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## Effects of Perceived Ease of Use, Security, Perceived Usefulness, and Trust on the Use of E-Wallet "DANA" on ZXY Polytechnic Students

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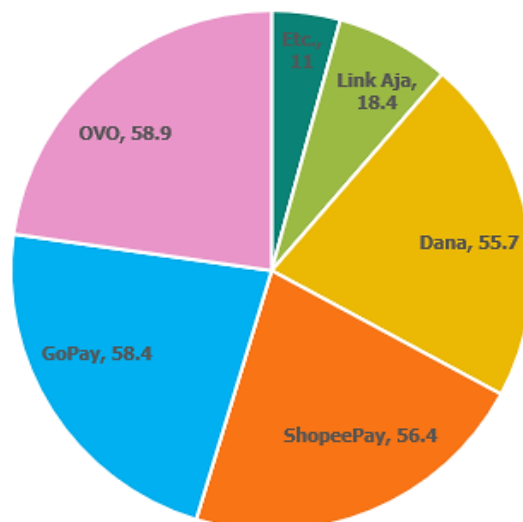
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Article Information	Abstract
Article History: Received: May 2024 Accepted: September 2024 Published: September 2024	One of the tangible proofs of the technological development of this digital payment system is an e-wallet. This study aims to determine, test, and identify the extent to which the variables perceived ease of use, security, perceived usefulness, and trust impact ZXY Polytechnic students' use of the DANA e-wallet. This study takes a quantitative approach, with up to 96 respondents drawn from ZXY Polytechnic students utilizing nonprobability sampling techniques and the quota sampling method. The data collection technique is by literature study and distribution of questionnaires. Data processing techniques using SPSS version 29.0. The results of this study indicate that the variables perceived ease of use and security do not have a significant effect on interest in use. While the variables of perceived usefulness and trust have a significant effect on interest in use.
Keywords: Perceived Ease of Use, Security, Perceived Usefulness, Trust, and Interest in Use	
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### INTRODUCTION

Nowadays, technological advancements influence commercial transactions, particularly payment systems. Payment innovation is rising in Indonesia, which previously used paper and metal money but is now rapidly adopting digital payments. The e-wallet is one tangible example of this digital payment system's technological progress. An e-wallet is an online software that keeps track of fund balances and can be accessed at any time and from any location as long as it is connected to the server via a smartphone (Bagla & Sancheti, 2018).

The growth and spread of e-wallet users has surpassed the number of credit card users. According to RedSeer (2020), as many as 29% of transactions coming from e-commerce in Indonesia use e-wallets. Various e-wallet service products that are being developed in Indonesia have begun to appear, such as DANA, OVO, GoPay, ShopeePay, and others.



**Figure 1.** E-Wallet Most Used in Indonesia  
 Source: Pahlevi Reza, 2022

According to survey results from Pahlevi in Daily Social, (2022) the most used e-wallet applications by Indonesians are OVO with a percentage of 58.9%, GoPay at 58.4%, ShopeePay at 56.4% and DANA at 55.7%. The percentage of DANA e-wallet users is one of the highest in Indonesia. Chandra S & Kumar KN (2018) suggested that user acceptance of the Internet of Things has been identified in the Technology Acceptance Model (TAM) which consists of factors. Based on the TAM model, there are two main reasons for adopting new technology, which is usefulness and ease of use.

According to Yeow et al., in Pratiwi & Dewi (2018), a user agrees and is prepared to embrace an innovation provided it provides advantages and is benefits. When utilizing some technologies, a user will experience the ease associated with effort and comfort, known as perceived ease of use (Diva et al., 2020) However, these two concepts are not sufficient to explain technology acceptance. As a result, researchers use security and trust characteristics to predict interest in utilizing e-wallets.

Miliani et al., (2013) suggest that security as a security factor can affect a person's perception of general banking transaction activities because all information sent is confidential. Businesses or e-wallet issuers must consider security risk factors to minimize user negative perceptions of their services in the future. In addition to security factors, trust factors also influence and determine whether new technology can be accepted or not.

According to Wurmser in Ariningsih et al., (2022), the younger generation is the largest adopter of modern technology. This is the basis for research to determine ZXY Polytechnic Students as respondents in this study so that researchers can further analyze how much they want to transact using the DANA e-wallet.

**LITERATURE REVIEW**

**E-Wallet DANA**

Wahyuningsih and Nirawati (2022) say that DANA is an open mobile digital payment platform. The DANA application can be accessed and used on various

platforms, both offline and online, and can be used together to buy credit, buy data, pay monthly bills, shop, pay in stores, send money, and others.

It has DANA's security certificate. In addition, all DANA digital transactions are managed by Bank Indonesia and certified by the Payment Card Industry Data Security Standard (PCI DSS), an advanced bank money security standard. DANA also has a data cell and data backup in Indonesia that can manage high turnover and implement risk management to protect users (Wahyuningsih & Nirawati, 2022).

### **Perceived Ease of Use (X1)**

Perceived Ease of Use, is a major factor in user attitudes and intentions to accept and use technology (Chawla & Joshi, 2019). PEOU can be explained as a person's level of trust that is considered to make using technology easier (Ivan and Miharni, 2020).

Chawla & Joshi (2019) mention the aspects used are as follows:

- a) Easy to learn. People who think technology is easy to learn find it easy to use. Conversely, people who consider technology difficult to learn to think that it is difficult to use.
- b) Ease of understanding. People who find the technology easy to understand find it easy to use, and people who find the technology difficult to understand find it difficult to use.
- c) Effortless. People find technology easier to use if they feel they can perform tasks accurately. On the other hand, people who find the technology difficult to use will fail to perform the task accurately.
- d) Ease of use. If people find the technology easy to use, they will be more confident. If people find it difficult to use, confidence in the technology will decrease. According to a previous study, simplicity of use has a favorable and significant influence on customer impressions of digital payment systems (Nustini & Zhafiri, 2020).

### **Security (X2)**

According to Katon & Yuniati (2020), security is one of the important elements in online payments. In a study of e-wallets in India, Bagla & Sancheti (2018) also said the same thing and found that users feel safe when using e-wallets built on the security of the system created by each service provider.

According to Flavian and Guinaliu in (Kumala et al., 2020), the following factors are used to evaluate the security of e-wallets.

- a) Authentication. Check user data to make sure the user is an actual user.
- b) Confidentiality. Restrict access to information to authorized parties
- c) Integrity. This involves checking whether the message or transaction's content is really what is intended and cannot be omitted or manipulated.
- d) Non-repudiation, which is ensuring that a person does not deny that he or she has made a transaction.

According to research by Rahmawati et al., (2020), security has a major favorable influence on usage decisions. Consumers are concerned about the security of their personal information while purchasing online.

**Perceived Usefulness (X3)**

Yeow et al., in Pratiwi & Dewi (2018), stated that when a user agrees and is willing to accept an innovation the innovation has benefits and usefulness. According to Lwoga in Ariningsih et al., (2022), Perceived usefulness refers to an individual's view that it promotes their utilization of the system. People will utilize an information system if they believe it is beneficial; otherwise, they will not use it. The advantages of adopting information technology include improved performance and that of the personnel who utilize it. Consumers who utilize e-wallets see distinct benefits. This saves time, is easier to use, and makes transactions more precise and faster than cash payment methods (Pratiwi & Dewi, 2018).

**Trust (X4)**

Identifying user behavior is critical for developing trust and generating interest in the product. One of the finest techniques to boost customer trust in online shopping is to design a system that is simple to use and comprehend. (Diva et al., 2020). Consumers who trust the application will feel comfortable using it. In this dimension, consumers will believe that the program they use can be trusted and depended on. According to Violinda & Khorunnisya (2022), consumers believe that e-wallets are reliable, protect the privacy of their users, and do not cheat in non-cash payments.

**Interest in Use (Y)**

The phases of the decision-making process, according to Prakosa & Wintaka (2020), include problem identification, information search, alternative comparison, decision-making, and assessment. The use of decision-making behavior indicates that the individual accepts the concepts he sees and can affect later usage. Jogiyanto in Ariningsih et al., (2022) suggests that the structure that affects an interest in use includes the following:

- a) Desire to use.
- b) Always try to use it in the future.
- c) Keep using it in the future.

Pratiwi & Dewi (2018) suggest that there are aspects that affect consumer perceptions because they are the reason for consumers to use e-wallets. These benefits can improve performance and productivity in daily activities (Ariningsih et al., 2022).

**RESEARCH METHOD**

This research uses quantitative analysis, which allows researchers to understand how broad the phenomenon is and test research hypotheses. Researchers used two types of data in this study: primary data and secondary data. A questionnaire was utilized as the study tool. In this scale-based questionnaire technique, a Likert scale is employed to gauge views.

**Table 1.** Likert Scale

No	Description	Score
1	Totally Agree (SS)	4
2	Agree (S)	3
3	Disagree (TS)	2
4	Totally Disagree(STS)	1

Source: Data Entry, 2023

The sampling technique used in this research is nonprobability sampling, and the model used is quota sampling, where the sampling is based on the consideration of the researcher. The things that need to be considered in this study are as follows:

- a) Active students of ZXY Polytechnic.
- b) Have used the DANA e-wallet application for at least the last 3 months.

The Lemeshow formula was used to calculate the number of samples in this investigation. The formula is as follows:

$$\begin{aligned}
 n &= \frac{z^2 p(1-p)}{d^2} \\
 n &= \frac{1.96^2 \times 0.5(1-0.5)}{0.1^2} \\
 &= \frac{3.4816 \times 0.5(0.5)}{0.01} = \frac{0.9604}{0.01} = 96.04
 \end{aligned}$$

A total of 96 samples were chosen using the Lameshow formula. The data was analyzed using SPSS software, version 29.0. The research employed various statistical techniques, including tests for validity and reliability, as well as checks for normality, multicollinearity, and heteroscedasticity. Additionally, multiple linear regression analysis, t-tests, F-tests, and R-squared analysis were performed to examine the relationships between variables.

## RESULTS AND DISCUSSION

This study was carried out by administering an online questionnaire through Google Drive to a specific group of respondents. The target population for this research consisted of students from ZXY Polytechnic who actively use the DANA e-wallet, with a total sample size of 96 individuals.

**Table 2.** Characteristics Based on Gender

Description	Frequency	Percentage
Female	65	67,7%
Male	31	32,3%
Total	96	100%

Source: Data Entry, 2023

The results of data processing have found that 65 respondents were female and 31 were male. So, it can be concluded that most DANA e-wallet users are female. The majority of women use the DANA e-wallet to make it easier for them to make transactions when shopping online or offline.

**Table 3.** Characteristics Based on Age

Description	Frequency	Percentage
<18 Tahun	4	4,2%
18-21 Tahun	41	42,7%
>21 Tahun	51	53,1%
Total	96	100%

Source: Data Entry, 2023

The results of data processing based on the age of the respondents are divided into 3, which are age <18 years, as many as 4 people age 18-21 years, as many as 41 people; and age >21 years, as many as 51 people. This happens because the majority of respondents are ZXY Polytechnic students from the 6<sup>th</sup> to the 8<sup>th</sup> semester.

**Validity Test**

The significance test compares the correlation coefficient value ( $R_{count}$ ) with the value ( $R_{table}$ ) with a significant level of 1% ( $\mu = 0.01$ ). The R table in this study is 0.262. After testing, all statement items in each variable > 0.262 R table. So, overall, this validity test can identify all variables in this study.

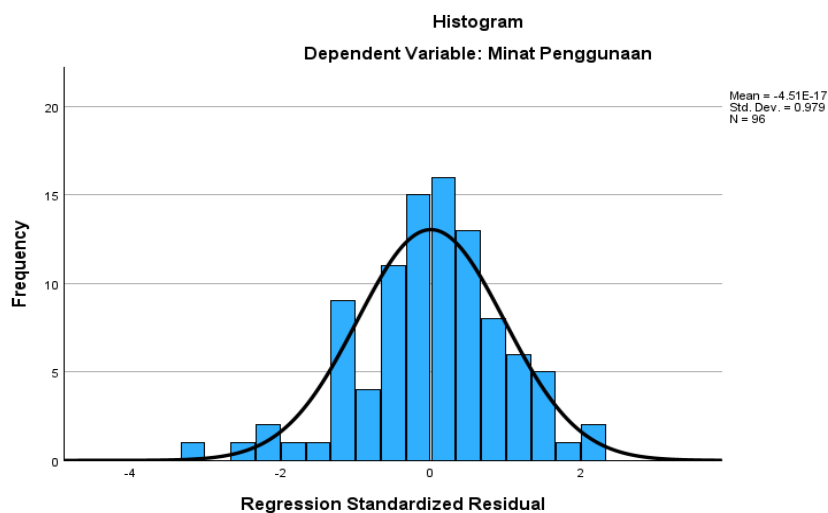
**Reliability Test**

When assessing the reliability of the research, it's commonly accepted that a Cronbach's Alpha value of 0.60 or higher indicates good reliability. The results of the reliability test showed that all dimensions, including perceived ease of use, security, perceived usefulness, and trust, had Cronbach's Alpha values meeting or exceeding this threshold. Therefore, the findings of this study can be considered reliable and trustworthy.

**Classical Assumption Test**

**Normality Test**

The data processing results, categorized by respondent age, reveal three distinct groups. The first group consists of 4 individuals under the age of 18, the second group comprises 41 individuals between 18 and 21 years old, and the third group includes 51 individuals above 21 years old. This distribution is likely due to the fact that the majority of respondents are students from ZXY Polytechnic, specifically from the 6<sup>th</sup> to 8<sup>th</sup> semesters, which would typically correspond to an age range of 18-21 years and above.



**Figure 2.** Histogram Data Normality Test  
Source: Data Entry, 2023

The chart appears to show a line that resembles an inverted bell curve, which is a characteristic shape of a normal distribution. This suggests that the data can be assumed to be normally distributed.

The P-plot analysis reveals that the data points closely align with and converge towards the diagonal line, suggesting that the regression model satisfies the normality assumption. This observation implies that the residuals are normally distributed, which is a crucial assumption in regression analysis.



**Figure 3.** Results of the P-Plot Normality Test  
Source: Data Entry, 2023

**Table 4.** Normality Test Kolmogorov-Smirnov

<b>One-Sample Kolmogorov-Smirnov Test</b>	
	<b>Unstandardized Residual</b>
N	96
Telst Statistic	0.068
Asymp. Sig. (2-tailed) <sup>c</sup>	.200 <sup>d</sup>

Source: Data Entry, 2023

The results show a significance value of 0.200, which is greater than the critical value of 0.05. This suggests that we cannot reject the null hypothesis, and therefore, we can conclude that the residual values are normally distributed.

**Multicollinearity Test**

The multicollinearity test results indicate that the independent variables are not excessively correlated, as evidenced by tolerance values exceeding 0.1 and VIF values below 10. This suggests that the variables are sufficiently distinct and do not exhibit high inter-correlation, thereby alleviating concerns about multicollinearity in this analysis.

**Table 5.** Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
Perceived Ease of Use	.836	1.197
Security	.972	1.029
Perceived Usefulness	.716	1.396
Trust	.700	1.429

a. Dependent Variable: Interest in Use

Source: Data Entry, 2023

According to the multicollinearity test findings, all independent variables have a correlation value of more than 0.1 and a VIF value greater than 10. As a result, it is possible to infer that multicollinearity does not appear in the data.

**Heteroscedasticity Test**

There is a standard for testing the presence of heteroscedasticity: if the correlation between the independent variables with the residual is > 0.05, then there is no heteroscedasticity (Arsih et al., 2018).

**Table 6.** Heteroscedasticity Test

Variable	Sig.	Criteria
Perceived Ease of Use (X1)	0,400	0,05
Security (X2)	0,560	0,05
Perceived Usefulness (X3)	0,848	0,05
Trust (X4)	0,231	0,05

Source: Data Entry, 2023

Based on the table above, it is possible to deduce that if the significant value of any X variable is more than 0.05, there is no heteroscedasticity.

**Analysis of Multiple Linear Regression**

Multiple linear regression analysis is used to determine whether the connection between independent and dependent variables is negative or positive.

**Table 7.** Analysis of Multiple Linear Regression

Model	Unstandardized Coefficients	
	B	Std. Error
(Constant)	1.795	1.551
Perceived Ease of Use	0.007	0.062
Security	0.02	0.051
Perceived Usefulness	0.159	0.058
Trust	0.302	0.064

a. Dependent Variable: Interest to Use

Source: Data Entry, 2023

The model equation is:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$$



$$Y = 1,795 + 0,007X_1 + 0,020X_2 + 0,159X_3 + 0,302X_4$$

Based on the regression equation above, it can be explained that:

- $\alpha$  = Constant = 1.795. The Perceived Ease of Use (X1) Security (X2), Perceived Usefulness (X3), and Trust (X4) variables are valued at 0, then the value of Interest in Use (Y) is 1.795.
- $\beta_1$  = Regression coefficient X1 = 0, 007. The Perceived Ease of Use (X1) increases by one unit, then Interest in Use (Y) will increase with the assumption that the value of the other variable variables is constant.
- $\beta_2$  = Regression coefficient X2 = 0.020. This means that if Security (X2) increases by one unit, then Interest in Use (Y) will increase assuming the value of the other variable variables is constant.
- $\beta_3$  = Regression coefficient X3 = 0.159. That is, if Perceived Usefulness (X3) increases by one unit, then Interest in Use (Y) will increase assuming the value of the other variable variables is constant.
- $\beta_4$  = Regression coefficient X4 = 0.302. This means that if Trust (X4) increases by one unit, then Interest in Use (Y) will decrease with the assumption that the value of the other independent variable remains constant.

**t Test**

The significant level in this study is 0.05.

**Table 8.** t Test

<b>Model</b>	<b>t<sub>table</sub></b>	<b>t<sub>count</sub></b>	<b>Sig.</b>
Perceived Ease of Use	1,986	0.119	0.906
Security	1,986	0.391	0.697
Perceived Usefulness	1,986	2.723	0.008
Trust	1,986	4.683	<,001

a. Dependent Variable: Interest to Use

Source: Data Entry, 2023

Based on the results of the t-test, it can be concluded that:

- 1) The results showed that the significance value for the impact of X1 on was approximately 0.906, which is greater than the critical value of 0.05. Additionally, the t-count value was 0.119, which is less than the t-table value of 1.986. It can be concluded that the H1 is rejected, indicating that there is no significant influence of ease of use on the intention to use DANA e-wallet. This finding suggests that customers may find difficulties when using the DANA e-wallet, leading to a loss of interest in its use. This contradicts previous research (Nustini & Zhafiri, 2020) which found that ease of use has a positive and significant effect on the adoption of digital payment systems. The ease of use variable in this study encompasses various indicators, including ease of learning, coordination, understanding, adaptability, use with experts, and general ease of use. Theoretically, the higher the ease of use, the greater the interest in utilizing the e-wallet.
- 2) The significance value for the impact of X2 on Y is approximately 0.697, which is greater than 0.05. The calculated t value of 0.391 is less than the t table value of 1.986. Consequently, it can be inferred that H2 is rejected, indicating that there is no influence of X2 on Y. This situation may arise when customers have

experienced data breaches or financial losses in the DANA e-wallet, resulting in diminished interest in the service. Consistent with the findings of Ariningsih et al., (2022), the security factor does not have a positive effect on the inclination to use an e-wallet. This is due to survey participants feeling uneasy about security and being concerned about the safety of their funds. The security factor in this study encompasses aspects such as confidentiality, privacy, authentication, virus mitigation, and verification of authenticity. When security is enhanced, the interest in utilizing the e-wallet will also increase.

- 3) The effect of X3 on Y is significant with a sig. value of 0.008 <0.05, and a t value of 2.723 > t table 1.986, indicating the acceptance of H3 and confirming the influence of X3 on Y. The use of e-wallets enhances productivity by facilitating efficient task completion. E-wallets offer various transaction options, including service payments, account transfers, bill payments, and more, which are all beneficial. This study found that the perceived usefulness of e-wallets is linked to faster work, improved job performance, increased productivity, effectiveness, ease of work, and overall usefulness.
- 4) The significance value for the impact of X4 on Y is below 0.001, indicating a statistically significant effect. With a t value of 4.683 exceeding the critical t value of 1.986, it can be inferred that H4 is accepted, indicating the presence of an effect of X4 on Y. Individuals may question the reliability and trustworthiness of the technology they use for payment transactions. Their sense of security hinges on the dependability and integrity of the technology and personnel involved, minimizing potential risks. The findings of this study are supported by research conducted by Violinda & Khorunnisya (2022), which demonstrates that trust significantly and positively influences student behavior in utilizing e-wallets. This study examines trust indicators such as user privacy protection, absence of fraudulent transactions, secure information transmission, and minimal risk.

**F Test**

The F-test was performed to examine the simultaneous relationship between the independent variables and the dependent variable. This test involves checking the significance level, where a value of 0.05 or less indicates statistical significance. In other words, if the p-value is less than 0.05, it suggests that there is a significant relationship between the independent variables and the dependent variable.

**Table 9.** F Test

Model	Mean Square	F	Sig.
Regression	14.093	15.445	<,001 <sup>b</sup>
Residual	.912		

Source: Data Entry, 2023

The F-test output indicates that the simultaneous influence of perceived ease of use, security, perceived usefulness, and trust on interest in using the DANA e-wallet is statistically significant, with a p-value of approximately 0.001, which is below the significance threshold of 0.05. Furthermore, the calculated F-value of 15.445 exceeds the F-table value of 2.47. These results collectively suggest that all four factors - perceived ease of use, security, perceived usefulness, and trust - have a significant and joint impact on interest in using the DANA e-wallet

**Analysis of the Coefficient of Determination (R<sup>2</sup>)**

The value determined in this analysis is between 0 and 1,  $0 < R^2 < 1$ .

**Table 10.** Analysis of the Coefficient of Determination (R<sup>2</sup>)

Model	R	R Square	Adjusted R Square
1	.636 <sup>a</sup>	0.404	0.378

Source: Data Entry, 2023

The output reveals that the R Square value is 0.404, indicating that approximately 40.4% of the variation in the dependent variable, interest in use (Y), can be explained by the independent variables. However, after adjusting for the number of predictors, the Adjusted R Square value is 0.378, suggesting that the simultaneous effect of perceived ease of use, security, perceived usefulness, and trust on interest in use is approximately 37.8%. This implies that about 37.8% of the variation in interest in use can be attributed to the combined influence of these four variables.

**Discussion**

The study demonstrates a connection between the perceived usefulness and trust and the inclination to use the E-Wallet DANA. This differs from the findings of a previous study by Ariningsih et al., (2022) which suggested that perceived usefulness, perceived ease of use, trust, and security variables collectively impact the inclination to use. This research indicates that there are factors influencing research results such as sampling time, subjects, or specific entities like DANA, an e-wallet.

The researchers acknowledge limitations in this study, including time constraints and field-related challenges. The short duration made it challenging to gather respondents, resulting in a limited sample size. Future research is anticipated to broaden the research scope to acquire a larger sample and to explore promotional and risk factors that could influence interest in using the DANA e-wallet.

**CONCLUSION**

The study's findings suggest that there is no significant correlation between ZXY Polytechnic students' perception their interest in using it DANA e-wallet and, nor between their perception of the security and their interest in using the DANA e-wallet. This confirms the first and second hypotheses of the study.

On the other hand, the study reveals a strong and significant positive correlation between students' perception of the usefulness of the DANA e-wallet and their interest in using it, as well as a positive and significant relationship between their trust and interest in using the DANA e-wallet. This supports the third and fourth hypotheses of the study.

Furthermore, the study finds a positive and significant correlation between students' perceptions of ease of use, security, usefulness, and trust and their interest in using the DANA e-wallet. This confirms the fifth hypothesis of the study. The study's results provide insights into the relationships between various factors and ZXY Polytechnic students' interest in using the DANA e-wallet, with some factors showing significant correlations and others not.

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