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A QUANTITATIVE STUDY ON THE FACTORS INFLUENCING HIGHER EDUCATION INSTITUTIONS STUDENTS' ACCEPTANCE OF MOBILE PAYMENTS IN KLANG VALLEY, MALAYSIA

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Abstract

The adoption of mobile payment is still considered new for an evolving economy like Malaysia whereby mobile payment has yet to be fully recognized and accepted by a majority of Malaysians. There are several factors that could influence the acceptance of mobile payment. While numerous studies on factors affecting the intention of adopting mobile payment services had been conducted in different age groups and in different countries, there is still a lack of studies conducted in this particular field, especially in Malaysia. Thus, the purpose of this study is to examine how factors such as personal innovativeness, perceived compatibility and facilitating condition could affect the intention to accept mobile payment among higher education institution students in Klang Valley, Malaysia, using the Technology Acceptance Model (TAM). A total of 104 valid responses were collected and analyzed using the SPSS software to carry out descriptive and frequency analysis of the variables, as well as conducting tests such as reliability, normality, and hypotheses testing. The results achieved in this study demonstrate that perceived compatibility have a positive significance on acceptance of mobile payment, while personal innovativeness and facilitating condition do not have any significant influence on the intention to accept mobile payment among the higher education institution students in Klang Valley, Malaysia. Subsequently, this study highlights the discussion of the findings, together with the conclusion, limitations of this research, and recommendations for future research.

Keywords: *Mobile Payment, Behavioral Intention, Personal Innovativeness, Perceived Compatibility, Facilitating Condition*

1.0 Introduction

There are several new technological developments, exciting transformations, and changes of business operation in the financial information system and technology in the past 20 years (Liu, Kauffman and Ma, 2015). The evolution of information communication and technology (ICT) infrastructure has played a significant role in shaping and driving these innovations (Hatzakis, Nair and Pinedo, 2010). The innovations in business which are based on technology, mobile payment has been framing the financial services environment from the late 2000s until now. At the present, the use of mobile technologies is being adopted increasingly, but mobile payment services are astonishingly not regularly concerned in Malaysia. Mobile payment services are still at the infancy stage and are still moderately new to the customers in Malaysia.

Mobile payment (also highlighted as mobile money, mobile money transfer, and mobile wallet) commonly applies to payment services performed under monetary regulation and operated from or through a smartphone. Instead of performing payments using cash, cheque, or credit/debit cards, a person can use mobile payment to pay for an extensive range of services and digital or hard goods and also to transfer and receive monies from each other, no matter small or big amount (Anderson, 2013).

According to Morgan (2019), mobile payment services are the fourth most-practised payment alternative, considering for just 7% of transactions that took place in Malaysia. However, the use of mobile payment is likely to be growing rapidly between 2019 and 2021, with uptake rising at a compound annual growth rate (CAGR) of 53% to 2021, where at this point it will take a 16% share of the Malaysian market of payments. The acceptance of this payment alternative will be directed by increasing smartphone penetration and e-wallet companies to conquer the Malaysian market that is comparatively underdeveloped. At the moment, there are about 39 companies with an e-money license in Malaysia, inclusive of global players such as Alipay, PayPal, Google Pay and WeChat. In Malaysia, the notable mobile payment service providers are Touch ‘n Go, Boost, GrabPay, BigPay and MAE. In January 2019, Payments Network Malaysia has established Malaysia's first real-time retail payments platform, which is anticipated to uplift e-payments by streamlining Malaysia's payment structure. Features are inclusive of immediate credit transfer through mobile number and national security number to both businesses and citizens. Upcoming features are stated to be rolling out in the upcoming years, inclusive of electronic mandates and real-time debit transfers.

Public higher education institutions in Malaysia comprises of public universities, polytechnics, community colleges and public colleges. Meanwhile, private higher educational institutions in Malaysia comprises of private universities, private colleges, and foreign university branch campuses (Study Malaysia, 2017). Higher education in Malaysia includes certificate, diploma, undergraduate, and also postgraduate levels. Undergraduate level comprises of bachelor’s degree while postgraduate level comprises of master’s degree and PhD studies. Higher education at certificate and diploma studies are for students who are aged from 17. Meanwhile, bachelor’s degree studies are commonly for students who are aged from 19 or 20 onwards. After acquiring a bachelor's degree, students may continue to pursue postgraduate studies (Study Malaysia, 2017). The birth year of these students are from 1994 - 2002, which are known as the Millennials (born between 1981-1996), and Generation Z (1997 – onwards) (Dimock, 2019).

Millennials admire the convenience offered by mobile payments. They were raised with technology, in which the previous generations did not have the access to it, for their everyday needs. Thus, millennials are more likely to seize new methods of payments that they could access from their smartphones. These millennials are enthusiastic regarding the prospective financial benefactions from well-known organizations such as Google and PayPal (Business Today, 2019). On the other hand, Generation Z were raised with the Internet and technology, and they are regarded as the "I-generation". They are also observed as users who basically eat, sleep and drink mobile phones (Haroon, 2020). Hence, it is perceived that the attraction of mobile payment is rising every other day, particularly among the millennials and Generation Z, who constitutes 45% of the total population (Haroon, 2020).

Currently, mobile payment acceptance in Malaysia is still at its infancy stage (Yee, 2019). Nielsen Payment Landscape Report revealed that 46% of non-mobile payment users point to security worries such as frauds, leaking of banking details, afraid of mobile phones being stolen, malware and software issues, and data breaches as their biggest barrier to giving e-wallets a try. There are insufficient discoveries on the factors that influence higher education institution students' acceptance of mobile payment in Klang Valley, Malaysia. Students are identified as prospective adopters of mobile payments, and now what is important is to understand the factors affecting the students to adopt mobile payments. Thus, this study aims to bridge this gap and also contribute to the mobile payment literature.

2.0 Literature Review

2.1 The Definition of Behavioral Intention

Intention is referred to the extent individuals are willing to try out and how much willpower they are aiming to utilize towards performing a particular behaviour. Bagozzi (1992) indicated that as soon as the intention is prompted, it will operate as part of a self-fulfilling process and move individuals into a position of "must do" or "will do". According to Ajzen (2005), behavioural intentions are motivational elements that apprehend how much effort an individual is willing to put to carry out a behaviour. This research included the measures of the behavioural intention which is compatible with past researches comprising the relationship between behavioural intention and adoption of technology. The connection between behavioural intention and acceptance of technology has been documented by many researchers (Venkatesh et al. 2003). The greater the person's intention towards adopting new technologies, the easier for them in accepting the technologies.

In this study, student's intention is a dependent variable that could assist in assessing the actual usage of a particular thing which leads to the formation of attitude. A study into students' intention produces an essential foundation for predicting student's actual behaviour on the manner to a specific action.

2.2 Personal Innovativeness

Personal innovativeness has been researched as one of the factors that affect the adoption of new things (Li, Liu and Heikkilä, 2014). Personal innovativeness as defined by Siu and Chang (2015) refers to the readiness of an individual in the risk-taking tendency. This definition has been espoused in this study. A person with high personal innovativeness attributes is more inclined to undertake the opportunity to explore new things and they have the capability to associate with uncertainty. According to Sekaran and Bougie (2016), they stated that the person with personal innovativeness is having the "innovators" attribute as the main attribute in the innovation diffusion theory. They are the group of people who are prepared to try new things (Thakur, Angriawan and Summey, 2016).

Innovative persons are more exposed to newer technologies and have the intention to explore them more than their non-innovative counterparts. To examine this effect in many IT systems applied, studies were executed, and personal innovativeness was positively associated with the adoption behaviour of diverse innovations in IT systems (Agarwal and Prasad, 1997; Chang and Chin, 2011) in online shopping surroundings (Blake, Neuendorf and Valdiserri, 2003) and also mobile services (Zarmpou, Saprikis, Markos and Vlachopoulou, 2012). A new trending technology, such as mobile payment, can precisely be contemplated in its initial life stages as a service product. Furthermore, extreme innovative individuals will have more knowledge of the mobile payment system's benefits, features and utilize it easily. Assuming this perspective, higher personal innovativeness is anticipated to lead to positive characteristics towards and use intention of mobile payment, thus the following were developed:

H1: There is a relationship between personal innovativeness and students' intention to accept mobile payment.

2.3 Perceived Compatibility

Compatibility is referring to which extent a technology would fit in a person's working style, lifestyle, needs and values (Rogers, 1983). Compatibility is put forward as one of the key factors for the innovation spread process, with the high compatibility discerned by the users leading to the immediate adoption of any new technologies or ideas in general and mobile payments in specific. Many researchers revealed that compatibility is one of the most important pointers of adoption (Yang et.al, 2012). Moreover, Chen and Nath (2008) revealed that compatibility has the strongest effect on the acceptance of mobile payment systems. According to Jun, Cho and Park (2018), compatibility is one of the factors that drive people's intention to utilize the technological systems. In terms of mobile payment, the higher the compatibility of new payment services with students' general habits and their ways to utilize services with their mobile phone, the more likely the students would develop the intention to adopt it. In other words, when a student can well coordinate the payment services into their daily life, the compatibility of mobile payment with the student's habits and lifestyle is anticipated to influence the student's intention to adopt it. Thus, the proposed hypothesis is given as below:

H2: There is a relationship between perceived compatibility and students' intention to accept mobile payment.

2.4 Facilitating Condition

Facilitating condition is the recognition that the presence of IT infrastructure and organization can assist technological utilization (Venkatesh et al, 2003). Furthermore, facilitating condition is also well-defined as the exterior environment to assist individuals to resolve barriers in utilizing new information technology (Gu, Lee and Suh, 2009). According to Venkatesh, Morris, Gordon and Davis (2003), an improvised facilitating condition can provide better convenience to customers. According to a study conducted by Yang and Forney (2013), modern technology and well-developed interface can perform a significant role in facilitating mobile payment, since utilizing mobile payment is a voluntary activity for gaining particular services or benefits. Facilitating condition has been considered by many earlier researchers as an important factor determining usage intentions in a significant way for similar technologies such as the Internet, e-commerce, mobile banking and the like (Yang, 2010; Amoroso and Magnier-Watanabe, 2012). Venkatesh, Thong and Xu (2012) indicated that individuals who have access to a beneficial set of facilitating conditions are most likely to develop higher behavioural intention to utilize technology. For instance, mobile applications, online assistance and supports, mobile devices and strong internet connection are required in order for the individual to use mobile payment. Thus, it is hypothesized that:

H3: There is a relationship between facilitating conditions and students' intention to accept mobile payment.

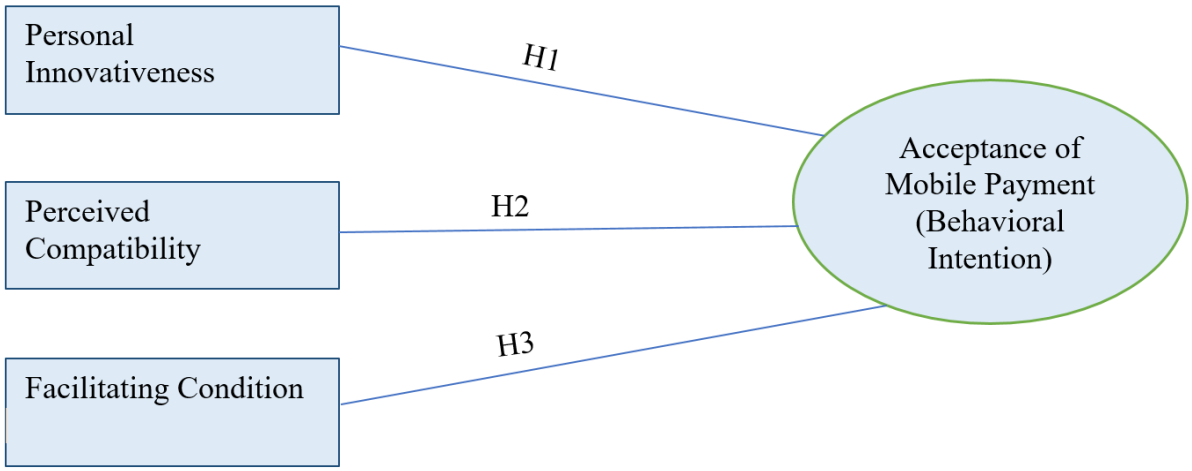

Figure 1: The Research Framework

3.0 Research Methodology

3.1 Research Classification and Approach

Research classification is in three-fold; exploratory, descriptive, and explanatory. This research is an explanatory type of research and it takes up the deductive approach. The deductive approach develops hypotheses based on existing theories and then formulates an approach to test the hypothesis (Iovino and Tsitsianis, 2020). This approach is suitable for the positivist approach that allows the formation of hypothesis and the final testing of the results to an expected level of probability (Diehl, 2010).

3.2 Data Collection

There were two types of data collected, which are primary data and secondary data. In this research, primary data were collected through the distribution of the questionnaires to the respondents. The questionnaires were distributed electronically to the respondents. Primary data were used for this study and was useful for addressing the research problem. Questionnaires tend to be used for explanatory research. For this explanatory research, the data enabled the researcher to examine and explain the relationships between the variables (Saunders et al, 2007). Besides, secondary data were collected through the literature review. Information was obtained from reliable academic sources such as Asian Social Science, International Journal of Business and Management and Research Gate. The scope of literature review was mainly concerned with the stated determinants that included personal innovativeness, perceived compatibility and facilitating condition. To ensure the reliability and validity of the data, the variables that originated from the literature review were further investigated through the primary data.

3.3 Sampling and Instrumentation

This research was based on non-probability sampling, where a combination of convenience sampling and snowball sampling were used. Convenience sampling is known as a method espoused by researchers where they collect market research data from a conveniently available pool of respondents (Etikan, 2016). It is the most frequently used sampling technique as it is uncomplicated, and it is economical. In many cases, respondents are readily approachable to be a part of the sample. Snowball sampling technique was also used in this situation where the population is completely unrevealed and rare. Therefore, the researcher in this study took help from the first element which was chosen for the population and requested him/her to recommend other elements that will suit the description of the sample required. The number of respondents targeted for this study was 100 higher education students.

For this research, a self-administered questionnaire was chosen due to its convenience, inexpensiveness, reduction of biases and anonymity. Such questionnaires are administered electronically using the Internet (Internet-mediated questionnaires) or intranet (intranet-mediated questionnaires). This questionnaire was divided into two parts, designed and structured with close-ended questions. Part A covered the respondents' demographic characteristics such as age, gender, educational background, from which part of Klang Valley are the students staying, and etcetera. Part B focused on the independent and dependent variables that were examined in the survey. A total of 110 questionnaires were distributed to the respondents to collect quantitative data. Data collected was measured using a 5-point Likert scale as it is suitable for the self-administered survey method, whereby the respondents were asked how strongly they agree or disagree with a series of statements, on a five-point rating scale. The questionnaires were distributed to the respondents with the objective to collect primary data about the acceptance of mobile payment among higher education students. This

method is also applied to identify the correlation between the independent variables and dependent variables.

3.4 Data Preparation, Processing, and Analysis

Once data was collected from questionnaires distributed, preparation steps to ensure data collected was valid, accurate and suitable for data analysis was performed. A proper data entry set up with proper coding and handling blank responses was required to create a proper database. For this research, each response that was collected was assigned with a number code, to be entered into the database. The raw data were then inserted into SPSS Data Editor and further edited to check and detect errors, inconsistency, and illegal data (Sekaran & Bougie, 2016).

A total of 104 collected responses were entered into SPSS one by one, and the data of the individual will be examined on a group basis. The feel of data will provide preliminary thoughts of how substantial the scales are, the manner by which well the coding and entering of information have been done (Polonsky and Waller, 2018). In fact, the statistical package for the social science (SSPS) will be utilized to interpret the data after collecting data from the respondents. Descriptive statistics was used in this research to obtain a sense of the data by investigating central tendencies and dispersions. The mean, range, standard deviation, and variance was obtained. Subsequently, Cronbach's Alpha is a measure that was used in this study to evaluate the reliability, or internal consistency, of the set of test items. A normality test was also carried out using the SPSS software to determine whether sample data has been drawn from a normally distributed population (within some tolerance). For the hypotheses testing, the Pearson correlation coefficient (a number between -1 and +1) analysis was carried out in this study to indicate how strongly two variables are linearly related. Multiple regression analysis was also carried out to evaluate the significant relationship between the independent variables and the dependent variable in this study, which has resulted in the acceptance or rejection of the developed hypotheses.

4.0 Analysis and Results

4.1 Sample Profile

A total of 110 questionnaires was distributed to the targeted respondents who are higher education students living in Klang Valley. A total of 104 responses were received successfully. The data collected were then recorded and analyzed using the SPSS statistical software. Data is presented using SPSS in a way that can be converted to facilitate understanding. According to Table 1, a total of 110 questionnaires were distributed to the higher education students at Klang Valley in case the targeted 100 respondents is unable to achieve. Out of the 110 questionnaires distributed, only 104 valid responses were received and are qualified for the study.

Table 1: Summary of Questionnaires Distributed and Collected

Items	Total Questionnaire
Number of Questionnaires Distributed	110
Number of Questionnaires Collected Back	104
Response Rate	94.5%
Unreturned	6
Unreturned Rate	5.5%
Number of Questionnaires Used for Statistical Analysis	104

4.2 Frequency Distribution for Demographic

Table 2: Respondent's Demographics and Frequencies

Demographic Items	Category	Frequency	Percentage (%)
Do you own a Smartphone?	Yes	104	100%
	No	0	
Gender	Male	36	34.6%
	Female	68	65.4%
Age	18 – 25 years old	81	77.9%
	26 – 35 years old	19	18.3%
	36 - 45 years old	4	3.8%
Cultural Heritage	Chinese	48	46.2%
	Malay	37	35.6%
	Indian	9	8.7%
	Others	10	9.5%
Which part of Klang Valley are you from?	Kuala Lumpur	31	29.8%
	Ampang	12	11.5%
	Gombak	2	1.9%
	Cheras	2	1.9%
	Rawang	2	1.9%
	Selayang	2	1.9%

	Petaling Jaya	9	8.7%
	Subang Jaya	3	2.9%
	Shah Alam	8	7.7%
	Puchong	9	8.7%
	Serdang	11	10.6%
	Kajang	4	3.8%
	Putrajaya	3	2.9%
	Cyberjaya	1	1.0%
	Sepang	2	1.9%
	Klang	3	2.9%
I am studying at a	Public University	39	37.5%
	Private University	65	62.5%
Highest Education Level	Foundation	5	4.8%
	Diploma	4	3.8%
	Degree	82	78.8%
	Master	12	11.5%
	PHD	1	1.0%
Monthly Income	Below RM1,000	64	61.5%
	RM1,001 - RM2,000	18	17.3%
	RM2,001 and above	22	21.2%

Table 2 shows the data collected for the demographic variables. The *"Do you own a Smartphone?"* indicates a qualifying question for the respondents before moving to the next part of this questionnaire. If the respondents had answered 'No' to the above question, the questionnaire would come to an end, and a 'Thank You' note will be displayed.

Based on the data collected, it denotes that the highest number of respondents who participated in this study were female, representing 65.4% of the total respondent base. Majority of the respondents are higher education institution students who are aged between 18-25 years old. Majority of these participants in this study were Chinese, which represents 46.2%, followed by Malay respondents which represent 35.6%, Indian participants which represent 8.7%, and others which represents 9.5%. Among the areas in Klang Valley, respondents from Kuala Lumpur were the highest number of participants in the study, representing 29.8% of the total respondent base. Students from private universities were the majority of respondents who participated in this study, constituting 62.5%, meanwhile, 37.5% were students from public universities. It is noted that students who are currently pursuing Degree studies are the highest number of participants in this study, representing 78.8%. Most of the respondents are students who are earning RM1,000 below, which represents 61.5% of the total respondent base.

4.3 Frequency Distribution for Variables

In this section, respondents were required to choose one option based on a 5-point Likert scale, which ranges from 1 – Strongly Disagree to 5 – Strongly Agree, for each of the statements from the independent variables, as well as the dependent variable. Respondents in this study had chosen the option that best aligns with their views. The data below shows the questions that were asked in the independent variables, together with their frequencies.

Table 3: Personal Innovativeness Characteristics

Item	Statements	1	2	3	4	5	Median
PI1	If I heard about new information technology available, I have the interest to try it.	0%	1.0%	18.3%	51.9%	28.8%	Agree
PI2	Usually, I am the first person to try out the latest information technology such as mobile payment among my peers.	10.6%	16.3%	26.9%	22.1%	24.0%	Neutral
PI3	In general, I am not hesitant to try out new information technology such as mobile payment.	0%	5.8%	26.9%	37.5%	29.8%	Agree

Indication: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Based on Table 3, it shows three statements on Personal Innovativeness to influence students' acceptance of mobile payment. For the first statement, majority of the students chose 'Agree' to the statement, with a percentage of 51.9%. It means the students agree that when they heard about new information technology available, they have the interest to try it. For the second statement, majority of the students chose 'Neutral' to the statement, with a percentage of 26.9%. It means the students neither agree nor disagree that they are usually the first person to try out the latest information technology such as mobile payment among their peers. For the third statement, majority of the students chose 'Agree' to the statement, with a percentage of 37.5%. It means the students agree that generally, they are not hesitant to try out new information technology such as mobile payment.

Table 4: Perceived Compatibility Characteristics

Item	Statements	1	2	3	4	5	Median
PC1	Mobile payment is compatible in my daily life.	0%	3.8%	11.5%	43.3%	41.3%	Agree
PC2	Using mobile payment is completely compatible with my current situation.	0%	1.9%	14.4%	43.3%	40.4%	Agree
PC3	Mobile payment fits well with the way I like to purchase products and services.	0%	2.9%	10.6%	42.3%	44.2%	Strongly Agree

Indication: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Based on Table 4, it shows three statements on Perceived Compatibility to influence students' acceptance of mobile payment. For the first statement, majority of the students chose 'Agree' to the statement, with a percentage of 43.3%. It means the students agree that mobile payment is compatible with their daily life. For the second statement, majority of the students chose 'Agree' to the statement, with a percentage of 43.3%. It means the students agree that using mobile payment is completely compatible with their current situation. For the third statement, majority of the students chose 'Strongly Agree' to the statement, with a percentage of 44.2%. It means the students strongly agree that mobile payment fits well with the way they like to purchase products and services.

Table 5: Facilitating Conditions Characteristics

Item	Statements	1	2	3	4	5	Median
FC1	When encountering difficulties in using mobile payment, a specific person is available to provide assistance.	1.9%	13.5%	24.0%	36.5%	24.0%	Agree
FC2	I have the knowledge necessary to use mobile payment.	1.0%	1.9%	9.6%	50.0%	37.5%	Agree
FC3	I have all the necessary resources to use mobile payment. (e.g.: Strong network)	0%	4.8%	14.4%	45.2%	35.6%	Agree

Indication: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Based on Table 5, it shows three statements on Facilitating Condition to influence students' acceptance of mobile payment. For the first statement, majority of the students chose 'Agree' to the statement, with a percentage of 36.5%. It means the students agree that when they encounter difficulties in using mobile payment, a specific person is available to provide assistance. For the second statement, majority of the students chose 'Agree' to the statement, with a percentage of 50.0%. It means the students agree that they have the knowledge necessary to use mobile payment. For the third statement, majority of the students chose 'Agree' to the statement, with a percentage of 45.2%. It means the students agree that they have all the necessary resources to use mobile payment such as a strong mobile network.

Table 6: Behavioral Intention Characteristics

Item	Statements	1	2	3	4	5	Median
BI1	I intend to use mobile payment to purchase products or transfer/receive money.	0%	2.9%	9.6%	38.5%	49.0%	Strongly Agree
BI2	I will recommend to people that I know to use mobile payment.	1.0%	2.9%	16.3%	32.7%	47.1%	Strongly Agree

BI3	I will use/continue using mobile payment services in the future.	1.0%	3.8%	3.8%	29.8%	61.5%	Strongly Agree

Indication: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Based on Table 6, it represents the results for the intention to accept mobile payment. For the first statement, majority of the students chose 'Strongly Agree' to the statement, with a percentage of 49.0%. It means the students strongly agree that they intend to use mobile payment to purchase products or transfer/receive money. For the second statement, majority of the students chose 'Strongly Agree' to the statement, with a percentage of 47.1%. It means the students strongly agree that they will recommend to people that they know to use mobile payment. For the third statement, majority of the students chose 'Strongly Agree' to the statement, with a percentage of 61.5%. It means the students strongly agree that they will use/continue using mobile payment services in the future.

4.4 Cronbach's Alpha

The Cronbach's Alpha test conducted in this study is intended to measure and check the reliability of the data. The internal consistency of its items was measured using Cronbach's Alpha coefficient. According to Yusoff (2012), the items were measured to represent an acceptable internal consistency level if the Cronbach's Alpha value is within 0.5 to 0.7, and a good level if the Cronbach's Alpha value is more than 0.7. The reliability test is done for each independent and dependent variable. All items of the variable are included in the reliability test.

Table 7: Results of Reliability Analysis Test

Variables of the study	Cronbach's Alpha	N of items
Personal Innovativeness	0.654	3
Perceived Compatibility	0.822	3
Facilitating Condition	0.523	3
Behavioral Intention	0.833	3

Table 7 shows the Cronbach's Alpha value for each of the independent variables, as well as the dependent variable. It is evident that each of the Cronbach's Alpha value falls within the acceptable and good range. Each of the variables contains 3 items, and the Cronbach's Alpha value are 0.654, 0.822, 0.523, and 0.833 for Personal Innovativeness, Perceived Compatibility, Facilitating Condition, and Behavioral Intention respectively. Hence, it can be concluded that all the independent variables and the dependent variable are reliable and accurate in this study.

4.5 Normality Test

According to Hair et al. (2015), it is noted that the normality test must be conducted on all the variables in this research, before conducting correlation and multiple regression tests. The histogram of residual and probability plot, also known as p-plot, were used to test the normality of the error term assumptions in the research. The normality test was conducted for all of the variables of this study, which are Personal Innovativeness (PI), Perceived Compatibility (PC), Facilitating Conditions (FC), and a dependent variable which is Behavioral Intention (BI).

Whereby the descriptive statistics of normality test analyzed the mean values and standard deviation, the kurtosis and skewness are utilized to understand the data distribution shape of this study's variables and the values of skewness and kurtosis are shown below.

Table 8: Descriptive Statistics with Skewness and Kurtosis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PITotalOnly	104	7.00	15.00	11.3269	2.30003	-.024	.237	-.824	.469
PCTotalOnly	104	8.00	15.00	12.7212	2.00222	-.613	.237	-.440	.469
FCTotalOnly	104	7.00	15.00	12.0000	1.91062	-.204	.237	-.427	.469
BITotalOnly	104	5.00	15.00	13.0288	2.15630	-1.092	.237	.877	.469
Valid N (listwise)	104								

Skewness evaluates the extent to which a variable's distribution is symmetrical. If the distribution of responses for a variable extends toward the right or left tail of the distribution, then the distribution is known as skewed. Kurtosis is an evaluation of whether the distribution is too peaked (a very narrow distribution with maximum of the responses in the centre) (Kim, 2013).

When both skewness and kurtosis are zero (a situation where researchers rarely encounter), the outline of responses is referred to as a normal distribution (Hair et al., 2017). According to Kim (2013), a proposed reference of departure from normality is when skewness is lower than -2 or higher than 2 and when kurtosis is lower than -7 or higher than 7. Based on Table 8, since the skewness and kurtosis of all variables fall within this range, therefore, the distribution is considered normal.

Moreover, to examine the distribution of the dependent variable of this research, several normality tests have been conducted, which includes normal Q-Q plot, normal P-P plot, histogram, and scatterplot which are illustrated in the following figures.

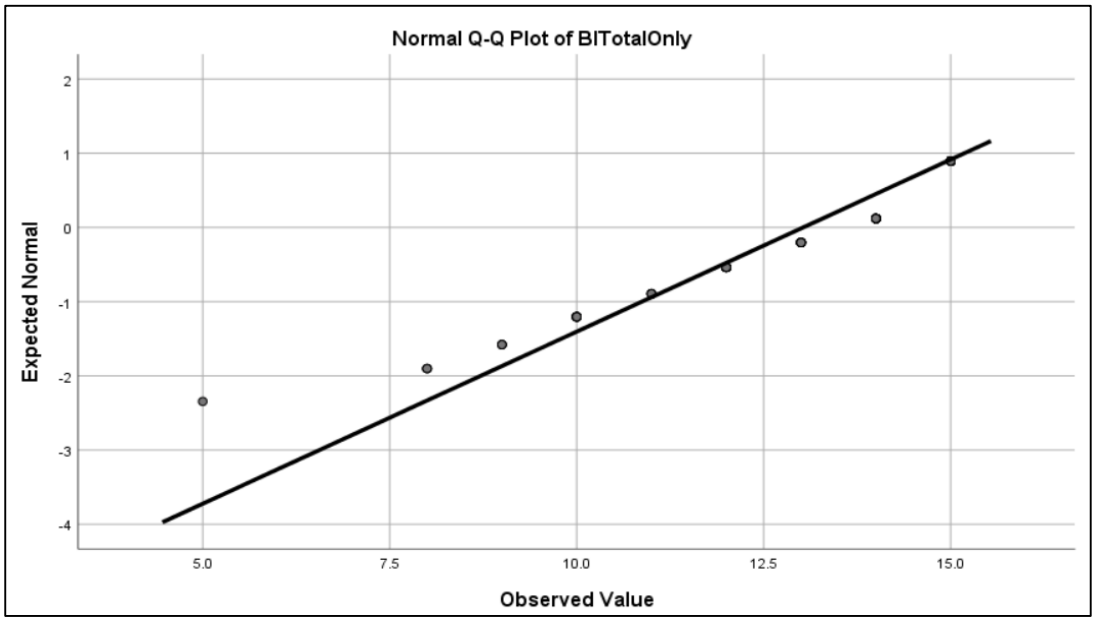

Figure 2: Normal Q-Q Plot of Behavioral Intention (BI)

According to Vogt (2005), a Q–Q (quantile-quantile) plot is a probability plot, which is a graphic method for collating two probability distributions by plotting their quantiles against each other. Q–Q plots are generally utilized to collate a set of data to a theoretical model. This could give a "goodness of fit" assessment that is graphical, rather than reducing to a numerical summary. Q–Q plots are also utilized to collate two theoretical distributions to each other. The concept behind a Q-Q plot is simple. If the residuals are falling along a roughly straight line at an angle of 45-degree, then the residuals are roughly normally distributed (Vogt, 2005). The normal Q-Q plot of the dependent variable, which is the Behavioral Intention, the distribution illustrated in Figure 2 reveals that the data plotted nearly follows the diagonal and all the factors are plotted near the line or lie on the linear line, whereby only a few plots are being dispersed from the line. Hence, the data roughly trail and cluster around the trend line, which provides further evidence that the distribution is normal.

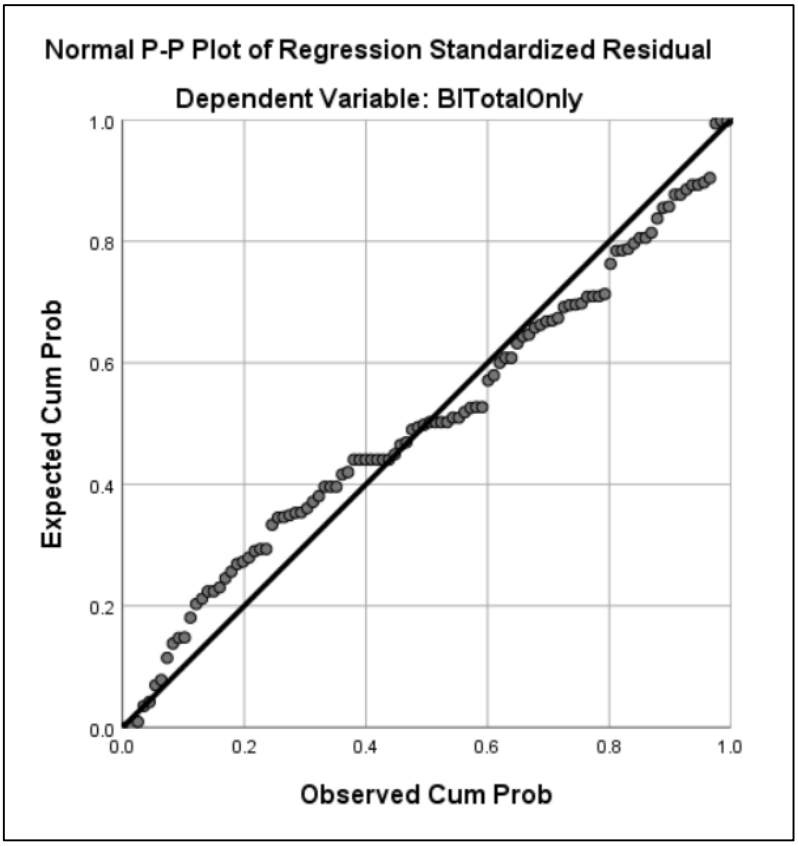

Figure 3: Normal P-P Plot of Behavioral Intention (BI)

According to Gao and Chik (2013), the cumulative probability plots of residuals (P-P plot) is utilized to assess whether the variables' distribution is regular with a specified distribution. It is to evaluate how closely two sets of data agree, which plots the two cumulative distribution functions against each other. P-P plots are widely used to assess the skewness of the distribution. P-P plots collates the empirical cumulative distribution function of a set of data with a stipulated theoretical cumulative distribution function F(·). If the standardized residuals are normally distributed, the scatters will be falling on or firmly close to the normal distribution line. Figure 3 shows that the scatters of the residuals basically fall straight on the normal distribution line, which indicates a normal distribution of residuals.

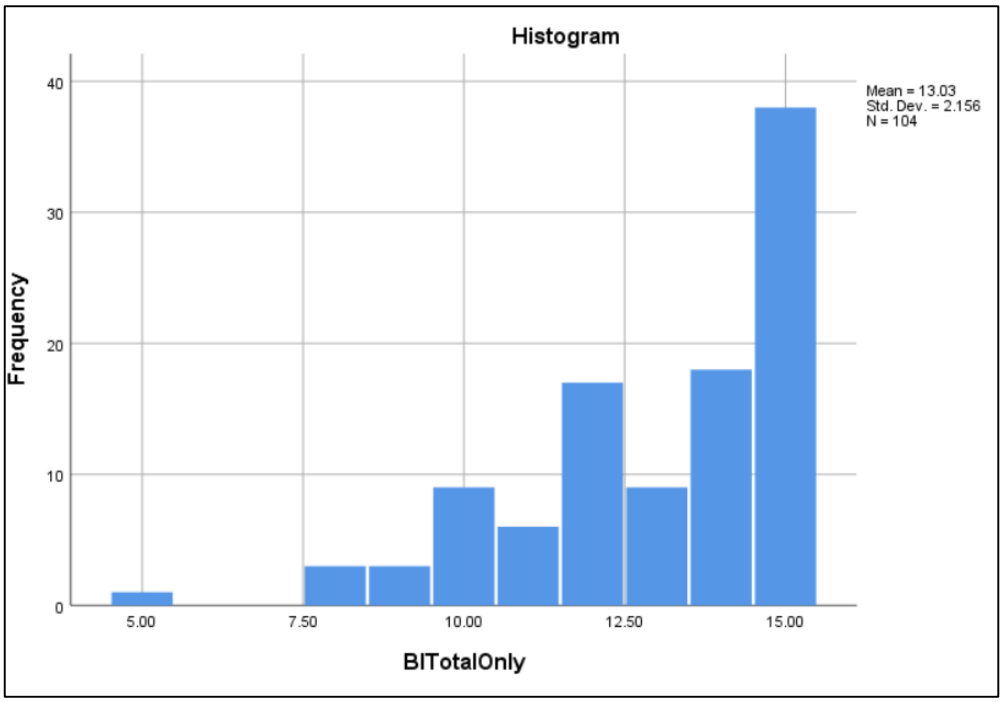

Figure 4: Histogram

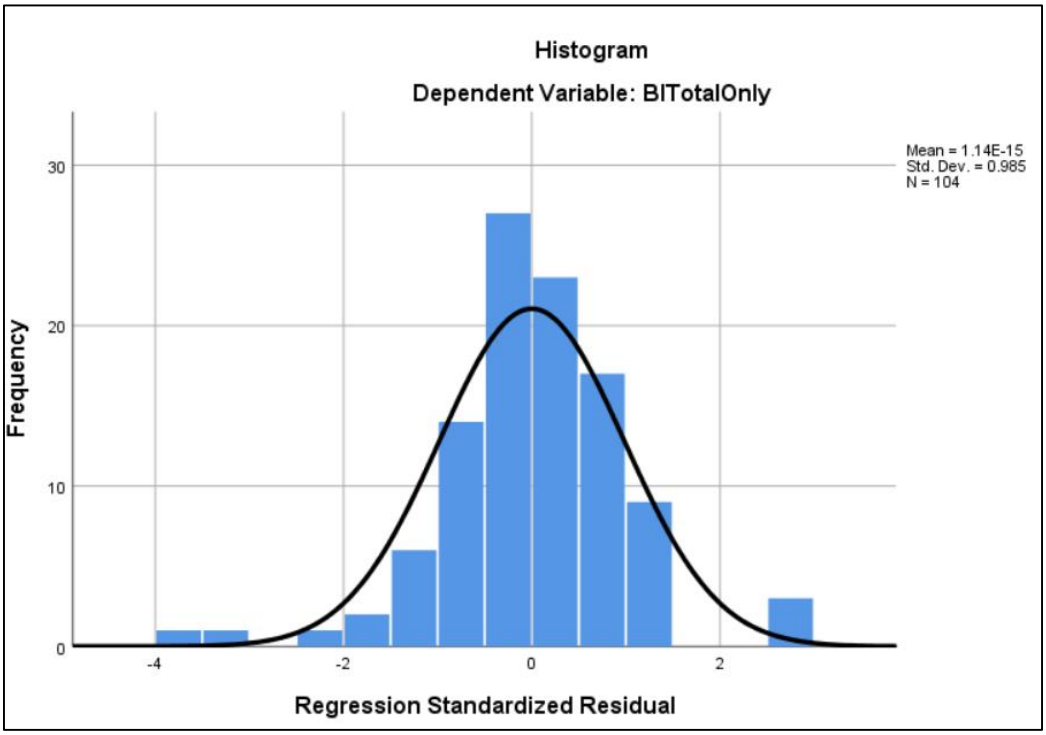

Figure 5: Histogram

The histogram of the normality test Figure 4 and Figure 5 shows the values of mean (1.14), standard deviation (0.985) and N value (104), which represents a normal curve, defining that the dependent variable has a normal distribution in this study.

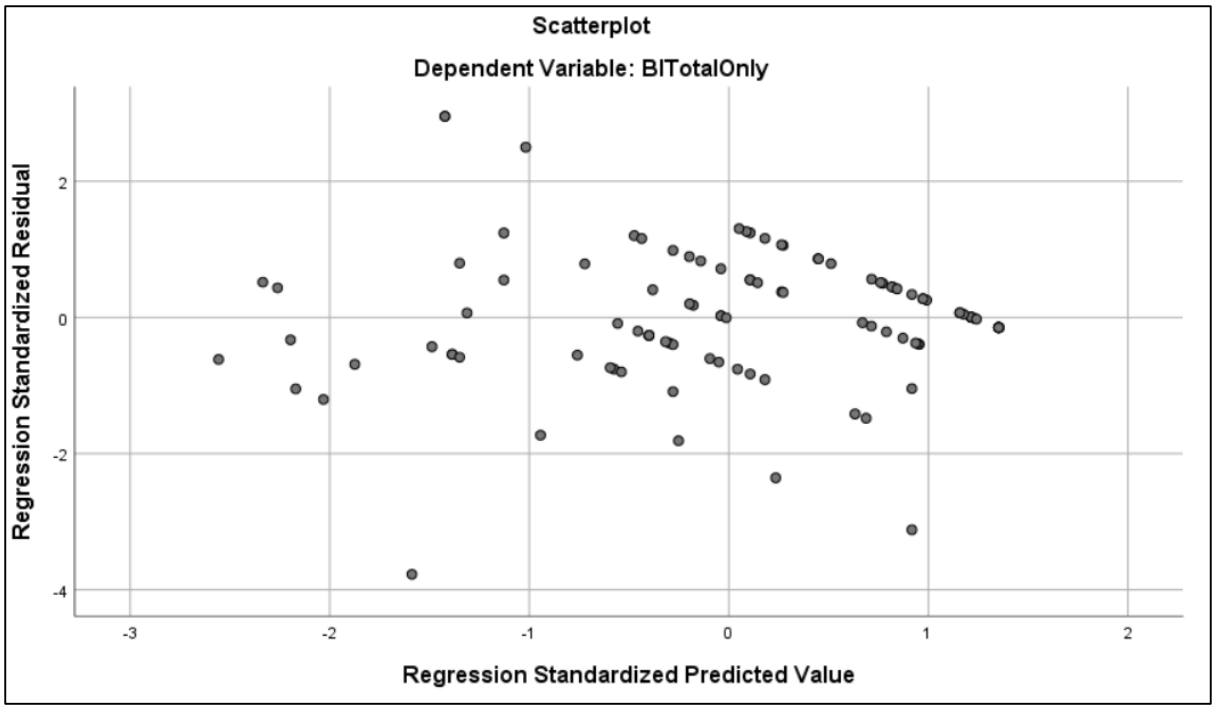

Figure 6: Residual Scatterplots

Residual scatterplots give a visual evaluation of the assumption homoscedasticity between the predicted dependent variable scores and the errors of prediction. The main advantage is that the assumption can be observed and evaluated with one glimpse; hence, any violation can be quickly determined.

A residual scatter plot is a figure that represents one axis for predicted scores and one axis for errors of prediction. Preliminary visual evaluation can separate any outliers, also known as extreme scores, in the set of data. Tabachnick and Fidell (2007) clarify the residuals (the difference between the obtained DV and the predicted DV scores) and the variance of the residuals shall be the same for all predicted scores (homoscedasticity). If this is factual, the assumption is therefore met, and the scatter plot would take the (estimated) rectangular shape; scores will be emphasized in the centre (about the 0 point) and will be distributed in a rectangular pattern. In other words, scores would be scattered randomly about a horizontal line. In opposition, any other systematic pattern of scores clustering is measured as a violation.

Therefore, Figure 6 shows a random displacement of scores that represents a rectangular shape without any clustering or systematic pattern. The figure reveals the assumption of homoscedasticity is met.

4.6 Pearson's Correlation Coefficient

Correlation coefficients are utilized to evaluate how strong a relationship is between two variables (Sekaran & Bougie, 2016). There are many types of correlation coefficients, but Pearson's Correlation Coefficient is the most popular. Pearson's correlation (also referred to as Pearson's R) is a correlation coefficient generally utilized in linear regression. The correlation ranges between -1 and 1. A correlation of 0 represents no relationship at all, a correlation of 1.0 represents a perfect positive correlation, and a value of -1.0 represents a perfect negative correlation. The Pearson Correlation value was measured according to Schober, Boer and Schwarte (2018), where the range of values was established in Table 9. This study will also emphasize on the significance of each variable were the lesser the value, the more accurate for the outcome whereby p = 0.000 denoting that a significance level under 0.05 (Walker, 2017).

Table 9: Class of Pearson Correlation and Absolute Ranges of Values

Class	Range – absolute values
Not correlated	< 0.1
Weak	0.1 to 0.2
Moderate	0.2 to 0.5
Strong	> 0.5

Table 10: Pearson Correlation and Significant Value

Correlations

		PITotalOnly	PCTotalOnly	FCTotalOnly	BITotalOnly
PITotalOnly	Pearson Correlation	1	.547**	.473**	.446**
	Sig. (2-tailed)		.000	.000	.000
	N	104	104	104	104
PCTotalOnly	Pearson Correlation	.547**	1	.645**	.737**
	Sig. (2-tailed)	.000		.000	.000
	N	104	104	104	104
FCTotalOnly	Pearson Correlation	.473**	.645**	1	.580**
	Sig. (2-tailed)	.000	.000		.000
	N	104	104	104	104
BITotalOnly	Pearson Correlation	.446**	.737**	.580**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	104	104	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

According to Table 10, it shows the correlation result between the independent variables, Personal Innovativeness (PI), Perceived Compatibility (PC), and Facilitating Condition (FC) with the dependent variable, Behavioral Intention (BI). It reveals that the coefficient value for correlation analysis of PI, PC, FC, and BI are 0.446, 0.737, 0.580 and 1 respectively. Among the independent variables, Personal Innovativeness (PI) shows a moderately strong correlation to Behavioral Intention (BI), with a Pearson correlation coefficient of 0.446. The significant value of the correlation between PI and BI is .000, indicating that the correlation is significant. The second independent variable, Perceived Compatibility (PC) shows the strongest correlation to Behavioral Intention (BI), with a Pearson correlation coefficient of 0.737. The significant value of the correlation between PC and BI is .000, indicating that the correlation is significant. The third independent variable, Facilitating Condition (FC) shows a moderately strong correlation to Behavioral Intention (BI), with a Pearson correlation coefficient of 0.580. The significant value of the correlation between FC and BI is .000, indicating that the correlation is significant.

Thus, based on the cited results, it can be indicated that all the independent variables of this study have a positive relationship with the dependent variable.

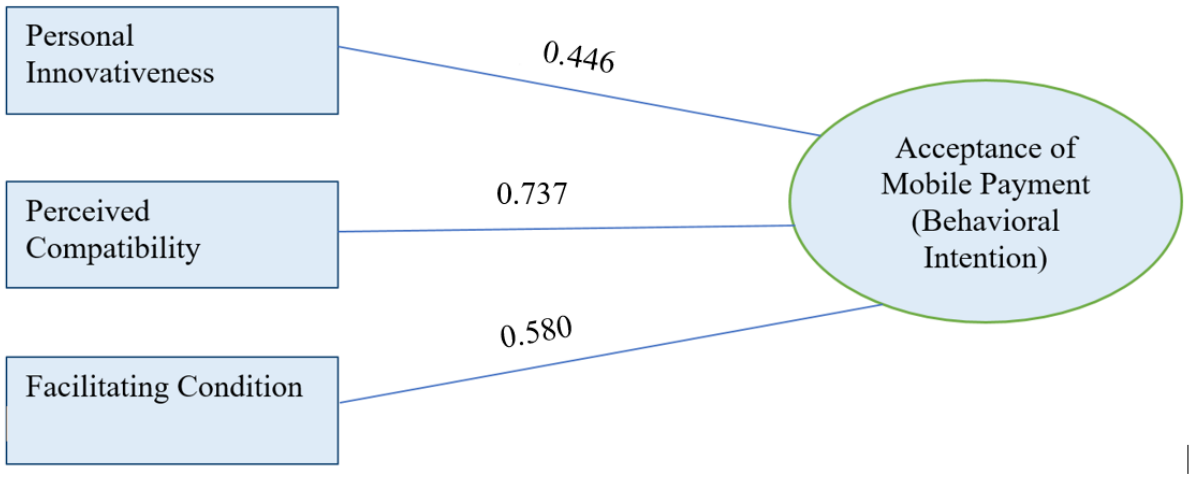

Figure 7: Correlation Value (r) between IVs and DV

4.7 Multiple Regression Analysis

Regression analysis is carried out to recognize the correlations between two (2) variables and more whereby there is a cause-effect relationship. Multiple regression analysis is a regression that evaluates more than one independent variable with one dependent variable. The assumptions of multiple regression analysis are normal distribution, linearity, liberty from values that are considered extreme, and no manifold ties between the independent variables (Uyanik & Güler, 2013).

It has been indicated in Pearson Correlation analysis that all the independent variables which are PI, PC and FC represent a significant relationship with the dependent variable (BI) and have a p-value lesser than 0.05. However, it is not enough to ensure or identify the relationship and significance between all independent variables with the dependent variable. Therefore, Multiple Regression Analysis is carried out for further evaluation in this study. The model summary is illustrated below in Table 11.

Table 11: Regression's Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.750[a]	.563	.550	1.44689

(R) indicates the coefficient of multiple correlations within a range of -1 to +1. On the other hand, R Square (r^2) implies the coefficient of determination where it evaluates how much variability in the outcome by the predictors which ranges between 0 and 1. It evaluates the potency of the relationship between 0 – 100%. Since there is no definite value for the coefficient, the Adjusted R Square is decided to provide a concept of how well the model will be generalized which has a value that is close to R Square (Reisinger, 1997). Therefore, this study will view through the Adjusted R Square. According to Reisinger (1997), a great R square must at least have a p-value of 0.3 to imply that it has a cause-effect relationship. An R square value from 0.3 - 0.5 is considered to have a weak or low effect size and a range between 0.5 - 0.7 is considered as a moderate effect size. Meanwhile, if the R square value is >0.7, it is considered to have a strong effect size.

Table 11 represents the model summary of the analysis that shows the result of R square, Adjusted R square, and standard error of the estimate for the model. The adjusted R square shows a result of 0.550 which means it has a moderately strong effect from all the independent variables to the dependent variable. It indicates that intention to adopt mobile payment (BI) is explained by all the 3 independent variables which are Personal Innovativeness (PI), Perceived Compatibility (PC) and Facilitating Condition (FC) by 55%. The rest of 45% is explained by other variables.

Table 12: Regression's ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	269.563	3	89.854	42.921	.000[b]
	Residual	209.350	100	2.094		
	Total	478.913	103			

The ANOVA test is carried out to determine the significance of variables results, as well as it is utilized to either reject or accept the hypothesis and the difference between variables (Ostertagova and Ostertag, 2013). Table 12 shows the regression and residual sum of squares, df, mean square, F, and significance. From the analysis conducted in this study, the regression model is taken under consideration where it shows the values such as 269.563 for sum of squares, 89.854 for mean square, F=42.921 and the significance is lesser than 0.005. This analysis of ANOVA shows that there is a significant interaction between the dependent variable and the independent variables, as it can be noticed that the significant value is 0.000 which is less than 0.005. This shows that independent variables such as Personal Innovativeness (PI),

Perceived Compatibility (PC) and Facilitating Condition (FC) have a strong relationship with the dependent variable namely Behavioral Intention (BI).

Although it would not be accurate only relying upon the ANOVA test and concluding the analysis based on this test, the regression coefficient test has been conducted to finalize the tests and make the conclusion of the hypothesis in this research.

This regression coefficient test is carried out to determine whether the hypothesis will be accepted or rejected by observing the significance (sig.) values. If the significance value is lower than 0.05, then the hypothesis is accepted. In opposition, the hypothesis is rejected if the significant value is above 0.05 (Uyanik & Güler, 2013). This analysis is conducted to evaluate the relationship between one continuous dependent variable with three continuous or categorical independent variables.

Table 13: Regression's Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.018	1.018		1.982	.050
	PITotalOnly	.030	.075	.032	.397	.692
	PCTotalOnly	.656	.100	.609	6.568	.000
	FCTotalOnly	.194	.099	.172	1.956	.053

Table 13 shows the coefficient values from the regression analysis. The output shows that out of the 3 independent variables, only 1 variable which is the Perceived Compatibility (PC) is significantly impacting the dependent variable (Behavioral Intention) with p-value of 0.000, which is less than 0.05. The remaining independent variables, namely Personal Innovativeness (PI) and Facilitating Condition (FC) in this study have no significant impact on behavioural intention, with p-value of 0.692 and 0.053 respectively.

Table 14 shows the results of hypotheses in the research based on the multiple regression analysis.

Table 14: Hypotheses Table

Developed Hypotheses	Significance	Results
H1: There is a relationship between personal innovativeness and students' intention to accept mobile payment.	0.692	Rejected
H2: There is a relationship between perceived compatibility and students' intention to accept mobile payment.	0.000	Accepted
H3: There is a relationship between facilitating conditions and students' intention to accept mobile payment.	0.053	Rejected

5.0 Discussion of Findings

Research Question 1: Is there a Relationship between Personal Innovativeness and Higher Education Institution Students towards Acceptance of Mobile Payment in Klang Valley, Malaysia?

The results of this study showed that there is no significant relationship between personal innovativeness and higher education institutions students towards acceptance of mobile payment. There are several possible reasons for the explanations of these findings. Contrary to previous study (Zarmpou, Saprikis, Markos and Vlachopoulou, 2012), this study found that personal innovativeness had negative significant effects on behavioural intention to accept mobile payment. The most likely explanation of the negative result is lack of awareness and lack of knowledge in the availability of mobile payment services among the students. Even though they have general knowledge from advertisements and their social environment, they believe that mobile payments are more complicated than cash and credit/debit cards. Thus, without knowing how the system of mobile payment works, students are not likely to develop an eagerness to try out new things like mobile payment. Furthermore, in contrast to previous study (Li, Liu and Heikkilä, 2014), this study revealed that students with low personal innovativeness attributes are more inclined not to undertake the opportunity to explore new things and does not have the capability to associate with uncertainty. In accordance with previous research carried out by Yang, Liu, Li and Yu (2015), association with uncertainty refers to the level to which individuals perceive the losses that are likely to be created due to the uncertainties of utilizing mobile payment. Thus, students believe that the losses may include any undesirable outcomes to them, such as financial loss, privacy violation, disappointment with performance, uneasiness, and waste of time. According to Ates (2019), the findings in the research revealed that lack of value proposition was one of the reasons why consumers did not adopt mobile payments. Therefore, it is believed that students are not seeing any clear benefits of using mobile payments compared to currently used methods. When students do not find any benefits in using mobile payment, it could lead to lower personal innovativeness, which would eventually make students not try out any new information technology like mobile payment. Therefore, mobile payment providers in Malaysia ought to reach educate and give necessary information to potential consumers and students. As a result, the consumers and students would know more about how mobile payments can improve their lives.

5.2 Research Question 2: Is there a Relationship between Perceived Compatibility and Higher Education Institution Students towards Acceptance of Mobile Payment in Klang Valley, Malaysia?

The results of this study showed that there is a significant relationship between perceived compatibility and higher education institutions students towards acceptance of mobile payment. The results of these findings were consistent with past researches like; Tornatzky and Klein (1982), Agarwal and Prasad (1997), Moore and Benbasat (1996), Chen and Nath (2008) and (Yang et.al, 2012). Results from the previous studies had shown a positive relationship of perceived compatibility towards the adoption of new systems and innovations such as mobile payments. In this study, the students with higher compatibility felt that it is useful and easier to use mobile payment services. Services that are compatible helps students complete their work easier, help them achieve high effectiveness, thereby making them feel the usefulness of the mobile payment services. Moreover, the results of these findings have been supported by previous researcher Jun, Cho and Park (2018), who stated that this value must offer some economic value towards the customer such as distributing promotion events or delivering a discount coupon that can attract more people to use a mobile wallet. One thing that would come to the students' minds is that promotion can be a good way. For example, a 5% discount or

cashback can be given when the students use mobile payments in specific stores or services. This had been achieved with notable mobile payment providers like Touch 'n Go, and Boost had developed collaboration with e-commerce companies like Lazada, fast food restaurants such as McDonald's, and coffeehouse companies like Starbucks to provide discounts and cashbacks to customers who pay via mobile payment. Therefore, the students would be motivated to try using mobile payments. In this study, students with high compatibility in this study also felt that mobile payment is completely compatible and favourable according to the current situation, where the Malaysian government encourages everyone to utilize cashless payment methods such as mobile payment, to reduce the spread of Covid-19. Thus, students preferring mobile payment as his/her primary payment method according to their lifestyle or values will have higher compatibility with mobile payment systems. When the students find an application to be compatible with their behaviour, they are more likely to accept and adopt it. To enable this, marketers may emphasize on developing and utilizing marketing communication that focuses on the compatibility of the application with use cases for divergent lifestyles among their targeted markets.

5.3 Research Question 3: Is there a Relationship between Facilitating Condition and Higher Education Institution Students towards Acceptance of Mobile Payment in Klang Valley, Malaysia?

The results of this study showed that there is no significant relationship between facilitating conditions and higher education institutions students towards acceptance of mobile payment. There are several possible reasons for the explanations of these findings. Contrary to previous studies such as Venkatesh, Thong and Xu (2012), Yang and Forney (2013), this study found that facilitating conditions had negative significant effects on behavioural intention to accept mobile payment. The most likely explanation of the negative result is that if students do not have the necessary resources and supports, they will not have the intention to use mobile payments. One possible reason is that nowadays, it has become a habit for students to download many applications on their smartphones, which caused memory inadequacy. Hence, the insufficient memory in the smartphone might not be able to cater for the required space and storage that is needed for the mobile payment applications to operate smoothly. Besides that, the students are likely being encountered with non-availability of the required necessary resources to enter into a mobile wallet transaction, such as basic knowledge, an Internet-enabled smartphone, a mobile network with an adequate speed, battery capacity, and many more. Moreover, students are more likely to encounter a particular situation, where they would realize at the point of making a transaction, they have insufficient balance in their e-wallet. With no other payment methods available such as cash or cards, the individual would hastily try to top-up their e-wallet balance to make the transaction. In between this process, the individual could be facing a lack of resources such as bad network speed, slow response from bank to provide security authorization like the TAC number to approve the top-up transaction, and late response from the mobile application to reflect the amount that has been topped up. Specific people may not be able to assist the person, due to privacy concerns relating to money. Thus, the lower the facilities available, the lower the student's intention to carry out a certain behaviour.

6.0 Conclusion and Recommendations

The main objective of this study is to investigate the determining factors and relationship between personal innovativeness, perceived compatibility, facilitating condition and higher education institutions students towards acceptance of mobile payment in Klang Valley, Malaysia. A total of 110 questionnaires were distributed to higher education institution

students, and only 104 valid responses were received to be used in this study. The data collected was analyzed using the SPSS software. Using this SPSS, descriptive analysis, frequency distribution, and several tests such as normality test, reliability test, Pearson's Correlation Coefficient test and Multiple Regression analysis were performed to test the relationship and significance of the variables. From the findings, it was found that 2 independent variables, which are personal innovativeness and facilitating condition had an insignificant rate of 0.692 and 0.053 respectively, that unfortunately resulted in the rejection of the 2 hypotheses, although both the variables had a positive correlation with the behavioural intention to accept mobile payment. While most results from the previous researches show that personal innovativeness and facilitating condition have positive significance towards behavioural intention, the findings from this study have resulted differently. Only one independent variable in this study, which is perceived compatibility, had a significant rate of 0.000, thus resulting in the acceptance of that hypothesis. The results and discussion of this research would further provide understanding to the existing mobile payment service providers in Malaysia, and also to new mobile payment service providers who are keen to venture into this industry.

There are some limitations that occurred in this study. Firstly, the respondents of the study were focused only on the higher education institutions students in Klang Valley. Higher education institutions respondents are not enough to represent the entire population of Malaysia. Mobile payment users in other states are not included in this study. Other than that, the age is concentrated below 40 years old and thereby not giving a true representation of the entire population in Malaysia. Hence, the conclusions from this study may not apply to the general Malaysian population. Secondly, in the literature, there are plenty of antecedents of adoption of mobile payment, but in this study, only personal innovativeness, perceived compatibility, and facilitating conditions were analyzed. Other factors affecting the adoption of mobile payment can be added to future research models. While answering the questionnaire, some respondents may have difficulties in understanding some terms in the statement, therefore, it could affect the accuracy of the data collected.

According to the limitation mentioned in the previous section, there are some suggestions provided for further researchers. For future research, expanding into a wider age group that consists of elderly age groups like Generation-X can be performed. It is also recommended to conduct future research in multiple states in Malaysia such as Johor, Penang, Sarawak and Sabah, or other countries such as Bangladesh, Kenya and Nigeria that are developing the adoption of new technology like mobile payment. Thus, the findings will be more representative and accurate. Furthermore, future researchers may extend the research model in this study to have a better understanding of the factors that influence the acceptance of mobile payment. Other factors such as perceived mobility, self-efficacy, perceived trust, cost, and promotion activities may determine an individual's acceptance of mobile payment. Last but not least, it is suggested to distribute the questionnaire in multi-languages such as Malay and Chinese to improvise the respondent's understanding level. This influences the accuracy and reliability of the data; thus the respondents would need to understand the statements correctly and answer them sincerely.

7.0 References

Agarwal, R. and Karahanna, E., 1998. On the Multidimensional Nature of Compatibility Beliefs in Technology Acceptance. *Proc. Digital Conference,* pp.1-13.

Agarwal, R. and Prasad, J., 1997. The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies. *Decision Sciences*, 28(3), pp.557-582.

Ajzen, I., 1991. The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), pp.179-211.

Ajzen, I., & Fishbein, M., 2005. *The Influence of Attitudes on Behavior.* In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The Handbook of Attitudes* (p. 173–221),31

Amoroso, D. and Magnier-Watanabe, R., 2012. Building a Research Model for Mobile Wallet Consumer Adoption: The Case of Mobile Suica in Japan. *Journal of theoretical and applied electronic commerce research*, 7(1), pp.13-14.

Anderson, E., 2013. Customer Satisfaction, Productivity and Profitability. *Business Administration*, 16(2), pp.129-145.

Ates, G., 2019. What are the Reasons for not Adopting Mobile Payments?. *International Business Management with Fintech Focus*, 1, p.56.

Australian Bureau of Statistics, 2002. *Education Variables*. [online] Available at: <https://www.abs.gov.au/ausstats/abs@.nsf/2f762f95845417aeca25706c00834efa/7AC4E9B40681A5E7CA25713E001FE4D2?opendocument#:~:text=Operationally%2C%20'Level%20of%20highest%20educational,completed%2C%20whichever%20is%20the%20higher.> [Accessed 27 February 2021].

Bagozzi, R., Baumgartner, H. and Yi, Y., 1992. State versus Action Orientation and the Theory of Reasoned Action: An Application to Coupon Usage. *Journal of Consumer Research*, 18(4), p.505.

Blake, B., Neuendorf, K. and Valdiserri, C., 2003. Innovativeness and variety of Internet shopping. *Internet Research*, 13(3), pp.156-169.

Bryman, A., 2012. *Social Research Methods* (5th ed.). Oxford: Oxford University Press.

Business Today, 2019. *Digital Wallets: The Reason Millennials Are Going Cashless - Business Today*. [online] Available at: <https://www.businesstoday.com.my/2019/10/08/digital-wallets-the-reason-millennials-are-going-cashless/> [Accessed 1 February 2021].

Chang, C. and Chin, Y., 2011. Predicting the Usage Intention of Social Network Games. *International Journal of Online Marketing*, 1(3), pp.29-37.

Chau, P., 1996. An Empirical Assessment of a Modified Technology Acceptance Model. *Journal of Management Information Systems*, 13(2), pp.185-204.

Chen, L. and Nath, R., 2008. Determinants of Mobile Payments: An Empirical Analysis. *Journal of International Technology and Information Management*, 17(1), pp.1-13.

Chen, L., Gillenson, M. and Sherrell, D., 2002. Enticing Online Consumers: An Extended Technology Acceptance Perspective. *Information & Management*, 39(8), pp.705-719.

Davis, F.D.,1986. Technology Acceptance Model for Empirically Testing New End-user Information Systems Theory and Results. *Unpublished Doctoral Dissertation*, MIT.

Davis, F., 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), p.319.

Dimock, M., 2019. *Defining generations: Where Millennials end and Generation Z begins*. [online] Available at: <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/> [Accessed 3 March 2021].

Diehl, R., 2010. The Art of Being a Scientist: A Guide for Graduate Students and Their Mentors the Art of Being a Scientist: A Guide for Graduate Students and Their Mentors , Roel Snieder and Ken Larner Cambridge U. Press, New. *Physics Today*, 63(6), pp.50-51.

Dong, X., 2018. Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Relative Advantage Affecting Chinese Customers' Decision to Use Mobile Payment in Bangkok. *Graduate School, Bangkok University*, [online] p.68. Available at: <http://dspace.bu.ac.th/bitstream/123456789/3779/1/Dong2.pdf> [Accessed 28 February 2021].

Edirisingha, P., 2012. Interpretivism and Positivism (Ontological and Epistemological Perspectives). [Online]
Available at: https://prabash78.wordpress.com/2012/03/14/interpretivism-and-postivism-ontological-and-epistemological-perspectives/

Editage, 2019. What are Research Objectives?. [Online]
Available at: https://www.editage.com/insights/what-is-research-objective

Etikan, I., 2016. Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), p.1.

Gao, Y. and Chik, A., 2013. A Multiple Regression Analysis on Influencing Factors of Urban Services Growth in China. *Technology and Investment*, 04(01), pp.1-5.

Gu, J., Lee, S. and Suh, Y., 2009. Determinants of Behavioral Intention to Mobile Banking. *Expert Systems with Applications*, 36(9), pp.11605-11616.

Hair, J., Celsi, M., Money, A., Samouel, P. and Page, M., 2015. *The Essentials of Business Research Methods*. 3rd ed. Routledge.

Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M., 2017. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM).* 2nd ed. Thousand Oaks, CA: Sage

Hanafizadeh, P., Behboudi, M., Koshksaray, A. and Tabar, J., 2014. Mobile Banking Adoption by Iranian Clients. *Telemat Inform*, 31(2), pp.62-78.

Haroon, R., 2020. *E-wallet gaining traction in Malaysia | New Straits Times*. [online] Available at: <https://www.nst.com.my/opinion/columnists/2020/07/605958/e-wallet-gaining-traction-malaysia> [Accessed 3 March 2021].

Hatzakis, E., Nair, S. and Pinedo, M., 2010. Operations in Financial Services—An Overview. *Production and Operations Management*, 19(6), pp.633-664.

Hill, R., Fishbein, M. and Ajzen, I., 1977. Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. *Contemporary Sociology*, 6(2), p.244.

Iovino, F. and Tsitsianis, N., 2020. The Methodology of the Research. *Changes in European Energy Markets*, pp.79-95.

Jackson, J., Yi, M. and Park, J., 2013. An Empirical Test of Three Mediation Models for the Relationship between Personal Innovativeness and User Acceptance of Technology. *Information & Management*, 50(4), pp.154-161.

Jun, J., Cho, I. and Park, H., 2018. Factors Influencing Continued Use of Mobile Easy Payment Service: An Empirical Investigation. *Total Quality Management & Business Excellence*, 29(9-10), pp.1043-1057.

Kim, C., Mirusmonov, M. and Lee, I., 2010. An Empirical Examination of Factors influencing the Intention to use Mobile Payment. *Computers in Human Behavior*, 26(3), pp.310-322.

Kim, H., 2013. Statistical Notes for Clinical Researchers: Assessing Normal Distribution (2) using Skewness and Kurtosis. *Restorative Dentistry & Endodontics*, 38(1), p.52.

Krejcie, R. and Morgan, D., 1970. Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30(3), pp.607-610.

Lu, J., 2014. Are Personal Innovativeness and Social Influence Critical to Continue with Mobile Commerce? *Internet Research*, 24(2), pp.134-159. [Accessed 21 April 2020].

Li, H., Liu, Y. and Heikkilä, J., 2014. Understanding the factors driving NFC-enabled Mobile Payment Adoption: An Empirical Investigation. *Pacific Asia Conference on Information Systems*, [online] p.231. Available at: <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1158&context=pacis2014>

Lin, H. F. (2007). Predicting Consumer Intentions to Shop Online: An empirical test of competing theories. *Electronic Commerce Research and Applications*, 6, 433–442.

Lin, H., 2011. An Empirical Investigation of Mobile Banking Adoption: The Effect of Innovation Attributes and Knowledge-based Trust. *International Journal of Information Management*, 31(3), pp.252-260.

Liu, J., Kauffman, R. and Ma, D., 2015. Competition, Cooperation, and Regulation: Understanding the Evolution of the Mobile Payments Technology Ecosystem. *Electronic Commerce Research and Applications*, 14(5), pp.372-391.

Morgan, J., 2019. *E-commerce Payments Trends: Malaysia*. [online] Available at: <https://www.jpmorgan.com/merchant-services/insights/reports/malaysia> [Accessed 1 March 2021].

Moore, G. and Benbasat, I., 1996. : Integrating Diffusion of Innovations and Theory of Reasoned Action Models to Predict Utilization of Information Technology by End-Users. In: Kautz, K., Pries-Heje, J. *Diffusion and Adoption of Information Technology*, pp.132-146.

Oliveira, T., Thomas, M., Baptista, G. and Campos, F., 2016. Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behavior*, 61, pp.404-414.

Ostertagova, E. and Ostertag, O., 2013. Methodology and Application of One-way ANOVA. *American Journal of Mechanical Engineering*, 1(7), pp.257-261.

Pham, T. and Ho, J., 2015. The Effects of Product-related, Personal-related Factors and Attractiveness of Alternatives on Consumer Adoption of NFC-based Mobile Payments. *Technology in Society*, 43, pp.159-172.

Polonsky, M. and Waller, D., 2018. *Designing and Managing a Research Project: A Business Student's Guide*. 4th ed. California: Sage Publications.

Reisinger, H., 1997. The Impact of Research Designs on R2 in Linear Regression Models: An Exploratory Meta-analysis. *Journal of Empirical Generalisations in Marketing Science*, 2, pp.1-12.

Rogers, E.M., 1983. Diffusion of Innovations, *Free Press*, 3rd ed, Collier Macmillan, New York

Rogers, E., 2003. *Diffusion of Innovations*. 5th ed. New York: Free Press.

Ryan, G., 2018. Introduction to positivism, interpretivism and critical theory. *Nurse Researcher*, 25(4), pp.14-20.

Saunders, M., Lewis, P. & Thornhill, A., 2009. *Research Methods for Business Students*: Fifth Edition. s.l.:s.n.

Saunders, M., Lewis, P., & Thornhill, A., 2007. *Research Methods for Business Students*, (6th ed.) London: Pearson.

Schober, P., Boer, C. and Schwarte, L., 2018. Correlation Coefficients. *Anesthesia & Analgesia*, 126(5), pp.1763-1768.

Sekaran, U. and Bougie, R., 2016. Research Methods for Business*: A Skill Building Approach* Seventh Edition. John Wiley & Sons.

Sharma, S., Mangla, S., Luthra, S. and Al-Salti, Z., 2018. Mobile wallet inhibitors: Developing a comprehensive theory using an integrated model. *Journal of Retailing and Consumer Services*, 45, pp.52-63.

Siu, N. Y., & Chang, L. M., 2015. A Study of Service Quality, Perceived Risk and Personal Innovativeness in Internet Banking. In Revolution in Marketing. *Market Driving Changes* (pp. 78-83)

Study Malaysia, 2017. *The Malaysian Higher Education System - An Overview*. [online] Available at: <https://www.studymalaysia.com/education/higher-education-in-malaysia/the-malaysian-higher-education-system-an-overview#:~:text=Higher%20education%20at%20certificate%20and,which%20is%20equivalent%20to%20GCE> [Accessed 1 March 2021].

Tabachnick, B. and Fidell, L., 2007. *Using Multivariate Statistics*. 5th ed. Boston: Pearson/Allyn & Bacon.

Taherdoost, H., 2016. Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *SSRN Electronic Journal*.

Thakur, R., Angriawan, A. and Summey, J., 2016. Technological Opinion Leadership: The Role of Personal Innovativeness, Gadget Love, and Technological Innovativeness. *Journal of Business Research*, 69(8), pp.2764-2773.

Tornatzky, L. and Klein, K., 1982. Innovation Characteristics and Innovation Adoption Implementation: A Meta-Analysis of Findings. *IEEE Trans. Eng. Manage*, pp.28-45.

Uyanık, G. and Güler, N., 2013. A Study on Multiple Linear Regression Analysis. *Procedia - Social and Behavioral Sciences*, 106, pp.234-240.

Venkatesh, V., Morris, M., Davis, G. and Davis, F., 2003. User Acceptance of Information Technology: Toward a Unified View, *MIS Quarterly*, 27(3), 425-478.

Vogt, P., 2005. *Normal Probability Plots | Dictionary of Statistics & Methodology*. 3rd ed. SAGE Publications.

Walker, D., 2017. JMASM 48: The Pearson Product-Moment Correlation Coefficient and Adjustment Indices: The Fisher Approximate Unbiased Estimator and the Olkin-Pratt Adjustment (SPSS). *Journal of Modern Applied Statistical Methods*, 16(2), pp.540-546.

World Conference on Higher Education, 1998. *Overview of Higher Education*. [online] Available at: <https://www.jica.go.jp/jica-ri/IFIC_and_JBICI-Studies/english/publications/reports/study/topical/approaches/pdf/higher_02.pdf> [Accessed 28 February 2021].

Yang, K., 2010. Determinants of US consumer mobile shopping services adoption: implications for designing mobile shopping services. *Journal of Consumer Marketing*, 27(3), pp.262-270.

Yang, K., & Forney, J. C., 2013. The Moderating Role of Consumer Technology Anxiety in Mobile Shopping Adoption: Differential Effects of Facilitating Condition and Social Influences. *Journal of Electronic Commerce Research*, 14(4), 334-347.

Yang, S., Lu, Y., Gupta, S., Cao, Y. and Zhang, R., 2012. Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, 28(1), pp.129-142.

Yang, Y., Liu, Y., Li, H. and Yu, B., 2015. Understanding Perceived Risks in Mobile Payment Acceptance. *Industrial Management & Data Systems*, 115(2), pp.253-269.

Yee, T., 2019. *Nielsen sees security concerns as main barrier to e-wallet adoption*. [online] Available at: <https://www.digitalnewsasia.com/digital-economy/nielsen-sees-security-concerns-main-barrier-e-wallet-adoption#:~:text=E%2DWALLET%20adoption%20in%20Malaysia%20is%20still%2

0at%20its%20infancy.&text=When%20it%20comes%20to%20perceived,are%20concerned%20about%20missing%20transactions.> [Accessed 1 March 2021].

Yusoff, M., 2012. Stability of DREEM in a Sample of Medical Students: A Prospective Study. *Education Research International*, 2012, pp.1-5.

Zarmpou, T., Saprikis, V., Markos, A. and Vlachopoulou, M., 2012. Modeling users' acceptance of mobile services. *Electronic Commerce Research*, 12(2), pp.225-248.