



Determinants of Continuous Transaction in Mobile Banking

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ABSTRACT

This study conducts researches on continuous transactions of mobile banking (M-banking) applications for users in Indonesia. Continuous transaction is a state where users make transactions repeatedly and continuously. Using four independent constructs which have relation to trust and satisfaction. By using a simple random sampling technique and evaluate the analysis using structural equation model, has discovers that continuous transactions are influenced by the satisfaction of users of M-banking application. The ease of use and usefulness felt by users also have an impact on the level of satisfaction. The results of this study indicate that to improve user satisfaction it is necessary to make improvements in other aspects, such as convenience on using M-banking application, benefits obtained, level of application security, and maintain user privacy. It is hoped that this research can provide a new perspective on the continuous transactions of M-banking application users.

Key words: Continuous Transaction, Mobile Banking, Structural Equation Model (SEM), Satisfaction.

1. INTRODUCTION

Nowadays mobile device users is expanding rapidly due to the growth of wireless technology, as well as the accelerated development of cellular services. This is also inseparable from the growth of internet users in Indonesia, based on the survey results, which can be seen increasing every year by an average of around 12.92% or around 18 million users from 2014 to 2017 as many as 143 million internet users. This includes 44.16% access via mobile devices [1]. As technology grows, the banking world strives to provide convenience to its customers in conducting banking transactions through their hands. One of them is the presence of Mobile Banking or M-banking. Banking services that can be done through cellular devices using the internet network. As the name implies, this application provides mobility and can be used anytime and anywhere, as long as it is connected to the internet network, so customers no longer need to search for ATMs to conduct non-cash banking transactions. Almost as straight as non-cash transactions can be done through M-banking, such as viewing account information, credit card information, transfers between accounts or between banks,

making payments, spending digital products (credit, electricity tokens, etc.), M-banking also allows customers to set up their accounts, block ATM cards or credit cards. Even now some banks through M-banking have been able to open new accounts, make cash deposit transactions and make cash withdrawals that are confirmed through M-banking then proceed to ATMs for cardless transactions.

The use of technology and the internet in banking services provide a positive perspective on business, can save considerable time and costs in delivering information and transactions to customers. Where related matters also provide an increase in income from service costs carried out by customers. And other impacts will be easier for banks to collect customer transaction data information that allows banks to improve services based on customer needs.

Understanding the customer's perspective on mobile banking here in Indonesia is important because, based on the publication of the 2017 Indonesian Banking Survey conducted by [2], almost all banks in Indonesia surveyed tend to develop technology transformation as investment and technology as the main driver of banks in Indonesia to carry out digital transformation in the next 5 years. M-banking context began to enter a broader context of digital banking. The shift from conventional banks to digital has occurred gradually and will continue. The PWC survey (2017) revealed that the mobile application is a channel that is expected to grow significantly in the future. Mobile devices and the internet have taken over the position of the top channel for customer transactions. PWC [3] also states that traditional branches no longer dominate transactions as they did a few years ago. In 2015, some respondents said that at least a quarter of the transactions they made via cellular and internet, where now there is an increase on the contrary.

Based on these assumptions, banks in Indonesia need to know how well customers are adapting and what factors influence them in using this type of transaction method because using payment services via mobile devices will reduce the cost of financial services and increase transaction speed, and use M-banking application returns as the main vehicle. With extensive possibilities for the development of M-banking, user continuous transactions, in this case, will be important in supporting the success of M-banking application to continue to grow. However, with a large number of M-banking applications, we still do not know what the underlying factors are and have a convincing effect on the user to carry out

continuous transactions again. Although Indonesia has significant growth of internet users only a small percentage use M-banking application. And also, there is no evidence towards how customers understand to fulfill their intention to continuous transaction on M-banking application and evaluate it. In the APJII survey results (2017), it was mentioned that the use of banking applications is still very low at only 7.39%. Where penetration is the lowest in terms of application services accessed. The results of a survey conducted by McKinsey & Company to 900 respondents of financial services customers in Indonesia in 2017, explained that digital banking service is highly increased.

Based on the McKinsey & Company report, half of the conventional customers said that they would try on an M-banking application in the few next months. This finding places Indonesia as the second country that is enthusiastic about adopting digital banking services [4]. The report also said that customers active in digital services buy banking products rather than conventional customers. With a significant increase of M-banking applications, related research is require to analyze the factors that influencing continuous transactions on using M-banking application. As well as the relationship between each of the factors that affect users in conducting transactions using M-banking application.

In the research that has been carried out by [5] about M-banking application continuance use behavior, have been found that the continuance use behavior is highly influenced by the level of user trust and satisfaction. References [6] researched social applications such as WhatsApp, WeChat and LINE to test the intention to continue (Continuance Intention) on the social messenger application. The results that have been obtained state that the intention to continue to be positively influenced by satisfaction and habit factors. Therefore, an in-depth research is needed so that these factors can be seen and for businesses can adjust applications developed to be better, to help understand what factors can help increase user' continuous transactions to use M-banking applications.

2. THEORETICAL BACKGROUND

2.1 M-banking Application

Can be considered as one type of cellular trading. Therefore, this research considers that the M-banking application is included as an information system. To meet public needs for alternative channels that can establish banking transactions, banks provide more efficient and effective services apart from branch offices and ATMs. By using M-banking application, customers no longer need to queue at a bank or ATM, because with M-banking application, transactions are possible to be done anywhere, anytime easily and more practically via mobile phones. Some examples of transactions that could be done through M-banking application are fund transfers between accounts or banks, various payments for digital transactions, purchases of digital products, and checking account balances. With the existence of M-banking, the bank not only acts as a place to store and distribute money, but also acts as a financial manager for customers, and this service can

make it possible to adjust to customer characteristics. This is the first evolution of banks to become financial service providers.

M-banking is a modification of the internet banking service, which connects banks with customers remotely through the internet network. M-banking, in general, can be grouped into 3 groups, namely:

a. Informational

In this type of M-banking only displays about bank's information. The risk of this system is quite low, because this system is not connected to the main server and network at the bank, but only connected to the hosting server. Possible risks are changing the contents of the site on the internet (or often known as defacing). This does not jeopardize the entire bank system but will be able to disrupt the information on the bank's website.

b. Communicative

The second type is more interactive than the first type. In this type of system, it is possible to interact between customers and the system at the bank. Interactions that occur can be in the form of checking account balances, transaction reports, making changes to customer data, and service subscription forms from the bank concerned. Based on how it works, the risk of this system is greater than the first type. This is caused by interactions that occur between customers and servers on a bank network. For this reason, more supervision and maintenance is needed in this system, to prevent intruders and programs that can damage the system such as viruses, Trojan, and others.

c. Transactional

The latter type is the most complete compared to other types, and generally also contains systems in the two previous types. In this third type of system, customers are allowed to make transactions directly. Because this system has a direct connection to the main server and network at the bank, the risk of this system is also quite large, at most compared to the two previous types. Therefore, strict control is needed in this system. Transactions that can be performed on this system can include direct access to bank accounts, such as current balance or transaction information, bill payments, fund transfers, credit top-ups, and so on.

2.2 Expectation-Confirmation Model (ECM)

ECM is based on the Expectation-Confirmation Theory (ECT) which is extensively used in studies to assess consumer behavior in repurchases. ECM is a theory that broadly aims to study and understand continuous usage or continuance usage. The continuation of an information system user decision can be likened to a repurchase decision because it has similarities in following past decisions, and is also influenced by experience, and potentially can have initial decisions. ECM itself focuses on post-acceptance variables.

The ECM Information System (figure 1) continuance was developed and tested by Bhattacharjee using three constructs, namely user satisfaction, user confirmation, and the user's perceived usefulness [7]. Empirical data was collected through field surveys of online banking users through online

media. Online banking was chosen because banking is an information-intensive activity. And besides, historically the banking industry has aggressively implemented Information Systems.

The perceived usefulness affects IS continuance intention directly and indirectly through the level of user satisfaction as a mediator variable. Then followed by a confirmation which directly affects the perceived benefits and satisfaction. The level of user satisfaction influence IS continuance intention.

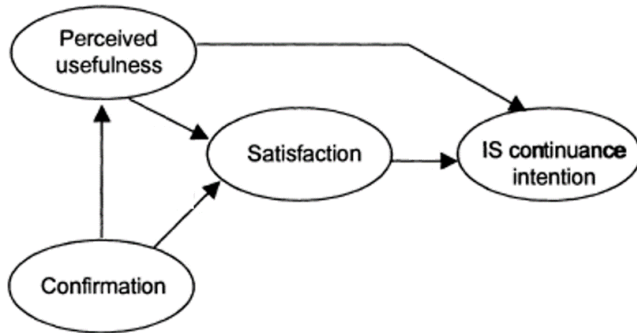


Figure 1: ECM IS Continuance

The factors mentioned above can be described as follows:

1. IS Continuance Intention

The state of information system continuance is a belief that consistently shows influence on user intentions throughout all stages of information system use [8]. Based on ECT model, confirms that the user intention to repurchase is significantly influenced by previous experience with the service or product [7]. IS continuance at the level of individual users is the center of many companies such as business to consumer (B2C) where the effective customer base, market share and revenue of these companies are initial users and the number of users is sustainable. Wu [8] found that IS Continuance was positively influenced by customer satisfaction.

2. Satisfaction

The dimensions of expectations and user confirmations can influence users to use the information system. High and low expectations lead to greater user confirmation, where this can have a large influence on user satisfaction and continuous transactions [7]. Previous experience about products and services determines the level of satisfaction where this can have a good effect on the intention to continue or reuse an application [9].

3. Perceived Usefulness

When users believe that their ability to use applications can be fulfilled, users have confidence that by using the system, their performance will improve. So that the perceived usefulness can meet their expectations of the application. [10]. In the context of IS Continuance, it is stated that the perceived benefits of providing confidence as a fulfilled expectation that

is proven to consistently affect the intention at all stages of the use of a system [7].

4. Confirmation

Users' perceptions about the compatibility between the estimated use of information systems and their actual performance. Confirmation has a close relationship with user satisfaction which using Information Systems that implies approval of the expected benefits of using Information Systems [7].

Research conducted by [11] to look for determinants of continuance usage intention on M-banking application. By using an extension of the ECM model. Continuance use intention is significantly influenced by user satisfaction and self-efficacy. Followed by the trust which positively impacts on user satisfaction. The findings imply the bank to plan their strategies to increase consumer's continuance use intention on M-banking application

2.3 Trust

Trust is a context-dependent construction, multi-dimensional, and complex [12]. Research on trust is found in various scientific fields. For the online trust, in general, technology is the right object of trust. Trust is known to increase the desire of customers to make purchases online, this will directly reduce the risk felt by customers and indirectly will have a good effect on online purchases [13].

When someone is thinking about having a long-term relationship with something, we need to ensure that it can benefit and can also be trusted, because no one wants to be fooled. In building long relationships with customers as well as efforts to maintain the company's market, trust has an important role as a crucial element [14]. According to Yousafzai et al. [15], trust is defined as expressed from adventure activities that include monetary agreements that result in lower risk and positive interest in the purchase of products and services.

2.4 Perceived Ease of Use

Perceived ease of use is where someone has a belief that using a system does not require much effort and is not difficult to understand [16]. Based on this definition, it can be concluded if someone believes that the use of the system is easy to use then he will use the system and vice versa if someone feels that the system to be used is difficult, then he will not use the system.

2.5 Social Influence

According to [17] social influence is a construct that is used to measure someone that others who think are important believe that he must use a system, this behavior is majorly influenced by the way someone believes others will see it as a result of using technology. So it will affect or convince the individual that he must also use the system. Opinions from people closest

to, give an impact on someone in using M-banking application, this is a personal perception of how the closest people react when he uses M-banking application [18]. In a study conducted by [19] on a private bank found that social influence has the highest partial influence on the reuse of M-banking applications by customers. This finding shows that reusing M-banking applications are influenced by the people around them.

2.6 Perceived Security & Privacy

Security and privacy are two interrelated things, every user wants security in their privacy. According to [20], the importance of security and privacy for online banking has been widely studied. Security means the customer's confidence that the transaction will be safe using M-banking application, a customer will use M-banking application when he is sure that the transaction to be carried out is safe from theft [21]. With various services and products offered through the internet, customers are increasingly worried about security and privacy issues.

3. RESEARCH MODEL AND HYPOTHESES

The research model (figure 2) used in this study is a development of the ECM model by integrating four other constructs. The research was conducted to evaluate the effect of trust and satisfaction factors on users' continuous transactions on M-banking applications. Besides, key factors that influence trust and satisfaction will also be examined based on the existing literature review. Identification of the hypothesized factors was taken from various works of literature to be used as a research model. The research model is then empirically proven in the form of a hypothesis test with data obtained from the questionnaire.

Four independent variables, namely Perceived Ease of Use, Perceived Usefulness, Social Influence, and Perceived Security & Privacy affect each of Trust and Satisfaction. And Continuous Transaction M-banking users are influenced by the level of user trust and satisfaction.

3.1 Perceived Ease of Use

Perceived ease of use is described as a measure of the extent to which users believe in using the system is easy and does not require much effort [16]. From this definition, it can be concluded if someone feels that a system is easy to use, then he will use the system and vice versa if someone feels that a system is difficult to use, then he will not use the system.

Thus, we propose,

- *H1: Perceived Ease of Use significantly influences Trust*
- *H2: Perceived Ease of Use significantly influences Satisfaction*

3.2 Perceived Usefulness

Perceived usefulness can be defined as a measure of the extent to which a user believes that the use of a system will improve its performance [16]. From this definition, it can be concluded if someone feels that a system is useful, then he will use the system and vice versa if someone feels that a system is less useful, then he will not use it. This may increase the user's initial trust. If M-banking services are useless, users may feel that M-banking service provider does not have enough capability and integrity to provide quality services. And it also has an impact on user satisfaction based on the user experience

- *H3: Perceived Usefulness significantly influences Trust*
- *H4: Perceived Usefulness significantly influences Satisfaction*

3.3 Social Influence

Social influence is a person's perception that the person closest to him believes that he must take part in behavior, which usually explains the influence that comes from social groups. [17].

- *H5: Social Influence significantly influences Trust*
- *H6: Social Influence significantly influences Satisfaction*

3.4 Perceived Security and Privacy

Because M-banking application is related to financial information, this involves considerable uncertainty and risk for the user. Users may doubt whether M-banking service provider can ensure the security of their payments, such as account and password confidentiality [21]. If M-banking is not safe, users might feel that M-banking service provider does not have enough capabilities and policies to protect them from potential problems. This will affect their initial belief. Also, M-banking applications that do not have security cannot be considered useful by users. M-banking applications have to maintain the security and privacy of users, thus users feel safe in doing banking transactions through M-banking application [22].

- *H7: Perceived Security & Privacy significantly influence Trust*
- *H8: Perceived Security & Privacy significantly influence Satisfaction*

3.5 Trust, Satisfaction and Continuous Transaction

The trust factor significantly influences the intention of the users' continuous usage [5]. Consumer satisfaction is a illustration of the situation which is a summary of the experience of usage and purchase [22]. Both trust and satisfaction have an impact on the continuous transaction or continuance usage.

- *H9: Trust significantly influences Continuous Transaction*
- *H10: Satisfaction significantly influences Continuous Transaction*

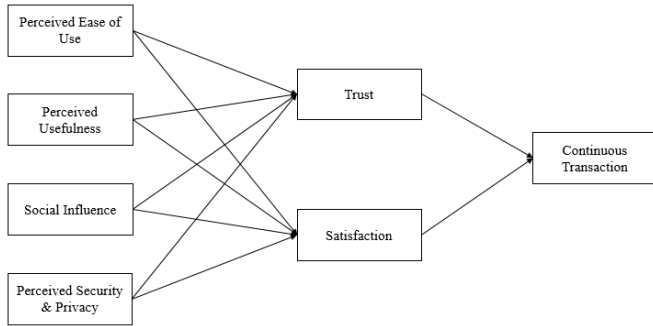


Figure 2: Research Model of Users' Continuous Transaction in M-banking

4. RESEARCH METHODOLOGY

4.1 Instrument

Instrument items are used to measure constructs adapted from the literature. Four measurement items are developed to measure Perceived Ease of Use are adapted from Thong [23]. To measure perceived usefulness used three indicator which adapted from Hsiao et. al. [6]. Social Influence measurement using four measurement items adapted from Chopdar [24]. Perceived Security and Privacy are measured by three measurement items adapted from Wang [25]. Measurement items for Trust are adapted Hsu [26]. Four measurement items for Satisfaction are adapted from Wixom [27] and Ranaweera [28]. The last, measurement items for Continuous Transaction are adapted from Hsiao [6]. All items are measured using Likert scale with five point scale in which 1=“Strongly not agree” to 5=“Strongly agree”.

4.2 Data Collection

The survey was taken in Jakarta, which divided into five regions West, South, East, North, and Central. Total of Jakarta population is 10,344,018 inhabitants. Determine the sample size is using Slovin formula. Which the sample size used in the survey is 400 respondent. The sampling technic is using Probability Sampling, where sampling is done randomly and all members of the population assumed to have the same opportunity to be selected as a sample. The type of sampling technic is Simple random sampling.

Data collection method used in survey research is by distributing questionnaires in the form of a collection of questions about the measured variables created in the online form with a google form. Questionnaires are distributed to users online and offline. For offline distribution using the QR Code to access the questionnaires. And the questionnaire will be distributed via email and any social media also. Respondents answered the questions on the questionnaire by selecting the answer choices provided.

In addition to collecting data through questionnaires, literature studies are also conducted from sources such as

journals, books, literature, articles, and other sources to find information that can support research.

5. DATA ANALYSIS AND RESULT

First, we examine the measurement model to verify reliability and validity of measurement using confirmatory factor analysis (CFA). Then assess the structural model and test the hypothesis. Using Amos SPSS (version 24) to estimate structural measurements and models.

Table 1: Demographics of respondents

| Demographics | Category | Frequency | % |
|---------------|----------------------|-----------|-------|
| Age | 17 - 30 | 209 | 52.25 |
| | 31 - 40 | 161 | 40.25 |
| | 41 - 50 | 21 | 5.25 |
| | > 50 | 9 | 2.25 |
| Gender | Male | 212 | 53 |
| | Female | 188 | 47 |
| Employment | Employees | 287 | 71.75 |
| | Government Employees | 13 | 3.25 |
| | Entrepreneur | 40 | 10 |
| | Student | 35 | 8.75 |
| | Housewife | 25 | 6.25 |
| Location | Central Jakarta | 63 | 15.75 |
| | West Jakarta | 210 | 52.5 |
| | South Jakarta | 83 | 20.75 |
| | East Jakarta | 26 | 6.5 |
| | North Jakarta | 18 | 4.5 |
| Note: n = 400 | | | |

All constructs were set up to assess the reliability and validity using the CFA approach. The results of the CFA are shown in table 2.

As shown in table 2, all items have Cronbach's α value from each construct ranged from 0.699 - 0.949 which is above from the suggested threshold of 0.7. Thus, all indicators are declared valid and the model evaluation process can be continued. For construct reliability value are have ranged from 0.746 - 1.144 which is also above on suggested threshold value of 0.6. Based on the results of these calculations, because there is no construct reliability value whose value is below 0.60 then all constructs in this study are eligible to be used in the model.

Table 2: The Result of Confirmatory Factor Analysis

| Constructs | Items | Stand ard Loadi ng | Stand ard Loadi ng ² | Measur ement error | CR | AV E | Cronb ach's α |
|--------------------------------|-------|-----------------------------|--|--------------------------|--------------|-----------|-------------------------|
| Perceived Ease of Use | PEU1 | 1.000 | 1.000 | 0.000 | 0.962 801 | 0.86 7 | 0.903 |
| | PEU2 | 0.910 | 0.828 | 0.172 | | | 0.756 |
| | PEU3 | 0.972 | 0.945 | 0.055 | | | 0.927 |
| | PEU4 | 0.833 | 0.694 | 0.306 | | | 0.811 |
| Perceived Usefulness | PU1 | 1.000 | 1.000 | 0.000 | 0.896 150 | 0.74 6 | 0.943 |
| | PU2 | 0.863 | 0.745 | 0.255 | | | 0.845 |
| | PU3 | 0.702 | 0.493 | 0.507 | | | 0.699 |
| Social Influence | SI1 | 1.000 | 1.000 | 0.000 | 1.017 796 | 1.07 4 | 0.756 |
| | SI2 | 1.073 | 1.151 | -0.151 | | | 0.743 |
| | SI3 | 1.166 | 1.360 | -0.360 | | | 0.808 |
| | SI4 | 0.887 | 0.787 | 0.213 | | | 0.734 |
| Perceived Security and Privacy | PSP1 | 1.000 | 1.000 | 0.000 | 1.005 463 | 1.01 6 | 0.908 |
| | PSP2 | 1.101 | 1.212 | -0.212 | | | 0.932 |
| | PSP3 | 0.915 | 0.837 | 0.163 | | | 0.805 |
| Trust | TR1 | 1.000 | 1.000 | 0.000 | 0.976 185 | 0.93 2 | 0.938 |
| | TR2 | 0.951 | 0.904 | 0.096 | | | 0.902 |
| | TR3 | 0.944 | 0.891 | 0.109 | | | 0.907 |
| Satisfaction | STF1 | 1.000 | 1.000 | 0.000 | 0.996 207 | 0.98 5 | 0.934 |
| | STF2 | 0.969 | 0.939 | 0.061 | | | 0.929 |
| | STF3 | 1.023 | 1.047 | -0.047 | | | 0.914 |
| | STF4 | 0.977 | 0.955 | 0.045 | | | 0.937 |
| Continuous Transaction | CTX1 | 1.000 | 1.000 | 0.000 | 1.043 810 | 1.14 4 | 0.92 |
| | CTX2 | 1.110 | 1.232 | -0.232 | | | 0.949 |
| | CTX3 | 1.095 | 1.199 | -0.199 | | | 0.947 |

Table 3: Result of Hypotheses Test

| Hypotheses | Relation | Estimate | C.R. | P | Description |
|------------|-------------|----------|--------|-------|-------------|
| H1 | PEU --> TR | 0.15 | 2.387 | 0.017 | Accepted |
| H2 | PEU --> STF | 0.252 | 4.31 | 0 | Accepted |
| H3 | PU --> TR | 0.095 | 1.594 | 0.111 | Rejected |
| H4 | PU --> STF | 0.493 | 8.502 | 0 | Accepted |
| H5 | SI --> TR | 0.148 | 3.336 | 0 | Accepted |
| H6 | SI --> STF | 0.121 | 2.978 | 0.003 | Accepted |
| H7 | PSP --> TR | 0.695 | 14.006 | 0 | Accepted |
| H8 | PSP --> STF | 0.187 | 4.401 | 0 | Accepted |
| H9 | TR --> CTX | -0.006 | -0.15 | 0.88 | Rejected |
| H10 | STF --> CTX | 0.849 | 17.493 | 0 | Accepted |

The AMOS output gives the estimated coefficient, standard error, and critical ratio (CR) values for each coefficient. A relationship is called significant at the 95% confidence level if the value of the CR ≥ 1.96 or the probability value (p) ≤ 0.05 .

Thus, it can be concluded that the hypothesis is accepted if the value of CR ≥ 1.96 or p value ≤ 0.05 , and vice versa the hypothesis is rejected if the value of CR < 1.96 or p value > 0.05 . Thus overall the hypotheses are accepted, only two hypotheses which are rejected.

6. CONCLUSION

Several findings were revealed in this study. In terms of continuous usage of M-banking, perceived ease of use construct has been discovered have a significant effect on user trust. This means to get the level of user confidence, it can increase the ease of use of M-banking or increase the aspects of user experience. And the ease of use of M-banking application can also have a significant impact on user satisfaction. Satisfied users are expected to always use M-banking application as a top priority.

From the perspective of the user's perceived usefulness, it has a significant influence on the level of user satisfaction, but perceived usefulness does not significantly influence user trust. Social influence on using M-banking application gives a significant impact on trust and satisfaction. User's relatives give another perspective for the user to use M-banking application. And it followed by perceived security and privacy has significantly impact trust and satisfaction. Finally, users' continuous transaction is significantly influenced by satisfaction, but not have an impact on user trust.

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