Service Quality, Satisfaction, and Loyalty of BNI Mobile Banking E-Customer

Brigitta Heidy1*
Kurniawati2
Anniza Bellarisi Cantika4
Faadiah Nisa5
Miranti Anggorodhiyu Lokantari6
Universitas Trisakti
**Corresponding author: brigitta122023005004@std.trisakti.ac.id & kurniawati@trisakti.ac.id

Abstract
Many banks institution have implemented mobile banking as a successful e-commerce application to give the combined benefits of increased customer service and cost reduction. Service quality is a comprehensive customer evaluation of a particular service and meets customer expectations and provides satisfaction. Objective: to assess whether service quality has a strong association to customers’ loyalty of BNI mobile banking users of FKG USAKTI professional students. Method: The data analyzed comes from BNI M-banking consumers, FKG professional students, who have been using BNI m-banking for a long time. The number of samples is about 150 people. Descriptive data analysis presented each item of the research questionnaire. Result: user friendliness and efficiency are determined to have a positive and considerable impact on customer satisfaction, whereas customer satisfaction has a significant and positive impact on customer loyalty.

Keywords: Service Quality, Customer Satisfaction, Customer Loyalty

INTRODUCTION
With the advancement of technology and information, the usage of mobile devices is becoming more popular, causing daily activities to shift significantly, including financial transactions. Mobile payments, often known as mobile banking, is a type of electronic financial transaction that allows payment for goods, services, and bills using mobile devices (Zhao & Bacao, 2021). Mobile banking, which is now widely utilized in a variety of industries, can help people conduct financial transactions wherever and whenever they choose, and it can be used by anyone, including in an emergency. Many banks have implemented M-banking
to give the combined benefits of greater customer service and lower expenses (Xue, Hitt, & Chen, 2011). However, in addition to helping the bank, this will also fulfill the satisfaction of customer needs (Raviraj et al., 2016; Shahzad, Xiu, & Shahbaz, 2017).

Furthermore, the COVID-19 pandemic, which has rapidly expanded around the world and affects all circumstances in every business, requires prevention in order to prevent the virus from spreading further. There are even speculations that the virus could spread through cash; the virus itself may survive on paper for anywhere from a few minutes to five days. The virus that causes COVID-19 infection is the Corona Virus (Satgas Covid-19, 2021). Reducing human contact and the requirement to maintain distance is one strategy to limit the likelihood of the Covid-19 virus spreading. This will help to restrict the spread of COVID-19 by disrupting the transmission chain. This encourages the banking industry and its customers to implement a contactless and cashless transaction method, such as mobile banking (Riza, 2021).

According to Bank Indonesia, the volume of digital banking service transactions since April 2020 has increased significantly by 37.35% (year-on-year) and an increase of 60.8% compared to the same period in 2019 due to its convenience for communities in the pandemic situation. This development reflects the growing need for digital banking systems and digital financial transactions such as mobile banking (Riza, 2021). In the first quarter of 2020, digital transactions of BNI increased by 31% compared to the same period in 2019. These include SMS banking, internet banking and mobile banking transactions. The development of BNI’s digital transactions were mainly contributed by mobile banking transactions that rose by 84.4% compared to the first quarter of 2019. Mobile banking transactions in the first quarter of 2020 surged to 63 million transactions and Rp103,4 trillion from 43 million transactions and Rp56,1 trillion in the first quarter of 2019 (BNI, 2020).

![Figure 1. BNI bank digital service transactions in 2020](image)
Despite the increasing use of mobile banking, its implementation is still below the desired level. This might be affected by low quality of service and bad customer satisfaction. Consumers have different opinions on mobile banking services and transactions at traditional banks, some consumers prefer to use traditional methods and other customers prefer to use mobile banking due to its ease of use. Apart from the positive development, the quality of internet services is still insufficient to build relationships between consumers and banks. Therefore, customer satisfaction and customer loyalty are critical in fostering a positive relationship between consumers and banks.

Service quality is a comprehensive customer evaluation of a particular service and the extent to which it meets consumer expectations and provides satisfaction. The service quality model is usually used as a research instrument to assess customer satisfaction which consists of several dimensions, such as application design, responsiveness, security, user-friendliness, meet personal needs, efficiency, and application speed. Service quality in the banking industry refers to the provision of various electronic networks to conduct bank transactions such as via the internet or mobile phones and others (George & Kumar, 2014; Kaura & Sharma, 2015). Recently, many studies have discussed the quality of internet services in the perspective of online shopping (Clemes, Gan, & Ren, 2011; O’Cass & Carlson, 2012), and there are numerous studies that have assessed the dimensions of service in the banking sector (George & Kumar, 2014; Hammoud, Bizri, & El Baba, 2018; Rahi & Ghani, 2016; Shankar & Jebarajakirthy, 2019), but only a few have discussed electronic customer satisfaction and electronic customer loyalty that are assessed by service quality dimensions, and only a few studies have been conducted in Indonesia.

Service quality that has been met properly might create customer satisfaction and turn into customer loyalty. Customers might be a critical indicator, especially in the marketing aspect to retain customers and make customers take part in the service. Customers who have the feeling of satisfaction might lead to a sense of loyalty because the relationship has been formed between customers and services used, as in this banking case. When clients feel comfortable using banking applications, it can lead to good outcomes such as word-of-mouth, increased intent to reuse, and referrals to others. Customer loyalty is one of the keys to profit for a service company (Smith, 2020).

BNI services have been widely used at Trisakti University at the time. Digitalization in management and transactions using cards in the campus environment (parking, canteen, cooperatives stalls, and others) are among these services. RSGM FKG TRISAKTI used BNI m-
banking to pay for all necessities throughout the COVID-19 pandemic, including tuition payments, professional program payments, and other essentials. Thus, this research will be conducted with the aim of determining whether service quality has a strong association with customer loyalty of BNI mobile banking users among professional program students of the Faculty of Dentistry, Trisakti University.

**LITERATURE REVIEW**

**Application Design**

Application design is the aesthetics of the application, colors, sections, images and service descriptions that can improve the quality of mobile banking and improve user experience and satisfaction. This feature is an important part that must be considered by the bank to improve banking quality (Azman et al., 2021; Chemingui & Lallouna, 2013). Application design also influences and contributes to increasing customer satisfaction and loyalty (Al Motari, Mahfuz, Khan, & Ahmed, 2013). Thus, the following hypothesis is obtained:

H1. Application design has a positive influence on customer satisfaction

**Application Responsiveness**

Responsiveness in assessing the quality of banking services refers to the speed of response provided by mobile banking operators to service users. The speed of the response can maintain user interest and fast response can help increase user satisfaction and loyalty (Ali & Raza, 2017; McNesh, 2015; Sugiatro & Octaviana, 2021). Responsiveness can be categorized into four steps. First, the mobile banking system can manage and run its services properly. Second, the mobile banking network can properly guide customers to continue in the event of a failure. Third, it can provide a quick solution to deal with errors in mobile banking transactions. Fourth, provide a fast response to every user request (Hammoud et al., 2018). Thus the following hypothesis is obtained:

H2. Application responsiveness has a positive influence on customer satisfaction

**Application Security**

The security of mobile banking is very important, especially for customers who used virtual transactions. Ghosh and Barua define security as the security and protection of information (Ghosh & Barua, 2014). In practice, it is not only information but also monetary issues are closely related to security due to fraud and hacking (M.R, 2013). Security can be a potential loss due to fraud or hackers endangering the security of the mobile users. Customer fear of
lack of security is one of the factors that have been identified in most studies as one of that influences the growth and development of the mobile banking. Therefore, it is very important to ensure that the mobile banking system is safe when users make financial transactions. In addition, it will increase mobile banking customer satisfaction and encourage users to adopt this service (Prastiawan, Aisjah, & Rofiaty, 2021). Several studies have found that customers who use mobile banking are very concerned about security (Chian, 2012). Thus the following hypothesis is obtained.

H3. Application security has a positive influence on customer satisfaction

User Friendliness

User friendliness is very important to a large number of users, especially the elderly. So it is important to ensure the ease of use of the service (Wu & Cheng, 2013). User friendliness is easy to learn, use, understand, or handle. User friendliness can not only benefit customers, but also as an advantage and can help achieve a competitive advantage. According to Mahadin et al (2020) and Mahapatra and Khan (2009), many mobile banking users are dissatisfied due to lack of user friendliness (Khan, Mahapatra, & Sreekumar, 2009; Mahadin, Akroush, & Bata, 2020). According to Rajaobelina et al (2019), user friendliness and customer satisfaction are closely related in the banking sector (Rajaobelina, Brun, & Ricard, 2019). Therefore, user friendliness features have a great impact on user satisfaction and loyalty. This variable is considered as an important variable in this study. Thus, the following hypothesis is obtained.

H4. User friendliness has a positive influence on customer satisfaction

Personal Needs

A bank must consider the personal needs of its customers. Having sufficient data regarding consumers’ personal needs can help M-Banking to start new features to increase customer loyalty (Gronroos, 2007). This will help the bank to identify the age, gender, lifestyle, and preferences of cyber users (Patwardhan, Pandey, & Keskar, 2020; Yoon, 2010). In this way, consumers’ personal needs can be analyzed to make accurate offers and meet customers’ demand (Hamadi, 2010). There are various types of significant needs for humans which are also highlighted in Maslow’s Hierarchy. Some of the needs that can contribute to the perception of digital banking include security, ownership, and preference. Research by Amin (2016), states that there is a positive and significant relationship between personal needs and customer satisfaction (Amin, 2016). The same thing was also stated by Raza (2020), that
personal needs are positive and significant to the satisfaction of their customers (Raza, Umer, Qureshi, & Dahri, 2020). Thus the following hypothesis is obtained.

H5. Personal needs has a positive influence on customer satisfaction

**Application Efficiency**

The role of efficiency is very important in achieving the goals of a company. Efficiency is an important factor in maintaining customer loyalty and can ensure customer satisfaction (Radam, Yacob, & Muslim, 2010). Users tend to be more loyal and satisfied when their transactions are completed efficiently every time. If consumer demand is met with efficiency, customers will tend to be happier and more loyal to mobile banking services (Kheng, Mahamad, Ramayah, & Mosahab, 2010). According previous research by Amin (2016), efficiency has an influence on customer satisfaction and loyalty, and satisfaction mediates efficiency on customer loyalty (Amin, 2016). Research conducted by Ju et al (2019), stated that efficiency affects customer's satisfaction (Ju.Y., KJ, & Lee, 2019). Thus the following hypothesis is obtained.

H6. Efficiency has a positive influence on customer satisfaction

**Application Speed**

Application speed is one form of application responsiveness where in using banking applications can operate properly, quickly, and without errors (Hammoud et al., 2018). Application speed is also one of the dimensions of the application system which consist of responsiveness, speed and the application’s ability to provide instruction to users. Application system dimensions such as application speed can be one of the important factors to determine customer satisfaction. The speed of this application is a transformation of electronic services that are profitable for customers in transacting and providing better service quality. According research by Abualsaoud and Othman, customers realize that the absence of humans in conducting financial transactions affects the time and speed of online transactions. This can have a negative impact on customers and can have an impact on electronic customer loyalty (Abualsauod & Othman, 2020). Then also according to previous research by Fianto et al, who said that the dimensions of the application system such as application speed had a positive impact on customer satisfaction (Fianto, 2021). Therefore the following hypothesis is obtained:

H7. Application speed has a positive influence on customer satisfaction
Electronic Customer Satisfaction and Loyalty

Customer satisfaction is often interpreted as the main indicator and a very important condition for profit (Smith, 2020). Then customer satisfaction also has a meaning as the user’s feeling about whether it is in accordance with the anticipation that is not confirmed with the user’s feeling before the use experience, such as feelings of happiness or disappointment that arise after use. In electronic customer satisfaction, satisfaction is a feeling of satisfaction that arises from previous transactions or the experience of transacting with certain banks using electronic devices. Customer who tend to be continuously satisfied with banking application services tend to be loyal and want to use bank services now and in the future, so that between customers and banks have a long-term relationship (Raza et al., 2020).

Customer loyalty can be interpreted as customer attachment to a product or service, and is an advantage for marketing because it can cause word-of-mouth reactions, intentions to support services, and so on. Electronics customer loyalty in traditional markets, where this loyalty shows the attitude and commitment of a customer to want to use and recommend banking application service to others (Smith, 2020). According to previous research, customer loyalty increases through the frequent use of banking applications and their use to make transactions (Raza et al., 2020). Husnan & Akhtar (2016) said, mobile banking services have many advantages for both service providers and service users, banks do not need to change the existing infrastructure or systems or large amount of their money, can easily convey their message to large number of people, mobile banking has functioned as a platform its good for banks to maintain good relationship with the customers, as banks get valuable information about their clients so they can tool and implement effective consumer relationship management policies and practices, also provide quick response and assistance in customer retention and maintain customer loyalty (Husnain & Akhtar, 2016). Therefore the following hypothesis is obtained:

H8. Customer satisfaction has a positive influence on customer loyalty

Research Model

Based on the explanation of theories and previous research above, the following is the proposed research framework:
METHODS

This study uses hypothesis testing, is classified as a descriptive research type, and is designed to analyze service quality that has a relationship with customers’ loyalty. The operational definitions of the variables in this study include application design, application responsiveness, security, friendliness of use, personal needs, efficiency, application speed, customer satisfaction and customer loyalty. In this study using a questionnaire to measure variables by asking questions to respondents according to indicators from research by Raza, et al (Raza et al., 2020). The data analyzed is the data of BNI mobile banking customers who are professional students of Faculty of Dentistry, Trisakti University, with the criteria for second year professional students (KBK 17) and first year (KBK 18) who have used BNI mobile banking for 1 year or more. This research used all of the population of first and second year professional students and the number of samples obtained as many as 150 people.

To obtain the data needed in the study, a research questionnaire was used which was distributed via google form. Each answer to the statement uses a Likert scale which has five answers, from strongly disagree (1) to strongly agree (5). The research instrument contains 30 questions, ensuring that the information of each respondent will be kept confidential. This research also ensures that the responses given are done voluntarily and without coercion. The data analysis technique used is descriptive by presenting each item contained in the research questionnaire.
### Table 1: Respondent Characteristics.

| No | Demographic Characteristics | Category                        | Total | Percentage |
|----|------------------------------|---------------------------------|-------|------------|
| 1  | BNI Mobile Banking User’s    | Minimal 1 Year                  | 28    | 18.7%      |
|    |                              | More than 1 Year                | 122   | 81.3%      |
|    |                              | Total                           | 150   | 100%       |
| 2  | Gender                       | Male                            | 22    | 14.7%      |
|    |                              | Female                          | 128   | 85.3%      |
|    |                              | Total                           | 150   | 100%       |
| 3  | Class of KBK                 | KBK 17 (Second year professional students) | 132   | 88%        |
|    |                              | KBK 18 (First year professional students) | 18    | 12%        |
|    |                              | Total                           | 150   | 100%       |

Source: output SPSS

### RESULT AND DISCUSSION

Validity testing is an indicator that measures valid variables (Hair et al., 2019). The statistical tools used in testing the validity are Kaiser-Meyer-Olkin (KMO) and anti-image correlation. Decision-making for the KMO criteria, if KMO > 0.5 overall the indicators that measure the variables are valid. If KMO < 0.5, overall the indicators that measure the variables are invalid. For the anti-image correlation criteria, the decision-making criteria if the value is > 0.05 then an indicator is proven valid. If the criterion value is < 0.05 then an indicator is proven invalid.

Reliability testing is carried out to test the consistency of the answers of respondents who measure a variable (Hair et al., 2019). The analytical tool used to perform reliability testing in this study is Cronbach's Alpha Coefficient. The basis for making a decision on whether an indicator is reliable or not is if the value is > 0.60 then all statements in the questionnaire are proven to be consistent or reliable. If the value < 0.60 then the statement in the questionnaire as a whole is not reliable or consistent.

Tabel 2: Validity and Reliability of Service Quality.
| Variable | Indicator | Validity Testing | Reliability Testing |
|----------|-----------|------------------|---------------------|
|          |           | KMO              | Cronbach Alpha      |
|          |           | Anti-Image Correlation | Conclusion | Alpha | Conclusion |
| AD^1     | AD1       | 0.671            | Valid              |
|          | The BNI Mobile Banking application is visually attractive |
| AD2      | AD2       | 0.663            | Valid              |
|          | The BNI Mobile Banking application has a well-organized display |
| AD3      | AD3       | 0.699 0.737 Valid | 0.738 Reliable     |
|          | The appearance of BNI Mobile Banking makes it easier for me to make a transaction |
| AD4      | AD4       | 0.765            | Valid              |
|          | All icons are easy to understand on the BNI Mobile Banking application |
| AR^2     | AR1       | 0.664            | Valid              |
|          | Transactions with BNI Mobile Banking are error free |
| AR2      | AR2       | 0.634            | Valid              |
|          | BNI Mobile Banking has adequate security and privacy policy |
| AR3      | AR3       | 0.647 0.645 Valid | Valid          |
|          | BNI Mobile Banking can perform services correctly when opening the application |
| AS^3     | AS1       | 0.705            | Valid              |
|          | I believe in the security of the BNI Mobile Banking application in protecting my personal data, even though I access it via Wi-Fi |
| AS2      | AS2       | 0.722 0.720 Valid | 0.831 Reliable     |
|          | I feel I can trust BNI Mobile Banking with the password that I created |
| AS3      | AS3       | 0.745            | Valid              |
|          | I feel that the security of BNI Mobile Banking is good and it is difficult for other parties to |
| Variable | Indicator | Validity Testing | Reliability Testing |
|----------|-----------|------------------|---------------------|
|          |           | KMO | Anti-Image Correlation | Cronbach Alpha | Conclusion | |
| UF        | hack      |     | 0.823 | Valid | |
| UF1       | BNI Mobile Banking application is user-friendly |     | 0.815 | Valid | |
| UF2       | Pages at BNI Mobile Banking application are easy to use |     | 0.786 | Valid | 0.816 Reliable |
| UF3       | Navigation on the BNI Mobile Banking application is easy |     |     | |
| UF4       | I strongly recommend that others use BNI Mobile Banking application |     | 0.850 | Valid | |
| PN        | PN1       |     | 0.685 | Valid | |
| PN2       | I feel that my personal needs have been met when using BNI Mobile Banking application |     | 0.596 | Valid | 0.637 Reliable |
| PN3       | BNI Mobile Banking application provides me with information and products according to my preferences |     | 0.655 | Valid | |
| AE        | AE1       |     | 0.724 | Valid | |
| AE2       | It is easy to get anywhere on BNI Mobile Banking application |     | 0.660 | Valid | |
| AE3       | I can complete a transaction quickly on BNI Mobile Banking application |     | 0.689 | 0.763 Reliable | |
| ASD       | AS1       |     | 0.684 | 0.685 | Valid | 0.756 Reliable |
| Variable | Indicator                                                                 | Validity Testing | Reliability Testing |
|----------|---------------------------------------------------------------------------|------------------|---------------------|
|          |                                                                          | KMO Correlation  | Cronbach Alpha      |
|          |                                                                          | Conclusion       | Conclusion          |
| AS D2   | I feel it doesn’t take long to open the BNI Mobile Banking application   | 0.650 Valid      |                     |
| AS D3   | I feel that BNI Mobile Banking application does not have many errors in its use | 0.731 Valid      |                     |
| ECS 1   | I am generally pleased with this BNI Mobile Banking application services  | 0.742 Valid      |                     |
| ECS 2   | BNI Mobile Banking application makes it easy to pay for Dentistry professional student activities | 0.788 Valid | 0.726 0.729 Reliable |
| ECS 3   | I am satisfied with overall BNI Mobile Banking products and services      | 0.695 Valid      |                     |
| ECS 4   | I am committed to using BNI Mobile Banking application                    | 0.723 Valid      |                     |
| ECL 1   | I will recommend to use the website of BNI Mobile Banking application     | 0.673 Valid      |                     |
| ECL 2   | I would like to say positive things about BNI Mobile Banking to other people | 0.669 Valid      |                     |
| ECL 3   | I intend to use BNI Mobile Banking apart from the professional activites of Dentistry Trisakti University | 0.697 0.796 Reliable | 0.773 Valid |
From the various fit model testing criteria, a number of model fit indicators were selected as shown in Table 3. The processing results showed 9 model fit test criteria. A total of 3 tests resulted in model fit conclusions, are RMSEA, RMR, and CMIN/DF. In addition, 3 indicators produce marginal fit models, are IFI, TLI and CFI. The other three indicators conclude that the model is less fit, are the chi-square, GFI and NFI indicators. Because most of the fit model criteria meet the model fit and marginal fit requirements, the hypothesis testing can be continued.

Table 3: Model Fit Test Indicator.

| Measurement type       | Measurement | Fit model decision | Result | Conclusion |
|------------------------|-------------|--------------------|--------|------------|
| Absolute fit measures  | Chi-square  | low Chi Square     | 653,073|            |
Descriptive statistics

Respondents’ responses to the variables were explained by using the mean and standard deviation of each variable as a measurement of the respondents' answers to the research variables used. Through these descriptive statistics, a conclusion will be obtained about the characteristics of the respondents' answers to the variables used in the study.

Table 4: Descriptive Statistics.

| Variables                  | Mean  | Std Deviation |
|----------------------------|-------|---------------|
| Application Design         | 3,913 | 0,5800        |
| Application Responsiveness | 3,862 | 0,5730        |
| Application Security       | 3,922 | 0,6196        |
| User Friendliness          | 3,925 | 0,6442        |
| Personal Needs             | 4,037 | 0,5231        |
| Application Efficiency     | 3,9689| 0,59871       |
| Application Speed          | 3,8444| 0,64352       |
| Electronic Customer Satisfaction | 4,003 | 0,5379       |
| Electronic Customer Loyalty| 3,882 | 0,7164        |

Source: Questionnaire data processed with SPSS

Hypothesis test

Hypothesis testing in this study used structural equation model (SEM) analysis. This model can predict changes in the dependent variable that are associated with changes that occur in the independent variable (Sekaran & Bougie, 2016). The error tolerance limit is 10% (α = 0.1) on the basis of decision making, if the p-value <0.1 then Ho is rejected, it means that there is a...
significant relationship. So, the conclusion is the hypothesis decision is supported. Meanwhile, if the p-value $> 0.1$ then $H_0$ is accepted, it means that there is no significant relationship. So, the conclusion is the hypothesis decision is not supported.

| Hypothesis                                      | Estimate | C.R  | $p$-value | Remarks       |
|------------------------------------------------|----------|------|-----------|---------------|
| $H_1$ Application design has a positive influence on customer satisfaction | -0.0124 | 0.0180 | 0.9856/2 = 0.4928 | Not supported |
| $H_2$ Application responsiveness has a positive influence on customer satisfaction | 0.0537 | 0.3243 | 0.7457/2 = 0.3728 | Not supported |
| $H_3$ Application security has a positive influence on customer satisfaction | 0.0842 | 0.4184 | 0.6757/2 = 0.3378 | Not supported |
| $H_4$ User friendliness has a positive influence on customer satisfaction | 0.4578 | 1.2999 | 0.1936/2 = 0.0968* | Supported     |
| $H_5$ Personal needs has a positive influence on customer satisfaction | -0.2139 | - | 0.7071/2 = 0.3535 | Not supported |
| $H_6$ Efficiency has a positive influence on customer satisfaction | 0.1140 | 0.3149 | 0.7528/2 = 0.3764 | Not supported |
| $H_7$ Application Speed has a positive influence on customer satisfaction | 0.2575 | 1.7144 | 0.0864/2 = 0.0432** | Supported     |
| $H_8$ Electronic Customer Satisfaction has a positive influence on electronic customer loyalty | 1.1166 | 8.2096 | 0.0000/2 = 0.000** | Supported     |

$*=alpha 10\%$  $**=alpha 5\%$

Source: Data result

Discussion

The relationship between application design and customer satisfaction is represented by $H_1$. The data shows the estimated coefficient value of -0.124 which means that these findings have no positive and insignificant effect. This shows that the hypothesis is not proven. This result is not comparable with previous research by Migwi, which in this study looked at the effect of mobile banking strategy on customer satisfaction in the Kenyan banking industry (Ng’ang’a, 2017). The study concluded that the clear and easy-to-understand user interface of the mobile banking application increases customer satisfaction. On the other hand, an elusive mobile banking application interface design will make mobile banking users feel dissatisfied. Previous research by Amin and Jiang et al (2016), also said that the organization of the site, in this case mobile banking, is the first attribute of mobile banking to attract clients (Amin, 2016; Jiang, Jun, & Yang, 2016). However, it is different in this study where it is not proven that application design affects customer satisfaction. This can be caused by different consumer preferences. This study is not the same as previous research which examined many types of banks, while in this study only BNI mobile banking was used.
The relationship between responsiveness to consumer satisfaction, represented by H2. The processing results show the estimated coefficient value of 0.0537, which means the hypothesis is not proven. Responsiveness is the customer’s perception of getting help when needed (Belynda & Boaz, 2015). The results of this study are in line with research conducted by Osinde et al, that among the dimensions of technology service quality, responsiveness does not have a significant effect on customer satisfaction (Osinde, Mayanja, & Tibaingana, 2020).

The relationship between the effects of security on consumer satisfaction, represented by H3. The processing results are indicated by the estimated coefficient value of 0.0842, which means that increasing security will decrease customer satisfaction and conversely decreasing security will increase customer satisfaction. These findings indicate that the hypothesis is not proven. In line with the research of Wolfinbarger and Gilly, which showed that there was no effect of security/privacy on customer satisfaction (Wolfinbarger & Gilly, 2003). Although convenience and speed are important and significant factors affecting the experience of Bangladeshi customers in mobile banking, transaction security cannot be ignored at all, moreover technology issues are also related to customer satisfaction. The results of this study complement the previous findings by Osinde et al. that among the dimensions of technology service quality, security has no significant effect on customer satisfaction (Osinde et al., 2020).

The relationship between user friendliness and customer satisfaction, represented by H4. The processed results are indicated by the estimated coefficient value of 0.4578, which means that increasing user friendliness will increase customer satisfaction and conversely decreasing user friendliness will decrease customer satisfaction. The t-statistical value of 1.2999 obtained a p-value of 0.0968 <0.1, so the hypothesis is proven. These results are consistent with Raji et al and Amin, who showed that there is a significant relationship between friendliness and customer satisfaction (Amin, 2016; Raji, Zameni, & Abdulwakil, 2021). Another study by Mahadin et al conducted on tourism websites showed that consumers prefer user-friendliness over other aspects (Mahadin et al., 2020). User-friendly applications can allow consumers to easily and conveniently access and transact via mobile banking, so that it can affect customer satisfaction.

The relationship between personal needs and customer satisfaction, represented by H5. The processing results are indicated by the estimated coefficient value of -0.2139 which means this hypothesis is not proven. This study is different from previous research by Amin and Keskar et al (Amin, 2016; Keskar, Pandey, & Patwardhan, 2020). The study found that
when banks fulfill customer demands and provide services according to customer requests, customers will be satisfied with the service. However, personal needs have no effect on consumer satisfaction, not apart from the lack of utilization of mobile banking, so that the actual benefits are not felt. So personal needs do not affect customer satisfaction.

The relationship between the effect of efficiency on consumer satisfaction, represented by H6. The processing results are indicated by the estimated coefficient value of 0.1140. The findings of this hypothesis are not proven. Contrary to previous research by Amin and Ju et al, the efficiency of mobile banking services affects consumer satisfaction (Amin, 2016; Ju.Y. et al, 2019). In addition, it is also not in line with the previous research, which state that website efficiency is the main driver for measuring the quality of mobile banking services, therefore, the more efficient the website, the more satisfied consumers will be (Hammoud et al., 2018; Herington & Weaven, 2009; Sohail & Shaikh, 2008). However, efficiency does not always provide convenience, there are factors to consider such as the user’s ability factor. Not infrequently the ability of consumer technology is still limited, so that efficiency is still not felt. Instead, it makes consumers feel difficult and results in dissatisfaction with mobile banking services. So efficiency has no effect on customer satisfaction.

The relationship between application speed and customer satisfaction is represented by H7. Processed results are indicated by the estimated coefficient value of 0.2575, which means that increasing application speed will increase customer satisfaction and vice versa. The t-statistical value of 1.7144 obtained a p-value of 0.0432 <0.1 so that it can be concluded that the hypothesis is proven. This study is in line with previous research by Hammoud et al., Kettinger & Lee, and Tan & Teo which showed that the relationship between speed and electronic customer satisfaction, was positive and significant. The faster and more accurate a banking application is, the greater the customer satisfaction, so that if the BNI mobile banking application is fast, loyalty will increase.

The relationship between customer satisfaction and customer loyalty is represented by H8. The processed results show the estimated coefficient value of 1.1166 which means that increased satisfaction will increase customer loyalty and vice versa. The t-statistical value of 8.2096 obtained a p-value of 0.0000 <0.1 so that it can be concluded that the hypothesis is proven. This study is in line with research by Kassim and Abdullah, that satisfaction has a positive effect on loyalty (Kassim & Abdullah, 2010). Likewise, research findings by Thakur
confirm that mobile banking customer loyalty is directly influenced by satisfaction from mobile banking services (Thakur, 2014).

**CONCLUSION, MANAGERIAL IMPLICATIONS, LIMITATION, AND FUTURE RESEARCH**

This research is about the use of mobile banking as a means of payment increased because of the digitalization. Likewise at FKG Usakti, in collaboration with BNI bank to make payments in carrying out professional activities. This study discusses service quality, customer satisfaction and loyalty. The first result of the research model shows that there is a negative and no significant effect between application design and customer satisfaction, which differed with previous research result that can be caused of the customer’s preferences. The results of the second model show that there is no a positive influence between application responsiveness and customer satisfaction, and this result inline with previous research. The results of the third model show that the hypothesis is not proven, which means the increasing security will decrease customer service satisfaction. The fourth results of this research shows that there is a significant relationship between friendliness and customer satisfaction, and this indicates that increasing user friendliness will increase customer satisfaction and vice versa. The fifth hypothesis of this research is not proven and contrary to previous research, because personal needs do not affect customer satisfaction. The sixth hypothesis which state there is an effect between efficiency on customer satisfaction is not proven, and this result contrary with previous research because it makes customer feel difficult to use the application if it is not efficient. The seventh hypothesis state that there is a relationship between application speed and customer satisfaction, and the hypothesis is supported. The increasing application speed will increase customer satisfaction because the faster the more accurate in a banking application. The eighth hypothesis state that there is a relationship between customer satisfaction and customer loyalty, and the processed result show the hypothesis is proven and this result in line with previous research.

This study is one of the cornerstones of the service quality model, namely: application design, responsiveness, security, user friendliness, personal requirements, efficiency, and application speed and not all variables are proven in this study. It is believed that the homogeneity of the sample characteristics contributed to the disapproval of the hypothesis, because the research samples were interdependent. Therefore, to enrich empirical studies in the same context and concept, it is necessary to conduct further studies on objects that have different characteristics and use data collection methods other than the google form which can lead to bias in the results, so that it will further strengthen or find a quality position.
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