulness of mobile payment is not more useful than other payment methods in consumers' perception. To increase the number of consumers to use mobile payment, it should make mobile payment more usefulness, and decrease the usefulness of traditional payment methods. To increase the usefulness of mobile payment, the Government and the enterprise should work it together in order to make it usefulness.

For the Government, she should provide a channel to pay the rent by m-payment, which is citizens can pay the rent anytime anywhere by using m-payment. Moreover, she should develop some polices to protect and support the transaction process of mobile payment service.

For the enterprises, they should cooperate with the other industry, such as no cash in wet market [22] and using mobile payment in taxi [14]. Besides that, the enterprises should provide the equipment of mobile payment service to customers no matter they use or not. The objective of cooperate with other industry and set up the equipment of m-payment are expanding the business place, that created more place can use m-payment in order to increase the usefulness of m-payment.

## REFERENCES


[1] Statista, "Mobile wallet reach among mobile shoppers as of August 2016 by country, Statista - The Statistics Portal [Online]: Statista, n.d. [Cited October 2017]. Available: https://www.statista.com/statistics/218615/mobile-payment-methods-used-on-smartphones/

[2] J. Moye, "Mobile technology makes paying at the vending machine possible," *Coca-Cola Journey* [Online]: The Coca-Cola Company, 2013 [Cited November 2017]. Available from: https://www.coca-colacompany.com/stories/tapping-into-taste-pay-with-your-phone-at-the-vending-machine

[3] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, vol. 13, no. 3, pp. 319–340, September 1989.

[4] H. Vanderheijden and T. Verhagen, "Online store image: conceptual foundations and empirical measurement," *Information & Management*, vol. 41, no. 5, pp. 609–617, 2004.

[5] R. A. Bauer, "Consumer behavior as risk taking," in Dynamic *Marketing for a Changing World, Proceedings of the 43rd Conference of the American Marketing Association*, R.S. Hancock, Ed., 1960, pp. 389–398.

[6] P. M. Doney and J. P. Cannon, "An examination of the nature of trust in buyer-seller relationships," *Journal of Marketing*, vol. 61, no. 2, pp. 35–51, April 1997.

[7] D. Gefen, E. Karahanna, and D. W. Straub, "Trust and TAM in online shopping: An integrated model," *MIS Quarterly*, vol. 27, no. 1, pp. 51–90, 2003.

[8] S. Chari, P. Kermani, S. Smith, and L. Tassiulas, "Security issues in M–commerce: A usage–based taxonomy," in *E-Commerce Agents Marketplace Solutions, Security Issues, and Supply and Demand*, J. Liu, and Y. Ye, Ed. Berlin, Heidelberg: Springer-Verlag, 2001, pp. 264–282.

[9] N. Mallat, M. Rossi, V. K. Tuunainen, and A. Öörni, "An empirical investigation of mobile ticketing service adoption in public transportation," *Personal and Ubiquitous Computing*, vol. 12, no. 1, pp. 57–65, January 2008.

[10] D. Gefen and D. W. Straub, "Managing user trust in B2C e-services," *e-Service Journal*, vol. 2, no. 2, pp. 7–24, 2003.

[11] N. Aharony, "Librarians attitudes towards mobile services," *Aslib* Proceedings, vol. 65 no. 4, pp. 358–375, 2013.

[12] P. Hanafizadeh, M. Behboudi, A. A. Koshksaray, and M. J. S. Tabar, "Mobile-banking adoption by Iranian bank clients," *Telematics and Informatics*, vol. 31, no. 1, pp. 62–78, 2014.

[13] Y. Zhou, W. Meng, and H. Du, "Study on the influence factors of customers' buying intention on the mobile data services market," *Science Research Management*, vol. 29, no. 6, pp. 131-136, November 2008.

[14] Headline Daily, "Mobile Payment Finally Implemented - No cash required for taking taxis" *Headline Daily* [Online]: Hong Kong Headline Daily Publishing Ltd, 2017 [Cited November 2017]. Available: http://hd.stheadline.com/news/daily/hk/620099/

[15] Y. Zhou, W. Meng, H. Du, and P. Wu, "Value-based adoption of MDS: an empirical investigation," *Journal on Communications*, vol. 29, no. 9, pp. 97-102, September 2008.

[16] D. H. Shin, "Towards an understanding of the consumer acceptance of mobile wallet," *Computers in Human Behavior*, vol. 25, no. 6, pp. 1343–1354, November 2009.

[17] C. Lin and V. Varadharajan, "Trust enhanced security - A new philosophy for secure collaboration of mobile agents," in Proc. *2006 International Conference on Collaborative Computing: Networking, Applications and Worksharing*, 2006, pp. 1–8.

[18] R. Yeung, "Hong Kong marathon payment system not faulty, organiser says," *South China Morning Post* [Online]: South China Morning Post Publishers Ltd., 2017 [Cited November 2017]. Available: https://www.scmp.com/news/hong-kong/community/article/2115321/payment-deadline-hong-kong-marathon-extended-runners-report

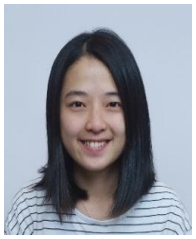
[19] R. Yeung, "Mobile payment security gaps exposed at Hong Kong university," *South China Morning Post* [Online]: South China Morning Post Publishers Ltd., 2017 [Cited October 2017].

Available: https://www.scmp.com/news/hong-kong/law-crime/article/2113273/mobile-payment-security-gaps-exposed-hong-kong-university

[20] P. A. Pavlou, "Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model," *International Journal of Electronic Commerce*, vol. 7, no. 3, pp. 101–134, 2003.

[21] D. Maltoni, D. Maio, A. Jain, and S. Prabhakar, *Handbook of Fingerprint Recognition*, London: Springer, 2009.

[22] HKEJ, "Alipay turns gaze to wet markets in HK e-payments push," *EJ Insight on the Pulse* [Online]: Hong Kong Economic Journal Company Limited, 2017 [Cited November 2017]. Available: http://www.ejinsight.com/20171024-alipay-turns-gaze-to-wet-markets-in-hk-e-payments-push/



**Wai Han Wong** is a postgraduate student at City University of Hong Kong. In her secondary studies, she loved art and design, which she thought is essential in changing a person's mind in purchasing something. Accordingly, she concentrated in the field of marketing in her tertiary studies and she obtained her bachelor's degree in marketing from Edinburgh Napier University. By dint of the concentration on the field, she developed high interest in the field of marketing and the effects of new technology on marketing since she found that the development of smart products brings about dramatic changes to the environment of marketing. Her current research is an exploratory research into the situation of mobile payment in Hong Kong and the consumer perception of mobile payment. In the future, she hopes to be a researcher and marketer to explore more new technology which is related to marketing.

**Wing Ying Mo** is working as a Lecturer in SCOPE, City University of Hong Kong. She earned her PhD in Business Administration, master's degree in accounting, MBA degree and Bachelor of Science degree from the Bulacan State University, Central Queensland University, University of Hull and the University of British Columbia respectively. She has thirty years of financial and marketing management experience. She joined the Australian Society of CPAs as an Associate Member, Certified Management Accountants and Chartered Management Institute as a member. She has been a master and bachelor supervisor and external examiner at various local and overseas universities for 10 years and 30 years respectively. Her research interests are in the areas of Accounting, Finance, Business, Sales and Marketing Management, Consumer Behavior, Customer Satisfaction, Customer Loyalty, Customer Retention, Strategic Management, E-commerce and Technological Adoption.