LIGHTHOUSE

The effect of usability on satisfaction and its impact on loyalty of BRI mobile users in Bandar Lampung

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ABSTRACT

Internet-based business applications are a manifestation of the path of information technology development that is utilized by financial institutions, especially banking institutions through mobile banking applications. One of the banks that utilize internet technology in serving its customers is PT Bank Rakyat Indonesia (Persero) Tbk. With BRImo is a mobile application that is used by customers and is quite well known by the people of Indonesia, especially in the city of Bandar Lampung, Indonesia. It is necessary to create usability in the BRImo application so that users can feel satisfied with using the BRImo application and continue to be loyal to making BRImo a mobile banking application that is used daily. This study examines the effect of usability to satisfaction and loyalty. Collecting data using a questionnaire and taking a sample of 100 respondents using a purposive sampling technique. Through descriptive statistical analysis tests, outer models, inner models, and hypothesis testing, the data were examined regressively using SmartPLS. The results show that usability has a positive impact on satisfaction and loyalty respectively and there is an indirect effect between usability and loyalty which is mediated by satisfaction. The limitations of this study are the lack of independent variables and the area which only includes the city of Bandar Lampung so further research is expected to be able to add independent variables that allow and conduct research in other areas.

Introduction

Today's internet-based business applications manifest the impact of the development of information technology used by financial institutions, especially banking financial institutions. The transformation of banking activities involves most of the processes on the internet as an ideal technology for the process and a cost-saving tool. One of the banking services that utilize the internet is mobile banking. Mobile banking is an electronic delivery system provided by a bank to support the needs of its customers, which can be accessed by downloading an application on a cell phone. One bank that utilizes internet technology in serving its customers is PT Bank Rakyat Indonesia (Persero) Tbk. or BRI. BRI launched BRImo as a mobile application used by BRI customers in digital services such as fingerprints, facial recognition, mutation checks, and other banking features based on internet data in making transactions using the user interface and user experience.

The mobile banking service offers seven days, twenty-four hours services. Mobile banking is expected to provide service convenience without time constraints (Sharma & Sharma, 2019). Mobile banking technology is perceived as a solution in financial transactions, although some users still face problems accessing services, leading to complaints. Complaints about services can hinder trust and satisfaction and affect customer loyalty to mobile banking (Malaquias & Hwang, 2016). Therefore, application usability is built with customer satisfaction in mind. Usability is an indispensable feature of quality applications and customer satisfaction because it benefits user perceptions of mobile banking products and services (Hussain et al., 2014).

PT Bank Rakyat Indonesia (Persero) Tbk is a banking institution that is well known to the people of Indonesia, especially in Bandar Lampung, Lampung, Indonesia, so it is necessary to create usability in various products, one of which is BRImo which is a mobile banking product from BRI so that users can feel satisfied in using the BRImo application and remain loyal to making BRImo a mobile banking application that is used daily. Based on Casaló, et al. (2008)'s data and findings implied the need for re-testing with different objects to be applied to BRImo users in Bandar Lampung.

Literature review

Usability is the extent to which a person believes that using a particular system will improve that person's work performance. Davis (1989). Usability is defined as someone who believes that using technology will be effortless. Usability is a qualitative analysis that determines how easy it is for users to use the interface of an application (Nielsen, 2012). The usability of a software program or a website developed for mobile devices is the main factor behind its performance. There may be a number of factors that affect usability. The most important of these factors are color, location, and function (Adak & Yumusak, 2014).

Consumer satisfaction is defined as the level of a person's feelings after comparing the performance or results he feels to his expectations (Kotler & Keller, 2014). Consumer satisfaction is the overall attitude shown by customers towards goods or services after they obtain and use them (Schiffman et al., 2008). Consumers initiate activities in market interactions based on their needs and want for goods and services, and these needs encourage producers, namely companies, to provide these goods and services. In line with the emergence of needs and desires, then within the customer also appear expectations regarding the goods and services that he will receive from the producer. The company's goal is to provide satisfaction to consumers through the products offered, products that have more value will also provide more satisfaction for consumers (Salegna, 2018).

Loyalty measures consumer loyalty to a product (Kotler & Keller, 2014). Loyalty is the core that becomes a central idea in marketing because it is a measure of the customer's relationship with a brand. If loyalty increases, the vulnerability of customer groups to competitor attacks can be reduced. Building customer loyalty can be done by working with old consumers is not an easy job. This step is much more difficult than trying to satisfy customers. To satisfy customers, it is enough for companies to provide functional benefits that meet expectations and are more technical in nature that can be determined by a target time for achievement, whereas to gain customer loyalty, companies must provide extra benefits that can encourage customers to have an emotional attachment to the products used Click or tap here to enter text.

Usability to user satisfaction

Usability is closely related to the satisfaction felt by users. The satisfaction that occurs as long as customers feel that the mobile banking application is practical can be realized from the ease of accessing and making transactions without difficulties or interruptions. In the research results of Casaló, et al. (2008), the usability variable is a factor that has a direct effect on customer satisfaction in Spain and is a factor that has an indirect effect on customer loyalty.
H1: Usability has a positive effect on user satisfaction.

User satisfaction to user loyalty

Customers who are satisfied with mobile banking will always use it in every financial transaction, and easy access to services with simple features will avoid problems. Each bank provides service features that are easy for customers to understand, and this level of satisfaction creates loyalty towards M-Banking, which they will then recommend to other parties. Previous research by Picón, et al. (2014), Ramadhaniati, et al. (2020), and Amin (2016) support this hypothesis.
H2: Satisfaction has a positive effect on user loyalty.

Usability to user loyalty

Satisfaction occurs when customer expectations exceed their experiences (Parasuraman et al., 1994). The user experience outweighs the benefits of not using it. As a result, customers will loyally use the service for every transaction and can use additional products, even recommending them to others (Marcu & Meghişan, 2013).
H3: Usability has a positive effect on user loyalty.
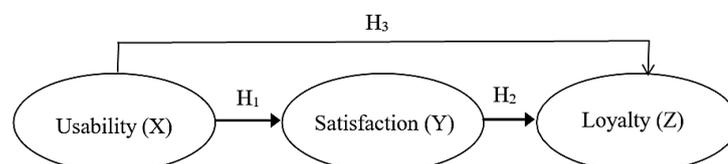
Figure 1. Conceptual Model

Methods

This study aims to provide an analysis of the direct and indirect effects of Usability (X), Satisfaction (Y), and Loyalty (Z) variables. This type of research is quantitative research with data analysis techniques using path analysis based on primary data sourced from the distribution of questionnaires relating to the variables studied directly to the respondents. The data used in this study are primary data and secondary data. Primary data is data obtained directly from research subjects or respondents contained in the questionnaire, with the respondents being customers of PT Bank Rakyat Indonesia (Persero) Tbk, which is also a user of BRImo in Bandar Lampung Lampung Indonesia as

many as 100 respondents. The questionnaire for the three variables uses a Likert scale, which is a scale used to measure perceptions, attitudes, and opinions about a phenomenon. The Likert scale has a gradation from very positive to very negative with a score of 1 as "strongly disagree" to 5 as "strongly agree".

In analyzing the data, this study used the path analysis method. According to (Ghozali, 2011), path analysis is used to determine whether the customer satisfaction variable is an intermediate or intervention variable, its function is to mediate the relationship between the independent variables and the dependent variable. The analytical method in this study uses Partial Least Square (PLS), which is an analysis of variance-based SEM (Structural Equation Model) equations that can test the measurement model and the structural model. Partial Least Squares (PLS) is a multivariate statistical technique that compares several dependent and independent variables. PLS is a variance-based SEM statistical method designed to solve multiple regression when specific problems occur in the data (Abdillah & Hartono, 2015). PLS is a powerful analytical method because it can be applied to all data scales, does not require many assumptions, and the sample size does not have to be significant. Hypothesis testing was carried out using the SmartPLS version 4.0 program to analyze the causality relationship in the proposed structural model between the independent, intervention, and dependent variables while examining the validity and reliability of the research instrument. A validity test is used to measure the validity of a questionnaire. A questionnaire is said to be valid if the questions in the questionnaire can reveal something that the questionnaire will measure. If the loading factor > 0.50 can be said to be valid. The reliability test is intended to measure the level of consistency of the research instrument, which in this study was tested through Composite reliability. If Cronbach's alpha is greater than or equal to 0.60 means, the instrument is reliable.

The model specification uses path analysis consisting of the outer and inner models. The outer model is a measurement model used to describe the relationship between the indicator block and its latent variables (Abdillah and Jogiyanto, 2015). The inner model specifies the relationship between latent variables (structural model), also known as the inner relationship, describing the relationship between latent variables based on substantive research theory. The test in the Outer model consists of convergent validity, discriminant validity, composite reliability, and Cronbach's alpha value. In addition to the outer and inner models, mediation tests were conducted to examine mediating variables' effect on endogenous variables (Solimun, 2012).

Research Instrument Test

Convergent Validity can be seen from the correlation between indicator and variable scores. The indicator is considered valid if it has an AVE value above 0.5 or shows that all outer loading dimensions of the variable have a loading value > 0.5 so that it can be concluded that the measurement meets the criteria for convergent validity (Abdillah and Hartono, 2015).

Discriminant Validity is sufficient if the cross-loading value between constructs is greater than the cross-loading value between constructs and other constructs in the model (Abdillah and Hartono, 2015). The discriminant validity test in this study uses the discriminant validity value and the square root of the mean (AVE), which is intended to test whether the research instrument is valid in explaining latent variables.

Composite Reliability and Cronbach's Alpha values were used to test the reliability (Abdillah and Hartono, 2015). Composite Reliability measures the reliability value of a construct, while Cronbach's Alpha is used to measure the lower limit of the reliability value of a construct. A construct or variable is reliable if it gives a Cronbach's Alpha value > 0.7 and Composite Reliability > 0.7.

The mediation test aims to detect the position of the intervening variable. To test the significance of the indirect effect, it is necessary to test the t value of the ab coefficient. The t-count value is compared with the t-table value; if the t-count value > the t-table value, it can be concluded that there is a mediating effect, and then the nature of the relationship between variables is seen, either as a perfect mediating variable or partial mediation or not as a mediating variable.

Results

Characteristics of Respondents

Descriptive statistical analysis was used to determine the characteristics of the respondents:

Table 1. Respondence Characteristics

Num.	Information	Amount	Percentage (%)
1.	Gender:		
	a. Man	46	46.00
	b. Woman	54	54.00
2.	Age:		
	a. 17-26 years	10	10.00
	b. 27-36 years	46	46.00
	c. 37-46 years	38	38.00
	d. >46 years	6	6.00

3.	Income:		
	a. Rp 0 - Rp 5.000.000	16	16.00
	b. Rp 5.000.001 - Rp 10.000.000	62	62.00
	c. Rp 10.000.001 - Rp 25.000.000	19	19.00
	d. >Rp25.000.001	3	3.00
4.	Occupation:		
	a. Student/Student	18	18.00
	b. Government officials	23	23.00
	c. Private sector employee	25	25.00
	d. Businessman	28	28.00
	e. Other	6	6.00

From the table above, the dominant characteristics of respondents are women who work as entrepreneurs aged between 27-36 years with an income of Rp 5,000,001 – Rp 10,000,000.

Partial Least Squares (PLS) analysis

Analysis with PLS is used to determine the relationship between latent variables and latent variables with construct indicators.
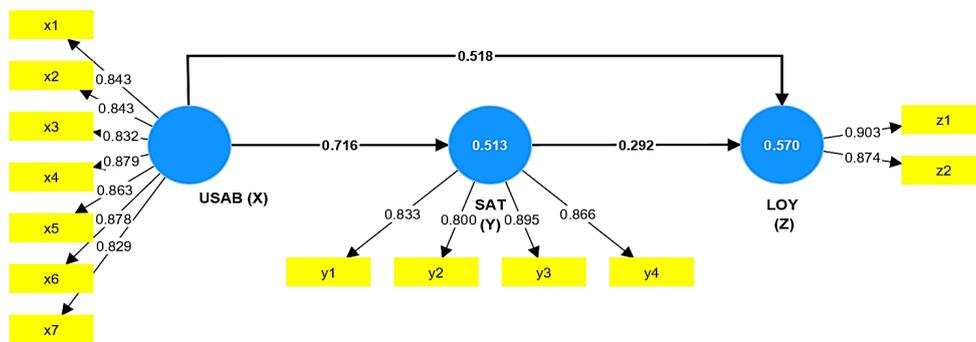
Figure 2. Graphic Output of PLS-SEM

Outer model

Convergent Validity is a measurement model with reflexive indicators that can be seen from the correlation between item/indicator scores and construct scores. An indicator is reliable if it has a correlation value above 0.70, but it is acceptable if the loading scale is between 0.50-0.60 (Ghozali, 2008). The highest loading factor value per indicator indicates that the indicator is the most potent measuring variable.

Table 2. Convergent Validity Results

Variable	Indicator	Outer Loading	Label
	X1	0.843	Valid
	X2	0.843	Valid
	X3	0.832	Valid
Usability (X)	X4	0.879	Valid
	X5	0.863	Valid
	X6	0.878	Valid
	X7	0.829	Valid
Satisfaction (Y)	Y1	0.833	Valid
	Y2	0.800	Valid
	Y3	0.895	Valid
	Y4	0.866	Valid
Loyalty (Z)	Z1	0.903	Valid
	Z2	0.874	Valid

Based on the data presented above, it is known that all research variable indicators have an outer loading value > 0.7, and no variable indicator has an outer loading value < 0.7, so all variable indicators are declared feasible or valid.

Discriminant validity is done by looking at the cross-loading value of construct measurement. The measurement model has good discriminant validity if the correlation between the construct and its indicators is higher than the correlation of indicators from other construct blocks.

Table 3. Cross Loading Value

Indicator	Usability	Satisfaction	Loyalty
X1	**0.843**	0.568	0.594
X2	**0.843**	0.588	0.658
X3	**0.832**	0.623	0.581
X4	**0.879**	0.623	0.649
X5	**0.863**	0.653	0.592
X6	**0.878**	0.622	0.669
X7	**0.829**	0.597	0.591
Y1	0.499	**0.833**	0.498
Y2	0.502	**0.800**	0.529
Y3	0.676	**0.895**	0.576
Y4	0.713	**0.866**	0.631
Z1	0.658	0.672	**0.903**
Z2	0.634	0.497	**0.874**

The cross-loading results in the table above show that the cross-loading value of each latent variable has the most considerable loading value compared to other loading values of other latent variables. Thus, all latent variables on the research instrument can be said to be discriminantly valid. Discriminant validity can also be seen from the AVE (Average Variance Extracted) with the criteria of a good AVE value if the AVE square root for each construct is greater than the correlation between the two constructs in the model.

Table 4. AVE Value and AVE Square Root

Variable	AVE	AVE Square Root
Usability (X)	0.727	0.853
Satisfaction (Y)	0.721	0.849
Loyalty (Z)	0.790	0.889

Based on the table above, it is known that the AVE value of each usability. satisfaction and loyalty variable has a value of more than 0.5. Thus it can be stated that each variable has good discriminant validity.

Composite Reliability is an index that shows the extent to which a measuring instrument can be trusted to be relied on. Data with composite reliability of more than 0.7 and Cronbach's alpha value of more than 0.6 is declared reliable and highly reliable.

Table 5. Composite Reliability and Alpha Cronbach Value

Variable	Composite Reliability	Alpha Cronbach	Conclusion
Usability (X)	0.949	0.937	Reliable
Satisfaction (Y)	0.912	0.872	Reliable
Loyalty (Z)	0.883	0.735	Reliable

Based on the data above, it can be seen that the composite reliability value in this study is each variable greater than 0.7 with Cronbach's alpha greater than 0.6. These results indicate that each variable has been valid to meet composite reliability so that it can be concluded that all variables have a high level of reliability from the required minimum value limit.

Inner Model

R square, or reliability indicator, measures how much other variables influence the endogenous variable, and the t-statistic value of the path coefficient test shows how strong the influence of the independent variable is on the dependent variable.

Table 6. R Square Measurement

Variable	R Square
Satisfaction (Y)	0.513
Loyalty (Z)	0.570

Based on the table above. it can be shown that the value of R square for the satisfaction variable is 0.513 or 51%. This value indicates that the usability variable can explain the satisfaction variable by 51%, and 49% is influenced by other variables not included in the study. The value of the R square for the loyalty variable is 0.570 or 57%. This value indicates that the usability variable can explain the loyalty variable by 57%, and 43% is influenced by other variables not included in the study.

Hypothesis testing

Hypothesis testing is done by looking at the t-statistics and p-value. Hypothesis testing in this study was carried out with the help of SmartPLS 4.0 software. This value can be seen through the bootstrap results. Bootstrapping is a non-parametric procedure applied to test whether coefficients such as external weights, external loads, and path coefficients are significant by estimating the standard error for the estimates.
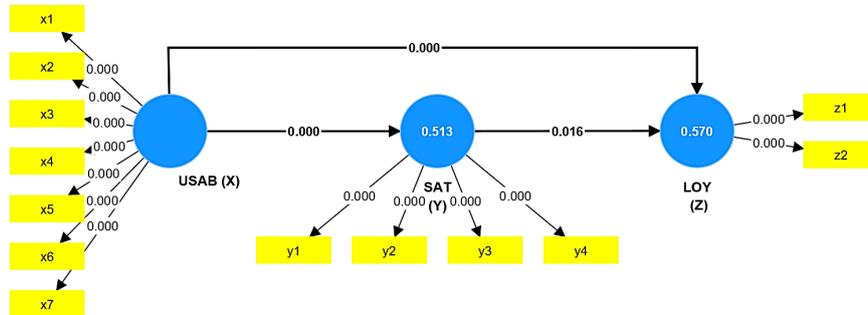
Figure 3. Bootstrapping Graphical Output

Table 7. Path Coefficient Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
USAB(X) -> SAT (Y)	0.716	0.724	0.060	12.029	0.000
USAB (X) -> LOY (Z)	0.518	0.517	0.136	3.812	0.000
SAT (Y) -> LOY (Z)	0.292	0.288	0.117	2.487	0.013

Statistical testing of each hypothesized relationship using PLS was carried out by simulation using the bootstrapping method. The following are the results of the PLS analysis using the bootstrapping method:

Table 8. Hypothesis Test Results

Hypothesis	Effect	Results	Conclusion
H_1	Usability (X) -> Satisfaction (Y)	Coefficient Value = 0.716 T-Statistic = 12.029 P value = 0.000	Hypothesis Accepted
H_2	Satisfaction (Y) -> Loyalty (Z)	Coefficient Value = 0.292 T-Statistic = 2.487 P value = 0.013	Hypothesis Accepted
H_3	Usability (X) -> Loyalty (Z)	Coefficient Value = 0.518 T-Statistic = 3.812 P value = 0.000	Hypothesis Accepted

In addition to the three hypotheses in the table above, the test also shows evidence of mediation through the Specific Indirect Effect as follows:

Table 9. Specific Indirect Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
USAB(X) -> SAT (Y) -> LOY (Z)	0.209	0.207	0.084	2.506	0.012

Based on the bootstrap test, it was found that the Specific Indirect Effect indicates that the satisfaction variable is a usability and loyalty mediating variable because the Specific Indirect Effect statistically (t value > 1.96, two-sided, p <0.05) must be taken as evidence. Mediation (Zhao et al., 2010). These results prove that usability positively affects user loyalty mediated by user satisfaction.

Discussion

The Effect of Usability on Satisfaction

The discussion on the effect of usability on satisfaction answers the problem formulation and the hypothesis that usability has a positive and significant effect on user satisfaction. Based on the first hypothesis test, it is known that H1 is accepted, which shows that usability significantly influences user satisfaction. The results of the path coefficient calculation show that the path coefficient acquisition value is 0.716 with t-statistics of 12.029 and p-values of 0.000. This is because p-values <0.05 can be said to have a significant effect. The results of this study are in accordance with previous research conducted by (Casaló et al., 2008; Parera & Susanti, 2021; Dabrowski et al., 2014) The results of this study support previous research conducted by Casaló et al. (2008), which showed usability to have a positive effect on user satisfaction. Research by Parera & Susanti (2021) also states that usability positively influences user satisfaction.

The higher the usability perceived by the user, the higher the satisfaction the user feels. Usability can be achieved by maintaining the convenience created when using the application, primarily through a layout or layout that makes it easy for users to feel satisfied that they have chosen the BRImo application as the mobile banking application used.

The Effect of Satisfaction on Loyalty

The discussion on the effect of satisfaction on loyalty is to answer the problem formulation and the hypothesis, which states that satisfaction has a positive and significant effect on user loyalty. Based on the second hypothesis test, it is known that H2 is accepted, which shows that satisfaction significantly influences loyalty. The results of the path coefficient calculation show that the path coefficient acquisition value is 0.292 with a t-statistic of 2.487 and p-values of 0.013. This is because p-values <0.05 can be said to have a significant effect.

The results of this study are in accordance with previous research conducted by (Amin, 2016; Johannes et al., 2018; Haeruddin & Haeruddin, 2020). The results of this study support previous research conducted by Amin (2016), which states that consumer satisfaction positively influences consumer loyalty to continue to use repeated applications. Research by Johannes et al. (2018) and Haeruddin & Haeruddin (2020) also shows that user satisfaction positively influences user loyalty. Satisfied users will increase trust and loyalty to the products and services provided by the company or increase user loyalty. The results of this study indicate that satisfaction is one of the essential factors to keep users from using certain products or services. When the user feels that he has made the right choice to use the BRImo application, he will continue to use the BRImo application for the following months.

The Effect of Usability on Loyalty

The discussion on the effect of usability on loyalty is to answer the problem formulation and the hypothesis, which states that usability has a significant positive effect on user loyalty. Based on the third hypothesis test, it is known that H3 is accepted, which shows that usability significantly influences user loyalty. The results of the path coefficient calculation show that the path coefficient acquisition value is 0.727 with t-statistics of 9.216 and p-values of 0.000. This is because p-values <0.05 can be said to have a significant effect. The results of this study are in accordance with previous research conducted by the results of this study support the previous research by (Parera & Susanti, 2021; Casaló et al., 2008).

When usability is felt by BRImo users, primarily through easy-to-understand layouts, users will feel loyal by continuing to use the BRImo application for months to come. In addition to the results of the three hypotheses described above, the results also show a specific indirect effect, indicating that the satisfaction variable is a mediating variable of usability and loyalty. The results of the path coefficient calculation show that the path coefficient acquisition value is 0.209 with a t-statistic of 2.506 and p-values of 0.012. Based on the statistically specific indirect effect (t value > 1.96, two-tailed, p < 0.05), it must be taken as evidence of mediation (Zhao et al., 2010).

The results of this study support previous research conducted by Parera & Susanti (2021) and Casaló et al. (2008), which showed usability to influence user loyalty with satisfaction as a mediating variable positively. The results of the indirect effect above mean that when users feel usability through various conveniences in the application, such as ease of understanding, ease of operation, ease of information, appearance, layout, and ease of control, it will have a more significant impact on loyalty if it is intervened or mediated with customer satisfaction. Companies should prioritize usability to encourage customer satisfaction to increase their loyalty to mobile banking, a product of banking companies.

Conclusion

Based on the results of the research analysis, several conclusions that can be drawn from this study include; usability has a significant positive effect on satisfaction, satisfaction has a significant positive effect on loyalty, and usability also has a significant positive effect on loyalty, meaning that the easier mobile banking is to use, it will increase user satisfaction and create user loyalty in continuing to use mobile banking. Then it was also found that there is an indirect effect of usability on loyalty mediated by satisfaction, meaning that user satisfaction in using mobile banking can help to increase user loyalty in using mobile banking.

The limitation of this research is that this research only examines one independent variable that has the potential to have an influence on user satisfaction and loyalty, so it is not yet known about other variables that also

have an effect on increasing user satisfaction and mobile banking user loyalty from a banking company. If there are more independent variables, it will be able to know more about the aspects that need to be considered by banking companies in developing their mobile banking applications.

Future research can examine risk factors and customer trust in the usefulness of mobile banking applications as independent variables that are useful for mobile banking development. Meanwhile, banks as service providers need to pay attention to the indicators in this study by maintaining the most significant indicators and adding indicators that are less clear, with the hope that user satisfaction and trust in the services provided can always increase and maintain customer loyalty. And increasingly loyal to the company in the midst of rapid competition for mobile banking products from banks and non-bank financial institutions.

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