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Impact of Attitude, Perceived Ease of Use, Convenience, and Social Benefit on Intention to Use Mobile Payment

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Abstract
The use of mobile payment increases along with technology advancement and the proliferation of mobile payment providers. This study aimed to investigate the effect of perceived ease of use, attitude toward mobile payment, perceived convenience benefit, and social benefit on intention to use mobile payment. A cross-sectional survey was conducted involving 120 mobile payment customers in Surabaya, the 2nd largest city in Indonesia, who used OVO, Go-Pay, LinkAja, or T-cash in the last month and aged no younger than 18 years old. A questionnaire distributed to the participants with accidental sampling technique. A Partial Least Squares (PLS) modeling indicated a positive effect of attitude on intention to use mobile payment among participants. Attitude also fully mediated the links between perceived ease of use, perceived convenience benefit, and intention to use mobile payment. Meanwhile, perceived social benefit was not associated with intention to use mobile payment. Therefore, mobile payment providers should take ease of use and comfort into account when designing their service as they might shape a positive attitude and in turn, increase people's intention to use the service.

Keywords
Consumer Behavior; Convenience Benefit; Ease of Use; Mobile Payment; Social Benefit
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Introduction

Along with the rapid development of financial technology (Fintech), various internet and cellular-based business applications have also begun to develop, one of which is mobile payment. Mobile payments, also known as "mobile phone payments" or "m-payments", are payments for services, goods, and bills or invoices using a mobile device, such as a cell phone or smartphone, which is connected to a cellular telecommunications network (Dahlberg et al., 2008). The main feature of this mobile payment is those payment transactionstions are made via mobile devices (Park et al., 2019). So far, people use the terms mobile payment and mobile banking at the same time even though they are different (Iman, 2018). Mobile banking refers more to using mobile devices in financial transactions that require a bank account, while mobile payments do not require a bank account (Untoro et al., 2013).

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There are several factors that cause the use of mobile payments to become a trend, including: rise in global smartphone penetration, growth of information and communication technology (ICT), and rise in multichannel retailing (Leng et al., 2018). The increase in the number of users of mobile devices, such as smartphones and tablets, has opened up greater opportunities for the use of mobile payments as a form of cashless payment (Yang et al., 2012). Gartner in 2013 globally predicts that shopping activities using mobile payments will experience growth from year to year with an average annual growth rate of 38 percent, as happened in 2012 which initially valued at $45.1 billion then grew to $224.3 billion in 2017 (Kang, 2018). The number of cashless transactions in the world experienced the highest growth during 2016-2017, reaching 539 billion with the Asian market (Capgemini, 2019).

In addition, the use of mobile payments is also increasing due to several advantages that are felt by its users, including: it can be done independently, easily accessed from anywhere, and avoids the possibility of facing long queues when transacting via cash payments (Bezhovski, 2016). Many users then switch to mobile payments because they are unwilling or unable to pay the large fees incurred for credit cards, in addition to considerations of speed and convenience in service (Lin et al., 2020). Compared to cash payments, mobile payments can also help customers complete various types of transactions via mobile devices without time and location restrictions (Liébana-Cabanillas et al., 2018).

The number of smartphone users in Indonesia increased by 67 percent in 2018 with an achievement figure of 177.9 million users (Kemp, 2018). In 2017, there were 41.9 million mobile payment users in Indonesia spread across various mobile payment services, such as Go-Pay and Telkomsel T-Cash, which were at the top of the list, reaching 10 million users, followed by PayPro (7 million), OVO (6.5 million), Mandiri e-cash (5.5 million), and Sakuku (1 million) (Agusta & Widjaja, 2018). Of these many users, the transaction value of using mobile payments reached Rp 18 trillion in 2017, with an estimate increasing every year to reach Rp 459 trillion in 2020. The development of mobile payment in Indonesia is also inseparable from the support of Bank Indonesia, which since 2014 has initiated the National Non-Cash Movement (*Gerakan Nasional Non Tunai*, GNNT).

Although mobile payment users continue to increase every year, this is also followed by an increase in the number of mobile payment service providers so that competition between mobile payment service providers becomes unavoidable. So then, it is important for mobile payment application vendors to make efforts to attract potential users and retain users and facilitate their continuous use so that they do not switch to other alternative applications (Wang et al., 2019). When mobile payment service providers are unable to increase their competitiveness, the risk of experiencing losses will be even greater. As has been experienced by SamsungPay Corporation as a provider of mobile payment services which is the result of an acquisition made by PT. Samsung against LoopPay. Losses experienced in the first year since SamsungPay was first active in 2015 reached IDR 221.3 billion (Ariwibowo, 2016).

Competition between mobile payment service providers is influenced by various factors, including from the merchant side, consumers, new types of e-payment services, and cash payments (Dahlberg et al., 2015). The intention to use mobile payment can be seen from various points of view, including from the side of customers, merchants, and potential users. A study of 191 mobile payment users in Spain found that perceived usefulness and security were

the most significant factors influencing user acceptance of mobile payment usage (Liébana-Cabanillas et al., 2018). Furthermore, a survey of 315 merchants in India found that consumers' perceived convenience in payment technology significantly influences their shopping intentions (Singh & Sinha, 2020). Then a survey on prospective mobile payment users in the United States shows that the convenience, enjoyment, and economic benefits have a positive impact on consumers' intentions to use mobile payment (Park et al., 2019).

Previous studies have tried to identify the factors that influence the intention to use mobile payments, including: perceived cost, level of individual mobility, perception of usability, level of trust, perceived privacy risk, technology anxiety, perceived security, social influence, and service provider reputation (Gao & Waechter, 2017; Kim et al., 2010; Liébana-Cabanillas et al., 2018; Lin et al., 2020; Park et al., 2019; Patil et al., 2020; Schierz et al., 2010; Shao et al., 2019; Yang et al., 2012). In Indonesia, research on mobile payments has been carried out by Labib and Wibawa (2019) who investigated the characteristics of competition between mobile payment service providers in Indonesia and Chandra et al., (2018) which limits their research to Go-Pay users as one of the providers of mobile payment services in Indonesia.

Intention to use mobile payments is also influenced by cultural factors, as a study reported by Ting et al. (2016), which compared mobile payment users from Malay and Chinese ethnicity in Malaysia, and found that each of these ethnic groups have different factors in influencing the intention to use mobile payment. Therefore, researchers are interested in conducting research on the factors that influence the tendency to use mobile payments in Indonesian society.

Literature Review

Perceived Ease of Use, Attitude, and Intention to Use Mobile Payment

Based on the Technology Acceptance Model (TAM) or commonly known as the Technology Acceptance Model, it is revealed that perceived ease of use and perceived benefits will influence the behavior adopted by users towards the use of information technology systems (Davis, 1989). In the context of this study, perceived ease of use refers to the individual's perception of the ease of using the payment transaction system through mobile payment (Schierz et al., 2010). This perception of convenience was found to have a significant positive effect on the intention to use mobile payments (Kim et al., 2010). The frequency of using mobile payments will increase when consumers feel that mobile payments are easy to use and easy to operate (Lin et al., 2020). However, different results were also reported by other researchers in which the intention to use mobile payments by consumers was not influenced by perceived ease of use (Liébana-Cabanillas et al., 2018; Williams, 2021). That is, even though it is easy to use, it cannot be a guarantee that someone will adopt the behavior of using mobile payments. This is because tech-savvy individuals can use mobile payment apps with ease, but others may have difficulty. So the relationship between ease of use is not significant (Daştan & Gürler, 2016). From this, it is suspected that there is a mediating variable between the perception of ease of use and the intention to use mobile payment, namely the attitude variable towards the use of mobile payment.

Attitudes are individual tendencies and feelings towards something, which will be an indicator of a behavior and are formed right before the behavior appears (Daştan & Gürler, 2016). In the context of this research, the attitude in question is an attitude towards mobile payment which

will be an indicator of the behavior of using mobile payments. Based on the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) it is said that an individual's intention to adopt an innovation, which is in this case the use of mobile payment, is determined by the subjective attitudes and norms adopted by the perpetrator (Williams, 2021). In a study conducted by Ting et al. (2016), the perception of ease of use was found to have a positive influence on attitudes towards mobile payments. Furthermore, attitudes towards mobile payments were found to have a positive influence on the intention to use mobile payments (Daştan & Gürler, 2016). Thus, the following hypothesis is formed:

H_1: perceived ease of use affects attitudes towards mobile payment usage.

H_2: attitude toward mobile payment affects intention to use mobile payment.

H_3: perceived ease of use affects intention to use mobile payment.

H_4: attitude towards mobile payment becomes a mediator in the relationship between perceived ease of use and the intention to use mobile payment.

Convenience, Attitude, and Intention to Use Mobile Payment

In addition to the ease of use factor, another factor that is thought to influence a person's intention to use mobile payment is the convenience factor. Convenience in using mobile payments is the convenience related to the flexibility of time and place offered by mobile payment services so that it benefits consumers when making payment transactions in everyday life (Bezhovski, 2016). The convenience felt by customers was found to have a significant positive effect on the intention to use mobile payments (Gao & Waechter, 2017; Williams, 2021). However, another study by Pal et al. (2021) reported that convenience does not necessarily become a factor that determines users to adopt the use of mobile payments because there are other factors that are considered more important, namely perceptions related to security risks. Therefore, in this study, we tried to add an attitude variable as a mediator in the relationship between perceived convenience and the intention to use mobile payments, as the findings reported by Park et al. (2019) that the perception of convenience has a significant positive impact on a person's attitude towards mobile payment. Thus, the following hypothesis is formed:

H_5: perceived convenience benefit affects attitudes towards mobile payments.

H_6: perceived convenience affects the intention to use mobile payments.

H_7: attitude towards mobile payment becomes a mediator in the relationship between perceived convenience and the intention to use mobile payment.

Social Benefit, Attitude, and Intention to Use Mobile Payment

The factor that is also thought to have an influence on the intention to use mobile payments is social benefits. Social advantage is the perception of users regarding the use of services or products that are considered to have the ability to improve one's social self-concept. In the context of the use of mobile payments, social benefits are defined as the extent to which consumers perceive that their decision to use mobile payments will be able to improve their self-concept in their social life (Park et al., 2019). Social influence was found to have a positive effect on a person's intention to use mobile payment (Venkatesh et al., 2012). As explained in the Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB), which state that an individual's intention to use mobile payment is determined by his attitude towards the use of mobile payment and the subjective norms he adheres to on the behavior. After the individual evaluates the positive and negative sides of the use of mobile payments, then this will then shape his attitude towards the use of mobile payments. Then normative beliefs that refer

to individual perceptions of social pressure to adopt or not adopt the use of mobile payments also influence the individual's decision to use it (Williams, 2021). Thus, the following hypothesis is formed:

H_8: perceived social benefits affect attitudes towards mobile payments.
H_9: perceived social benefits affect the intention to use mobile payments.
H_{10}: attitude towards mobile payment becomes a mediator in the relationship between perceived social benefits and the intention to use mobile payment.

Methodology

This research is quantitative research in the form of a survey using a questionnaire as a data collection media. The research design used is a cross-sectional study where data collection is carried out once, namely in July 2019 in Surabaya. The criterias of participants were mobile payment users in the last month and were at least 18 years old. The sampling technique used was accidental sampling were selected based on the willingness and fulfillment of the participant's criteria that had been set by the researcher. This sampling technique is included in the category of non-probability sampling. Before taking data, the researcher conducted a power analysis (a priori) through G*Power so that information was obtained that the number of samples needed to detect the effect size was 0.2 with a power of 80% and had four predictors, a minimum of 65 respondents. Based on this reference, the number of samples in this study, namely 120 respondents, was considered sufficient.

Collecting Data
Questionnaires as primary data collection media used in this study were distributed to 135 respondents who met the predetermined criteria. However, only 120 data could be included in the data analysis process because 15 questionnaires were not completely filled out. The questionnaire in this study consisted of two parts. The first part is demographic data which includes gender, age, cost of living per month, and frequency of mobile payment usage. Furthermore, the second part contains research instruments that measure five research variables in the form of a Likert scale with response choices from 1 (strongly disagree) to 4 (strongly agree). Each variable in this study is measured at the individual level and is self-report.

The five instruments used to measure the variables in this study are adaptations of existing instruments. There are three items to measure the perceived ease of use of mobile payments which were adapted from Schierz et al. (2010). Then there are three items to measure the convenience benefits in the use of mobile payments which were adapted from Lee (2009) and Kim et al. (2010). Furthermore, perceived social benefits were measured using three items adapted from Sweeney and Soutar (2001) and (Nysveen et al., 2005). Measurement of attitudes toward the use of mobile payment was carried out with three items adapted from Shih and Fang, (2004) and (Schierz et al., 2010). Finally, the intention to use mobile payments was measured using three items adapted from Kim et al. (2010).

Analysis
After the data is collected, research data processing is then carried out to answer research questions and test research hypotheses. Data analysis techniques used include descriptive statistics to see the distribution of respondents based on demographic data. In addition, analysis using the Partial Least Squares (PLS) method was also carried out in order to test the research model. In the process, this analysis is divided into two stages of analysis, namely the analysis of the measurement model to test the validity and reliability of the instrument, then followed by the analysis of the structural model to test the relationship between the hypothesized variables. Bootstrapping

method (500 samples) was used to determine the level of significance for loadings, weights, and path coefficients.

Finding and Discussion

The demographic data of the respondents that was collected included: gender, age, monthly cost of living, and frequency of use of mobile payments. The details of the distribution of respondents based on demographic data in this study are listed in Table 1. The respondents of this study amounted to 120 people with details of 100 women (83.33%) and 20 men (16.67%), the majority of respondents being 20 years old (47.5%), have a monthly living cost in the range of Rp. 1,000,000 – Rp. 1,499,000 (25.83%), and use mobile payment 3-5 times a week (32.50%) (See Table 1).

Measurement Model Analysis

The measurement model used in this study consists of the relationship between latent variables and the indicators or items in it. First of all, it is necessary to test the construct validity to see the quality of the measurement model before evaluating the structural model. The construct validity test was conducted to determine the extent to which the items reflect the latent variables. Factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR) were used as criteria to evaluate convergent validity (Hair et al., 2012). Measurement model analysis was carried out for each of the variables and each of which consisted of three items. Based on the analysis of the measurement model, it is known that the measurement model in this study is valid and reliable because the value of the Cronbach's Alpha coefficient is above 0.7, which ranges from 0.73 to 0.84 of all the variables in this study. Likewise, the factor loading value which is above 0.7 is in the range of 0.74 – 0.89, the AVE value which is also above 0.6 is in the range of values from 0.65 – 0.76, and the CR value is in the range of values from 0,85 – 0,91. In detail, the results of the measurement model analysis from this study can be seen in Table 2.

Table 1. Respondent Demographics Data (N=120)

Characteristics	Categories	N	%
Sex	Male	20	16,67
	Female	100	83,33
Age	18 years old	4	3,33
	19 years old	25	20,83
	20 years old	57	47,50
	21 years old	20	16,67
	22 years old	10	8,33
	23 years old	3	2,50
	24 years old	1	0,83
Cost of Living per Month	< Rp 500,000 (± < US$ 31)	9	7,50
	Rp 500,000 - Rp 999,000 (± US$ 32 - US$ 63)	30	25
	Rp 1,000,000 - Rp 1,499,999 (± US$ 64 - US$ 95)	31	25,83
	Rp 1,500,000 - Rp 1,999,999 (± US$ 96 - US$ 126)	18	15
	-Rp 2,000,000 - Rp 2,499,999 (± US$ 127 - US$ 158)	12	10
	Rp 2,500,000 - Rp 2,999,999 (± US$ 159 - US$ 190)	7	5,83
	Rp 3,000,000 – Rp 3,499,999 (± US$ 191 - US$ 222)	5	4,17
	≥ Rp 3,500,000 (± ≥ US$ 223)	8	6,67
Frequency of Mobile Payment Usage	More than 1 time a day	19	15,83
	Minimum 1 time a day	11	9,17
	Average 3-5 times a week	39	32,50
	Average 1 time a week	22	18,33
	Average 1 time a month	24	20
	Others	5	4,17

Notes: US$ 1 = ± Rp 15.683
Sources: Data Processed

Table 2. Measurement Model Analysis Results

Variables	Item	Loading	AVE	CR	α
Perceived Ease of Use	PEOU1	0,82	0,69	0,87	0,78
	PEOU2	0,84			
	PEOU3	0,83			
Convenience Benefit	CB1	0,79	0,65	0,85	0,73
	CB2	0,79			
	CB3	0,82			
Social Benefit	SB1	0,89	0,67	0,87	0,79
	SB2	0,74			
	SB3	0,85			
Attitude toward Mobile payment	Att1	0,81	0,66	0,85	0,74
	Att2	0,82			
	Att3	0,81			
Intention to use mobile payment	Int1	0,83	0,76	0,91	0,84
	Int2	0,89			
	Int3	0,89			

Notes: AVE= Average variance extracted; CR = Composite reliability, α = Cronbach's Alpha
Sources: Data Processed SmartPLS

Structural Model Analysis

Structural model analysis was carried out after analyzing the measurement model. This structural model consists of hypothesized relationships between exogenous and endogenous variables (see Table 3). There are several hypotheses tested, namely the influence of perceptions of convenience, comfort, and social benefits on attitudes and intentions to use mobile payments. In addition, this study also examines the role of attitudes towards mobile payments as a mediator in the relationship between perceptions of convenience, convenience, and social benefits with the intention to use mobile payments.

Table 3. Path Coefficient and Hypothesis Testing

Hypothesis	Variables Relationship	Path Coefficient (β)	*SD*	*t-value*	Decision
H1	PEOU → Att	0,34**	0,08	4,21	Supported
H2	Att → Int	0,54**	0,10	5,34	Supported
H3	PEOU → Int	0,13	0,09	1,49	Not supported
H4	PEOU → Att → Int	0,18**	0,05	3,26	Supported
H5	CB → Att	0,37**	0,09	3,88	Supported
H6	CB → Int	0,14	0,09	1,45	Not Supported
H7	CB → Att → Int	0,19**	0,06	3,31	Supported
H8	SB → Att	0,12	0,08	1,49	Not Supported
H9	SB → Int	0,04	0,07	0,57	Not Supported
H10	SB → Att → Int	0,06	0,05	1,40	Not Supported

*Notes: **p < 0,01; *p < 0,05 (based on two-tailed test)*
PEOU= Perceived Ease of Use; Att= Attitude; Int= Intention of Use; CB= Convenience Benefit; SB= Social Benefit
Sources: Data Processed SmartPLS

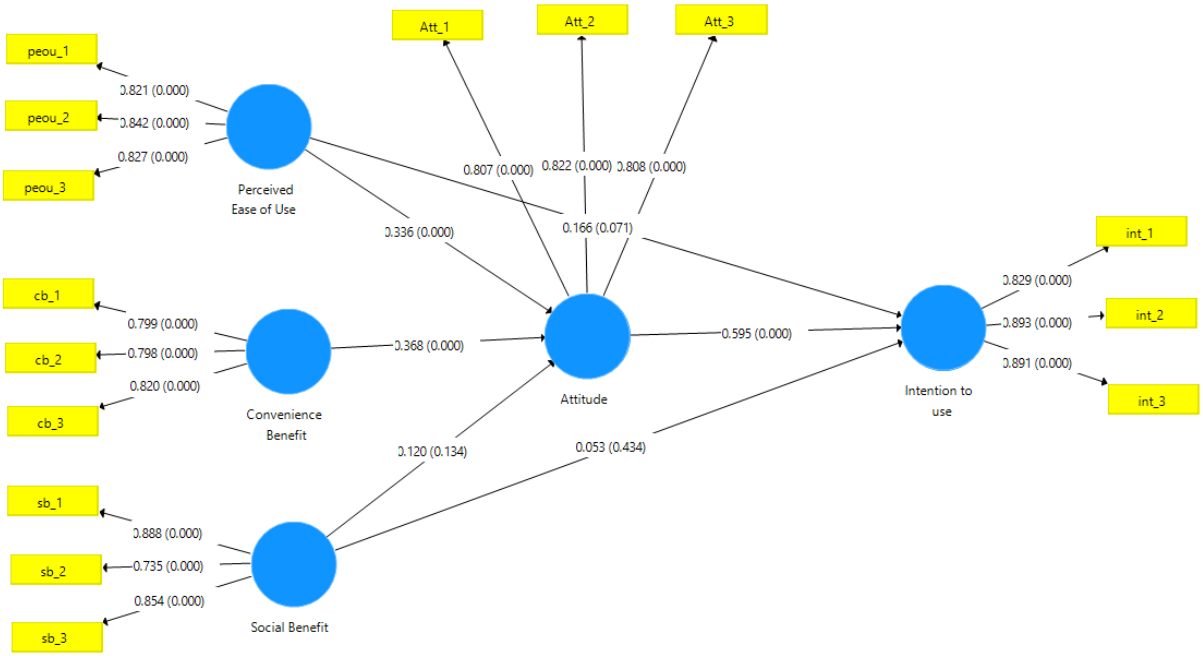

Figure 1. Research Model

Sources: Data Processed SmartPLS

From the analysis of this hypothesis test, it was found that there was no direct influence of perceived ease, convenience benefit, and social benefits on the tendency to use mobile payments so that H_3, H_6, and H_9 were not supported. However, there is a significant positive effect of perceived ease of use (β = 0,34, p < 0,01) and perceived convenience benefit (β = 0,37, p < 0,01) on attitudes in using mobile payments, so that H_1 and H_5 are supported. Meanwhile, the perception of social benefits was found to have no significant effect on attitudes in the use of mobile payments, so H_8 is not supported. On the other hand, attitudes in the use of mobile payments significantly have a positive influence on the intention to use mobile payments (β = 0,54, p < 0,01). These findings provide support for H_2.

A mediation test was also carried out to see the role of attitudes towards mobile payment as a mediator in the relationship between perceived ease of use, convenience benefit, and social benefits with the intention to use mobile payments. The results show that attitudes towards mobile payments act as a full mediator in the relationship between perceived ease of use and the intention to use mobile payments (β = 0,18, p < 0,01) and the relationship between perceived convenience benefit and the intention to use mobile payments (β = 0,19, p < 0 ,01). Thus H_4 and H_7 are supported. In this case, it is said to be a full mediator because the absence of the mediator variable causes no significant direct effect of the independent variable on the dependent variable. However, in this study it was found that attitudes towards mobile payments did not become a mediator in the relationship between perceptions of social benefits and the intention to use mobile payments. This finding makes H_{10} unsupported.

The Effect of Perceived Ease of Use on Intention to Use Mobile Payment with Attitude Towards Mobile Payment as Mediator

This study found that there was no direct effect of perceived ease of use on consumers' intention to use mobile payment. This is in accordance with the results of a previous study reported by Liébana-Cabanillas et al., (2018) and Williams (2021), namely the perception of ease of use was found to have no significant

effect on the consumer's intention to use mobile payment. However, in this study, with the presence of a mediator variable, namely attitudes towards mobile payments, it was later found that there was an indirect effect of perceived ease of use on consumers' intentions to use mobile payments. It was found that there was a positive effect of perceived ease of using mobile payments on attitudes towards mobile payments. A previous study by Ting et al. (2016) also reported similar results, in which the perception of ease of use was found to have a positive effect on attitudes towards mobile payments. Furthermore, attitudes towards mobile payments also have a positive influence on the intention to use mobile payments (Daştan & Gürler, 2016).

The Effect of Perceived Convenience Benefit on Intention to Use Mobile Payment with Attitude Towards Mobile Payment as Mediator

In this study, the perception of benefits in convenience was found to have no direct effect on the intention to use mobile payment. However, with the presence of an attitude towards mobile payment as a mediator, it is found that there is an indirect positive influence from the perception of profit in convenience on the intention to use mobile payment. This is in accordance with previous research which also reported that convenience has a significant positive impact on attitudes towards mobile payments that users have (Park et al., 2019). However, this study has a slight difference with the research reported by Gao and Waechter (2017) and Williams (2021) which revealed that there was a significant positive effect of perceived convenience on the intention to use mobile payments, while in this study still requires the role of the variable. attitude as the mediator variable. This phenomenon can be explained through the Theory of Perceived Value, which explains that user attitudes are influenced by the value they feel towards a new product or service, taking into account the benefits and losses that will be felt when buying or using the product or service. Thus, attitude becomes a prerequisite before the user finally decides to adopt or use a particular service or product.

The Effect of Perceived Social Benefit on Intention to Use Mobile Payment with Attitude Towards Mobile Payment as Mediator

In the Theory of Perceived Value, values that can influence user attitudes towards a product or service can be in the form of utilitarian values (utilization), emotional values, and social values. Utilitarian values can be in the form of convenience benefits and economic benefits, emotional values can be in the form of social identity and social influence, and emotional values that have a significant effect on attitudes about the product or service (Fan et al., 2018). In this study, social value is measured through the perception of social benefits. The results showed that the perception of social benefits had no effect on attitudes or intentions of using mobile payments. This is in line with the results of research conducted by Park et al. (2019) which revealed that there was no significant relationship between perceptions of social benefits and attitudes towards mobile payments. This research involves Gen-Y and Gen-Z who are mostly proficient in using technology, so that the use of mobile payments is not something new among them and is not perceived as something that provides social benefits for them.

Conclusion

This study found that there was no direct effect of perceived ease of use, convenience, and social benefits on the intention to use mobile payment. However, through the role of attitudes towards mobile payment as a mediator, it can be seen that there is an indirect relationship between perceived ease of use and convenience benefits with intention to use mobile payments. On the other hand, the

perception of social benefits was found to have no relationship with attitudes and the intention to use mobile payments. The results of this study are input for mobile payment service providers to pay attention to the ease of use and convenience when they design their service products. This is because both of these things can lead to a positive attitude from the user and then will increase the user's intention to use the service.

Limitation and Future Research

This study still has limitations to generalize to the population because the number of respondents is still minimal and the sampling technique is still classified as non-probability sampling. In addition, this study also did not involve technological factors as predictors. This research is also more focused on the intention in the use of mobile payments and has not yet reached the behavioral stage. Thus, further research can be carried out by improving the limitations of this study, namely by applying an experimental research design and adding variables related to technology such as innovation or anxiety in using technology to predict the using mobile payments behavior.

Notes on Contributors

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