Re-Examining Millennials' Intention To Continuously Use E-Wallet Applications : The Role Of Technology Acceptance Model

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ABSTRACT

This study aims to re-examine the Technology Acceptance Model (TAM) to explain Millennials' intention to continously use the e-wallet applications by using Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). There were 140 respondents used as sample in this study with the provision of the age limit of 20-35 years, who have e-wallet(s) account and had been using e-wallet application(s) to perform payment transaction(s). Data were collected using questionnaire. This sampling technique used was purposive sampling method and analyzed using the SPSS multiple linear regression analysis. The results of this analysis indicate that Perceived Ease of Use and Perceived Usefulness both have a significant effect towards Continuance Intention to Use e-wallet application(s) amongst Millennials. The findings of this study are important because it can be utilized as a foundation for e-wallet developers to improve technological systems with various features which focuses on enhancing consumers' performance, furthermore this study is expected to encourage small and medium sized business to adopt fintech as one of the offered payment features.

Keywords: Perceived Ease of Use, Perceived Usefulness, Continuance Intention to Use, Technology Acceptance Model (TAM)

PRELIMINARY

The rapid development of technology and also advancement of the internet have led to a phenomenon called the cashless society (Worthington, 2006). The cashless society can be defined as a technology-based payment method that is widely used by the millennials (Slozko & Pelo, 2015), leading to a tendency to reduce the use of physical money (Swartz et al, 2006). Cashless payment method is different from traditional payment methods (Swartz et al, 2006), where the cashless payment method does not require face-to-face interaction between users which simplifies the process of complex transactions (Chakraborty & Mitra, 2018). Cashless payment method is also preferred by millennials because it offers practicality on performing financial transactions, such as it does not require users to carry large amounts of cash. Millennials are characterized as the generation that is most familiar with technology compared to their predecessors (Kohut & Taylor, 2010). In addition, millennials are also referred as the generation that tends to utilize technology to perform their work more effectively, thus they prefer to adopt cashless payment more than their predecessors.

Technological innovations have taken places in various aspects, one of which is in the financial sector. Technological innovations in the financial sector that are widely used to help the business world are referred to as Financial Technology (Bank Indonesia, 2020). One of the most popular Financial Technologies is an e-wallet, which allows users to make digital financial transactions via smartphones. By using e-wallet, complex financial transactions can be carried out more efficiently. The COVID-19 pandemic takes a role as a catalyst for fintech adoption in Indonesia (Kontan, 2021). In addition, e-wallet providers are all controlled by government institutions, including Bank Indonesia and the Financial Services Authority, which strongly encourages businesses to accept electronic payments. Figure 1 explains that e-wallet transactions have grown significantly in the last 2 years. The graph also illustrates that e-wallet market share in 2020 has also increased significantly compared to 2019.

Figure 1: Payment Methods' Share of Transaction in Indonesia by 2019-2020
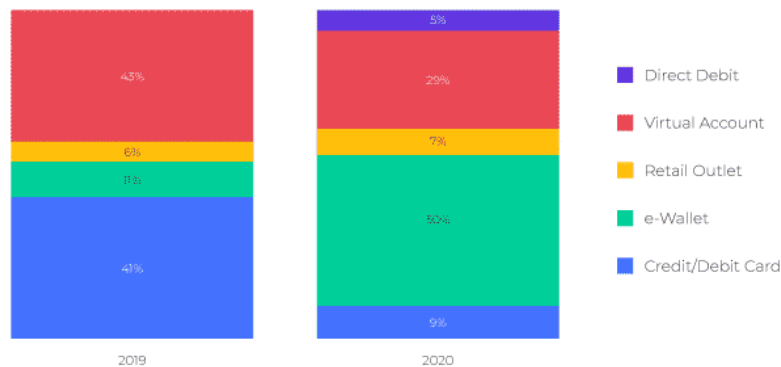
Sources : Xendit, 2021

However, over the high e-wallet share of transaction in 2020, the penetration rate of e-wallet in Indonesia has been unsatisfactory. There were around 70 million e-wallet users in June 2021, or only about 25% of the total population of Indonesia (Kontan, 2021), due to the uneven distribution of internet access in Indonesia (Kompas, 2021), which is resulting in the lack of consumers' knowledge about the benefits they are able to possessed by using e-wallet. Furthermore, consumers' concern about privacy and security issues (Kompas, 2020), as well as the lack of e-wallet education, leads to the tendency to use physical money and debit cards more than adopting e-wallet (Chang et al, 2016; Chuang et al., 2016).

Based on these problems, this study aims to bridge the gap that occurs by carrying out the concept of Technology Acceptance Model (TAM). TAM corresponds to this research since it explains the factors that affect user's acceptance of technology and how much these factors influence it. TAM has 2 main constructs that explain a user's acceptance and their behavior towards technology, namely Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis, 1986;1989) ; Davis et al, 1989). The Perceived Ease of Use (PEOU) construct explains that the ease one perceived while using technology is able to affect a their interest in adopting technology-based services, such as online payments through digital wallets (Chang et al., 2017). While Perceived Usefulness (PU) can be defined as the degree of usefulness that a person feels from the use of a technology application, such as mobile payment (Ariffin & Lim, 2020).

Various studies have been carried out to validate the concept of TAM on user's technology acceptance level in various fields; in education (Abramson et al., 2015; Park, 2009), business

(Verhagen & Dolen, 2007; Wang et al., 2019), financial (Shao et al., 2019; Mun et al., 2019), and govermental sectors (Elbahnasawy, 2014). PEOU is also concluded to have an indirect effect towards intention to use (Tangke, 2004; Jelinek et al., 2006). In contrast to the results of these studies, Rahayu (2015) explained that the PEOU has a negative significant effect on a user's intention in using technology, which means the higher PEOU offered by a technology application, the lower user's intention to adopt it. Based on these inconsistencies, this study intends to further examine the effect of PEOU and PU on a person's interest in using e-wallet in Indonesia. To address this problem, this study focuses on these 2 constructs to explain the millennials's acceptance level of e-wallet. This research intends to study further about the PEOU and PU to find out the response of the millennials in using e-wallet, where the PEOU and PU is considered as the best predictor of user's intention on using technological services.

CRITICAL LITERATURE REVIEW

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed based on The Theory Reasoned Action (TRA) (Ajzen and Fishben, 1980). TAM was originally proposed by Davis (1989) and modeled user's acceptance level of technologies (Chan & Lu, 2004).This model was developed to predict the factors that may have an impact on user acceptance of a technological system. Furthermore, it has been extensively extended by number of researchers on explaining user intentions to use a technological systems (Chakraborty & Mitra, 2018; Park, 2009; Abramson et al., 2015). Some of the benefits of technology possessed by users include increased productivity and performance (Wang et al., 2019) and increased process efficiency (Wixom & Todd, 2005). TAM was formed by several constructs described in the following figure, including PEOU, PU, attitudes to use, behavioral intentions to use, and actual use.

Figure 2: Technology Acceptance Model
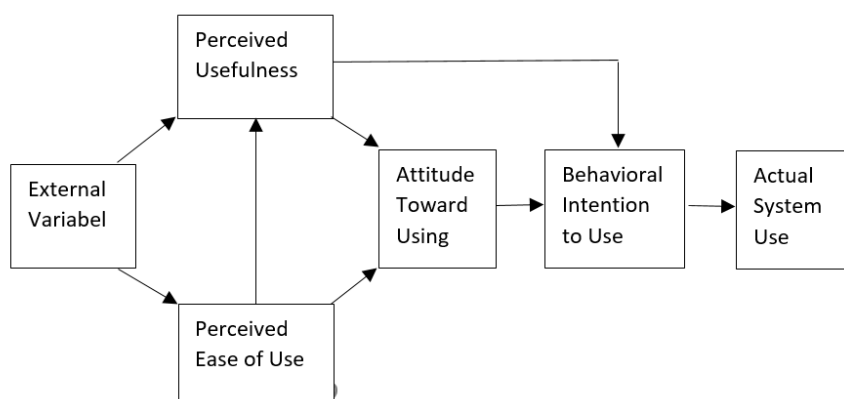
Sources : Davis (1989)

TAM corresponds to millenials' continous use of e-wallet applications due to its ability to explain user's intention in using technological system, such as e-wallet. Furthermore, this study uses PEOU and PU as both construct are the best determinants to predict user's acceptance of technology, especially e-wallet. The TAM was believed to be able to define the factors that predicted millennials' intention on using e-wallet (Mun et al., 2017; Thusi & Maduku, 2020; Ariffin & Lim, 2020)

Perceived Ease of Use (PEOU)

PEOU was referred to the extent to which a person believes by using a particular system will be easy (Ajzen, 1991; Davis et al. 1989). Ajzen (1991) mentioned that PEOU is explained by a set of total accessible control beliefs. Furthermore, Davis et al. (1989) explained that PEOU considered as the degree of minimum effort someone perceived when using technology. Thus it can be concluded that when a technology is easier to use, it tends to be more acceptable. The acceptance level was measured by the increased intensity of use (Mun et al., 2017) and user interactivity (Chuang et al., 2016). It is expected that users were able to complete their work more easily with the help of technology, compared to conventional methods. As a result, user's intention in using a technological system is increasing. The transaction process using e-wallet is very simple so that users do not need much effort to learn it (Thusi & Maduku, 2020). As a result, many studies confirm users tend to use digital payment continuously (Ariffin & Lim, 2020 ; Chan & Lu, 2004; Chang et al.,2017; Mun et al., 2017)

The following were the indicators used to form the PEOU (Thusi & Maduku, 2020; Mun et al., 2017):

a) Easy to learn, was defined as a situation when individuals felt that the technology used was able to be learned easily. If the individual had difficulty on learning to operate the technology, the PEOU would be decreasing.

b) Easy to use, was defined as a situation when individuals felt the technology used was able to be operated easily

c) Flexibility, was defined as a situation when individuals felt that the use of technology was able to increase the flexibility of user interactions.

d) Controllability, was defined as a situation when the user believed that technology can help them to perform specific actions

e) Understandable, is the situation when the technology used was very clear and easy to understand.

f) Effortless, is when a technology can help users to reduce the effort required to do work

Perceived Usefulness (PU)

PU was defined as the extent to which individuals believed technology would improve their working performance (Davis et al., 1989). Users tended to use the system they believed would improve their performance continuously, vice versa (Park, 2009). TAM models hypothesized PU as a direct predictor to explain the Behavioral Intention (BI) (Davis, 1989). Previous literatures showed that PU was positively related to continuance intentions to use technological systems (Nguyen & Cassidy, 2018; Mun et al., 2017). This research used the following indicators to measure PU (Teo, 2010; 2012)

a) Speed of completing the work, was defined as to which extent technology was able to help individuals to complete work faster. If technology was not able to help users complete their work quickly, PU would be decreasing

b) Increase in job performance, was defined as to which extent technology was able to assist users on improving their work performance

c) Increase in productivity, was defined as to which extent technology was able to assist users on increasing their work productivity

d) Increase in effectiveness, was defined as to which extent technology was able to help users increase the effectiveness of their work

e) Time saving, was defined as to which extent technology technology was able to help users to save the time needed to do a job

Continuance Intention (CI) to Use

Continuance intention (CI) to use a system referred to user's intention is to continuously perform a particular behavior (Limayem & Hirt, 2003). Continuance intention is referred to as a

proxy for the actual use of a technology continuously. Furthermore, Limayem et al. (2007) considerred continuation as a post-adoption behavior. In this study, continuance intention to use e-wallet was described as the level of strength of an individual's intention to use e-wallet applications repeatedly and continuously. Hedman & Henningsson (2015) argued that the main pillar of technological systems sustainability was the user's continuance intention. Thus, continuance intention to use technological system was an important topic due to its ability to describe user's post-adoption behavior of technological systems. PEOU and PU were all related to CI to use, since users are assumed to have a greater intention to use technology if they feel the technology will be useful and easy to use. This research used the following indicators to measure CI to use (Limayen & Hirt, 2003; Limayem et al., 2007) :

a) Commitment to use; was user's commitment to keep using the technological systems offered by the company in the future.

b) Usage intensity, was defined as how often users utilized the application for transactions

c) Recommendations; the willingness of users to suggest the technological systems offered by the company to others for free, where this customer recommendation brings positive value benefits for service providers because consumers tend to act as ambassadors of the company

d) Preferential Intention, was defined as the tendency of consumers to make the technological system as their main choice amongst others.

HYPOTHESES DEVELOPMENT

Perceived Ease of Use and Continuance Intention to Use

PEOU was defined as the degree of user believability that the system used was able to reduce their efforts to complete their work (Davis, 1989). Several studies revealed that PEOU was proved to be having a significant impact on CI to use (Dai & Palvia, 2009; Limayen et al, 2007). Furthermore, PEOU was related to a user's perception that when they used a system they would be effortless. Technological systems that were easy to use tended to be more accepted by users, thus resulted to the continuity to use (Li et al., 2008; Recker 2016). PEOU and PU were also said to have a significant positive effect on

intentenion in using mobile payments or e-wallet (Chuang et al, 2016; Nguyen & Cassidy, 2018).

H1: Perceived Ease of Use (X1) has a significant effect towards Continuance Intention to Use (Y) e-wallet

Perceived Usefulness and Continuance Intention to Use

PU was referred as the degree of user's believability that by using a certain system or technology, they would be able to improve their work performance (Davis,1989). PU was also described as factor that greatly influenced the continuance intention to use technological system (Lowry et al., 2015), since if user possessed number of benefits when using the system, they tended to be more inclined to continously using it (Kim et al, 2007). Furthermore, to be able to attract more users, technological system providers obliged to develop systems that focused on improving user performance. Several studies have shown the positive significance of PU towards CI to use (Lowry et al., 2015; Oghuma et al., 2015; Li et al., 2018)

H2: Perceived Usefulness (X2) has a significant effect towards Continuance Intention to Use (Y) e-wallet

Figure 3: Conceptual Framework
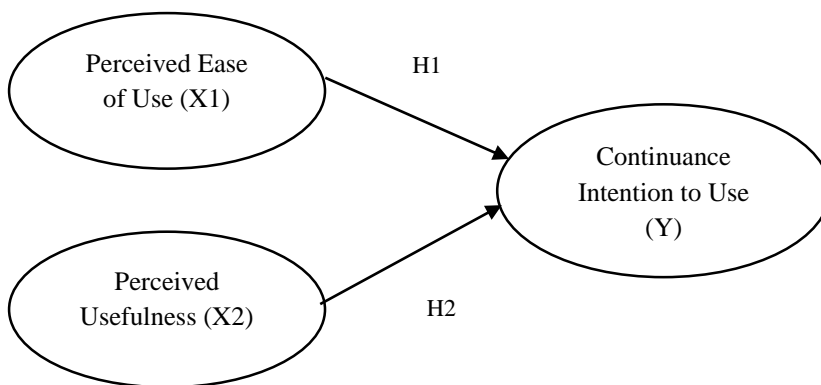
METHOD

This study aimed to analyze the impact of PEOU and PU towards the CI to use e-wallet, thus this research was classified as quantitative research. The population on this study was the millennials aged 20-35 years who have used e-wallet applications. The sampling technique used in this research was non-probability sampling with purposive sampling method, where the sample was specifically selected based on the research objectives. The sampling criterias used in this study included respondents owned e-wallet application(s) such as OVO, Go-pay, Dana, Linkaja, or Shopeepay and had been using the same e-wallet application(s) to complete their transactions more than twice within a month. The unknown population in this research became the reason underlying the use of Hair et al. (2010) number of sample calculation, which was total indicators multiplied by ten. Thus, the number of targeted samples on this study was 140 respondents.

RESULTS AND DISCUSSION

Instrument Validity Test

This study used Pearson Correlation analysis as instrument validity test, where Pearson correlation analysis was used to determine the linear relationship between two variables which was normally distributed.

Table 1: Pearson Correlation

Variabel	Item	Sig.	Result
Perceived Ease of Use (X1)	X1.1	0.00	Valid
	X1.2	0.00	Valid
	X1.3	0.00	Valid
	X1.4	0.00	Valid
	X1.5	0.00	Valid
	X1.6	0.00	Valid
	X1.7	0.00	Valid
	X1.8	0.00	Valid
	X1.9	0.00	Valid
Perceived Usefulness (X2)	X2.1	0.00	Valid
	X2.2	0.00	Valid
	X2.3	0.00	Valid
	X2.4	0.00	Valid
	X2.5	0.00	Valid
	X2.6	0.00	Valid

	X2.7	0.00	Valid
	X2.8	0.00	Valid
Continuance Intention to Use (Y)	Y1.1	0.00	Valid
	Y1.2	0.00	Valid
	Y1.3	0.00	Valid
	Y1.4	0.00	Valid

Based on the table 1, all of the items used on this study scored 0.00, which has met the Pearson Correlation's rule of thumb (<0.00). Thus it could be concluded that all the items used on this research were valid.

Reliability Test

Reliability test performed on this study was Cronbach's Alpha, which was used to determine the consistency of the measuring instrument.

Table 2: Reliability Test

Variable	Cronbach's Alpha
Perceived Ease of Use (X1)	.879
Perceived Usefulness (X2)	.860

Based on the table 2, PEOU and PU both scored 0.879 and 0.860, which have met the reliability test's rule of thumb (>0.06). Thus, it could be concluded that both variables used on this research were reliable.

Classic Assumption Test

Classic assumption test used in this research wass normality test, multicollinearity test, heteroscedasticity test.

Normality test

The normality test was performed to test whether the values generated from the regression are normally distributed or not. The normality test used in this study wass the P-Plot graph.

Figure 4: Normal P-Plot of Regression Standardized Residual

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: RatarataY
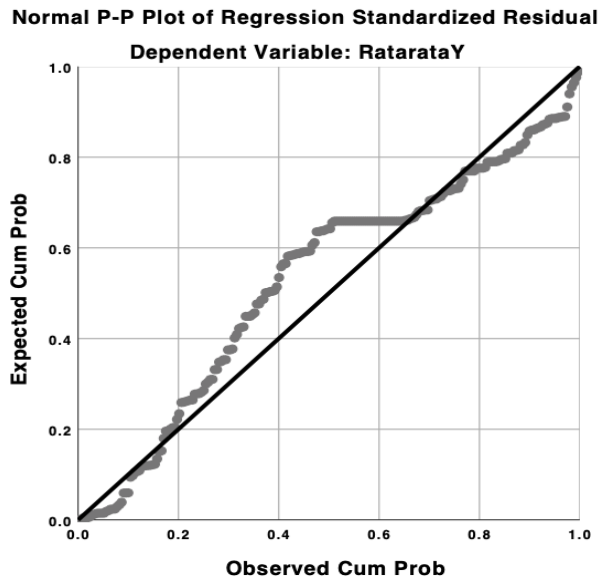
In accordance with Figure 4, the dots were spread approximate the diagonal line and followed the direction of the diagonal line. Thus, it could be concluded that the residual value in this study was normal.

Multicollinearity Test

Multicollinearity test was performed to measure the relationship between independent variables. A good regression model possessed the characteristic that there was no multicollinearity between the independent variables. If the value of the VIF was less than 10 and the tolerance value on the regression results is more than 0.1, it can be concluded that there was no multicollinearity.

Table 3: Multicollinearity Test

Model	Collinearity Statistic	
	Tolerance	VIF
Constant		
AvgX1	.743	1.407
AvgX2	.743	1.407

Table 3 showed that the tolerance score was all more than 0.1 and the VIF value is less than 10, thus it could be concluded that there was no multicollinearity between the independent variables in this study.

Heteroscedasticity test

The regression model was considered to be good if there was no heteroscedasticity occured. With the graphical method, it was shown if the pattern of the dots did not form a clear pattern and scattered on the Y axis.

Figure 5: Scatterplot
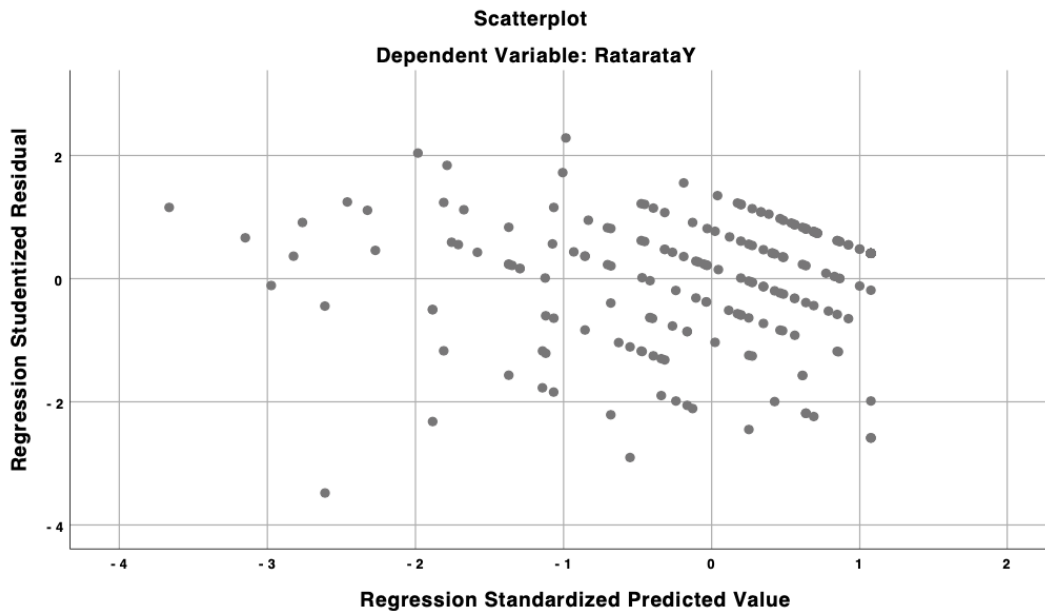
In Figure 5, it was found that the dots did not form a clear pattern and scattered on the Y axis. Thus, it can be concluded that heteroscedasticity did not occur on this research.

Multiple Regression Analysis

Multiple Regression Analysis was used to analyze the linear relationship between two or more independent variables towards dependent variable(s). In this study, there are two independent variables, PEOU and PU.

Table 4: Multiple Regression Result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.210	.241		.606	.545
AvgX1	.263	.053	.173	3.375	.001
AvgX2	.641	.056	.445	9.281	.000

Based on table 4, the multiple linear regression equation was :

Y = 0.21 + 0.263 X1 + 0.641 X2

Description :

Y : Continuance Intention to Use

X1 : Perceived Ease of Use

X2 : Perceived Usefulness

Based on the regression equation drawn, the constant value of 0.21 translated as if the PEOU (X1) and PU (X2) values were 0, then the value of CI (Y) to use e-wallet was scored 0.21. Furthermore, the regression equation on PEOU (X1) showed a positive value of 0.263 which meant that every increase on PEOU (X1) would increase CI to Use (Y) e-wallet by 0.263 assuming the PU value was considered constant. While the coefficient of the PEOU (X1) was positive, it could be concluded that there was a positive relationship between PEOU (X1) and the CI to Use e-wallet (Y). It was related to the questionnaire, that the second indicator stated that the features contained in the e-wallet were easy to understand, which get a highest mean and the lowest standard deviation, so that it could be concluded that CI to Use (Y) e-wallet increased due to the Perceived Ease of Use e-wallet features had offered

Furthermore, the regression equation on PU (X2) scored a positive value of 0.641, which meant that every increase in PU (X2) will increase CI to Use (Y) e-wallet by 0.641, assuming PU value was considered constant. The coefficient of PU (X2) was positive, so it could be concluded that there was a positive relationship between PU (X2) and CI to Use (Y) e-wallet. This result was in accordance with the questionnaire, where the fourth indicator stated that the existence of e-wallet application(s) simplified the transaction process,which get the highest mean and the lowest standard deviation, so it could be concluded that CI to Use (Y) e-wallet increased due to the Perceived Usefulness e-wallet featured had offered.

Hypotheses Testing

F test

The F or Anova test was carried out to test the significance of the effect of several independent variables on the dependent with a significance level of 0.05.

Table 5: ANOVA Test

Model	F	Sig.
Regression	92.589	.000[b]

The significance value of the Anova test in this study was 0.000, thus it could be concluded that this model was feasible for further research.

t Test

The t-test was performed to test the means of the two independent groups. The hypothesis were accepted if it met the rule of thumb, namely significance level < 0.05 (Priyatno, 2014). In this study there were 2 hypotheses, as the following:

H1: Perceived Ease of Use (X1) has a positive significant effect towards Continuance Intention to Use (Y) e-wallet.

H2: Perceived Usefulness (X2) has a positive significant effect towards Continuance Intention to Use (Y) e-wallet.

Table 6: t-Test

Hypotheses	t-Test value	t-Tabel	Sig.	Results
PEOU -> CI	3.476	1.65	.001	Accepted
PU -> CI	9.711	1.65	.000	Accepted

Based on table 6, The Perceived Ease of Use (X1) scored a t-test value of 3.476 which was greater than the t-table, followed by a significance value of 0.001 < 0.05, thus it could be concluded that the Perceived Ease of Use (X1) had a significant effect towards Continuance Intention to Use (Y) e-wallet.

The Perceived Usefulness (X2) had a t-test value of 9.711 which is greater than the t-table, followed by a significance value of 0.000 <0.05 which could be concluded that the perceived Usefulness (X2) had a significant effect towards Continuance Intention to Use (Y) e-wallet.

Coefficient of Determination (R^2)

Table 7: Coefficient of Determination (R^2)

Model	R	R Square	Adjusted R Square	std. Error of The Estimate
1	.672[a]	.452	.647	.31821

Table 7 showed the correlation coefficient (R) of 0.672 which translated that there was a strong and positive relationship between the independent variables and the dependent variable in this study. Adjusted R Square was performed to find out the degree of influence of the independent variables on the dependent variable. Adjusted R Square has scored 0.647, thus it can be concluded that the independent variable contributed to explain to the dependent variable by 64.7% and the rest 35.3% was influenced by variables which were not mentioned in this study. CI to Use was also influenced by swicthing cost (Li et al., 2008); Consumer's Habit (Limayem, et al.,2007); Customer Satisfaction (Li et al, 2008; Kim et al.,2007)

DISCUSSION

These findings validated the TAM model proposed by Davis et al. (1989), since this model were correspond to predict millennials' Continuance Intention to Use e-wallet in Indonesia. This conclusion was drawn based on the results of the R^2 regression analysis which scored around 65% which was quite high. PEOU was found to have a positive and significant impact towards Millennials' Continuance Intention to Use e-wallet. In general, these findings supported the idea that if user perceived a technology system was easy to use, they tend to have more intention to use it (Chang et al. 2016; Ariffin & Lim, 2020; Oghuma et al.,2015; Thusi & Maduku, 2020). This was in accordance with previous studies, that the technological system that perceived to be easier to use was more likely to be accepted (Wang et al.,2019; Shao et al., 2019). The results of this study were also in line with previous study conducted by Teo (2020) where the PEOU offered by e-wallet was able to affect a user's intention to use an information technology. The PEOU was an important consideration in the adoption of a technology. PEOU was also indicated by the usage intensity of a system, the more often users interact with a new technology system, the higher the PEOU of the technology will be (Wixom, 2007).

PEOU was an important antecedent that explained consumers' continuance intention to use technological systems, which included e-payment (Yusuf-Dauda & Lee, 2015) , e-banking (Chang et al., 2017), and e-commerce (Verhagen & Dolen, 2007). Based on the original concept of TAM (Davis, 1989), this study defined the PEOU of e-wallet

as the complexity of the application that consumers perceived when they adopt an e-wallet application. Several surveys had also concluded that e-wallet was very popular in several countries including Indonesia, because it was considered more effective. There were several reasons that made e-wallet very attractive to millennials, including millennials' demanded a fast, accurate, and easy transaction process. In addition, E-wallet is considered safer than conventional transactions because it had been equipped with several security features.

PU was also found to have a positive and significant impact towards Continuance Intention to Use e-wallet. Perceived Usefulness reffered as the extent to which the user believed that the e-wallet would increase the efficiency of payment transactions. This study also produced findings indicated that PU affected Continuance Intention to Use. A recent study by Chakraborty & Mitra (2018) explained that PU was a significant predictor of intention to use. Chan & Lu (2004) revealed that there were several factors that cause e-wallet to be easily accepted by millennials, such as usefulness and effectiveness. Usefulness was defined as a dimension that was able to increase individual productivity, while effectiveness was defined as a dimension that was able to develop individual performance. Various studies showed that PU had a direct impact on the use of various financial technology products (Abramson et al., 2015; Chang et al.,2016), and also has an indirect effect by mediating perceived usefulness on intention to use (Elbahnasawy,2014; Park 2009).

Consumers were highly rational beings who were drawn to the advantages and disadvantages when they were faced on making decisions, especially for technologies they could not touch or see. Thus, how they perceived the benefits of an application became the main determinant whether they would continuously use a technological system or not. Perceived Usefulness was the most important factor in TAM which was believed to play a role as the main determinant of user adoption of technology services, such as e-commerce, e-payment, and e-banking. In the context of the use of e-wallet, the Empirical evidence showed that perceived usefulness has an essential role in the goal of increasing consumer intention to use technological systems (Kim et al.,2007; Mun et al.,2017)

CONCLUSSION

Based on the analysis and discussion, there were two conclusions that could be put forward. The first hypothesis which stated that Perceived Ease of Use has a positive significant effect towards Continuance Intention to Use e-wallet amongst Millennials was accepted, where the convenience offered by e-wallet affected user's continuance intention in using e-wallet. Likewise, the second hypothesis which stated that Perceived Usefulness has a positive significant effect towards Continuance Intention to Use e-wallet amongst Millennials was also accepted, where various benefits obtained when using e-wallet could be the strongest predictor of intention in continously using technological services.

RECOMMENDATION

Based on the results of the analysis and discussion, suggestions could be drawn for e-wallet service providers to be able to educate the wider community about the convenience and benefits obtained by adopting e-wallet so as to encourage someone's desire to use e-wallet. When technology will continue to develop over time, companies must always provide innovations such as increasing security in e-wallet applications, providing services or features for tracking someone's expenses, other features in applications that can increase the ease and usefulness of technology applications. For further research, it is recommended to add other variables to improve the results of the analysis. In addition, it is suggested that the sample used is not only for the millennials but also distributed to other ages so that it can be interpreted more generally.

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