UNDERSTANDING USE BEHAVIOR IN MOBILE BANKING: AN EXTENDED UTAUT PERSPECTIVE

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Mobile banking is a service bank that benefits both banks and customers by providing value and convenience. However, the success of mobile banking is mainly dependent on how thoroughly customers want to adopt it. Thus, this study recognizes the need to examine the factors that could predict the use of mobile banking and how such a system could contribute to increasing the intensity of use of mobile banking by customers. The conceptual model of this study uses extended UTAUT2, including price value, hedonic motivation, and habit. Data collection was carried out through a questionnaire survey by 137 respondents. Partial least square-structural equation modeling (PLS-SEM) was employed for analyzing the data. The study showed that hedonic motivation significantly and positively influenced behavioral intention and habit. Meanwhile, habit and behavioral intention significantly and positively influence user behavior. Nonetheless, price value was found to have an insignificant impact on behavioral intention to use mobile banking. The implications of the study can allow bank managers to have a better understanding of the critical factors that customers evaluate while using mobile banking apps.

Keywords: Mobile banking, price value, habit, behavioral intention, use mobile behavior.

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INTRODUCTION

Financial technology advancements, such as mobile banking (also known as m-banking), have caused various changes in the banking business services. This service allows users to use banking services through their mobile phones as a result of the availability of mobile platforms. Some advantages include improved service quality because users can conduct banking transactions at any time and from any location (Hanafizadeh et al., 2014). Furthermore, M-banking customers can access real-time account information and help banks reduce costs (Baabdullah et al., 2019). It acts as a new service channel, allowing customers to gain extra service and value (Alalwan et al., 2017). As a result, retail banks prefer m-banking to provide m-banking services in order to cut costs on infrastructure (Shankar & Rishi, 2020).

M-banking allows retail banks to improve their services while also lowering their operating costs, despite the fact that its development comes at a high cost (Suhartanto et al., 2020). The We Are Social survey data shows the number of bank customers in 2019 reached 49% of the total population in Indonesia (Adhitya & Sembel, 2020). This shows the size of the banking market in Indonesia. However, the number of m-banking users is still far lower than the number of bank customers themselves (Sitorus et al., 2019) and rather than the number of Internet and smartphone users (Zulfauzy & Rachmawati, 2018), even though m-banking has features that will make users much more effective and profitable. M-banking infrastructure development involves several significant investments (Banerjee & Sreejesh, 2022), and consequences, the use of M-banking sustainably by consumers is an essential plan for banks to get a profitable return on this investment. The task of the bank marketer is to ensure that interest users in technology have not decreased since the adoption of m-banking (Foroughi et al., 2019).

The objective of this study is to look into the factors that influence how individuals use mobile banking in Indonesia, specifically in West Sumatra. This research uses extended UTAUT2 proposed by (Venkatesh et al., 2012). UTAUT has been praised as a more robust theory to predict the acceptance of technology, thanks to its ability to explain 70 percent variance in the intention of behaving and 50 percent variance in the behavior of use (Thusi & Maduku, 2020). Venkatesh et al. (2012) developed UTAUT by adding three variables, namely hedonic motivation, price value, and habit, to consider the acceptance of technology and behavior of the use of individual users. These three variables are known as psychological factors for the consumer.

Adoption of m-banking has attracted the attention of many researchers (Baptista & Oliveira, 2015; Farah et al., 2018; Rodrigo F. Malaquias & Hwang, 2019; Rodrigo Fernandes Malaquias & Silva, 2020; Purohit & Arora, 2021; Raza et al., 2019; Suhartanto et al., 2020). Most explore the factors that affect the adoption of m-banking using TAM and UTAUT models. Review literature also shows the limited application of the primary model to test the acceptance of the m-banking application in the context of Indonesia's developing countries. In addition, this study contributes to the literature by combining the UTAUT and consumer psychology factor approach, including value, habit, and hedonic motivation.

LITERATURE REVIEW

Mobile Banking

Mobile banking refers to financial activities such as checking balances, account transactions, bill payments, and other financial services through mobile devices such as mobile phones and tablets (Goh et al., 2014). M-banking is closely related to mobile devices and communication networks as a tool to interact with banking applications by receiving or sending information and transactions from/to banks (Baptista & Oliveira, 2015). Banking uses various approaches to m-banking, such as short message services (SMS banking) and m-banking applications. Consumers may have different perceptions of these approaches, so their acceptance of m-banking services is also different according to the method used by the bank (Thusi & Maduku, 2020). At present, the adoption of m-banking has not been in the development stage among users. Hence, the bank uses various media platforms for advertising m-banking to capture the potential customer base that has not been used m-banking (Sharma et al., 2022). Suhartanto et al. (2020) used the technology acceptance model (TAM) to investigate mobile banking adoption in Islamic banks in Indonesia. Their research show that perceived usefulness, perceived ease of use, and religiosity are determinants of intention to use mobile banking.

Price value

Price value is a cognitive consumer consideration regarding the trade-off between the benefits and costs incurred when using an innovation (Venkatesh et al., 2012). Therefore Venkatesh et al. (2012) add price value as a predictor of behavioral intention to use certain technologies. Costs incurred related to m-banking are generally due to the need for smartphones, internet connections, and the necessity to use the m-banking application (Merhi et al., 2019). Price value is positive when the benefits of using technology are perceived as more than the monetary cost. The benefits consumers feel when using m-banking will encourage consumers to continue to use m-banking so that it becomes a habit or repeated behavior. Consumers prefer to use

products/services that are believed to offer better performance, values, and profits (Dootson et al., 2016). Research by Susanto et al. (2022) regarding the adoption of e-money in Indonesia shows that consumers consider the benefits and monetary costs of e-money services. If the perceived benefits are greater than the costs, consumers will have a stronger intention to adopt it.

In research on m-banking, price value was found to positively affect behavioral intention (Baptista & Oliveira, 2015; Raza et al., 2019; Zulfauzy & Rachmawati, 2018). Therefore, the following hypotheses are formulated:

H1: Price value has a positive influence on habit

H2: Price value has a positive influence on behavioral intention

Hedonic motivation

In the primary model, Venkatesh et al. (2012) explain that hedonic motivation is the pleasure gained when using certain technologies. Baabdullah et al. (2019) prove the importance of intrinsic motivation by finding a strong relationship between hedonic motivation and actual use of behavior and states that the increase in m-banking usage by consumers is caused by the rise in the hedonic motivation level contained in the m-banking application. Studies conducted by Nikolopoulou et al. (2021) about mobile internet found a positive effect on hedonic motivation on behavioral intention. Hedonic motivation is also the most powerful determinant of intention to adopt m-banking services because mobile devices tend to be associated with pleasure that can reduce the pressure caused by traditional banking and create more pleasant experiences (Farah et al., 2018). The pleasure obtained from using certain technologies can also encourage the emergence of habit because of the tendency to use technology repeatedly. As stated by Venkatesh et al. (2012), habit is a perceptual construct that reflects the results of previous experience. Thus, if consumers feel a pleasant experience of using m-banking, the possibility consumers will use it again in the future so that it can become a habit. Based on this description, this study formulated the following hypotheses:

H3: Hedonic motivation has a positive influence on habit

H4: Hedonic motivation has a positive influence on behavioral intention

Habit

Habit refers to how people tend to do behave automatically because they learn from previous experiences (Venkatesh et al., 2012). In other words, habit is the behavior learned in responding to an unconscious stimulus that leads to fun results (Merhi et al., 2019). In the m-banking perspective, habit is created when consumers use m-banking more often. Habit is predicted in many studies to be a determining factor for the intention and behavior of the use of specific technology (Baptista & Oliveira, 2015; Chávez Herting et al., 2020; Farah et al., 2018; Gupta & Arora, 2020; Khatimah et al., 2019; Macedo, 2017). Related to the adoption of m-banking, Baabdullah et al. (2019) asserted that as long as consumers are accustomed to using a new system, they have good experience and knowledge to use m-banking, and subsequently reflected in the extent to which consumers use m-banking. Research conducted by Khatimah et al. (2019) regarding the behavior of using e-money in Indonesia shows that habit can influence behavioral intention. In the context of m-banking, someone who has a habit of using m-banking will automatically make daily transaction payments using m-banking. Therefore, this research proposes the following hypotheses:

**H5**: Habit has a positive and significant impact on behavioral intention

H6: Habit has a positive and significant effect on use behavior

Behavioral intention and use behavior

Based on previous research on information and information technology systems, behavioral intention is reported to have an important role in influencing the adoption and use of the actual system/technology (Baptista & Oliveira, 2015; Macedo, 2017; Owusu Kwateng et al., 2019; Shankar & Rishi, 2020; Thusi & Maduku, 2020). Studies conducted by Gupta & Arora (2020) found behavioral intention positively predicted user behavior in using mobile payment in India. Previous studies on information and communication technology usage by older adults in Portugal also proved the effect of significant behavioral intention on use behavior (Macedo, 2017). The positive influence of the intention to use of m-banking services is also supported by the study result by Jadil et al. (2021). Based on these findings, it is hypothesized:

H7: Behavioral intention has a positive influence on use behavior

Figure 1.
Research Model

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Research Model
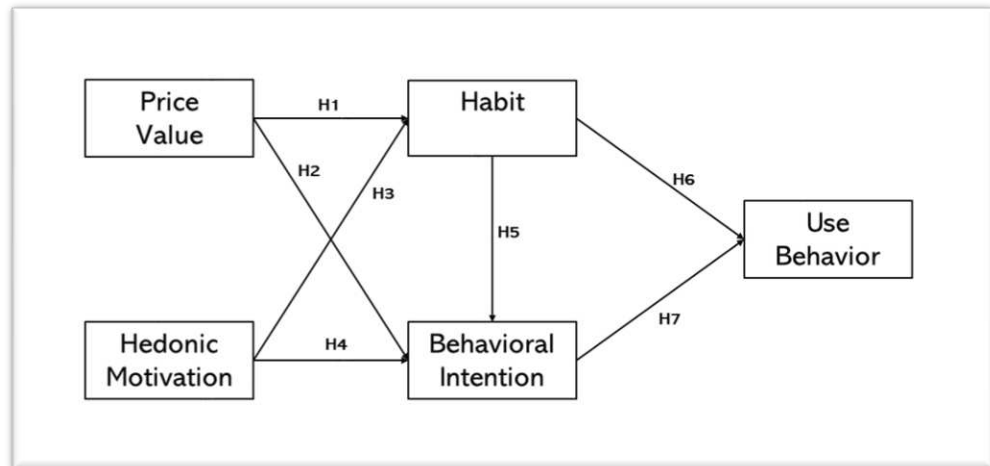
METHOD

This study uses a quantitative statistical approach. Data were obtained through a survey of mobile banking users in West Sumatra, totaling 137 people. Respondents range from 17 to 58 years, with education levels ranging from high school to Doctor (S3). Data is processed with the SmartPLS 3.2 program. Analysis of the data includes the measurement and structural model analysis. The measurement model testing consists of the validity and reliability of the instrument. Validity is assessed based on convergent and discriminant validity, referring to the value of outer loading, cross-loading, and average variance extract (AVE). For testing instrument reliability is assessed based on composite reliability and Cronbach alpha. Structural models are evaluated based on adjusted R-square, path coefficient, and significance of relationships which are at the same time the basis for receiving or rejection of hypotheses.

RESULT AND DISCUSSION

RESULT

Measurement Model Analysis

The measurement model testing is carried out to ensure that the instrument used meets valid and reliable criteria. There are two validity criteria tested, namely convergent and discriminant validity. Convergent validity illustrates a positive correlation between indicators that measure the same construct. Therefore, measuring indicators of a reflective construct should share high variance proportions (Hair, Jr. Joseph F., Hult, G. Tomas M., Ringle, Christian M., Sarstedt, 2017). The convergent validity of a construct can be evaluated based on the outer loading indicator and average variance extracted (AVE) value. A high outer loading on the construct indicates that the related indicators have much in common with the construct. The rule of thumb commonly used to assess convergent validity is that outer loading must be more than 0.7 for confirmatory research, while

Figure 2.
Outer loading of
indicators

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Outer loading of indicators
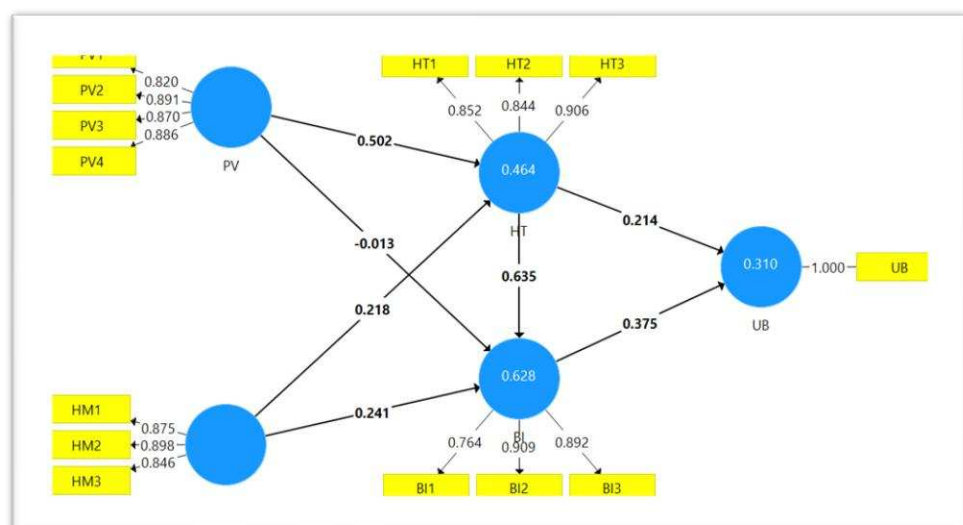
 the AVE value must be greater than 0.5 (Ghozali, Imam., Latan, 2014). Figure 2 shows that all indicators have met convergent validity based on outer loading, greater than 0.70.

The other convergent validity testing is based on the AVE value. Table 1 shows that all variables have AVE values above 0.5. Therefore it can be concluded that all variables meet convergent validity according to AVE value.

Variable	AVE
Behavioral Intention	0.735
Hedonic Motivation	0.763
Habit	0.753
Price Value	0.752
Use Behavior	1.000

Table 1. Average Variance Extract (AVE)

Discriminant validity denotes that a construct is empirically unique from the other constructs (Hair Jr. et al., 2017). It is evaluated by Fornell-Larcker Criterion. Validity discriminant test results in Table 2 show that the square root of AVE for each construct (diagonals in bold) is higher than the construct correlation value with other constructs. Thus, all constructs have fulfilled discriminant validity.

	Behavioral Intention	Hedonic Motivation	Habit	Price Value	Use Behavior
Behavioral Intention	**0.857**				
Hedonic Motivation	0.608	**0.873**			
Habit	0.769	0.593	**0.868**		
Price Value	0.589	0.747	0.665	**0.867**	
Use Behavior	0.540	0.395	0.503	0.427	**1.000**

Table 2. Discriminant Validity (Fornell-Larcker Criterion)

Construct reliability testing is seen from the value of Cronbach Alpha and Composite Reliability. Table 3 shows that all constructs have been reliable with a value above 0.7. Overall the measurement model shows that the model meets the validity and reliability requirements so that it can be continued in testing the structural model.

	Composite reliability	Cronbach Alpha
Behavioral Intention	0.892	0.820
Hedonic Motivation	0.906	0.846
Habit	0.901	0.836
Price Value	0.924	0.890
Use Behavior	1.000	1.000

Table 3. Reliability of construct

Structural Model Analysis

Structural model analysis is carried out to evaluate whether the proposed hypothesis is acceptable. Table 4 summarized the results of hypothesis testing and showed 6 of the seven hypotheses submitted are significantly with the coefficient of positive direct relationships. Therefore, H1, H3, H4, H5, H6, and H7 are accepted. The influence of price value on behavioral intention is insignificant, so H2 is rejected.

Hypotheses	Coefficient	T-statistics	P-values	Result
H1: PV -> HT	0.502	5.792	0.000	Supported
H2: PV -> BI	-0.013	0.143	0.886	Not Supported
H3: HM -> HT	0.218	2.454	0.014	Supported
H4: HM -> BI	0.241	3.448	0.001	Supported
H5: HT -> BI	0.635	7.954	0.000	Supported
H6: HT -> UB	0.214	2.199	0.028	Supported
H7: BI -> UB	0.375	3.807	0.000	Supported

Table 4. Result of Hypotheses Testing

Table 5.
Coefficient of
Determination
(R^2) and
Adjusted R^2

In Table 5, the explained variance (R^2) and adjusted R^2 for each endogenous variable ranging from moderate to high (Ghozali, Imam., & Latan, 2014). Variations in behavioral intention can be explained by price value, habit, and hedonic motivation by 61.9 percent. The rest is influenced by other variables that are not examined in this study. Furthermore, variations in the habit are influenced by price value and hedonic motivation by 45.6 percent. The remaining 54.4 percent is influenced by other variables that are not explained in this study. The model also explains 30 percent variance of use behavior determined by habit and behavioral intention. The R^2 value is included in the moderate category for behavioral intention and weak for habit and use behavior (Kwateng et al., 2019).

	R^2	Adjusted R^2
Behavioral intention	0.628	0.619
Habit	0.464	0.456
Use behavior	0.310	0.300

DISCUSSION

This study integrates the consumer psychological factors that are price value (PV), hedonic motivation (HM), and habit (HT) with UTAUT variables (behavioral intention and use behavior) to investigate user adoption of mobile banking. The results of this study indicate that the price value affects the habit (H1). The study suggests that the cost and benefit considerations of the use of mobile banking will affect the habit of using mobile banking. If consumers feel the benefits of using mobile banking are more significant than the costs incurred, then consumers will tend to repeat it in the future. As stated by Merhi et al. (2019), the response to the stimulus that leads to a pleasant result will form a habit. The value obtained from mobile banking is an enjoyable experience that will direct consumers to repeated behavior and become a habit. However, contrary to previous studies, price value does not affect behavioral intention (H2). In this study, a possible explanation is that consumer intention to adopt mobile banking does not depend on cost constraints.

Hypothesis testing shows a significant positive effect of hedonic motivation on behavioral intention and habit. This result indicates that the underlying motivation influences the user's intention to use mobile banking services (H4). A pleasant previous experience in using mobile banking also played a role in forming habits (H3). Direct effect of hedonic motivation on behavioral intention consistent with previous research (Baabdullah, 2018; Khatimah et al., 2019; Nikolopoulou et al., 2021). Furthermore, the research findings show a direct influence of habit on behavioral intention and use behavior (H5 & H6). The effect of habit on behavioral intention is the highest among other constructs. Thus, it can suggest that habit is the main predictor of intention to use mobile banking. This finding confirmed the research of Macedo (2017) and Thusi & Maduku (2020).

The following results show the effect of behavioral intention on use behavior (H7). These results support previous studies from Oliveira et al. (2016), Raza et al. (2019), and (Shankar & Rishi, 2020). This finding implies that consumers' intention to use mobile banking can predict their behavior.

CONCLUSION

The results showed that habit had the most significant influence on the behavioral intention of mobile banking. This finding indicates that transactions with mobile banking must be a habit to increase user behavioral intention. An activity becomes a habit if the action is entertaining and enjoyable to do. It can be done by increasing the comfort of transactions with mobile banking. The results of this study also have implications for policymakers. Bank retail needs to create a fun mobile banking application for pleasure and enjoyment, so consumers prefer mobile banking transactions rather than traditional banking. The pleasure obtained from mobile banking will increase the frequency and intensity of mobile banking use. A pleasant experience also encourages the emergence of habits as described. When mobile banking has become a habit, the next will promote an increase in the use of mobile banking.

This research has limitations that encourage further investigation. One main limitation is the relatively small number of samples and the possibility of reducing the generalization of the results obtained. Subsequent research is suggested to increase the samples and conduct research in several places to compare the results. The following limitation is that this research does not consider other important factors that may affect mobile banking adoption, such as risk and trust. Entering these variables in the following study will help better understand mobile banking adoption behavior. Future research should examine additional banking products mobile, such as mobile money and internet banking. The study focused on mobile banking. In light of these situations, it could be more interesting to add to the information management literature by contrasting the results of various digital banking products.

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