The Influence of User Interface and Application Security on the Decision to Use Bank A's Mobile Banking Among University B Students in Jakarta, Indonesia

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Abstract. In order to uphold its image as a bank that continually innovates in the extension of its financial services, Bank A, one of Indonesia's top private banks, uses mobile banking to create possibilities and overcome hurdles. International business management majors are regarded as having thorough knowledge, especially when utilizing digital technology. University B in Indonesia is used as an example for the adoption of technology-based education. By distributing questionnaires via Google forms to 51 students majoring in International Business Management, who are particularly active users of mobile banking, this study uses a quantitative approach to examine the influence of the user interface and application security as two determinant factors that determine the use of mobile banking. Through the analysis of test data using SPSS 26, it has been demonstrated that the user interface and application security have a combined or independent influence on users' decisions to utilize Bank A University B mobile banking. The distinctiveness of this study is in its ability to draw conclusions based on the choice to use Bank A's mobile banking among college students who are at the forefront of its use and majors with a deep understanding and high proficiency in its usage.

1 Introduction

1.1 Research Background

In order to quickly adapt to the digital transformation that has become necessary in this dynamic era of life and business, mobile banking is one of the banking industry's efforts. This has led to significant changes in people's preferences for how to transact [11], specifically in the form of: a) the migration of transactions from face-to-face to digital through banking, internet banking, and call centres driven by Artificial Intelligence; b) the requirement for quick access to banking services without regard to place or time in the form of non-cash transactions using mobile phones [22]. Moreover, the bulk of activities should be connected online in cyberspace, according to the public [9, 17].

The quick growth of mobile banking in Indonesia is consistent with the expanding contactless movement in commerce and daily life [18]. Additionally, banks have increased the number of mobile banking services available, including information services (balances, account changes, interest rates, and branch locations/nearest ATM); and transaction services, including transfers, bill payments (for electricity, water, and internet), credit purchases, and various other features [4].

One of Indonesia's top private banks, Bank A, has been in the forefront of creating the greatest mobile banking software in order to become the most reputable and in-demand option for both potential and current customers [22]. This is based on bank A's long history of maximizing technological advancements to support the efficiency, accuracy, and smoothness of the banking transactions it conducts. As a result, it has earned the reputation of being a bank that is responsive and at the forefront of utilizing technological advancements, especially in urban areas [8].

In the peak of the Covid-19 pandemic, which restricts the flow of products, capital, people, business, and production [1], Bank A's preparedness to establish and grow mobile banking is very helpful. Life and business must continue. The Covid-19 pandemic can also be seen as a catalyst for the digital transition, which must be tempered with raising the standard of digital infrastructure [5].

The success of implementing mobile banking is typically dependent on two factors: a) the user interface's novelty and appeal, which makes it simple for users to understand and use [28]; and b) application security, which ensures data security and privacy, especially in light of the fact that cybercrime is becoming more and more prevalent [16], specifically in the form of device, network, program, and power protection [25]. According to the average rating weight on top of mind, recent usage, and future intention from 8,500 respondents who were distributed randomly throughout Indonesia [3], Bank A's mobile banking will be the most widely used mobile banking application in Indonesia in 2022.

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One of Indonesia's top private universities, University B places a strong emphasis on lectures and web-based academic assistance services while continuously innovating and growing. Students at University B are considered to have a degree of knowledge and proficiency in digital-based banking transactions, particularly mobile banking, making University B a reference center for adopting technology-based education in Indonesia.

1.2 Research and Paper Writing

Based on the aforementioned factors, we conducted research, which later served as the foundation for this paper, to determine how much the user interface and application security affect University B students' decisions to use Bank A's mobile banking services, which are the most widely used mobile banking in Indonesia [3].

2 Literature Review and Hypotheses

2.1 Literature Review

2.1.1 User Interface

In order to facilitate interaction activities between systems and humans as well as between humans and humans, the user interface acts as an intermediate in the form of physical (hardware) and non-physical (digital computer systems) with a number of components [2, 15, 29]. On computer (website) and mobile (application) devices, the parts of the user interface are laid together in the form of a virtual design, which includes forms, colors, and wording that is educative, straightforward, and elegant [27].

One of the primary methods for growing traffic to a company's or business's website is through the user interface, which has the advantages of a) fostering trust while attracting new clients; and b) boosting client retention thanks to the clarity of the information provided [1]. Therefore, consistency, control, comfortability, and cognitive load serve as the user interface's guiding principles, making it clear, succinct, and concise.

In order to ensure a positive user experience (UX) and facilitate overall product use, the user interface as a whole is in charge of this. The qualities of a good user interface are clarity, concision, familiarity, responsiveness, consistency, attractiveness, and efficiency, allowing for the creation of interaction between users and associated programs and the alignment of the business owner's ideas with user preferences [26]. Table 1 provides the dimensions and indications of the user interface variables used in this study.

Table 1. User Interface Variable Dimensions and Indicators

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Details</th>
<th>Description</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity</td>
<td>Ability to connect system information with user demands</td>
<td>Speed and recovery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Notification</td>
<td></td>
</tr>
<tr>
<td>Simplicity</td>
<td>The capacity to develop displays that are totally automated, comprehensive, and easy</td>
<td>Simple user</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduce memory load</td>
<td></td>
</tr>
<tr>
<td>Directional</td>
<td>The capacity to use methodical techniques to navigate application systems</td>
<td>Clear interaction</td>
<td>Iconic design</td>
</tr>
<tr>
<td>Informative</td>
<td>Accessibility and the capacity to deliver comprehensive information</td>
<td>Necessary and essential</td>
<td>Informative feedback</td>
</tr>
<tr>
<td>Interactivity</td>
<td>The capacity to make people feel at ease enough to test out and investigate the system</td>
<td>Easy to navigate</td>
<td>Easy reversal of action</td>
</tr>
<tr>
<td>User friendliness</td>
<td>Ability to take different user categories into account</td>
<td>Layout</td>
<td>Language required</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>Ability to modify and improve system information and visual design</td>
<td>Integration</td>
<td>Dynamic context</td>
</tr>
<tr>
<td>Continuity</td>
<td>Ability to develop consistent visual design on the system</td>
<td>Consistency</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Similar actions and positions</td>
<td></td>
</tr>
<tr>
<td>Personalization</td>
<td>The capacity to create a unified visual style for the system</td>
<td>User control</td>
<td>Allows personalization</td>
</tr>
<tr>
<td>Internal</td>
<td>The capacity to offer visual design customization features</td>
<td>Design for small device</td>
<td>Prevent errors</td>
</tr>
</tbody>
</table>

Source: [29]

2.1.2 Application Security

Application security is a barrier that protects data and information in information systems that are vulnerable to disturbances that could impair application operations and performance, enabling the construction of a strong and reliable digital business infrastructure [7].

One of the essential elements in the establishment of a reliable and trustworthy digital corporate infrastructure is the security system [14]. An application security system functions as a shield to protect data and information on those systems since application information systems
software) are particularly vulnerable to attacks or disruptions that could afterwards affect application operations and performance [7]. The traits and indicators of the application security variables used in this study are listed in Table 2.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Details Description</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidentiality</td>
<td>The ability to fully protect the confidentiality of data and information in the application</td>
<td>Privacy, Secrecy</td>
</tr>
<tr>
<td>Integrity</td>
<td>The ability to maintain the integrity of data and information in the application, so that it cannot be changed without the permission of the owner</td>
<td>Consistency, Data authenticity</td>
</tr>
<tr>
<td>Authentication</td>
<td>Ability to maintain the authenticity of data and information stored in the system</td>
<td>Transaction verification, Encryption</td>
</tr>
<tr>
<td>Availability</td>
<td>Ability to provide access to related data and information</td>
<td>Spam blocker, All-time access</td>
</tr>
<tr>
<td>Access Control</td>
<td>The ability to regulate systematic access to data and information by parties entitled to said data and information</td>
<td>Accessibility, System Approval</td>
</tr>
<tr>
<td>Non-repudiation</td>
<td>Ability to prove the correctness of actions by the owner</td>
<td>Transaction history, Notification</td>
</tr>
</tbody>
</table>

Source: [9]

### 2.1.3 Decision to Use

The choice to use something is a mental or cognitive process that leads to the determination or selection of something based on specific criteria and considerations that may be an alternative [19] as well as a process in the form of a combination of behavior patterns and individual considerations to satisfy their desires [11]. Table 3 shows the Use Decision variable's dimensions and indicators used in this study.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Details Description</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product selection</td>
<td>The selection and caliber of goods or services deemed suitable or capable of satisfying demands</td>
<td>Fulfilment of need, Product quality</td>
</tr>
<tr>
<td>Brand selection</td>
<td>Personal emotional considerations and the favorable perception of the brand</td>
<td>Brand popularity, Brand trust</td>
</tr>
</tbody>
</table>

Source: [22]

### 2.2 Thinking Framework

#### 2.2.1 Previous Research

2.2.1.1 The Effect of User Interface on Decision to Use

The user interface has an impact on the system's usability, particularly in terms of how simple it is to learn, develop skills, and use [21].

2.2.1.2 The Effect of Application Security on Decision to Use

E Service Quality and application security, both partially and simultaneously affect the decision to use Tokopedia [12].

#### 2.2.2 Research Model

Figure 1, which in turn becomes the research model in this study, is based on the correlation of variables as well as the outcomes of prior investigations.

![Research Model](https://example.com/researchmodel.png)

### 2.2.3 Hypotheses Formulation

2.2.3.1 Partial Influence of the User Interface on the Decision to Use Bank A's Mobile Banking by University B's Students
3 Research Methodology

3.1 Research Methods
While quantitative methods are used to gather information or challenge accepted hypotheses by measuring and assessing the correlations between variables in the form of statistical data, descriptive research methods are used to demonstrate explanations, relationships, and predictions between study variables [13].

3.2 Research Variables and Measurement Scale

3.2.1 Research Variables
Independent variables, which have the ability to influence or cause changes or the emergence of dependent variables [22] are the User Interface (X1) and Application Security (X2). While the dependent variable is the decision to use Bank A’s Mobile Banking Services.

3.2.2 Research Scales
By asking respondents to assess whether they agreed or disagreed with a question, a research scale was used to gauge respondents' attitudes, opinions, and perceptions of study variables that had been explicitly chosen by researchers [23].

3.3 Research Population and Sample

3.3.1 Research Population
Students from University B from one of its campuses in Jakarta who are majoring in international business management and often use Bank A’s mobile banking comprise the study population, which is an abstract idea derived from a sizable number of cases evaluated by researchers [18].

The international business management major was chosen because it is thought that students who major in it are aware and skilled in a variety of related areas, including international strategy, trade, finance, law, and international relations. Theoretically, students majoring in international business management have a comprehensive understanding, particularly when it comes to using digital technologies.

3.3.2 Research Sample
This study used a non-probability sampling technique, which does not depend on sample size or whether the researcher has a thorough understanding of the larger group or population from which the sample is drawn, to ensure that the research sample was representative of the characteristics of the population of interest [20]. On the basis of the respondents chosen for this study, 51 students from the department of international business management at University B were estimated to be the sample size.

3.4 Data Collection Method

3.4.1 Primary Data
Primary data was obtained in cross section by distributing questionnaires containing questions about research variables online to selected respondents.

3.4.2 Secondary Data
Obtained from various sources such as research journals, books, and the internet.

3.5 Data Processing Method
The demographic analysis, validity and reliability tests, as well as the traditional assumption tests such as the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test, were utilized to analyze the data in this study [6].

3.6 Data Analysis Method
Used a formula based on multiple linear regression analyses

\[ Y = a + b_1 X_1 + b_2 X_2 + \epsilon \]

Notes:
\( Y \) = Dependent variable
\( a \) = Constant
\( b_1 \) = First regression coefficient
\( b_2 \) = Second regression coefficient
\( X_1 \) = First independent variable
\( X_2 \) = Second variable independent

3.7 Hypotheses Test Design

3.7.1 Partial Significance Test (t-Test)
The t (partial) test is utilized to determine whether the independent variable has a partial impact on the dependent variable [23].

\[ t = \frac{r\sqrt{n - 2}}{\sqrt{1 - r^2}} \]

Notes:
\( t \) = \( t \) count consulted with table
\( r \) = Partial coefficient correlation
\( r^2 \) = Determinant correlation
\( n \) = Sum of data
3.7.2 Simultaneous Significance Test (F-Test)

The F test is a test of the regression coefficients in a stimulant manner, to determine the effect of all the independent variables contained in the study together or stimulants on the dependent variable [24] with the following calculation formula

\[ F_h = \frac{R^2/k}{(1-R^2)/(n-k-1)} \]

Notes:
- \( R \) = Multiple correlation coefficient
- \( K \) = Sum of independent variable
- \( N \) = Number of sample

3.7.3 Coefficient of Determinant Test

The determinant coefficient test, which is used to determine the effect of variance on variables [23] with the following calculation formula

\[ K_d = r^2 \times 100\% \]

Notes:
- \( K_d \) = Value of determination coefficient
- \( r^2 \) = The squared value of the correlation coefficient

4 Result and Discussion

4.1 Demographic Analysis

The majority of respondents (58.8%), with a frequency of 30 respondents, were under the age of 20.

4.2 Knowledge and Frequency of Using Bank A's Mobile Banking Services

All respondents have used Bank A’s mobile banking services for an evenly split amount of time—between 1-3 years (49%) and three years or more (49%)—and are aware of its availability and benefits.

4.3 Driving Factors for the Uses of Bank A’s Mobile Banking Services

Due to its straightforward and appealing features, Bank A’s mobile banking services are used by the majority of respondents (58.8%).

4.4 Data Test Result

4.4.1 Validity Test

The three research variables' three question items are all deemed valid for the following reasons:

1. The User Interface Variable (X1)'s computed R value is more than the Rtable's value of 0.2759 and its Significance value is zero, which is less than the Alpha value of 0.05;
2. A Significance Value of 0 that is less than an Alpha value of 0.05 and a computed R value for the Application Security Variable (X2) that is 0.2759, which is greater overall than the Rtable; And
3. The Use Decision Variable (Y)'s computed R value is greater than the Rtable value of 0.2759, while the Significance value is zero and is lower than the Alpha value of 0.05.

4.4.2. Reliability Test

All of the test items for the three research variables are deemed reliable because:

1. The user interface variable's Cronbach's Alpha value (X1) is 0.891 or higher than the standard value (0.70);
2. The application security variable's Cronbach's Alpha value (X2) is 0.863 or higher than the standard value (0.70); and
3. The use decision variable's Cronbach's Alpha value (Y) is 0.781 or higher than the standard value (0.70).

4.4.3. Normality Test

It can be said that the data in this study are normally distributed because the results of the Normality Test using the Kolmogorov method produce a Significance Value of 0.200, which is greater than the Alpha Value of 0.05.

4.4.4. Multicollinearity Test

The User Interface variable (X1) and the Application Security variable (X2) have a tolerance value of 0.447 or greater than the standard value of 0.10 and a VIF value of 2.238 or less than the standard value of 10, respectively, indicating that none of the research variables exhibit any symptoms of multicollinearity or that all of them can be used.

4.4.5. Heteroscedasticity Test

Data on User Interface Variables (X1) and Application Security Variables (X2) are protected from heteroscedasticity symptoms and are appropriate for use in testing research using the Multiple Linear Regression Test Model because the results of testing using the Glejser Test method yield Sig values for the User Interface Variable (X1) of 0.370 and the Sig Value for the Application Security Variable (X2) of 0.848 which are greater than the standard Alpha Value of 0.05.

4.4.6. Multiple Linear Regression Analysis Test

The following equation is created based on the findings of the study of the Multiple Linear Regression Test:

\[ Y = a + b_1X_1 + b_2X_2 + e \]

\[ Y = 6.882 + 0.220X_1 + 0.328X_2 + e \]
The following inferences can be made from these equations regarding the outcomes of the analysis using the Multiple Linear Regression Test:

1. If the User Interface Value (X1) is increased by 1, the Use Decision Value (Y) will increase by 0.220 units in the direction of increasing the corresponding value;
2. If the Application Security Value (X2) is increased by 1, the Use Decision Value (Y) will increase by 0.328, then the Usage Decision Value (Y) will increase by 0.328 units in the direction of increasing the value in line; and
3. If the User Interface Value (X1) and Application Security Value (X2) are both increased by 1,

4.4.7. Result of Partial Significance Test (t-Test)

The User Interface variable (X1) of Bank B’s mobile banking services has a partial impact on the Use Decision variable (Y), as shown by the calculation results, which show a significance value for the User Interface variable (X1) on the Use Decision variable (Y) of 0.001, which is lower than the value of 0.05 for Standard Alpha. Furthermore, the calculated t value, which is 3.628, is higher than the table’s t value, which is 2.01063.

Because the calculation results show a significance value for the Application Security variable (X2) for the Use Decision variable (Y) of 0.004, which is lower than the standard Alpha value of 0.05, the Application Security variable has a partial effect on the Use Decision (Y) variable for Bank B’s mobile banking services. Furthermore, the estimated t value is 3.045 and is higher than the table’s t value of 2.01063, which is 3.045.

4.4.8. Simultaneous Significance Test (F-Test)

The Decision to Use (Y) variable for Bank B’s mobile banking services was found to be simultaneously influenced by the User Interface Variable (X1) and the Application Security Variable (X2) because an FCount value of 43.501 was obtained, which was higher than the FTable value of 3.19 and a significance value of 0.000, which is lower than the standard Alpha value of 0.05.

4.4.9. Determinant Coefficient Test

Because it achieved a R Square value of 0.644, or 64.4%, it can be concluded that the User Interface variable (X1) and the Application Security variable (X2) jointly influence the variable Decision to Use (Y) Mobile Banking Bank A by 64.4%, with other variable factors outside of this study accounting for the remaining 35.6%.

5 Conclusion and Recommendation

5.1 Conclusion

The majority of respondents (58.8%) chose to utilize Bank A’s mobile banking services as a result of the features of a straightforward and appealing user interface. This is consistent with research findings that demonstrate the user interface variable has a large and partial impact on University B students majoring in international business management’s decision to use Bank A’s mobile banking services.

The application security variable has a partial and significant effect on the decision to use Bank A’s mobile banking services by University B students majoring in international business management, despite only 5.9% of respondents basing their decision on the reputation of the service system’s security.

The User Interface and Application Security factors simultaneously and significantly influence University B students majoring in International Business Management’s choice to use Bank A Mobile Banking Services.

The User Interface and Application Security variables work together to affect 64.4% of decisions to use Bank Mobile Banking services, while other variable factors outside of this study are responsible for the remaining 35.6%.

5.2 Research Limitation

This study had some limitations, including that it only looked at two factors (User Interface and Application Security), that it was cross-sectional, and that it only included University B students majoring in international business management as respondents.

5.3 Recommendation

In order to survive and compete with other competitors in conditions of increasingly competitive competition and accelerated cyber crime, which seriously threatens the credibility of mobile banking services, Bank A must continue to update its Mobile Banking services, especially through identifying and reviewing weaknesses and weaknesses in its Application Security.

For future researchers, in order to further enrich this study by adding additional factors (aside from the User Interface and Application Security), expanding the research object, and lengthening the research period in order to acquire more thorough and meaningful results

References


[22] OJK. Statistik Perbankan Indonesia (Indonesian Banking Statistics). Retrieved at November 1, 2022


