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Effect of Use of Mobile Banking on the Student's Satisfaction and Loyalty

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ABSTRACT: This study aims to measure the main factors that could predict the use of mobile banking as well as how to use such a system that could contribute to both customer satisfaction and customer loyalty. This study combines two models, i.e., UTAUT2 and D&M IS Success Model. An empirical study was conducted by distributing a questionnaire to 255 Respondents. Respondents of the study were students who live in Surabaya and use mobile banking. Non-probability sampling with a purposive sampling type was applied as the sampling technique. Data processing was conducted using SPSS 18 for Windows and Amos Graphic 21 for Windows and analysis using the Structural Equation Model (SEM). The result of this research showed there are main factors; social influence, price value, facilitating conditions, hedonic motivation, habit, system quality and service quality were found to have a significant impact on actual use behavior.

Keywords: Use behavior, customer satisfaction, customer loyalty, mobile banking

1 INTRODUCTION

The advancement of technology with the internet and wireless communication networks are beginning to dominate so that many applications and features in Smartphone are available that certainly make things faster and more practical. One that utilizes this advancement is banking by offering M-Banking or Mobile banking, which allows customers to carry out banking transactions, from anywhere, without having to come to the bank.

M-Banking or Mobile banking is a service in the form of an application provided by the bank to facilitate its customers to conduct financial transactions. The benefits of using M-banking are (1) saving time, being able to make transactions, for example transferring funds, checking balances, and making deposits only through mobile phones, (2) practical, M-banking allows customers to pay bills quickly without disrupting other activities, (3) able to monitor transactions and account balances, and 24-hour real-time online financial transactions, (4) free, because usually the bank does not charge a monthly registration, activation, or administration fee, (5) and secure, M-banking features require a verification

code, PIN, and a security system that has been standardized by the bank.

This research is a combination of two models, the D&M IS Success Model (Delone & McLean, 2003), aims to measure the success of M-Banking services and the Union Theory of Acceptance and Use of Technology (UTAUT2) model by Venkatesh et al. (2012) which will identify the factors responsible for the successful use of M-Banking services to students in Surabaya. Given the increasing number of banks using new technology, one of which is by offering M-Banking facilities, with the aim of gaining a competitive advantage (Shaikh & Karjaluoto, 2015) and increasing profits (Oppong et al., 2014), this study will measure customer loyalty as the dependent variable that is influenced by customer satisfaction and the use of M-banking (Baabdullah et al., 2019).

The independent variables used in this study were service quality, information quality, and system quality (extracted from the D&M IS Success Model), and performance expectancy, export expectancy, hedonic motivation, social influences, price values, habits, and facilitating conditions (extracted from UTAUT2 model), which will have an impact on the use of M-Banking (dependent variable). Afterward,

this study will test the usage impact as an independent variable on customer satisfaction and loyalty of M-Banking users on students in Surabaya.

1.1. Performance Expectancy (PE)

According to Venkatesh et al. (2003), performance expectancy is an individual's trust regarding the application of technology that will benefit job performance. Brown et al. (2003) stated that the relative benefits received positively affect the level of M-Banking usage, while Bhatiasevi (2016) and Zhou et al. (2010) found that PE influenced the use of M-Banking. Based on this, the proposed hypothesis is:
H1: PE has a positive effect on the use of M-Banking on students in Surabaya.

1.2. Effort Expectancy (EE)

According to Venkatesh et al. (2003), performance expectancy is an individual's trust regarding the application of technology that will benefit job performance. Brown et al. (2003) stated that the relative benefits received positively affect the level of M-Banking usage, while Bhatiasevi (2016) and Zhou et al. (2010) found that PE influenced the use of M-Banking. Based on this, the proposed hypothesis is:
H1: PE has a positive effect on the use of M-Banking on students in Surabaya.

1.3. Influence (SI)

Influence from other people who are trusted can convince an individual to use the new system (Venkatesh et al., 2003). The values that apply in the family and society will be able to change the user's perception in the use of technology (Alsheikh & Bojei, 2014; Rana et al., 2015). The use of a technology service or the shift of users to new technology can be influenced by social relations (Al-Somali et al., 2009; Williams et al., 2015). So the proposed hypothesis is:
H3: SI has a positive effect on the use of M-Banking on students in Surabaya.

1.4. Facilitating Conditions (FC)

Facilitating Conditions are the level of trust of an individual associated with the existence of organizational and technical infrastructure that aims to support the use of the system (Venkatesh, et al. 2003). Technology infrastructure and organizational development can influence people's perceptions and motivate them to continue to use a service (Dwivedi et

al., 2017; Lee & Chung, 2009). A high level of compatibility with the facility to log in to a personal account, transfer money from one account to another, can increase the use of M-Banking (Shaikh & Karjaluoto, 2015); therefore the proposed hypothesis is:
H4: FC has a positive effect on the use of M-Banking on students in Surabaya.

1.5. Hedonic Motivation (HM)

Venkatesh et al. (2012) stated that Hedonic Motivation is a feeling of pleasure obtained from the use of technology. Users of technology will not switch to another technology if they have gained happiness, enjoyment, and comfort in using the technology (Alalwan et al., 2015; Baabdullah, 2018a; Koenig-Lewis et al., 2010). Based on this, the proposed hypothesis is:
H5: HM has a positive effect on the use of M-Banking on students in Surabaya.

1.6. Price Value (PV)

Price Value is the balance between the benefits derived from the use of technology and the costs of using it (Venkatesh et al., 2012). When the level of PV increases, then customers will be more motivated to use technology (Alalwan et al., 2017), but the benefits obtained must be higher than the costs incurred by technology users (Lee et al., 2012), so the proposed hypothesis is:
H6: PV has a positive effect on the use of M-Banking on students in Surabaya.

1.7. Habit (HT)

Habit is the level of individual tendency to behave automatically because of learning (Venkatesh, et al., 2012). The repeated use of M-Banking can gradually increase activities in using this service (Huili & Zhong, 2011); therefore, the proposed hypothesis is:
H7: HT has a positive effect on the use of M-Banking on students in Surabaya.

1.8. System Quality (SQ)

System Quality is the level of success of a service that covers reusability, availability, reliability, adaptability, and response time (Delone & McLean, 2003). The benefits obtained by customers when using M-Banking facilities will be able to increase the use of M-Banking technology (Zhou et al. 2010). The direct relationship between system quality and

technology use is effective (Delone & McLean, 2003), so the proposed hypothesis is:

H8: SQ has a positive effect on the use of M-Banking on students in Surabaya.

1.9. Service Quality (SRQ)

Service Quality is an effort of service providers in meeting the needs and desires of consumers by providing assurance, empathy, and rapid response (Delone & McLean, 2003). The use of M-Banking will increase if individuals get better privileges, facilities, and opportunities (Faria, 2012; Zhou et al., 2010), thus, the proposed hypothesis is:

H9: SRQ has a positive effect on the use of M-Banking on students in Surabaya.

1.10. Information Quality (IQ)

Information Quality is a measure of accuracy to use the information provided by technology services by capturing content that is released (Changchit et al., 2017). Mobile phone internet usage is significantly influenced by the quality of information (Chae et al., 2002), while, according to Lee & Chung (2009), the quality of information has a positive impact on the use of M-Banking for users in South Korea. So the proposed hypothesis is:

H10: IQ has a positive effect on the use of M-Banking on students in Surabaya.

1.11. Usage, Satisfaction, and Loyalty

Usage is a measure associated with visits to web sites, ranging from navigation within site, information retrieval, to the transaction process (Delone & McLean, 2003). This study examines the effect of usage on user satisfaction and user loyalty. User satisfaction is the ability of an application to help users create value for customers (Delone & McLean, 2003). When users get a positive experience when using a service, it will also result in higher satisfaction (Delone & McLean, 2003; Laforet & Li, 2005). Based on this, the proposed hypothesis is:

H11: Usage has a positive effect on M-Banking customer satisfaction on students in Surabaya.

1.12. Customer Loyalty

Customer Loyalty is faithful behavior in using the same service technology over and over and does not switch to other service technologies (Oppong et al., 2014). Through increasing the level of usage, customers will get used to the services provided and will further develop the motivation to be loyal to the

product (Lin & Wang, 2006), so usage will be able to increase the level of M-Banking (Oppong et al., 2014), so the proposed hypothesis is:

H12: Usage has a positive effect on M-Banking customer loyalty on students in Surabaya.

Delone & McLean (2003) stated that there is a close relationship between usage and user satisfaction; this study will consider the impact of satisfaction on loyalty. In the study of Lin & Wang (2006); and Saleem & Rashid (2011) stated that companies strive to increase the level of user satisfaction as the primary policy to achieve the final goal, which is to increase brand loyalty. Research conducted in France by Lee et al. (2001) found a relationship between satisfaction and loyalty when using M-Banking services. As such, the proposed hypothesis is:

H13: Satisfaction has a positive effect on M-Banking customer loyalty for students in Surabaya.

2. RESEARCH METHODS

Data collection techniques in this study used primary data obtained directly from respondents through the distribution of questionnaires online to obtain respondents' perceptions about the factors that influence the use of M-Banking and service quality, on the loyalty of M-Banking users for students in Surabaya. Target and population characteristics of this study were students who live in Surabaya and use M-Banking in the past year. The sampling technique used was the Purposive Sampling method. The measurement scale used was an interval scale with a numerical scale of 1 (strongly disagree) to 7 (strongly agree). Data collection techniques in this study used primary data obtained directly from respondents through the distribution of questionnaires online to obtain respondents' perceptions about the factors that influence the use of M-Banking and service quality, on the loyalty of M-Banking users for students in Surabaya.

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ity of data and (2) structural models to test hypotheses.

3. RESULTS AND DISCUSSIONS

In the initial stage, the test results of the measurement model showed CMIN / DF = 1.799, GFI = 0.810, RMSEA = 0.056, CFI = 0.890, and TLI = 0.874.

Table 1. The Measurement Model

Variable	AVE	CR
PE	0.641	0.842
EE	0.697	0.874
SI	0.69	0.87
FC	0.686	0.867
HM	0.545	0.781
PV	0.677	0.863
HT	0.666	0.857
USAGE	0.588	0.808
IQ	0.497	0.73
SQ	0.54	0.776
SRQ	0.498	0.743
Satisfaction	0.598	0.814
Loyalty	0.661	0.853

In the measurement model, it was found that each indicator has a value of standardized loadings> 0.5. This shows that the constituent indicators of each research variable have shown good measurements. In table 1, the AVE value generated by several variables contained values between 0.4 - 0.5 where according to Verhoef et.al., (2002), the value of AVE> 0.4 or AVE <0.5 is still acceptable as long as the value of construct reliability> 0 .7 Construct Reliability values generated are all> 0.7, meaning that the validity and reliability tests met the criteria.
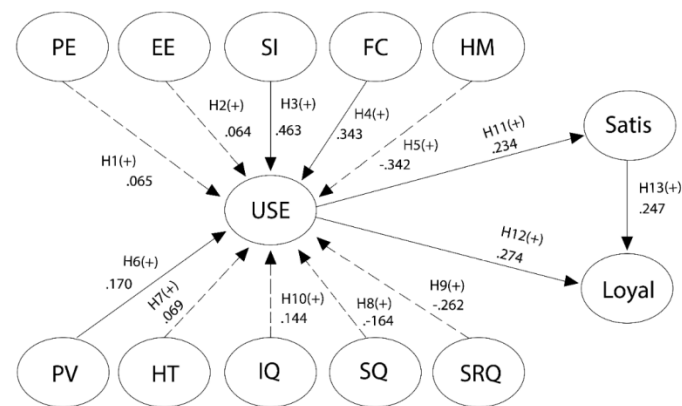

Figure 1. The Results of Structural Model

Based on the hypothesis test of the structural model (Figure 1 and Table 2), it appears that the variables extracted from the UTAUT2 model, namely variables of social influence (H3), facilitating conditions (H4), and price value (H6) show a positive influence on the use of M-Banking, while variables of performance expectancy (H1), effort expectancy (H2), hedonic motivation (H5), and habit (H7) do not show a positive influence. The results of this test are different from the results of Baabdullah et al., (2019), which shows only variables of effort expectancy and social influences have no effect. This means that when using M-Banking, students in Surabaya are influenced by the social environment, the facilities that can provide convenience, and there are no additional costs when using the M-Banking application, other than that the safety and comfort factors provided by the bank with various features ease students to use M-Banking.

The variables extracted from the D&M IS Success Model, namely system quality (H8), service quality (H9), and information quality (H10) do not show a positive effect. This is contrary to Baabdullah et al. (2019), which show only the information quality variable does not indicate a positive influence, whereas service quality and system quality indicate a positive influence. It signifies that students in Surabaya have not been able to enjoy the success of M-Banking services, even though the bank has tried to improve services for M-Banking users.

Table 2. The Results of Hypothesis Testing

	Hypothesis	Std. Est.	C.R	Remarks
H1	PE → USE	.065	.722	unsupported
H2	EE → USE	.064	.938	unsupported
H3	SI → USE	.463	3.693	supported
H4	FC → USE	.343	4.635	supported
H5	HM → USE	-.342	-2.304	unsupported
H6	PV → USE	.170	2.178	supported
H7	HT → USE	.069	1.225	unsupported
H8	SQ → USE	-.164	-1.727	unsupported
H9	SRQ → USE	-.262	-2.197	unsupported
H10	IQ → USE	.144	.878	unsupported
H11	USE → SATIS	.234	3.556	supported
H12	USE → LOYAL	.274	3.114	supported
H13	SATIS → LOYAL	.247	2.525	supported

The use of M-Banking (USE) is proven to have a positive effect on customer satisfaction (H11) and customer loyalty (H12), as well as Satisfaction, has a positive effect on customer loyalty (H13) of M-Banking users on students in Surabaya. The results

of this study confirm the research results of Baabdullah et al. (2019). This means that students in Surabaya who use M-Banking are satisfied with the banks that provide these services and are more likely to continue to use them in the future, as evident from the strong influence between the level of use of M-Banking and customer satisfaction. A significant contribution to the use of M-Banking on Satisfaction is obtained from factors of social influence, facilities provided by banks, and the existence of organizational and technical infrastructure that supports the use of the banking system. A positive direct effect is also seen between customer satisfactions on customer loyalty; this result is in line with research by Baabdullah et al. (2019) and Oppong et al. (2014).

4. CONCLUSIONS

The results showed a positive influence on the use of M-Banking on satisfaction and loyalty, as well as satisfaction on the loyalty of students using M-Banking in Surabaya. Positive factors that influence students in using M-Banking are social influences, facilitating conditions, and price values, while other variables, namely performance expectancy, e-expectation, hedonic motivation, and habits, have not been proven to influence the use of M-Banking on students in Surabaya.

Based on the results of the study, future research is suggested to expand the sample of respondents, namely to the general public of other M-Banking users such as professionals, academics, and government employees. For banks, it is better to socialize to students and other community members regarding the features and facilities that are available as well as convince students and the general public about the benefits of M-Banking in order to attract them in using M-Banking more.

REFERENCES

Alalwan, A.A., Dwivedi, Y.K. & Rana, N.P. 2017. Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management* 37(3): 99–110.

Alalwan, A.A., Rana, N.P., Dwivedi, Y.K., Lal, B. & Williams, M. D. 2015. Adoption of mobile banking in Jordan: Exploring demographic differences on customers' perceptions. *Conference on e-Business, e-Services and e-Society* 13–23.

Alsheikh, L. & Bojei, J. 2014. Determinants affecting customer's intention to adopt mobile banking in Saudi Arabia. *International Arab Journal of e-Technology* 3(4): 210–219.

Al-Somali, S.A., Gholami, R. & Clegg, B. 2009. An investigation into the acceptance of online banking in Saudi Arabia. *Technovation* 29(2): 130–141.

Baabdullah, A.M. 2018a. Consumer adoption of Mobile Social Network Games (MSNGs) in Saudi Arabia: The role of social influence, hedonic motivation and trust. *Technology in Society* 53: 91 –102.

Baabdullah, A.M., Alalwan, A.A., Rana, N. P., Kizgin, H. & Patil, P. 2019. Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management*: 44, 38-52.

Bhatiasevi, V. 2016. An extended UTAUT model to explain the adoption of mobile banking. *Information Development* 32(4): 799–814.

Brown, I., Cajee, Z., Davies, D. & Stroebel, S. 2003. Cell phone banking: Predictors of adoption in South Africa—An exploratory study. *International Journal of Information Management* 23(5): 381–394.

Chae, M., Kim, J., Kim, H. & Ryu, H. 2002. Information quality for mobile internet services: A theoretical model with empirical validation. *Electronic Markets* 12(1): 38–46.

Changchit, C., Lonkani, R. & Sampet, J. 2017. Mobile banking: Exploring determinants of its adoption. *Journal of Organizational Computing and Electronic Commerce* 27(3): 239–261.

Delone, W.H., & McLean, E.R. 2003. The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems* 19(4): 9–30.

Dwivedi, Y. K., Rana, N.P., Janssen, M., Lal, B., Williams, M. D. & Clement, R.M. 2017. An empirical validation of a unified model of electronic government adoption (UMEGA). *Government Information Quarterly* 34(2): 211–230.

Faria, M.G. 2012. Mobile banking adoption: A novel model in the Portuguese context. *Thesis*. Universidade Nova de Lisboa.

Huili, Y.A.O. & Zhong, C. 2011. The analysis of influencing factors and promotion strategy for the use of mobile banking. *Canadian Social Science* 7(2): 60–63.

Koenig-Lewis, N., Palmer, A. & Moll, A. 2010. Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing* 28(5): 410-432.

Laforet, S. & Li, X. 2005. Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing* 23(5): 362–380.

Lee, K. C. & Chung, N. 2009. Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean's model perspective. *Interacting with Computers* 21(5–6): 385–392.

Lee, J., Lee, J. & Feick, L. 2001. The impact of switching costs on the customer satisfaction-loyalty link: Mobile phone service in France. *Journal of Services Marketing* 15(1): 35–48.

Lee, Y.K., Park, J.H., Chung, N. & Blakeney, A. 2012. A unified perspective on the factors influencing usage intention toward mobile financial services. *Journal of Business Research* 65(11): 1590–1599.

Lin, H.H. & Wang, Y.S. 2006. An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & Management* 43(3): 271–282.

Oppong, P., Adjei, H., & Poku, K. 2014. The role of information technology in building customer loyalty in bank-

ing: (A case study of agricultural development bank Ltd., SUNYANI). *British Journal of Marketing Studies* 2(4): 9–29.

Rana,N. P.,Dwivedi, Y.K. & Williams, M.D. 2015. Ameta-analysis of existing research on citizen adoption of e-government. *Information Systems Frontiers* 17(3): 547–563.

Saleem, Z. & Rashid, K. 2011. Relationship between customer satisfaction and mobile banking adoption in Pakistan. *International Journal of Trade Economics and Finance* 2(6): 537-543.

Shaikh, A.A., & Karjaluoto, H. 2015. Mobile banking adoption: A literature review. *Telematics and Informatics* 32(1): 129–142.

Venkatesh, V., Morris, M.G., Davis, G.B., & Davis, F.D. 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly* 425–478.

Venkatesh, V., Thong, J. & Xu, X. 2012. Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly* 36(1): 157–178.

Williams, M.D., Rana, N.P. & Dwivedi, Y.K. 2015. The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management* 28(3): 443–488.

Zhou, T., Lu, Y. & Wang, B. 2010. Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior* 26(4): 760–767.