The Role of Psychological Factors in the Intention to Use Mobile Payment

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Abstract: The rapid growth of mobile commerce businesses and the increasing number of transactions using mobile devices are strengthening mobile payments as an instrument of payment. In addition, the Covid-19 pandemic situation makes digital transactions also continue to increase. Regardless of the benefits provided by mobile payments, the adoption of mobile payments is still considered in the early stages and quite new for consumers in Indonesia. Telecommunication infrastructure facilities that are not evenly distributed and aspects of data security that become obstacles in the development of mobile payment services. Departing from these problems, the use of mobile payments still needs to be increased especially during this pandemic. The purpose of this study is to find out the factors that influence the intention to use mobile payment from the psychological side by using independent variables, namely performance expectancy, facilitating conditions, hedonic motivation, and perceived security, and a dependent variable that is behavioral intention. The method of data analysis is descriptive statistics and multiple regression. The results of this study are there is a positive influence between performance expectancy variables and hedonic motivation variables towards behavioral intention variables while facilitating conditions and perceived security variables do not affect behavioral intention variables.

1 INTRODUCTION

The rapid growth of mobile commerce in Indonesia is in line with the increasing number of internet users who reached 185 million people in 2019 (Statista Research Department, 2020). This situation is also strongly supported by the development of smartphone ownership that reaches 63 percent of the total population of Indonesia in 2019 (Statista Research Department, 2020). In addition, the rapid growth of mobile commerce in Indonesia is also indicated to increase due to the increasing need for digital transactions amid the Covid-19 pandemic (Ronal, 2020). Bank Indonesia stated that digital transactions have increased during the Covid-19 pandemic to 17.31 percent (tribunnews, 2020).

The increasing number of transactions using mobile devices further strengthen the role of mobile payment as one of the most important payment tools in the mobile commerce business. The use of mobile payment to make payments to mobile commerce-based businesses can provide ease and speed in transacting and is also able to be a secure payment solution during physical distancing and self-quarantine Jung, Kwon, & Kim (2020), Moorthy et al. (2019) dan Sivathanu (2018). In addition, the provision of cash-back, gifts, and cash discounts to mobile payment users also further adds aspects of benefits and advantages in using mobile payment (Singh, Sinha, & Cabanillas, 2020).

However, aside from the benefits of using mobile payment services. This service is considered still in its early stages and still fairly new for consumers in Indonesia (Agusta, 2018). This is when compared to other countries such as China, Finland, and Sweden (Robin, 2020). Moreover, the construction of infrastructure facilities, especially telecommunication infrastructure that has not been evenly distributed, is an obstacle in utilizing this digitalization potential (Hafid, 2020).

In addition, the use of mobile payments involving highly sensitive personal and financial data results in aspects of security risks such as theft, fraudulent transactions, hacker attacks, privacy breaches, and data breaches become the main considerations for a person to conduct non-cash transactions Merhi, Hone,

& Tarhini (2019) dan Marria (2018). Departing from the problem, the use of mobile payment still needs to be improved. Moreover, during the Covid-19 pandemic, the use of mobile payments that facilitate non-cash payments can support government policies in the prevention of the Covid-19 pandemic during the treatment of physical distancing and self-quarantine (Hidayat, 2020). So the use of mobile payment at this time becomes more important than ever. This study will try to re-examine the factors that influence the intention to use mobile payments during the Covid-19 pandemic based on the psychological factors felt by the users by using the identification of the UTAUT2 model.

2 THEORITICIAL STUDY

2.1 Unified Theory of Acceptance and Used of Technology 2 (UTAUT 2)

This theory was developed by Venkatesh, Morris, Davis, & Davis (2003) this model then modified by Venkatesh, Thong, & Xu (2012) by including three additional elements, namely, price value, hedonic motivation, and habits as well as three demographic variables, namely age, gender, and experience which were used as moderators of the effects of forming UTAUT2. This study is an adaptation of the research of Moorthy et al. (2019) where the study did not use price value, habit variables, and three demographic variables, namely age, gender, and experience. Two other variables that are not included in this study are the effort expectancy and social influence variables because they do not affect behavioral intentions to use mobile payment services.

2.2 Theory of Perceived Risk

The concept of perceived risk was first developed by Bauer (1960) who defined perceived risk as the uncertainty felt in a buying situation. This concept is based on the idea that every buying activity involves risk. The theory of perceived risk itself has been used before to explain consumer behavior in decision-making (Wu, Chiu, & Chen, 2020). Risk plays an important role in consumer behavior and makes an important contribution to behavioral intention and decision making in purchasing, where the greater the sense of uncertainty felt, the greater the barrier for users to use a technology (Arora & Rahul, 2018). Perceived risk has several components or types, namely financial performance, social, physical, time-loss, and security (Sanayei & Bahmani, 2012). This

study will focus on Perceived security which is defined as a feeling of uncertainty or concern regarding the security of personal and financial data information when using a product or service. Information security of personal and financial data is a key element of the online purchasing process (Justine, Hill, Gaines, & Wilson, 2009). In addition, perceived security is also one of the main barriers to adopting mobile payments (Chang, 2014).

2.3 Literature Review

Jung, Kwon, & Kim (2020) researched the motivations and barriers in accepting mobile payment services (MPSs) in America using the UTAUT theory. This study results that the intention to use MPSs is determined by social influence, knowledge, trust, compatibility, and performance expectancy. Another study by Singh, Sinha, & Cabanillas (2020) proposed combining the UTAUT2 model with the TAM (Technology Acceptance Model) model to examine the factors that influence the intention to use a mobile wallet and the intention to recommend a mobile wallet in India. This study found that the variables of usefulness, perceived risk, ease of use, and attitude influenced the intention to use a mobile wallet and the intention to recommend a mobile wallet.

The research of Moorthy et al. (2019) which examined 225 samples of workers in Malaysia using the UTAUT2 variable stated that performance expectancy, facilitating conditions, hedonic motivation, and perceived security have a significant influence on behavioral intention to use mobile payments. The research of Merhi, Hone, & Tarhini (2019) also uses UTAUT2 theory to examine the factors that inhibit and can influence the adoption of mobile banking services. This study states that perceived security (PS), performance expectancy (PE), Hedonic motivations (HM) have a significant effect on behavioral intentions in the adoption of mobile banking services. However, social influence is not significant.

Another study by Nelloh, Santoso, & Slamet (2019) developed a hypothesis related to continuance intention or the intention of sustainability in the use of mobile payment services that depend on the perspective of trust and cognitive aspects. This study results that cognitive aspects are not significant on continuance intention or the intention of sustainability in mobile payment services. On the other hand, trust and security aspects show a positive influence on continuance intention in mobile payment services.

2.4 Hypothesis Development

2.4.1 The Effect of Performance Expectancy on Behavioral Intention

The perceived aspect of both the benefits and the impact of use is expressed as an aspect of performance expectancy. Every individual tends to have the intention to use a technology if the benefits and impacts of using it are by what is expected. Then the researcher will test the following hypotheses:

H1: Performance expectancy has a positive effect on behavioral intention to use mobile payment

2.4.2 The Effect of Facilitating Conditions on Behavioral Intention

Technical and some operational infrastructures are important in the development of mobile payment services. In this case, it can be in the form of access speed, availability of network infrastructure, and security guarantees in digital transactions. Facilitating conditions also have a positive relationship to behavioral intention to use technology according to Moorthy et al. (2019) and Shivathanu (2018). Then the researcher will test the following hypotheses:

H2: Facilitating conditions have a positive effect on behavioral intention to use mobile payments

2.4.3 The Effect of Hedonic Motivation on Behavioral Intention

Another important factor in researching consumer behavior that has a significant and positive influence on behavioral intention is Hedonic motivation Moorthy et al. (2019), Merhi, Hone, & Tarhini (2019), Sivathanu (2018). According to Moorthy et al. (2019), if the use of technology can bring pleasure and enjoyment to the user, the individual will tend to accept the technology. Feelings of pleasure and enjoyment expressed as aspects of hedonic motivation can increase a person's interest in using a particular service. Therefore, the researcher proposes the following hypothesis:

H3: Hedonic motivation has a positive effect on behavioral intention to use mobile payments

2.4.4 The Effect of Perceived Security on Behavioral Intention

The situation where users feel safe in carrying out transactions using mobile payments is very

important. The more stronger the security to protect the financial and personal data the more willing individual to adopt mobile payment. According to some previous studies, there is a positive relationship between perceived security and behavioral intention. Merhi, Hone, & Tarhini (2019), Moorthy et al. (2019), Nelloh, Santoso, & Slamet (2019) Oliveira, Thomas, Baptista, & Campos (2016). To confirm the impact of perceived security, the researcher formulated the following hypothesis:

H4: Perceived security has a positive effect on behavioral intention to use mobile payment
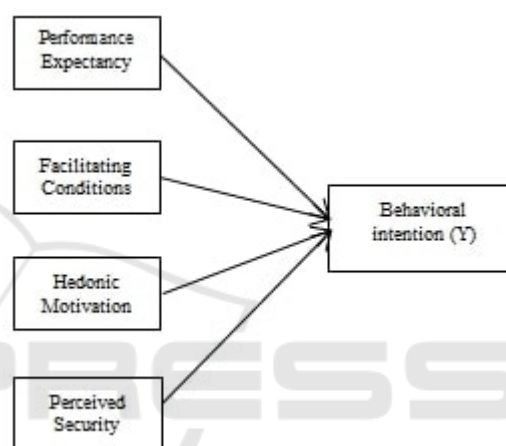
The research model can be seen in Figure 1:

Figure 1: Research Model

3 RESEARCH METHOD

3.1 Population and Sample

Quantitative approach method was used by this study. The population studied were students from two major universities in the city of Batam (Batam Polytechnic and Riau Islands University) among the age group (17-25 years). Purposive sampling method was used with a technique of non-probability sampling.

3.2 Variable Operations and Measurement

3.2.1 Performance Expectancy

The level of trust or confidence of an individual in the use of a technology that will help him achieve an increase in work quality (Venkatesh, Thong, & Xu, 2012) this define as performance expectancy. There are four indicators of measuring the perception of

performance expectancy including the level of perceived benefits in completing the payment process, the ability to complete the payment process more quickly, the ability to facilitate, assist, and support work and increase productivity.

3.2.2 Facilitating Conditions

Consumers' perceptions of the support and infrastructure and technical resources available to facilitate the use of a system is refer to the definition of facilitating conditions (Venkatesh, Morris, Davis, & Davis, 2003). There are four indicators of measuring the perception of facilitating conditions in this study including resources, the knowledge required, compatibility with other technologies used, and assistance from others when experiencing difficulties (assistance).

3.2.3 Hedonic Motivation

According to Venkatesh, Thong, & Xu (2012), a feeling of pleasure or joy that is felt when using technology is defined as hedonic motivation. There are three indicators of hedonic motivation measurement, namely using mobile payment, namely mobile payment is very fun, mobile payment is very convenient, and mobile payment is very entertaining.

3.2.4 Perceived Security

According to Arpaci, Cetin, & Turetken (2015) perceived security is an individual's belief that the technology used ensures the security of sensitive information used such as personal data and financial transactions. In this case, when using mobile payment, consumers will be asked to fill in their phone number, pin code, location of consumption, etc. Therefore, the financial data must be kept confidential, not stored or used by other unauthorized individuals or unauthorized users. The measurement indicators of perceived security in this study include guarantees of data security and confidentiality.

3.2.5 Behavioral Intention

The level of user intention to use new products or services (in this case mobile payment services) in the future is explain as behavioral intention (Venkatesh, Morris, Davis, & Davis, 2003). There are three indicators of measuring behavioral intention perceptions, namely by assessing the consumer's desire to keep utilize mobile payment henceforward, the desire to utilize mobile payment in everyday life,

and consumer planning to use mobile payment sustainably.

3.3 Data Processing and Analysis Techniques

Multiple linear regression with SPPS was used in this study with equation as follows :

$$BI = \alpha + \beta1PE + \beta2FC + \beta3HM + \beta4PS + e$$

Formula information:

BI: Behavioral intention

PE: Performance expectancy

FC: Facilitating conditions

HM: Hedonic motivation

PS: Perceived security

e: Error tolerance

4 RESULT

After collecting data using a questionnaire that was distributed using a google form, a total of 102 samples students from Batam State Polytechnic and Riau Islands University were collected through the purposive sampling method.

4.1 Descriptive Statistical Analysis

The data of 102 respondents will be analyzed based on the average, median, and mode of data. The results of the descriptive statistical analysis are described in table below.
Description:

SS: Strongly Agree

S: Agree

N: Neutral

TS: Disagree

STS: Strongly Disagree

Table 1: Descriptive statistical table

Performance expectancy

No	Questions	SS	S	N	TS	STS	Total
1	Mobile payment does not provide benefits in completing my payment process	34	51	10	5	2	102
2	Using mobile payment will make my payment process faster	47	46	8	0	1	102
3	Using mobile payment makes it easier, helps and supports my work	28	48	22	3	1	102
4	Using mobile payment will increase my productivity	19	43	39	1	0	102

Source: Primary data processed by the author

In this performance expectancy variable, there are 4 question components. Where the majority of respondents answered agree on the four questions posed on the first variable. So it can be concluded that respondents generally have a level of trust or confidence in the use of a technology that will help them achieve a fairly good increase in the quality of their work.

Facilitating Conditions

No	Questions	SS	S	N	TS	STS	Total
1	I don't have the resources or facilities (such as smartphone, internet connection, merchant with mobile payment option) needed to use mobile payment	35	51	11	5	0	102
2	I have the necessary knowledge to use mobile payments	21	61	18	2	0	102
3	Mobile payment is compatible with other systems that I use	15	54	31	2	0	102
4	I can get help from other people when I have trouble using mobile payment	18	57	25	1	1	102

Source: Primary data processed by the author

In the second variable, namely Facilitating Conditions, there are 4 question components. In general, respondents chose the answer to agree on the four questions asked. So in general, respondents have

a fairly high perception of the support and infrastructure, and technical resources available to facilitate the use of a system (in this case mobile payment).

Perceived security

No	Questions	SS	S	N	TS	STS	Total
1	I feel unsafe sending sensitive information when making transactions with mobile payments	4	30	37	28	3	102
2	I feel that mobile payment is safe to send my personal and financial information	7	38	46	10	1	102
3	I feel that the sensitive information that I provide when using mobile payment is protected and its confidentiality guaranteed	7	33	45	13	4	102
4	Overall mobile payment is a safe place to send sensitive information and make transactions	5	39	49	9	0	102

Source: Primary data processed by the author

The third variable is perceived security which has 4 question components. The majority of respondents chose a neutral answer so that in general respondents felt neutral regarding the security of sensitive information used such as personal data and financial transactions during the use of mobile payments.

Hedonic motivation

No	Questions	SS	S	N	TS	STS	Total
1	Using mobile payment is very boring	16	69	14	3	0	102
2	Using mobile payment is very convenient	30	49	21	2	0	102
3	Using mobile payment is very entertaining	10	31	57	3	1	102

Source: Primary data processed by the author

In the fourth variable, namely hedonic motivation, there are 3 question components. Where in the first and second questions the majority of respondents chose the answer to agree, while in the third question the majority answered is neutral. In general, respondents agree that they feel happy or happy while using mobile payments.

Behavioral intention

No	Questions	SS	S	N	TS	STS	Total
1	I don't intend to use mobile payment in the future	27	61	13	1	0	102
2	I will try to use mobile payment in my daily life	18	52	29	2	1	102
3	I plan to continue using mobile payment as much as possible	12	37	45	7	1	102

Source: Primary data processed by the author

The dependent variable is the behavioral intention which has 3 question components. Where in the first and second questions the majority of respondents chose the answer to agree, while in the third question the majority answered are neutral. So in general, respondents have a fairly good level of intention to use mobile payments again in the future.

4.2 Validity Test

Table 2: Validity test

Variabel	Item	r hitung	r tabel	Conclusion
Performance Expectancy (X1)	item 1	.724	.306	Valid
	item 2	.821		Valid
	item 3	.758		Valid
	item 4	.827		Valid
Facilitating Conditions (X2)	item 1	.766	.306	Valid
	item 2	.820		Valid
	item 3	.666		Valid
	item 4	.542		Valid
Hedonic Motivation (X3)	item 1	.823	.306	Valid
	item 2	.907		Valid
	item 3	.813		Valid
Perceived Security (X4)	item 1	.756	.306	Valid
	item 2	.595		Valid
	item 3	.770		Valid
	item 4	.697		Valid
Behavioaral Intention (Y)	item 1	.686	.306	Valid
	item 2	.915		Valid
	item 3	.899		Valid

Based on table 2 above, it is found that each question on the questionnaire is declared valid.

4.3 Realibility Test

Table 3: Realibility Test

Variabel	Realibility		
	Cronbach Alpha	Cutt of Cronbach Alpha	Conclusion
Performance Expectancy	0,782	0,60	Reliable
Facilitating Conditions	0,657	0,60	Reliable
Hedonic Motivations	0,804	0,60	Reliable
Perceived Security	0,658	0,60	Reliable
Behavioral Intention	0,784	0,60	Reliable

From these results, it can be concluded that all instruments are reliable whose meaning is reliable and can be used to measure the same object at different times.

4.4 Classic Assumtion Test

4.4.1 Normality Test

Table 4: Normality Test Result

Information	Significance	Conclusion
Asymp.sig	0.788	Normal Distribution

Significance value is 0.788 so it is greater than 0.05, so it can be judge that the data is normally distributed.

4.4.2 Multicollinearity Test

Table 5: Multicollinearity Test Result

	Tolerance	VIF
Performance Expectancy	0,531	1,884
Facilitating Conditions	0,66	1,515
Hedonic Motivation	0,57	1,753
Perceived Security	0,863	1,159

For each independent variable is at tolerance value > 0.10 and vif < 10, therefore it can be judge that all independent variables in this study are free from multicollinearity.

4.4.3 Heteroscedasticity Test

Table 6: Heteroscedasticity Test Result

	T	Sig
Performance Expectancy	1,312	0,193
Facilitating Conditions	-0,708	0,48
Hedonic Motivation	-1,536	0,128
Perceived Security	-1,388	0,168

In this test, the significance value is above the limit value of 0.05, therefore it is judge that the regression model in this study is feasible to use and is free from heteroscedasticity.

4.5 Hypothesis Test

4.5.1 Multiple Linear Regression

Table 7: Multiple Linear Regression Test Result

		Unstandardized Coefficients	Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
		0,511	1,129		0,452	0,652
X1		0,359	0,071	0,463	5,055	0,000
X2		0,036	0,078	0,038	0,459	0,647
X3		0,336	0,093	0,317	3,596	0,001
X4		0,054	0,053	1,033	1,033	0,304

Based on the table above, the regression equation for this study is:

$$BI = 0{,}511 + 0{,}359PE + 0{,}036FC + 0{,}336HM + 0{,}054PS + e$$

4.5.2 Coefficient of Determination (R2)

Table 8: Coefficient of Determination Test Result

Model		R Square	Adjusted R Square	Std. Error of the Estimate
1	.756	.571	.553	1.222

4.6 Data Analysis

The following is a summary table of test results from this study:

Table 9: Summary of test result

Hypothesis	Conclusion
H1: Performance expectancy has a positive effect on behavioral intention to use mobile payment	**Supported**
H2: Facilitating conditions have a positive effect on behavioral intention to use mobile payment	**Not Supported**
H3: Hedonic motivation has a positive effect on behavioral intention to use mobile payment	**Supported**
H4: Perceived security has a positive effect on behavioral intention to use mobile payment	**Not Supported**

4.6.1 The Effect of Performance Expectancy on Behavioral Intention

The results of the analysis based on table 9 show that H1 is supported. This designate that the greater the performance expectancy or benefits obtained by mobile payment users, the greater the behavioral intention or desire of users to use mobile payments. In this case, students of Batam State Polytechnic and Riau Islands University are in the age range (17-25 years). In addition, during the Covid-19 pandemic where there are concerns about the spread of the Covid-19 virus through physical money, the mobile payment system is an option in offering convenience and secure solutions for payments during physical distancing and self-quarantine.

In compliance with earlier research, namely Sivathanu (2018) and Oliveira, Thomas, Baptista, & Campos (2016) that have the same result, as another research by Sivathanu (2018) states that consumers use mobile payment services because these services can provide benefits to simplify and improve the quality of their daily transactions.

4.6.2 The Effect of Facilitating Conditions on Behavioral Intention

The outcome of the analysis based on table 9 show that hypothesis H2 is not supported, namely facilitating conditions do not affect behavioral intention. This finding is in compliance with previous research, namely Mahendra, Winarno, & Santosa (2017). This research respondents were aged 17-25 years. Where mobile payment consumers at this age believe that they already have sufficient resources and knowledge to use mobile payment services. This is because the younger population has more knowledge to use a technology which in this case is a mobile payment service. In addition, now supporting facilities (facilitating conditions) for mobile payments are easy to find and obtain by many people, such as smartphones and internet networks.

4.6.3 The Effect of Hedonic motivation on Behavioral intention

The outcomes of the analysis in table 4.12 show that the H3 hypothesis is supported. In this study, mobile payment is a new way of conducting financial payment transactions where this service is considered to be still in its early stages and is still quite new for consumers in Indonesia. This is what causes the use of mobile payments to be able to provide a sense of pleasure, enjoyment, and comfort when using mobile payments. In addition, mobile payment has many

diverse features, making it fun when used. Therefore, users will tend to accept and continue to use mobile payments.

Study by Morosan & Defranco (2016) stated that in practice the use of mobile payments is not only because of the usability aspect but also entertaining to use. For example, by providing cash-back prizes, as well as cash discounts to mobile payment users as loyalty points to users.

4.6.4 The Effect of Perceived Security on Behavioral Intention

The test outcomes that have been summarized in table 4.12 show that the H4 hypothesis is not supported, namely perceived security does not affect behavioral intention. This shows that the Batam State Polytechnic students and the Riau Islands University who were respondents in this study did not think too much about security in using mobile payments.

The students as consumers are not afraid and do not feel worried about the risks that exist when using mobile payments. Risks can be in the form of theft, fraudulent transactions, hacker attacks, privacy violations, and data breaches. When using mobile payment itself, users will be asked to provide their phone number, pin code, location of consumption, etc. which most students do not object to. Respondents in this study did not feel worried if their account could be used by other people, because the password was only owned by the user. However, the results of this study could be different if the research respondents were extended to workers who have an older age or business people. Where the greater the possibility of the nominal payment transactions made when using mobile payments, the higher the worry about security and abuse.

4.7 Conclusion, Limitations, Implications, and Sugesstions

4.7.1 Conclusion

Performance expectancy variable and the hedonic motivation variable have positive influence on the behavioral intention variable, while the facilitating conditions variable and the perceived security variable unaffected to the behavioral intention variable.

4.7.2 Limitations

In conducting this research, the writer has several limitations, namely as follows: (1) The data processed by the research is obtained from a questionnaire instrument which is purely derived from the perception of respondents' answers, so that the results of this study are subjective; (2) There are limited locations and research subjects which are only students of Batam State Polytechnic and Riau Islands University, this will give different results if the research subjects are carried out with a wider scope; (3) This study only considers the context of consumers, where the level of intention to use mobile payments can also be influenced by the availability of payment method options provided by merchants, therefore further research can also look at it from the merchant's point of view; (4) Only explains the factors that influence the intention to use mobile payments of 0.571 or 57.1%, so it is necessary to add other factors beyond what this research proposes.

4.7.3 Implications

The implications of this study are aimed at knowing the main factors that influence consumer intentions to use mobile payment services, especially during the Covid-19 pandemic. This study proposes four hypotheses based on the results of the analysis, two hypotheses are proven to affect the intention to use mobile payments, and the other two hypotheses are rejected. It was found that performance expectancy and hedonic motivation affect the intention to use mobile payments and facilitating conditions and perceived security has no effect. This study shows that the research model can explain the intention to use mobile payment by 57.1% and the remaining 42.9% is influenced by other factors beyond what this research proposes.

The results of this study indicate that performance expectancy has the strongest influence on the intention to use mobile payment based on its level of significance. This is by previous studies, namely Jung, Kwon, & Kim (2020), Moorthy et al. (2019), Merhi, Hone, & Tarhini (2019), Sivathanu (2018), Oliveira, Thomas, Baptista, & Campos (2016), Morosan & Defranco (2016). Performance expectancy has a strong influence on mobile payment because each individual tends to have the intention to use mobile payment services if the benefits and impacts of the use obtained are by what is expected. So that mobile payments must be designed according to consumer needs, mobile payment service providers in this case can further improve service performance, so that they can further increase the usefulness of transactions.

Likewise with hedonic motivation which has an effect after performance expectancy. This is in line with previous research by Moorthy et al. (2019),

Merhi, Hone, & Tarhini (2019) and Sivathanu (2018). When users feel happy and comfortable when using mobile payment services, the intention to continue using mobile payments will increase. Therefore, hedonic motivation is an important factor in the use of mobile payments. Thus, mobile payment service providers can improve features and services on mobile payment applications to provide an entertaining and enjoyable transaction experience.

4.7.4 Sugesstions

Based on the limitations that have been described, the suggestions for further research are: (1) Adding the more to the quota of samples and expanding the research place so that the research results can be more accurate; (2) Adding other predictor factors that were not previously present in this study, but still have a relationship with the variables studied.

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