# The Influence of Web Design, Ease of Use, and Security on BNI Mobile Banking Customer Satisfaction

Jestin Erlangga[1]*, Audita Nuvriasari[2]
Universitas Mercu Buana Yogyakarta
**Corresponding Author:** Jestin Erlangga jestinerlangga3@gmail.com

ARTICLEINFO

ABSTRACT

This study aims to analyze the effect of web design, ease of use, and security on BNI mobile banking user satisfaction. The population in this study are BNI bank customers who actively use BNI mobile banking services and BNI customers who live in the Yogyakarta area, using purposive sampling. This study uses 100 samples. The data collection technique used was a survey method with the research instrument used being a questionnaire with a Likert scale. The results of this research analysis show that: (1) web design has a positive and significant effect on customer satisfaction, (2) ease of use has a positive and significant effect on customer satisfaction, and (3) security has a positive and significant effect on customer satisfaction.

## INTRODUCTION

The development of the internet today has a very big influence on every aspect of life, especially in business activities, even the rapid internet makes buying and selling transactions can be done online. The increase in the percentage of internet penetration in Indonesia has increased tremendously from 2018 with 64.80% of the total population of 264.16 million people in 2018 has increased by 12.22% until 2022.

The development of the internet is very influential on electronic transactions where people themselves prefer to transact using electronic money compared to cash, this can be proven that in the Special Region of Yogyakarta, electronic money transactions in the second quarter of 2022 have increased very rapidly due to the number of QRIS users is increasingly massive, this increase is also driven by the many MSMEs in Yogyakarta that collaborate with payment system services (PJPS) so that they have a wide range of products and services that accept payments via electronic money. If seen from this, people in the Special Region of Yogyakarta tend to use electronic payment methods, whether using QRIS via mobile banking or digital wallets.

One of the electronic payment methods belonging to mobile banking is offered by PT Bank BNI. The development of BNI Mobile Banking from data in August 2022 the number of mobile banking users has reached 12.5 million, experiencing an increase of 30% from year to year.

When viewed from the development of the increase in BNI mobile banking users as well as the increasing development of electronic transactions, it indicates that the public has a greater interest in non-cash transactions. For this reason, mobile banking service providers are very important to pay attention to user satisfaction.

The factors that affect customer satisfaction, such as ease of use, product attributes, consumer characteristics, situational factors, usability, convenience, trust, and previous online shopping experience(Li et al., 2021). According toRohmatin (2019), Saidani & Shandy (2019)states that the factors that influence consumer satisfaction are service quality, security, trust, and user attitudes. Electronic service quality must show a company's ability to meet the needs of its customers in using internet facilities, one of which is through a website.

## THEORETICAL REVIEW

Satisfaction is a person's feeling of pleasure or disappointment that arises after comparing the product results that are thought of with the expected performance, if the performance is below expectations, then the customer is dissatisfied, if the performance meets expectations, the customer is satisfied. Satisfaction is a customer response regarding the evaluation of perceived discrepancies between previous expectations and the actual performance of the product after consumption(Herry, 2017).

Web design is an attempt to construct a system that provides informal satisfaction with the specifications of functional requirements, meets targets, and meets implicit or explicit requirements in terms of performance and resource use.(Rosa & Salahuddin, 2016). The study of web design on user satisfaction is supported by the results of previous research. Research conducted by Karim

(2011), Rahmi (2021),Wake Up & Aisyah (2022), Hendraningt & Soediono (2015), as well as research from Agustin & Koeshartono (2014), proves that web design has a significant effect on user satisfaction.

H1: Web design has a positive and significant effect on BNI Mobile Banking user satisfaction in Yogyakarta.

Ease of use is defined as the degree to which a person believes that the use of information technology is easy and does not require much effort in its use(Davis 2016). In the study of ease of use on user satisfaction, it is supported by previous research. Research conducted bySari & Oswari (2020), Meileny & Wijaksana (2020), Lolika (2021), Fernandes & Legowo (2020), as well asLantang et al (2021)proves that ease of use has a significant effect on user satisfaction.

H2: Ease of Use has a positive and significant effect on BNI Mobile Banking user satisfaction in Yogyakarta.

Security accordingSari et al (2017)is a mechanism used to protect information from clients and maintain the confidentiality of the data so that it is not used for things that are not true. The study of security on user satisfaction is supported by previous research. Research conducted bySuryani & Koranti (2022), Sari & Oswari (2020), Lolika (2021), Li et al (2021), AndDjaja et al (2022)proves that security has a significant effect on user satisfaction.

H3: Security has a positive and significant effect on BNI Mobile Banking user satisfaction in Yogyakarta.

In this study, there are two variables, namely the independent and dependent variables. For the independent variables of this study, there are Web Design (X1), Ease of Use (X2), and Security (X3). The dependent variable in this study is User Satisfaction (Y). So the conceptual framework in this study can be described as follows:
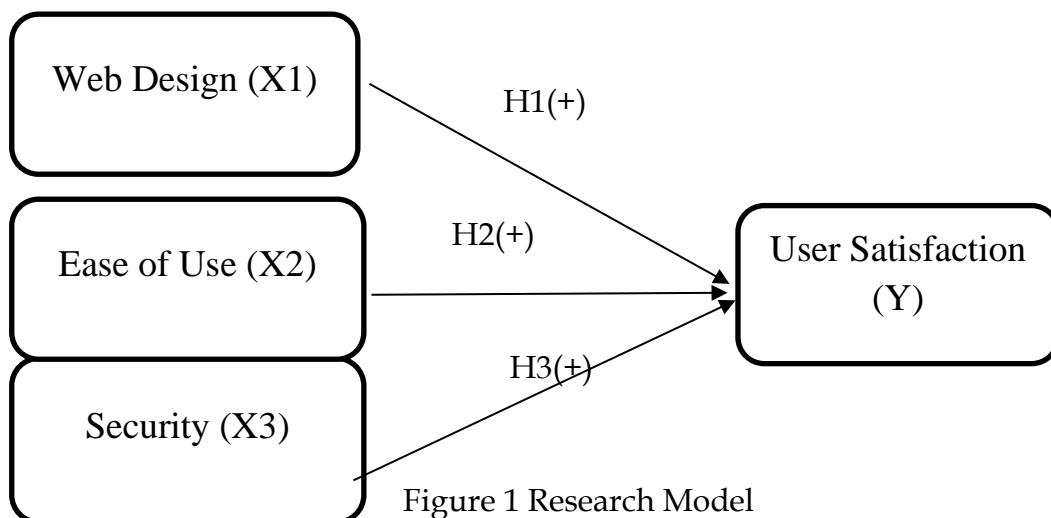


Figure 1 Research Model

**METHODOLOGY**

Based on the research objectives, the type of research used is quantitative research with a causal approach. The research was conducted in the Yogyakarta area. This study uses primary data by distributing questionnaires using Google Forms. The sampling technique used purposive sampling with a total of 100 customers as respondents. Measurement of question items using a Likert scale with an assessment of 1-5 with 1 "strongly disagree" and 5 "strongly agree".

**RESULTS**

Before testing the hypotheses that have been formulated, validity and reliability tests are first carried out. Validity testing product-moment correlation with results has a calculated r value > r table value and a significance value (p) <0.05, it can be concluded that all questionnaire items are declared valid.

**Table 1** Validity Test

| Statement | r count | r table | Sig (p) | Criteria |
|---|---|---|---|---|
| Web Design | | | | |
| X1.1 | 0.795 | 0.196 | 0.000 | Valid |
| X1.2 | 0.782 | 0.196 | 0.000 | Valid |
| X1.3 | 0.849 | 0.196 | 0.000 | Valid |
| X1.4 | 0.767 | 0.196 | 0.000 | Valid |
| X1.5 | 0.856 | 0.196 | 0.000 | Valid |
| X1.6 | 0.758 | 0.196 | 0.000 | Valid |
| Ease of Use | | | | |
| X2.1 | 0.793 | 0.196 | 0.000 | Valid |
| X2.2 | 0.827 | 0.196 | 0.000 | Valid |
| X2.3 | 0.767 | 0.196 | 0.000 | Valid |
| X2.4 | 0.826 | 0.196 | 0.000 | Valid |
| X2.5 | 0.804 | 0.196 | 0.000 | Valid |
| Security | | | | |
| X3.1 | 0.845 | 0.196 | 0.000 | Valid |
| X3.2 | 0.860 | 0.196 | 0.000 | Valid |
| X3.3 | 0.897 | 0.196 | 0.000 | Valid |
| X3.4 | 0.860 | 0.196 | 0.000 | Valid |
| Customer satisfaction | | | | |
| Y. 1 | 0.786 | 0.196 | 0.000 | Valid |
| Y.2 | 0.807 | 0.196 | 0.000 | Valid |
| Y.3 | 0.814 | 0.196 | 0.000 | Valid |
| Y.4 | 0.794 | 0.196 | 0.000 | Valid |
| Y.5 | 0.811 | 0.196 | 0.000 | Valid |
| Y.6 | 0.898 | 0.196 | 0.000 | Valid |
| Y.7 | 0.744 | 0.196 | 0.000 | Valid |
| Y. 8 | 0.828 | 0.196 | 0.000 | Valid |

Shows that all questionnaire items on Web Design (X1), Ease of Use (X2), Security (X3), and Customer Satisfaction (Y) have a value of r count > r table value and a significance value (p) < 0.05 so it can be it was concluded that all questionnaire items were declared valid.

The reliability test is intended to measure the consistency of the measurement results from the questionnaire in repeated use, the respondent's answers to the questions are said to be reliable if each question is answered consistently or the answers cannot be random(Ghozali, 2018).Table 2

**Table 2** Reliability Test

| Variable | Cronbach's Alpha | Critical Value | Criteria |
|----------|------------------|----------------|----------|
| Web Design | 0.889 | 0.60 | Reliable |
| Ease of Use | 0.862 | 0.60 | Reliable |
| Security | 0.888 | 0.60 | Reliable |
| Customer satisfaction | 0.932 | 0.60 | Reliable |

Shows that the Cronbach Alpha coefficient on Web Design (X1), Ease of Use (X2), Security (X3), and Customer Satisfaction (Y) variables shows a value greater than the critical value of 0.60, so from these results, it can be concluded that all statement instruments in this study it is said to be reliable and consistent to be trusted in research measurements.

The classical assumption test in this study was carried out to show that the tests carried out had passed data normality, multicollinearity, and heteroscedasticity so that the tests could be carried out for linear regression analysis.

The normality test is shown to test whether the residual variables in this study are normally distributed. In this research, the normality test uses the Kolmogorov-Smirnov (KS) approach

**Table 3** Normality Test
One-Sample Kolmogorov-Smirnov Test

| | | Unstandardized Residuals |
|---|---|---|
| N | | 100 |
| Normal Parameters, b | Means | .0000000 |
| | std. Deviation | 2.61314499 |
| Most Extreme | Absolute | .098 |
| Differences | Positive | .098 |
| | Negative | -.088 |
| Test Statistics | | .098 |
| asymp. Sig. (2-tailed) | | .019c |
| Exact Sig. (2-tailed) | | .272 |
| Point Probability | | .000 |

The results of the normality test for *One-Sample Kolmogorov-Smirnov* by using the Exact method it can be seen that the value of Exact Sig. (2-tailed) of 0.272 which value is greater than 0.05, from these results, it can be concluded that the residual data is normally distributed

The multicollinearity test aims to test whether the regression model found a correlation between the independent (independent) variables.

**Table 4** Multicollinearity Test Results

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | .396 | 1,729 | | .229 | .819 | | |
| | Web Design | .470 | .118 | .332 | 3,978 | .000 | .320 | 3.123 |
| | Ease of Use | .599 | .141 | .361 | 4,255 | .000 | .310 | 3,230 |
| | Security | .514 | .137 | .275 | 3,753 | .000 | .415 | 2,410 |

From these results it is stated that all independent variables have a tolerance value of more than 0.10 or have a VIF value of less than 10, therefore it can be concluded that the variables do not have multicollinearity, meaning that the data in this study did not occur multicollinearity.

A heteroscedasticity test is used to answer whether there is dissimilarity between the residual variance of one observation and other observations in a regression model. In this study, the method used to detect symptoms of heteroscedasticity was the Park test

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**Table 5** Heteroscedasticity Test Results

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | std. Error | Betas | | |
| 1 | (Constant) | 1,485 | 1,479 | | 1,004 | .318 |
| | Web Design | -.070 | .101 | -.123 | -.694 | .489 |
| | Ease of Use | .165 | .120 | .246 | 1,371 | .174 |
| | Security | -.184 | .117 | -.244 | -1,572 | .119 |

Based on Thick 5, the web design variable has a significant value of 0.489, the ease of use variable is 0.174, and the security variable is 0.119 where all independent variables are > 0.05, so it can be concluded that in this study there were no symptoms of heteroscedasticity.

After carrying out the classic assumption test, the next test is the analysis of the coefficient of determination ($R^2$). The purpose of carrying out the analysis of the coefficient of determination ($R^2$) is to determine the percentage of influence of independent variables such as web design (X1), user convenience (X2), and security (X3). to the dependent variable, namely customer satisfaction (Y).

**Table 6** Test Results for the Coefficient of Determination ($R^2$)

| Model | R | R Square | Adjusted R Square | std. The error in the Estimate |
|---|---|---|---|---|
| 1 | .886a | .786 | .779 | 2.65366 |
| | | | | |

Shows the results of the analysis of the coefficient of determination ($R^2$) of 0.786, which means that web design, ease of use, and security variables contribute to customer satisfaction by 78.6% while the remaining 21.4% is influenced by other variables not examined in this study such as customer service, E-Service Quality(Rita et al., 2019).

Furthermore, a hypothesis test was carried out using the t-test to be used as a test of how far the influence of the independent variables was used in the study individually in partially explaining the dependent variable.

**Table 7** t-Test

| Model | Unstandardized Coefficients B | std. Error | Standardized Coefficients Betas | t | Sig. |
|---|---|---|---|---|---|
| 1 (Constant) | .396 | 1,729 | | .229 | .819 |
| Web Design | .470 | .118 | .332 | 3,978 | .000 |
| Ease of Use | .599 | .141 | .361 | 4,255 | .000 |
| Security | .514 | .137 | .275 | 3,753 | .000 |

Based on the t-test results in Table 7 a decision can be made as follows:

Hypothesis testing 1

Based on the test results that the value of t count is 3.978 > t table is 1.98472, the significance value is 0.000 <0.05. These results indicate that Ha1 is accepted and Ho1 is rejected, meaning that web design has a significant positive effect on BNI mobile banking customer satisfaction.

Hypothesis testing 2

Based on the test results that the value of t count is 4.255 > t table is 1.98472, the significance value is 0.000 <0.05. These results indicate that Ha2 is accepted and Ho2 is rejected, meaning that ease of use has a significant positive effect on customer satisfaction at BNI mobile banking.

Hypothesis testing 3

Based on the test results that the value of t count is 3.753 > t table is 1.98472, the significance value is 0.000 <0.05. These results indicate that Ha3 is accepted and Ho3 is rejected, meaning that security has a significant positive effect on customer satisfaction at BNI mobile banking.

## DISCUSSION

The results of hypothesis 1 testing proved that web design had a significant positive effect on BNI mobile banking user satisfaction in Yogyakarta. This statement proves that web design can influence customer satisfaction. The better the web design that is displayed on BNI mobile banking, it will encourage increased customer satisfaction. Conversely, if the appearance of the web design is not attractive, it will reduce the level of BNI mobile banking customer satisfaction. The results of this study support the results of previous research conducted by Karim (2011). This shows the same results as researchRahmi (2021).

Hypothesis 2 test proved that ease of use has a significant positive effect on BNI mobile banking user satisfaction in Yogyakarta. This statement proves that ease of use can affect customer satisfaction. That the higher the level of convenience in using BNI mobile banking, the higher customer satisfaction will be. The results of this study support the results of previous research conducted bySari & Oswari (2020), Meileny & Wijaksana (2020)

The results of hypothesis testing 3 prove that security has a significant positive effect on BNI mobile banking user satisfaction in Yogyakarta. This statement proves that security can affect customer satisfaction. The better the level of security contained in the BNI mobile banking application, it will encourage increased customer satisfaction. The results of this study support the results of previous research conducted bySuryani & Koranti (2022), and Sari & Oswari (2020).

## CONCLUSIONS AND RECOMMENDATIONS

The findings in this study indicate that web design, ease of use, and security variables have a positive and significant impact on customer satisfaction. This study proves that the more effective use of web design, the easier it is to use mobile banking and the higher the level of security in using mobile banking, it will have an impact on increasing customer satisfaction. The dominant factor

influencing the level of customer satisfaction in using BNI Mobile Banking is the ease of use factor.

The practical implications of this research are expected to become a reference for the BNI mobile banking department to continuously innovate in mobile banking such as developing web design and feature. In web design development, it is necessary to pay attention to usability aspects, navigation systems (structure), graphic design, content, compatibility, loading time, functionality, ease of access, and interactivity.

## FURTHER STUDY

The research sample is limited to BNI mobile banking users who are domiciled in the Special Region of Yogyakarta, so the results of this study cannot be generalized to a national mobile banking user customer behavior. Thus it is suggested for future researchers broaden the sample by geography.

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