

THE PERCEIVED EASE OF USE IN MOBILE PAYMENT SUPPORT BY RESPONSIVENESS, SMARTNESS AND MOBILITY

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ABSTRACT

Technology continues to develop, including payment media made online through applications. The presence of technology in payment applications aims to facilitate users and support user performance in their activities. Mobile payment e-wallet is one of the payment media currently increasing in use in Indonesia. Several advantages are considered capable of influencing the use of mobile payment e-wallets. Based on the phenomenon of the problem that occurs, the purpose of this study is to examine factors that can increase the perceived ease of use of mobile payment users, including responsiveness, smartness, and mobility. The research method used in this study is a survey with quantitative data; a survey was conducted to 290 respondents of mobile payment e-wallet users in Bandung (Indonesia). Data from respondents was obtained using a questionnaire; then the data was tabulated and processed by linear regression analysis to find a factor analysis model. The analytical tool used in SPSS was used to process the linear regression analysis also to test the research instrument. The research hypothesis was tested to confirm the factor analysis model. The model tested is then assessed for the level of moderation through gender, namely men and women as one of the characteristics of mobile payment users. Based on the test results, it is known that mobility, responsiveness, and smartness assessed by mobile payment e-wallet users have a positive relationship with the ease-of-use percentage. The essence of this study explains that perceived ease of use can be controlled by supporting factors, namely the mobility of the use of e-wallet, the level of responsiveness of the application, and the view of smartness in using an e-wallet. There is a moderation based on gender, and research findings explain that male gender supports the relationship between responsiveness and mobility, while female gender only supports the relationship between mobility and perceived ease of use. The findings of this study can be used as recommendations for e-wallet service providers in Indonesia, especially banking; several things that are considered by users that need to be considered in mobile payments are mobility, responsiveness, and smartness

Keywords: *Responsiveness, Smartness, Mobility, Perceived Ease of Use.*

1. INTRODUCTION

The technology is currently growing, characterized by many system changes in all sectors, a sector that is often noticed by the world community and becomes part of their activities is banking. [1]. Technological adaptation continues to be carried out by users considering the large number of service options in banking with the existence of technology [2], [3]. E-wallet for mobile payments is a technology whose users are increasing. There are many e-wallet services in Indonesia, one of which is known as GoPay and ShopeePay [4], [5]. The use of the electronic wallet is considered to be a

convenience to the users as there are several features that are considered to be a convenience to the users [6]. The presence of mobile payment is positively evaluated by users as it offers several advantages including ease of implementation [6], [7]. Mobile payment is an electronic service for carrying out payment transactions, but there are restrictions on transactions within the framework of protecting personal financial transactions [8]. Mobile payment e-wallet is used in conjunction with a communication tool, namely mobile phones, as it is an integrated application that users can install. This is the advantage of mobile payment, which is easier

to use for users without time and location restrictions [9].

The adaptation of mobile payment is usually examined in the Technology Acceptance Model, which conveys the acceptance and usability of the technology [4]. What is usually examined relates to perceived usability, that is, the perceived ease of use of the technology being evaluated [5]. The development is conveyed that the perceived user-friendliness is used to assess user satisfaction and interest in the future [10], [11]. The core of the discussion explains the importance of the perceived ease of use position to support the use of the e-wallet for mobile payments. When supporting the perceived user-friendliness, it is necessary to analyze the supporting factors, this is checked using the characteristics of mobile payments [4], [12].

The first thing related to mobile payments is responsiveness, which is evaluated as the responsiveness of applications that can support user performance [13], [14]. The use of technology is inextricably linked to the access speed, which is transmitted as part of the responsiveness [13]. It is thought that responsiveness in relation to perceived ease of use is vital to consider. The use of mobile payments is inseparable from the value of smartness, namely the image of the technology attached to the user [4], [15]. An examination of product smartness is carried out while assessing the role of technology in banking; in fact, this presents opportunities for technology adaptation and perceived ease of use [16]. It's reasonable to infer that intelligence improves perceived ease of use. The fundamental feature of a mobile payment e-wallet is mobility [17], which allows users to access information at any time and from any location. Because of its impact on application utilization, mobility is an important aspect of technological adaptation [5], [6]. The analysis' main point is to illustrate what mobility means in terms of achieving perceived ease of use.

Based on the phenomenon of problems with mobile payment e-wallet and its adaptation, this study aims to examine the relationship between responsiveness, smartness, and mobility with perceived ease of use. The main purpose of this study is to examine the factors that can support the achievement of perceived ease of use in mobile payment e-wallet. The study focuses on mobile payment e-wallet users, to find the right model to support perceived ease of use. Research that discusses online behavior is the same as customer behavior, in customer behavior there are characteristics that distinguish consumer behavior and are commonly known as gender [18], [19].

Between men and women have different behaviors, so in this study the level of moderation based on gender was carried out after the hypothesis model was tested. The purpose of gender-based moderation is to examine differences in the behavior of mobile payment e-wallet users. Information from research can be used by service providers in evaluating the performance of mobile payment e-wallet.

2. LITERATURE REVIEW

This study focuses on discussing four variables including responsiveness, smartness, and mobility as part of mobile payment, as well as perceived ease of use assessed by users. The study was conducted by reviewing the theory and its measurements, ending with a review of previous research. The result of the literature review is submitted the research hypothesis design as material for analysis and research findings

2.1 Responsiveness, Smartness, and Mobility on Mobile Payment

In this section, three variables that characterize mobile payment are examined, namely responsiveness, smartness and mobility. Responsiveness is an important thing related to the characteristics of technology adaptation by users [9]. All mobile users think that the first thing that needs to be present in an application is responsiveness [9], [20]. Responsiveness is considered capable of providing convenience in approaching a generation in adapting to technology [15]. In relation to online shopping, responsiveness is highly expected because it is part of excellent online service. In adapting information technology, the response from the application often determines the durability of using the application [21]. In the end, application developers support application performance by increasing the amount of data to support the response rate of applications such as mobile payment e-wallet. In general, responsiveness is conveyed as the ability to provide response time in accordance with user expectations [13]. Where there are several measurements that can be done including individual attention, payment providers and prompt service [9], [15].

In reviewing technology adaptation, other factors such as smartness are assessed, which are conveyed as the level of quality of the adapted technology [9]. Mobile payment e-wallet is installed on smartphones, it supports smart implementation of users. Smartphone itself is said to be a combination of the word's software, hardware, and users [21]. It

seems clear that it can be said that a smartphone can be defined as a device whose hardware supports the software needed by the user to improve his life needs [22]. One of the basic needs of its users is daily payment transactions. This means that mobile payment e-wallet users have implemented their needs and intelligence through smartphones. The use of e-wallet at least depends on the level of smart users [13]. This means that smartness is allegedly supporting the interest in using mobile payments. Basically, it is known that in reviewing technology, the first thing that is assessed is the quality of technology that can solve user problems [9], [21]. So that smartness is considered to contribute to technological adaptation, currently assessing smartness is simply done by evaluating intelligence of technology, smart of technology and smart of image [10], [15], [23].

There is a main characteristic of mobile payment, namely mobility [15]. Because the use of mobile payments can be done by users with freedom of time. Some consumers explain that mobility is an absolute part of mobile payment, not a feature or other support [24]. It can be said that the usefulness of mobile payment depends on the perceived ease of mobility. In adapting technology to mobile payments, it is explained the benefits of mobility on the level of user satisfaction, the higher the perceived mobility of the application, the better it is to support the use of mobile payments [22]. An important part of mobile payment is mobility, previous studies have explained the importance of mobility in assessing technology adaptation [22]. In mobility, it is known for its inherent characteristics, namely the use that can be carried out without time and place limits [5]. Mobility is also a good bridge between banks and users, because of the high activity of users, so that freedom of transaction time is needed [17]. Mobility is related to time, generally conveyed as mobility, which gives the user the flexibility of time [25]. This is very clearly reflected in mobile payments, which has the flexibility of time and place to transact from its users. Things that are considered in mobility include transactions, mobility, time and place [5], [15].

2.2 The Review of Perceived Ease of Use

Ease of use is known as the level of users believing that using a system is free from effort [6]. This means that applications used such as mobile payments can be used easier and faster without trying to learn them. In general, in application usage behavior, it is said that perceived ease to use is

related to the user's efforts in carrying out and completing certain tasks [26]. Easy to use is closely related to efficiency in using software, it is said to be good if it is easy to use by users [20]. Ultimately providing an opportunity for users to recommend to others. The implementation of perceived ease of use is always associated with actual use, which is a measure of the amount of time used to interact with a technology and the frequency of its use [27]. Users will be satisfied using the system if they believe that the system is easy to use and will increase their productivity, which is reflected in the real conditions of use [28]. Perceived ease of use is related to technology adaptation, the higher the perceived ease of use, the better it is in supporting users to continue using mobile payments [8]. Regarding technology, it was stated that perceived ease of use is a perception of the ease with which technology can be used, in this case, the ease of making transactions on mobile payments [22], [24]. There are risks that will be faced when adapting to technology, especially in financial transactions. However, with the perceived ease of use, it is able to reduce the risks that will be faced. The Technology Acceptance Model (TAM) conveys the impact of perceived ease of use on user behavior, including an intention to use [5], [9], [16]. In general, several measures that can be assessed in measuring perceived ease of use are presented, including easy to learn, easy to use, and skill level of use [4], [13].

2.3 The Research Review and Hypothesis

The activity of perceived ease of use depends on the behavior of the user, in this case starting with responsiveness, followed by the assumption of smartness and character mobility of payment transactions. There is support from previous research studies that explain the relationship between responsiveness, smartness, and mobility [10], [12], [13], [15], [22]. Finally, this study aims to measure the perceived ease of use from the use of a mobile payment e-wallet, perceived ease of use is a level where users often believe that the use of a mobile payment e-wallet can further reduce the user's effort in doing something or supporting their performance and activities. In the research on the adaptation of NFC mobile phones, it is explained that responsiveness is a technology characteristic that can increase perceived ease of use, this explains the relationship between the two [9]. It is alleged that the view of the mobile payment response has an impact on users, namely perceived ease of use.

Perceived ease of use is said to be closely related to the level of smartness, because knowledge from users supports the implementation of the application [9]. It is explained that Smartness is the level of usability of technology that can be adapted easily by users, thus providing opportunities for perceived ease of use [4]. A review of previous research reviews explains that the responsiveness of technology described through smartness can change the perceived ease of use [29], [30]. Mobile payment e-wallet is a technology that will help users make online transactions only via smartphones. E-wallet is also used to store funds digitally in the form of balances that can be used for routine transactions [25]. The virtue of e-wallet is mobility and this is allegedly providing support for the user's perceived ease of use. Mobility is explained to be an important part of mobile payment, in fact mobility has a stimulus to the use of technology [6], [25]. It can be concluded that there is a relationship between mobility and perceived ease of use. In previous research studies, it was stated that the factors that we're able to control the perceived ease of use were related to responsiveness, smartness, and mobility. However, it is studied separately and on a different object. Currently, it will be studied in a study to assess the level of its impact on the creation of perceived ease of use. Based on the analysis and review of previous research, the research hypothesis design is presented as a guide in the analysis of research results, while the research hypotheses are presented as follows:

- H1. Responsiveness positively influences to perceived ease of use mobile payment e-wallet.
- H2. Smartness positively influences to perceived ease of use mobile payment e-wallet.
- H3. Mobility positively influences to perceived ease of use mobile payment e-wallet.

A review of previous research explains that in consumer behavior, one of which is online behavior, there are different approaches divided by gender, namely men and women [19]. Both currently use mobile payment e-wallet users, but to see support based on gender, at the end of the day we will test the moderation of the hypothetical model based on gender. It aims to find out and analyze the differences in the perceived ease of use support based on user characteristics, namely gender. In line with the design of research hypotheses and moderation based on gender, a research model that will be tested and analyzed is presented in Figure 1.

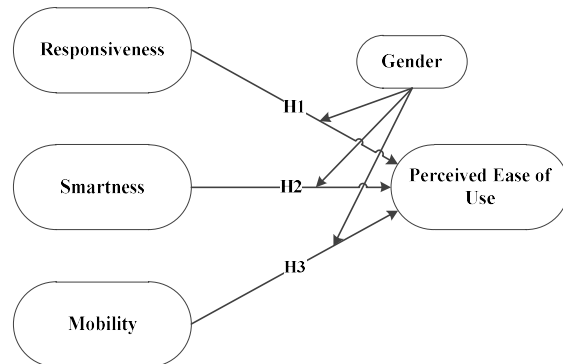


Figure 1: Research Model

3. METHODS

The purpose of this study is to examine the relationship between variables with the final goal of increasing the perceived ease of use of mobile payment e-wallet users. The variables studied include responsiveness (X1), smartness (X2), mobility (X3) and perceived ease of use (Y1). The study of the research variables was tested based on the research hypothesis design that had been designed in the literature review. Based on the design hypothesis, there are three main hypotheses, and it is known that the analysis carried out is linear regression. Each variable is measured through several different measurements, for responsiveness is measured through individual attention, payment provider and prompt service. Smartness is assessed with several assessments including intelligence of technology, smart of technology and smart of image. Mobility is a characteristic of mobile payments, in this case it is measured through several assessments including transactions, mobility, time and place. As for perceived ease of use, it was assessed from several measurements including easy to learn, easy to use and skills. All measurements of research variables are stated in a quantitative questionnaire with answers that have been determined previously through a Likert Scale approach, namely a value of 1 for the "strongly disagree" criteria and 5 for the "strongly agree" criteria. The research instrument before being analyzed was carried out with a feasibility test with validity and reliability tests.

The quantitative survey approach was utilized in this study, and the survey was done on mobile payment e-wallet users in Bandung. Given that Bandung is one of Indonesia's cities with the highest number of mobile payment customers. The number of respondents was estimated to be at least 300, but after distributing online questionnaires in Bandung

City for two months, 290 data were collected. Because this is a preliminary survey and the major research will be conducted relating to mobile payment behavior, the number of respondents is limited. The respondents' data was then checked and analyzed using the SPSS analysis program, which included linear regression analysis. Previously, the research instrument's feasibility was tested, and then the linear regression model's performance was evaluated by evaluating the research hypothesis. Data dissemination, data tabulation, research instrument testing, research model testing, research hypothesis testing, data analysis and interpretation, drawing conclusions, and finally submitting study findings are all covered.

4. RESULT AND DISCUSSION

4.1. Respondent Profiles

The research statistics are based on the research model test offered in the hypothesis design, and the outcomes and comments are presented in one study. It is known that there are 300 respondent data collected in two months through online questionnaires, but only 290 valid data are filled in and that number is processed. From the respondent's profile, it is known that 56% respondents are male, and the rest are female (44%), who of course use mobile payment e-wallet in Bandung City. Respondent data based on gender at the end of the model will be used to see its support for the research hypothesis, where the test is carried out twice based on male and female gender.

The next statistical result from the respondent's profile regarding the use of e-wallet. Most of the e-wallet users have more than three platforms, the most of which are GoPay, ShoeePay, and OVO e-wallet. The amount of funds deposited in one top-up amounted to 100,000-300,000 (77%), with the number of transactions in one week not exceeding 300,000 (85%).

Currently, most use e-wallet in Bandung City for their food or drink needs (55%), and it is still rarely used to pay for e-commerce (31%). When examined from the behavior of e-wallet users in the city of Bandung, it appears that the number of transactions

is mostly applied to daily transactions. The use of mobile payment e-wallets in Bandung is mostly dominated by convenience (69%) and benefits (22%), there is user motivation which is judged by the ease of adaptation and product benefits. Furthermore, it focuses on the most dominant thing, which is related to ease known as perceived ease of use.

4.2. Test of Research Instruments

Based on the proposed research hypotheses, there are four variables that are studied with their measurements, where the variables in question include responsiveness, smartness, mobility, and perceived ease of use. Before analyzing the research model, the research instrument was tested through the validity and reliability of the research instrument.

The researchers used SPSS to investigate the aspects that may contribute to the production of perceived ease of use. The research instrument test, which evaluates the validity and reliability values, is the initial data test. The purpose of the validity and reliability test is to explain whether the research instrument from the questionnaire can be used and analyzed further. If there is a discrepancy, the analysis of the research model cannot be carried out and it is necessary to justify the research instrument. The results of validity and reliability test are show in Table 1. For the research instrument, it is discussed first where the result for all Pearson Correlation values above 0.500 which explains that all research instruments have acceptable validity. Meanwhile, in the Cronbach's Alpha value, it is known that all research constructs have a value above 0.700 which explains that the research instrument is acceptable. The existing research instruments on responsiveness, smartness, mobility, and perceived ease of use are valid and reliable, based on the results provided, so that the analysis can be continued to identify study models. Furthermore, the test results are outlined in Figure 2 which explains the research findings with a test model based on the previous hypothesis design.

Table 1: Validity and Reliability Test Result

Instruments	Indicators	Pearson Correlation	Cronbach's Alpha
Responsiveness	X1.1	0,883	0,851
	X1.2	0,896	
	X1.3	0,867	
Smartness	X2.1	0,712	0,716
	X2.2	0,836	
	X2.3	0,845	
Mobility	X3.1	0,740	0,764
	X3.2	0,710	
	X3.3	0,836	
	X3.4	0,798	
Perceived Ease of Use	Y1	0,889	0,837
	Y2	0,862	
	Y3	0,865	

Table 2: Correlation Value

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,003	0,615		3,255	0,001
	Responsiveness	0,341	0,060	0,323	5,715	0,000
	Smartness	0,228	0,051	0,240	4,447	0,000
	Mobility	0,214	0,039	0,298	5,532	0,000

a. Dependent Variable: Perceived Ease of Use

Table 3: R Square Values

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,748 ^a	0,560	0,555	1,06205

a. Predictors: (Constant), Mobility, Smartness, Responsiveness

Table 4: F Values

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	409,923	3	136,641	121,142	,000 ^b
	Residual	322,591	286	1,128		
	Total	732,514	289			

a. Dependent Variable: Perceived Ease of Use
b. Predictors: (Constant), Mobility, Smartness, Responsiveness

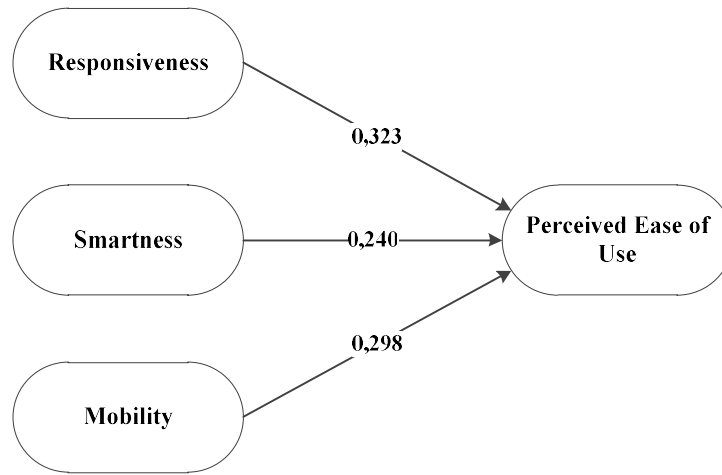


Figure 2: Antecedent Model of Perceived Ease of Use

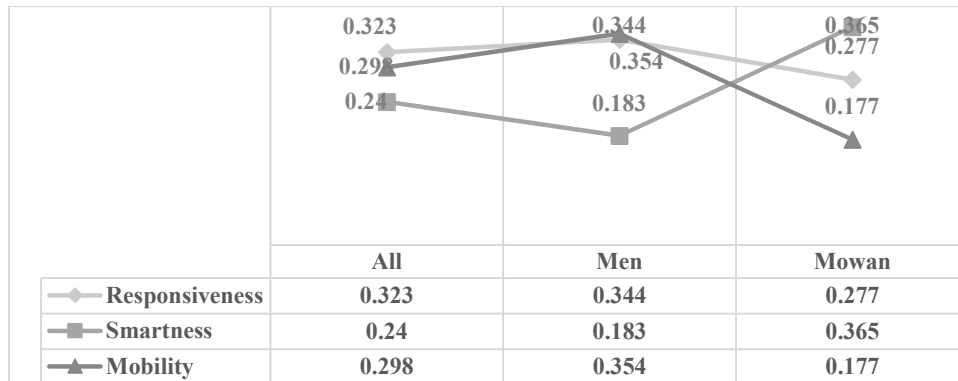


Figure 3: Moderation Effects

In addition to being accepted by the research instrument, the results of the model test were assessed in Table 3 and Table 4. In Table 3 it is known that all antecedent variables have a relationship with perceived ease of use. It is known from the r-square value of 0.650 which explains that responsiveness, smartness and mobility responses have a relationship with positive changes in perceived ease of use. The test results are confirmed in the F test shown in Table 4 with a value of 121.142 with an acceptable level of significance. Further discussion and analysis based on the results in Figure 2, where the study based on the results of hypothesis testing has been summarized in Table 2. The research findings conclude by discussing the support through moderation of gender on the relationship between variables of the research hypothesis (Figure 2).

4.3. Relationship between Responsiveness and Perceived Ease of Use

The explanation in this section refers to the research hypothesis design that has presented the results in Figure 2 and Table 2. It is known that the first result is that there is a relationship between responsiveness and perceived ease of use, with a correlation value of 0.323. These results explain that the higher the responsiveness of the mobile payment, the higher the perceived ease of use. In line with previous studies stated in the FinTech service research [5], [31], it is explained that the right antecedent for financial transactions is the speed of the provider in providing services. Service speed is part of the responsiveness studied in the current study which focuses on mobile payment e-wallets.

It is clear that the current research is in line with and complements previous research. There are several indicators that need to be known in responsiveness including individual attention, payment providers and prompt service. In fact, all of these indicators are able to explain their support for the perceived ease of use of mobile payments. The findings of this study were confirmed by testing the research hypothesis, the summary of which is presented in Table 2, where responsiveness has an acceptable significance value.

4.4. Relationship between Smartness and Perceived Ease of Use

The next finding explains the second research hypothesis regarding the relationship between smartness and perceived ease of use. Based on the results in Figure 2, it is known that smartness has a positive relationship of 0.240 on perceived ease of use. Although the value is not as big as responsiveness, the smart image of the technology is still attached to the user's memory so that it is considered capable of changing the perceived ease of use. This finding is confirmed by the results of the evaluation of the research hypotheses which have been summarized in Table 2, where the smartness value is accepted with a significance below 0.000.

This research study has actually been discussed in a separate previous study which was delivered on NFC mobile [4], [9]. Where it is known that there is a smart value when using mobile payments through ICT and NFC. Of course, these findings are in line with current research and can be summarized that part of the current research complements previous research, which is currently being developed on mobile payment e-wallet. The important thing to know about smartness is the measurement indicators that build it, namely intelligent of technology, smart of technology and smart of image. It is clear that the ability of technology can influence the perspective of mobile payment e-wallet users.

4.5. Relationship between Mobility and Perceived Ease of Use

The third hypothesis discussed is the relationship between mobility and perceived ease of use. The results in Figure 2 show that mobility has a relationship of 0.298 on perceived ease of use. It is known that the main characteristic of mobile payment e-wallet is high mobility in line with user needs so that it tends to be able to support user performance. Besides that, there are several benefits

that users get, namely transactions that can be carried out without limitations on time and place. So that mobility is clearly an important part of the perceived ease of use. This study is confirmed by the results of the research hypothesis test which appears in Table 2 that mobility is significantly able to affect the ease of use of the user. Furthermore, this is in line with previous research that focused on vehicles, which conveyed that mobility is the main thing from using technology [23], [32]. In line with this opinion, it means that current research can improve previous research because it is discussed on another object, namely mobile payment e-wallet. There are several measurements that need to be known in mobility including transactions, mobility, time and place.

4.6. Moderation of Gender

Based on the analysis between the research hypotheses, it is known that all of them are acceptable, and it is stated that the variable antecedents are able to support the creation of perceived ease of use. The priority scale that needs to be considered from the antecedents of variables starts from mobility, responsiveness, then mobility (Figure 2). Next, a test is conducted based on the moderation of the variable relationship, while the moderation is assessed by gender, namely male and female. The test results are shown in Figure 3, the male gender is said to be able to increase the relationship between responsiveness and mobility with perceived ease of use. This means that male users prioritize the responsiveness and mobility of the mobile payment e-wallet. In contrast to female gender, the results in Figure 3 show that women can increase the relationship between smartness responses and perceived ease of use. The difference in support is based on gender, meaning that the behavior of users of mobile payments can be disaggregated by gender. This finding is not presented in the research model considering that it only examines the level of moderation, but the results of the findings of this study are useful for further research studies and companies.

The findings in this study have benefits for mobile payment service providers in Indonesia in assessing user behavior. Furthermore, it can be a recommendation for entrepreneurs to prioritize features related to transaction convenience, user mobility, flexible time, and place as the main capabilities of mobile payment e-wallets. This is based on the consideration of the research findings that have been described previously.

5. CONCLUSIONS

Technology provides excellent support for user activities, including supporting more effective and efficient payment methods. Mobile payment e-wallet which is one of the payment methods is currently the user's choice because of the benefits, including perceived ease of use. Based on the results of the analysis, a study was conducted that explained the relationship of responsiveness, smartness, and mobility to perceived ease of use. Users of mobile payment e-wallets in Bandung explained that the use of e-wallets can be determined by responsiveness, smartness, and mobility. Mobility is the first factor that has a high influence on changes in perceived ease of use, considering that mobility is the main characteristic of mobile payments, which is easy to carry and use by users. The second factor that can increase the perceived ease of use of the mobile payment e-wallet is responsiveness, namely the responsiveness of the application used. There are several measurements, including attention from users who are considered easier and faster, payment providers who are considered more helpful to users and are considered to represent all the needs of users in financial transactions. Another factor that certainly has an impact on the perceived ease of use is smartness. Smartness is related to the perception of the use of technology on the image of its users, users assume that through mobile payment e-wallet can improve self-image so that it supports the perceived ease of use of mobile payment e-wallets.

This study only discusses the support for perceived ease of use from mobile payment e-wallets, which does not examine the impact of perceived ease of use on user behavior. This becomes a limitation of research and becomes a recommendation for further research, there are behaviors that are very closely related to perceived ease of use such as the relative advantage of users and the intention to use the adapted technology. As for other suggestions for mobile payment e-wallet service providers, which are encouraged to continue to improve services derived from features such as mobility because it has a related impact in supporting the use of mobile payment e-wallets.

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