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Applying Technology Acceptance Model Towards Cashless Payment Usage Among Consumers in Kulai, Johor

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Abstract: Cashless payments are becoming popular and accepted by Malaysian consumers. In the market, there are some types of cashless payment, for example, plastic cards, e-wallet, electronic transfers, and online banking. Each type of cashless payment may have its own advantages and disadvantages. Among the disadvantage of cashless payment like e-wallet is security. The purpose of this research was to study the factors of cashless payment usage among consumers in Kulai, Johor. Technology Acceptance Model (TAM) framework was used as variable factors which were perceived usefulness, perceived ease of use, perceived risk and trust, to measure factors towards cashless payment usage among consumers in Kulai, Johor. This study used an online questionnaire to collect data from respondents. 734 questionnaires were distributed to the respondents and a total of 205 sets has been returned back. The results showed that all the studied variables have a positive relationship with cashless payment usage. This research can contribute some idea to the cashless payment service provider firms to provide more customers oriented services.

Keywords: Technology acceptance model, Cashless payment

1. Introduction

In recent years, with the development of time, scientific and technological progress has been continuously improved and will abandon the old and bring forth the new. A succession of emerging information and communication technologies (ICTs) has spread and underpinned economic change throughout the 2000s and 2010s. The digital economy is a phenomenon that is directly related to digital technology innovation, as well as the provision of online services, electronic payments, e-commerce, crowdfunding. Generally, e-commerce, internet banking, electronic payments, internet advertising, and Internet games are key components of the digital economy (Borremans *et al*., 2018).

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The new revolution will serve all mankind in the 21st century, that bring more convenience and efficiency to social life. One of them changed the transaction on cash. The cashless payment was first introduced in the 1950s, and since then, various electronic payment instruments have been introduced. SMS payments, plastic cards (debit cards, credit cards and ATM cards), e-transfers (electronic transfers), online banking, virtual wallets (Google Wallet), and virtual currencies (Bitcoin) are the key innovations in recent years.

As cashless payments became more popular and gradually accepted, cashless transactions became a trend. This research aims to study the usage of cashless payment by Malaysian consumers using the TAM framework. The rise of cashless transactions has affected consumer purchasing behaviour (Hedman *et al*., 2017). Participants in this study mentioned that cash cannot be used for online purchases, but mobile payments can and enable you to pay bills easily and in less time. In this society, some people do not like to carry money in their wallets, they think it is troublesome, so people are seriously considering e-pay through e-cards and e-banking (e-banking) (Jain & Jain, 2017). The view of a cashless society is based on e-transactions (electronic transactions).

1.1 Research Background

In the past, debit and credit card were the common method of cashless payment among Malaysian. In addition, the global trend of a cashless society will make Malaysia famous not only in card payment but also in e-wallet payment (Pikri, 2018). According to Datuk Seri Nazir Razak, Chairman of the CIMB Group Bank, so far, many businesses in Malaysia have developed personal e-wallets, even without electronic payments being processed in advance. These actions and guidance will help Malaysia develop a cashless society sooner (Haikal *et al*., 2018).

Usage of E-Banking was launched in Malaysia in July 2001. Bank Negara Malaysia also enabled local commercial banks to begin electronic banking as a consumer transaction channel in the same year (Taasim & Yusoff, 2017). Since 2011, compared to Internet banking. mobile banking has seen higher growth rates. In 2015, the amount of mobile banking increased by 93.0%, while Internet banking increased by 27.4% (Bank Negara Malaysia, 2016). Malaysia is well on its way to being a digital and cashless society as about 91% of Malaysians have access to online banking today.

Bank Negara Malaysia (BNM) has set its goal to turn Malaysia into a cashless society. According to previous Finance Minister Lim Guan Eng, local retailers are already satisfied with e-wallets because the benefits are evident. To further accelerate the cashless agenda, he announced in Budget 2020 that, as a one-off initiative to promote the use of e-wallets in the country, the government was offering an award payment of RM30 under its e-Tunai Rakyat (people's e-cash) to e-wallet users aged 18 and over who earn less than RM10000 annually. The government hopes to increase the number of digital payment users to 15 million.

In the area around consumers in Kulai, Johor have a huge potential to conduct a cashless payment society because, in the current state of the digital wallet payment method in the area around Kulai, Johor has begun to develop. Therefore, this study is to identify the views of consumers regarding cashless payments in the Kulai, Johor. This study also determines the relationship between the perception of consumer towards cashless payment cashless in Kulai, Johor. The findings of this research are expected to be useful in broadening the understanding regarding cashless payment usage among consumers in Kulai, Johor using the TAM framework.

1.2 Problem Statements

Recently, the Malaysian government is promoting the use of mobile wallets (e-wallets) to encourage people to use cashless payments to reduce cash transactions. In the current state of the digital wallet payment method in the area around Kulai, Johor has begun to develop. Some merchants

keep up with the times to provide several digital wallet payment methods like Boost, TouchNGo e-wallet, GrabPay, etc. to facilitate their customers to complete their payment transfers faster and easier.

According to Soo (2020), in the COVID-19 period, the merchant tries using contactless transactions when doing their business. In order to allow customers to choose more payment methods, some retailers have also introduced cashless payment methods. During the outbreak period, Kuwadekar, Vice President and Head of Business Development (Mastercard), mention that Malaysia's growing use of cashless payments was visible (Poovenraj, 2020).

There are many cashless payment methods on the market which are debit card and credit card payment, online banking service. Credit and debit cards are widely used in many commercial transactions. Retail sales such as from hypermarkets, clothing stores and others are among the biggest business practices in which transactions are transacted with these two forms of E-payment cards. This is convenient for local residents and provides an additional cashless payment option. However, some merchants offer only certain cashless methods of payment which will force customers to choose another method of payment. Some merchants, for example, only accept cash payments or use debit or debit card for transactions, but do not accept e-wallet payments.

1.3 Research Questions

(i) What is the perception of the consumers in Kulai, Johor towards cashless payment method using TAM framework?
(ii) Is the any relationship between the perception of the consumers in Kulai, Johor towards cashless payment usage?

1.4 Research Objectives

(i) To determine the perception of the consumers in Kulai, Johor towards cashless payment method using Technology Acceptance Model.
(ii) To measure the relationship between consumers' perception towards cashless payment usage.

1.5 Scope of the Study

This research will gather information about Malaysian consumers' perception of cashless payment using the TAM framework. This research is using the technology acceptance model and descriptive method to identify the acceptance of cashless payment system among the consumers in Kulai, Johor. The respondents in this study came from consumers, especially those who are working in Kulai, Johor who used cashless payments. Among the 734 questionnaires distributed via social media platform which are Facebook, WhatsApp and WeChat, the study only collected 205 respondents who used cashless payments in Kulai, Johor.

1.6 Significance of the Study

Customers started accepting and using cashless payments and it is important for research to be done to understand the factors and variables that influence cashless payment method usage among users in Malaysia. This study will understand their attitudes and purchase behaviour from the consumer perspective through their usage for cashless transactions. Firms would also be able to benefit from this research. Through this research, firms can get benefits by knowing consumers' cashless payment usage and provide cashless payment service that is more appropriate.

2. Literature Review

2.1 Technology Acceptance Model

Davis first implemented the Technology Acceptance Model (TAM) in 1986 to assess application user behaviour. The TAM model is the method commonly utilized to forecast the adoption of information technology (Macharia & Nyakwende, 2010). TAM provides a realistic method for defining the specific issues that make a particular technology or system acceptable or unacceptable, providing for adequate resolution as well as forecasts for potential adoption of similar technologies (Lai, 2018).

(a) Perceived Usefulness

Perceived Usefulness is characterized as an individual using a particular program that would improve their work achievement (Barbara *et al*., 2005). The lack of practical benefits and an unclear understanding of the performance provided by mobile payment systems are one of the reasons that users rarely adopting mobile payment systems (Shatskikh, 2013). When the users find a system is useful, they will build up a positive attitude towards it, and they also use the system to obtain the perceived benefits (Aydin & Burnaz, 2016). Therefore, a hypothesis is developed as follows:

H1: Perceived Usefulness (PU) significantly related with cashless payment usage

(b) Perceived Ease of Use

Perceived ease of use (PEOU) is perceived as one of the dimensions most affecting the acceptance of new technologies (Davis *et al*., 1992; Moore & Benbasat, 1991). It contributes to potentiality in the construction of ease of use and is accepted by numerous researchers in the sense of mobile services Liébana, Sánchez, & Muñoz, 2014; Phonthanukitithaworn *et al*., 2015). Compared to users using cash payment methods, users will know the cashless payment system as being easy to use. Therefore, a hypothesis is developed as follows:

H2: Perceived Ease of Use (PEOU) has a significant related with cashless payment usage.

(c) Perceived Risk

Users usually concern about the perceived security of mobile payment systems, not real security, like losing their mobile phones, or identity theft, it causes to generate a barrier to their adoption in these systems (Ovum, 2012; Gross *et al*., 2012). Furthermore, users concern regarding privacy and security in mobile payment provided by various parties like banks, telecom companies and retailers (Aydin *et al*., 2016). They use many approaches, such as brand loyalty, store identity or word-of-mouth, to either confirm their decision to purchase or minimize the uncertainty they feel about the decision, in order to minimize perceived risks (Schrank & Dubinsky, 2014). Therefore, a hypothesis is developed as follows:

H3: Perceived Risk (PR) significantly relationship with cashless payment usage.

(d) Trust

Perceived trust is one of the major determinants and will impact the actions of online users. According to Molla and Licker (2001), trust is linked to the protection and exclusivity of using M-pay, since this affects the service's reliability. Privacy and security play a very important role in gaining trust. The users make a reasonable decision on trust criteria that needs to be taken before making a decision, so they may make a judgement from the aspect of whether there is a statement on trust or not. Trust in mobile banking is a belief that allows the user to become willing to use banking or e-banking technology after knowing the bank's established features (Koo & Wati, 2010). Therefore, a hypothesis is developed as follows:

H3: Trust (T) significantly relationship with cashless payment usage.

2.2 Cashless Payment Usage

The cashless payment was first introduced in the 1950s, as known as electronic payment. The term 'electronic' in the E-Payment commonly involves a form of payment that does not require physical cash or funds (Noor & Aw, 2013). Since then, various electronic payment instruments have been introduced. The e-payment systems include digital credit card transaction, e-wallet, electronic cash (e-cash), online stored value systems, digital balance systems, digital checking payment systems and wireless payment systems (Laudon & Traver, 2019).

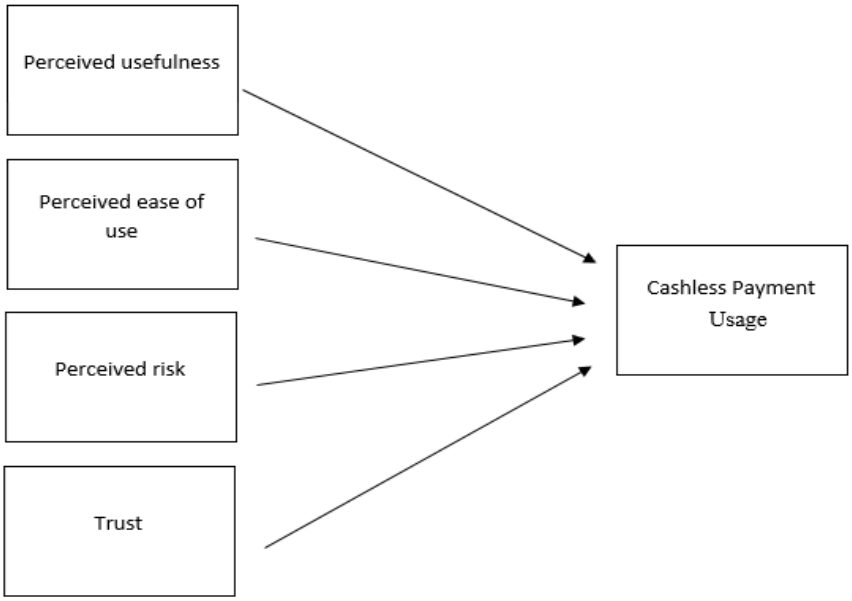

Figure 1: Research framework

3. Research Methodology

3.1 Research Design

The objective of this research is to identify the cashless payment usage among consumers using the TAM framework in Kulai, Johor. In order to conduct this research, the quantitative method will be selected to collect the data from the respondents. The quantitative method will use the survey by sending out an online questionnaire to gather data from the respondent. The quantitative approach is used by the researcher to describe the relationship between independent and dependent variables with the purpose of answering the research question. In doing the research, close-ended questions will be asked in this survey, including multiple-choice questions. The goal of the researcher is to use quantitative research to determine the relationship between consumers' perception of cashless payment usage.

3.2 Data Collection

In this study, there are two types of data i.e. primary data and secondary data adopted. Primary data refers to the data being collected or obtained from a first-hand experience whereas secondary data refers to the data gathered in the past or obtained from other parties. The research data will be collected with the perception of Malaysian consumers who have used the cashless payment by using the TAM framework and will be collected at consumers in Kulai, Johor. The respondents will be questioned to get their perception by using the cashless payment method. Descriptive studies will be carried out on the designation of the questionnaire. The questionnaire will be distributed to respondents using social media platforms which through Facebook, WhatsApp and WeChat. This will enhance the data collection process as the population is concentrated in that area. The methods that

are used are more likely to be applied to boosting response rates to online surveys than on-paper surveys.

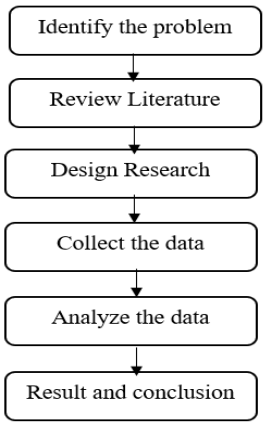

Figure 2: Research process

3.3 Data Analysis

A well-constructed questionnaire titled the factors related to the TAM method towards cashless payment usage among consumers was used to obtain the information needed from the respondent who is a consumer in Kulai, Johor. For data analysis, IBM Statistical Package for Social Sciences (SPSS) is analysing the data. According to Langkos (2014), data analysis is the type of research whereby data gathered is categorized in themes and sub-themes which are more comparable. For the descriptive analysis, responses were tabulated and analysed in the form of mean, percentage and standard deviation. In order to do comparison and test hypotheses, inferential analysis like Spearman's Correlation was used. The data analysis used in this research is Descriptive Analysis, Scale measurement, and Inferential Analysis.

3.4 Pilot Test

A pre-test was conducted on 30 respondents to check for reliability and face validity of the questionnaire. Table 1 shows the reliability test of the pilot study from 30 respondents. The results show that the reliability values of all variables are higher than 0.70. The variables are perceived usefulness, perceived ease of use, perceived risk, trust and cashless payment usage. The Cronbach alpha values for these variables are 0.789, 0.948, 0.775, 0.824, 0.913 respectively.

Table 1: Result of reliability test

Variable	Cronbach's Alpha
Perceived usefulness	0.789
Perceived ease of use	0.948
Perceived risk	0.775
Trust	0.824
Cashless payment usage	0.913

4. Results and Discussion

4.1 Demographic Analysis

Among the 205 respondents in the total population, there were 97 male respondents and 108 female respondents. Based on the ethnicity of respondents from the demographic, the largest group of respondents in this research were Chinese, which constituted 54.1% among the respondents. It was

followed by Malay respondents, 26.3% and Indian respondents, 19.5%. The respondents mostly were from the age range of 18-29 (55.6%) and the respondents who are aged above 50 years old had the least number of respondents, which were 4.9%.

In addition, the monthly income levels of the respondents are also different. 43.4% of the respondents had an income of less than RM2000, 38% had an income between RM2001 and RM4000, 14.6% had an income between RM4001 and RM6000, and 3.9% had an income of more than RM6001. In addition, the marital status of the respondents was also recorded in the demographic data. Among the respondents, 34.1% of them were married and 65.9% were single.

Among all the respondents, the majority (78%) prefer to use plastic cards, whether it is a debit card or a credit card in a store. 39.5% of respondents prefer to use mobile wallets (electronic wallets) in stores. 14.6% of respondents only choose online banking or mobile banking as their first choice in stores. Only 2.4% of respondents (5) choose other option in the store. Three respondents prefer to use cash to buy in stores, one of them chose payWave as the reason for preferring use in the store, and another one frequently uses all the above cashless payment methods.

More than half of the respondents (56.6%) prefer online banking or mobile banking in online shopping, while 22% prefer to use plastic cards in online shopping. In addition, 20% of respondents choose mobile wallets (e-wallets) as their preferred cashless payment method for online shopping. Only 1% of the respondents chose other options, one of them prefers purchasing online shopping by cash, and one of them believed that all the above options can be used for online shopping.

4.2 Consumer Perception on Cashless Payment Usage

Table 2 shows the mean and standard deviation of the influence factors, the average mean value of perceived usefulness was the highest, which is M = 4.21; SV = 0.781. On the other hand, perceived risk was the lowest value of the average mean (M = 3.91; SV = 0.938). All respondents in this research tend to have positive feedback on all factors affecting the use of cashless payments and the high mean level (M = 4.06, SD = 0.854).

Table 2: Mean and standard deviation of the influencing factors

Item	Mean	Standard Deviation	Level
Perceived usefulness	4.21	0.781	High
Perceived ease of use	4.16	0.816	High
Perceived risk	3.91	0.938	High
Trust	3.95	0.879	High
Factor influencing	4.06	0.854	High

4.3 Validity Test

Kothari (2011) suggested that if the result is stable and consistent, a measuring instrument should be considered reliable. The Cronbach alpha value is between 0.7 to 0.8 will consider to acceptable, 0.8 to 0.9 is good internal consistency, 0.9 and above indicates excellent internal consistency. Table 3 shows the Cronbach alpha coefficient values for each variable measured using SPSS reliability analysis. Perceived usefulness, perceived ease of use, perceived risk and trust were independent variable while cashless payment usage was the dependent variable for this research. Each of the independent variables has 4 items to conduct this research. Perceived usefulness has achieved alpha coefficient values of 0.821 which is good internal consistency. Perceived ease of use has achieved alpha coefficient values of 0.859 which is good internal consistency. Perceived risk has achieved alpha coefficient values of 0.795 which is acceptable. Trust has the highest of the alpha coefficient values of 0.866 which is good internal consistency. Besides that, the dependent variable has 5 items to

conduct this research. The cashless payment usage has achieved alpha coefficient values of 0.881 which is good internal consistency.

Table 3: Reliability statistic

Variable	Cronbach's Alpha	N of Items
Perceived usefulness	0.821	4
Perceived ease of use	0.859	4
Perceived risk	0.795	4
Trust	0.866	4
Cashless payment usage	0.881	5
Total		21

4.4 Normality Test

Table 4 shows the test of normality with coefficients of Kolmogorov-Smirnov and Shapiro-Wilk. Kolmogorov-Smirnov test is considered as the dataset for this research because the total of feedback gathered is more than 50 respondents, which is 205 respondents. Kolmogorov-Smirnov test is a non-parametric method and the p-value is higher than 0.05, the null hypothesis is accepted and data is presumed to be distributed approximately normally. On the other hand, when the p-value is lower than 0.05, the null hypothesis is rejected and the data consider to deviate from the normal distribution. Based on the table below, all of the variables are below 0.05, hence the results were considering not normal.

Table 4: Test of normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Perceived usefulness	.119	205	.000	.926	205	.000
Perceived ease of use	.118	205	.000	.926	205	.000
Perceived risk	.137	205	.000	.952	205	.000
Trust	.160	205	.000	.944	205	.000
Cashless payment usage	.124	205	.000	.914	205	.000

4.5 Spearman Test

Table 5 shows the results of the correlation test for each factors dimension that influence the usage of the cashless payment method. Based on the result, it shows that all variables have a positive significant relationship with the usage of cashless payment and among all factor of the TAM framework, perceived usefulness is the strongest among the independent variables.

4.6 Hypotheses Testing

In order to test the study's hypothesis, statistical tests were used to analyse the relationship between the independent variables and the dependent variable. There were 4 hypothesises that were developed and each would be discussed in the following section.

Based on the result that can be seen from Table 5, the correlation coefficient of perceived usefulness is 0.751. This demonstrates that the perceived usefulness has a greater impact on the usage of cashless payment among consumers in Kulai, Johor at $p<0.005$. The hypotheses are therefore acceptable.

The correlation coefficient of perceived ease of use is 0.788 on the basis of the result from Table 4.3. It demonstrates that the perceived ease of use has a greater impact on the usage of cashless payment among consumers in Kulai, Johor at $p<0.005$. The hypothesis is thus accepted.

Referring to Table 5, the correlation coefficient of perceived risk is 0.680. This demonstrates that perceived risk has a significant positive effect on the usage of cashless payment among consumers in Kulai, Johor at $p<0.005$. Therefore, the hypotheses are accepted.

Table 5: The correlation of independent variables towards dependent variable

			PU	PEOU	PR	T	CPU
Spearman's rho	PU	Correlation Coefficient		.822**	.656**	.626**	.751**
		Sig. (2-tailed)		.000	.000	.000	.000
	PEOU	Correlation Coefficient	.822**		.643**	.602**	.788**
		Sig. (2-tailed)	.000		.000	.000	.000
	PR	Correlation Coefficient	.656**	.643**		.843**	.680**
		Sig. (2-tailed)	.000	.000		.000	.000
	T	Correlation Coefficient	.626**	.602**	.843**		.695**
		Sig. (2-tailed)	.000	.000	.000		.000
	CPU	Correlation Coefficient	.751**	.788**	.680**	.695**	
		Sig. (2-tailed)	.000	.000	.000	.000	

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

As can be seen from Table 5, the correlation coefficient of trust is 0.695. This proves that trust has a significant positive effect on the usage of cashless payment among consumers in Kulai, Johor at $p<0.005$. Therefore, the hypotheses are accepted.

H1: There is a significant relationship between perceived usefulness and the usage of cashless payment among the consumers in Kulai, Johor.

H2: There is a significant relationship between perceived ease of use and cashless payment usage among the consumers in Kulai, Johor.

H3: There is a significant relationship between perceived risk and cashless payment usage among the consumers in Kulai, Johor.

H4: There is a significant relationship between trust and cashless payment usage among the consumers in Kulai, Johor

4.7 Discussions

The results show that among all the factors that affect the use of the cashless payment, the perceived useful (PU) value is the highest (M=4.06; SD=0.854). According to Dalcher and Shine (2003), stated that PU is the construct of one's belief that particular technology will be able to improve their performance. In this study, 95 respondents response they think using cashless payment transaction would be saving a lot of time. In the previous study conducted by Chauhan (2015), the results showed to use cashless payment can reduce the turnaround time and can be done in a shortened period. However, perceived value at the lowest value (M = 3.91; SV = 0.938). In this study, 34 respondents disagreed that it is difficult to steal private information in cashless payment transactions.

According to previous research by Giovanis *et al*. (2019), researchers found indicators of perceived risk. One of the indicators is a privacy risk, which may lose control of personal information (such as personal background information, passwords or user accounts).

PU towards cashless payment usage was found to have a positive significant relationship (correlation coefficient= 0.821; $p<0.05$). Based on the results of the survey data, most respondents believe that cashless payment transactions are effective and convenient. It effectively improves the payment transaction process and shortens the payment transaction time. Some previous studies have also shown that PU will affect people's perception of cashless payment transactions. Previous researchers expressed the user has an intention to use electronic payment because it can be valid at anytime, anywhere, without restrictions (Junadi & Sfenriantob, 2015). Users will continue to use cashless payment transactions if they find them useful.

PEOU towards cashless payment usage was found to have a positive significant relationship (correlation coefficient= 0.859; $p<0.05$). A simple operating system will be more attractive to users who want to use it. Gökhan (2016) stated that by providing an intuitive and easy-to-use technically designed interface, the usability of the system will be improved and even the chances of user adoption will be also increased. Most respondents believe that the use of cashless payment transactions will quickly adapt and adopt, for example, they believe that the use of cashless payment transactions is easy to understand. Cashless payment transfers, such as electronic wallets, have become more convenient. Users can easily make payment by simply scanning the QR code. Hence, users willing to use this transaction method.

Perceived risk towards cashless payment usage was found to have a positive significant relationship (correlation coefficient= 0.795; $p<0.05$). Most of the respondents believe that it is secure to use cashless payment transactions and cannot be easily stolen. According to the research of Syahril and Rikumahu (2019), the perceived risk has a significant positive impact on the use of electronic money. They believe that using electronic money is safe and reliable. It will not disclose users' personal information and accounts. However, there had several previous studies that showed that the users consider the risk or negative impact on the cashless payment transaction. One of which is a study conducted by Wiradinata (2018), the researcher pointed out that whether it is a trader, consumer or user, there will be some uncertainty in cashless payment transactions, which will affect its security.

Trust towards cashless payment usage was found to have a positive significant relationship (correlation coefficient= 0.866; $p<0.05$). Most respondents are satisfied with sufficiently secure cashless payment transactions. They use this transaction method because it is reliable and willing to continue using it. According to Dong (2009), the previous study points out the trust of users in cashless payment transactions may be influenced by word-of-mouth from peers or others. Users who have experience using this transaction tend to voluntarily communicate their experiences to their peers. Therefore, people may feel this payment method is secure and reassuring.

The results of the study show that consumers' perception of these factors of TAM has an impact on cashless payments. The factors include the PU, PEOU, PR and Trust. Based on the results study, most respondents agree that they enjoyed using cashless payment and are willing to use this transaction in the future. Therefore, the intention of respondents to use cashless payment transactions is very high. Based on Table 5, the results show the significant values of PU, PEOU, PR and Trust are below 0.05. Hence, PU, PEOU, PR and Trust individually affect the usage of cashless payment.

5. Conclusion

This research provides some insights into the perception of the consumers in Kulai, Johor towards cashless payment method using the Technology Acceptance Model framework. In short, the

objectives in this research were achieved. Based on the findings of the correlation coefficient, all the null hypotheses were rejected in which the existing result proposed that all independent variables including perceived usefulness, perceived ease of use, perceived risk and trust had a positive and significant relationship with the usage of cashless payment among consumers in Kulai, Johor.

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