

Antecedents and Consequences of Customer Intention to Adopt Internet Banking Through Gamification

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ABSTRACT

Purpose – The purpose of this research is to analyze the influence of gamification in the use of internet banking on the intention of customers to adopt and recommend internet banking towards Compatibility, Innovativeness, Web Design, Web Characteristic, Performance Expectancy, Effort Expectancy . This research will help the Bank to measure the effect of gamification towards their customer to use Internet Banking. So they can innovate their Internet Banking system to be more fun and entertaining, so the customer will feel more enjoy to use and they will recommend to other people. Design/methodology/approach – 192 responses were collected from customers of internet banking user by using an online questionnaire. Using the convenience sampling approach. The collected data was analyzed using SEM with the help of PLS. Findings – The results indicate that intention to adopt internet banking is positively affected by Innovativeness, Web Design Performance Expectancy and Effort Expectancy . While compatibility and web characteristic doesn't have a positive effect. The moderating effect of gamification suggested that the relationship between customer intention to adopt and customer intention to recommend will make the gamification effect become weak. Practical Implications – The research suggests that web designer and bank management should focus on the website design of the internet banking. Enjoyable internet banking website with reward and point system will help to improve user's intention to adopt and intention to recommend internet banking with others. So the bank should make an innovative reward system for every transaction in internet banking. Originality/value – This research provide the technology acceptance construct and adding the game elements in technology perspective of internet banking as a moderating effect, to analyze the element effect towards intention to use and intention to recommend.

Keywords: UTAUT; DOI; Intention to Adopt; Intention to Recommend; Gamification; Internet Banking.

INTRODUCTION

In this millennial era, Internet Banking plays a very important role in the field of electronic payments. But according to Kim and Han (2011), not many e-banking services are designed to be fun or entertaining, and are limited to transactional only. Then we need a pleasant internet banking service design that is able to produce a sense of satisfaction for an achievement, positive feelings, and strong social relationships (McGonigal, 2011). According to Kim and Han (2011), not many e-banking services are designed to be fun or entertaining, and are only limited to transactional. Then we need a pleasant internet banking service design that is able to produce a sense of satisfaction for an achievement, positive feelings, and strong social relationships (McGonigal, 2011). Gamification is a marketing technique that can be used to have a positive effect on banking products so that more and more customers are using internet banking and also influence the habits of users and recommend to others.

As for now gamification has begun to enter the banking sector, especially in internet banking. For example, by increasing financial transactions through internet banking, customers will get points that can be exchanged for various prizes (Goncalo and Tiago, 2015).

This research aims to analyze the role of gamification towards the use of internet banking. By knowing the role of gamification in the use of internet banking, banking management will be able to determine the innovations needed in internet banking.

The sample used is internet banking customers. The sample was collected using a questionnaire with a 5-point Likert scale. Then the samples were analyzed using the SEM method with the help of the SmartPLS and SPSS programs.

The results of the analysis in this study indicate that the most influential factor in the use of internet banking is web design. Banking management and web designers must focus on web design that makes it easy for customers to make transactions. As for the role of gamification, it needs to be improved in the point award system when customers make transactions in internet banking.

LITERATURE REVIEW

Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT theory was first introduced by Venkatesh, Morris, and Davis in 2003 which served as a comprehensive theoretical model in this study. This model describes the factors that influence a person towards the use and acceptance of technology. UTAUT is an integration of eight previous technology acceptance models, namely TAM (Technology Acceptance Model) by Venkatesh and Davis (2000), The Innovation of Diffusion Theory (IDT) by Moore and Benbasat (1991), The Theory of Reasoned Action (TRA) by Hill, Fishbein and Ajzen (1977), The Theory of Planned Behavior (TPB) by Taylor and Todd (1995), The Motivational Model (MM) by Davis, Bagozzi and Warshaw (1992), A Model of Combining TAM and TPB (c- TAM-TPB) by Taylor and Todd (1995), The Model of PC Utilization (MPCU) by Thompson, Higgins and Howel (1991), and The Social Cognitive Theory (SCT) by Compeau and Higgins (1995). UTAUT consists of four main variables that act as influence factors on behavioral intention or behavioral to use, namely Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition. These four factors are moderated by four things namely gender, age, experience, and voluntariness. According the performance expectancy assesses the extent to which users expect that using the system will help them to benefit in job performance (Ramli, 2010; Ramli, 2012a; Venkatesh 2003; Ramli, 2012b; Mariam, 2016; Ramli, 2013; Ramli & Sjahrudin, 2015). According to Martins et al., (2014), Performance Expectancy in internet banking is how much The large use of internet banking will help customers to achieve profits in conducting banking activities. Likewise, Alalwan et al., (2016) stated that Performance Expectancy is a benefit that customers feel when using internet banking. Effort Expectancy is explained as the level of perceived ease associated with using the internet banking system (Venkatesh et al., 2003). According to Zhou et al., (2010), when customers feel that internet banking is easy to use and does not require much effort, they will have a high opportunity to use internet banking.

Website Design

Design on a website is a key to creating loyalty. According to the consumer's point of view, the website must be designed with all these features to improve the affective status of users and to increase the intensity of their access or purchase intention (Ramli,

2017a; Imran & Ramli, 2019; Mariam & Ramli, 2019). According to Lazar et al., (2004), the website creation process is carried out by a website expert who has responsibility for design and feature issues, this is because the quality of the website must meet the needs and interests of website users.

Web Characteristic

There are two factors that are very important for customers in the online transaction process through the website, namely the design of the content and characteristics. Efficient websites must contain unique characteristics in appearance, content, and usability (Samar et al., 2017). The most important characteristic needed on a website is usability. According to Desmet and Hekkert (2007) the design of a website must not only be concerned with attractiveness in appearance, but must also pay attention to the usability level because this affects the affective state of the user. The higher the benefits and perceived ease, the higher one's sense of satisfaction and loyalty on a website.

Diffusion of Innovation (DOI)

The formulation of diffusion theory was first conceived by Everett M Rogers in 1983. Then a book called DOI was written by Rogers in 1962 which contained the elements contained in diffusion. These elements are innovation, communication channels, timeframes, and social systems. According to Rogers, the diffusion of innovation is a social process that connects information about a new idea that is seen subjectively (Ramli, 2016a; Puteri & Ramli, 2017; Ramli, 2016b). According to Rogers (2003), Innovativeness is an idea that is considered new by individuals. There are five characteristics of innovation expressed by Rogers. The first is relative advantage, the second is compatibility, the third is complexity, and the last is trialability.

Compatibility

Rogers (1962) defines compatibility as the degree to which innovation is considered consistent with existing values, current work practices, and past experience of potential users. If an innovation or new idea is not in accordance with the prevailing norms, then the innovation cannot be adopted easily as is the case with an appropriate innovation (Ramli, 2017b; Ramli & Yudhistira, 2018; Ramli & Maniagasi, 2018; Ramli, 2018). Kotler (2003), compatibility refers to the level of compatibility of an innovative product with

individuals in a social system and it is proven that it can influence the market in adopting a new product.

Gamification

Some companies currently use gamification techniques as a marketing tool for their products (marketeers.com 2017). Basically, when a company applies a rewards and points system, the gamification process automatically exists within the company. Gamification itself is defined as the use of game systems and game design techniques in a non-game context to attract the attention of customers (Baptista and Oliveira, 2017; Deterding et al., 2011). In a game, there are three elements in the implementation of a gamification system, namely badges, points, and leaderboard (Werbach and Hunter, 2012). But in the context of internet banking, the main element used is points. Points can be exchanged for real prizes. Many gamification systems offer prizes with a point exchange system (Baptista and Oliveira, 2015). The more customers make transactions using internet banking, the more points they will collect (Baptista and Oliveira, 2015).

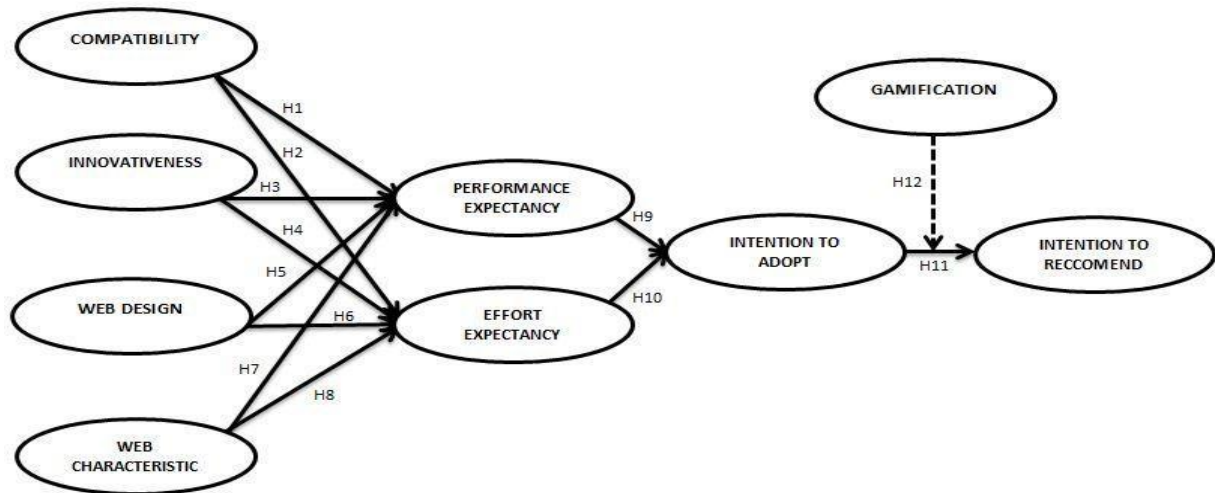
In this study, using gamification as a system or game element in the context of internet banking to produce a pleasant experience for customers and see the effect of gamification features on internet banking for customers to access internet banking. Enthusiasm for gamification was driven by some observers that the game system would definitely involve many people, and this involvement would last for a fairly long period of time.

Theoretical Framework and Hypothesis Development

The UTAUT model requires the addition of variables as the main determinant in construction to get a clearer picture of the behavior of internet banking users (Baptista and Oliveira, 2017; Martins et al., 2014). One's acceptance of a new technology is quite complicated and requires more than one model (Shen et al., 2010). Thus, this model combines Performance Expectancy and Effort Expectancy variables with Web Design, Web Characteristic, Compatibility, and Innovativeness, for a clearer understanding of the phenomena of using internet banking that requires more than one model. Moderating variables in this structure is Gamification. Gamification moderates the relationship between the user's intention to adopt internet banking and the user's

intention to recommend internet banking. This research model illustrates that the user's intention to adopt and the intention to recommend internet banking together is determined by Performance Expectancy, Effort Expectancy, Web Design, Web Characteristics, Innovativeness and Compatibility and is moderated by Gamification shown in Figure 1.

Figure 1: Conceptual Framework



According to Karahanna et al., (2006) Compatibility assesses the extent to which new technology is used or utilized according to circumstances or conditions. According to Kuo and Yen (2009), compatibility is the most important antecedent in performance expansion and effort expectancy for customers' intention to use internet banking. This is because when customers feel it is appropriate and suitable to use this technology, they will continue to use it because they feel comfortable. Based on the statement above, the following hypothesis can be formulated:

H1: *Compatibility has a positive effect on Performance Expectancy*

H2: *Compatibility has a positive effect on Effort Expectancy*

According to Mun et al., (2006), the availability of someone to try new technological innovations is an important factor in determining the outcome of one's acceptance of technology, one of which is internet banking. Ramli, (2019) and Takaya, Ramli and Lukito, (2019), showed the significant impact of an innovation on users' intentions to try new technologies. Based on the statements above, the following hypothesis can be formulated:

H3: *Innovativeness has a positive influence on Performance Expectancy*

H4: *Innovativeness has a positive effect on Effort Expectancy*

In internet banking, banks must implement informative website page layouts to motivate customers who access the website (Rahi, Ghani and Muhamad, 2017; Rahi, Ghani and Alnaser, 2017; Walker, 2011). According to Holloway and Beatty (2008), the characteristics of the website will provide convenience and increase customer expectancy performance when making transactions. Website design also has an influence on performance expectancy (Al-Qeisi et al., 2014). In the online world, design on websites plays a very important role (Bauer et al., 2006). With the convenience provided by a website through its design and characteristics, effort expectancy gives a significant influence for customers to use it (Udo *et.al.*, 2010). Based on the statements above, the following hypothesis can be formulated:

H5: *Website design has a positive influence on Performance Expectancy*

H6: *Website design has a positive influence on Effort Expectancy*

H7: *Website characteristics have a positive effect on Performance Expectancy*

H8: *Website characteristics have a positive effect on Effort Expectancy*

Performance Expectancy is the stage where individuals believe that using systems and technology will improve their performance (Venkatesh et al., 2003; Mariam & Ramli, 2017). Whereas in the context of using internet banking, Performance Expectancy is a stage where customers believe that using internet banking will facilitate their financial transactions and help in achieving profits (Wang et al., 2017). Alawan et al., (2014) argues that Performance Expectancy is a benefit felt by customers when using Internet Banking. Performance Expectancy has a significant effect on user intentions in using internet banking (Martins et al., 2014; Riffai et al., 2012). Based on the statements above, the following hypothesis is formulated:

H9: *Performance Expectancy has a positive influence on customers' willingness to use internet banking (intention to adopt internet banking).*

Effort Expectancy is the stage where individuals find it easy when using a technology (Viswanath et al., 2012). Miltgen et al., (2013) states that effort expectancy contributes to the correct prediction of user intentions in trying new technologies. Customers also believe that internet banking is very easy to use (Albugami and Bellaaj, 2014; Chaouali

et al., 2016). When customers find it very easy to use internet banking and do not require much effort, the use of internet banking will be even higher (Zhou et al., 2010). Based on the statements above, the following hypothesis is formulated:

H10: *Effort Expectancy has a positive influence on customers' desire to use internet banking (Intention to adopt internet banking).*

Social networks are one place where people express their opinions and experiences regarding the use of new technology. This is a challenge and opportunity for a company to continue to make improvements to the technology they create (Zhang et al., 2015). Previous research also revealed that the higher the intention of users in using a technology, the higher the likelihood they will recommend to others (Kuo and Yen, 2009). Based on the statement above, the following hypothesis can be formulated:

H11: *The user's intention to use internet banking has a positive effect on the user's intention to recommend internet banking.*

According to Rodrigues et al., (2017), Internet banking which has elements of games, informative content, site navigation, clear financial information, and easy use are important factors that influence customers to use internet banking. According to Hung et al., (2015), websites that have game elements will produce positive feelings, a desire to achieve something, and strong social relationships. Based on the statements above, the following hypothesis can be arranged:

H12: *The positive relationship between user intentions and intention to recommend will be stronger when the gamification effect is higher.*

RESEARCH METHODS

Data Resources

The questionnaire distributed was filled by 192 respondents. The targeted respondents are bank customers who have internet banking. All questionnaires deserve to be analyzed because the author has applied the system required on each item so that each question must be filled by the respondent. The following demographic characteristics of the respondents are listed in Table 1.

Table 1: Respondent Demographic Characteristics

No	Demographic Characteristics	Total	Percentage
1	Gender		
	Pria	97	50.5%
	Wanita	95	49.5%
2	Age		
	15 - 20 Years	5	2.6%
	> 21 - 30 Years	85	44.3%
	> 30 - 40 Years	53	27.6%
	> 40 Years	49	25.5
3	Education		
	Junior High School	2	1.0%
	Senior High School	41	21.4%
	Bachelor	131	68.2%
	master	18	9.4%
4	Experience using Internet Banking		
	< 1 Year	11	5.7%
	>1 - 2 Years	42	21.9%
	> 2 Years	139	72.4%

Technique of Collection

This study uses primary data using a questionnaire. Questionnaires are distributed online to internet banking customers. Then the respondent clicks on the link provided which will be automatically directed to the browser and then responds to the statement given. This questionnaire is closed with the answers provided.

Validity and Reliability Test

Before analyzing the data that has been collected, the validity and reliability tests are first performed. According to Fornell and Larcker (1981), the validity test is seen from the average variance extracted (AVE) value with a minimum result of 0.5. The reliability coefficient is measured by using Cronbach's alpha for each variable. According to Hair et al (2014), reliability measurements range from 0 to 1 with a limit of 0.7. Validity and Reliability Tests were carried out using the SPSS application.

Data Analysis Method

The data analysis method used in this study is the Partial Least Square Path Modeling (PLS-PM) technique using the SmartPLS software version 3.2.8. PLS is a variance-based structural equation modeling and is suitable for this study because the purpose of this

study is to predict user intentions with the integration of UTAUT and DOI (Hair et al., 2013). We follow the two-step procedure suggested by (Anderson and Gerbing, 1988). First, we tested the measurement model (validity and reliability of the measure) followed by an examination of the structural model (testing the hypothesis relationship). To test the significance of the path coefficient, the bootstrap method was used (Hair et al., 2014).

RESULTS AND DISCUSSION

Results

Descriptive statistical analysis is the process of analyzing the characteristics of a data. Characteristics of the analyzed data are the minimum, maximum, mean, and standard deviation values. The following is a table of descriptive statistical processing results. The following table is the result of descriptive statistical processing.

Table 4: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Dev
Compatibility	192	2.00	5.00	4.2406	0.58230
Innovativeness	192	1.40	5.00	3.5979	0.76109
Web Design	192	2.25	5.00	4.4245	0.63814
Web Characteristic	192	2.50	5.00	4.1016	0.60709
Performance Expectancy	192	2.75	5.00	4.4479	0.61282
Effort Expectancy	192	2.75	5.00	4.3086	0.65083
Intention to Adopt	192	1.75	5.00	4.4154	0.72244
Gamification	192	2.00	5.00	3.8112	0.78089
Intention to Recommend	192	3.00	5.00	4.4219	0.63970

N = Number of Samples

Table 5: Test Results of Reliability Validity

Variable	AVE	Cronbach Alpha	Information
Compatibility	0.760782	0.918	Valid, Reliable
Innovativeness	0.718514	0.900	Valid, Reliable
Web Design	0.759357	0.885	Valid, Reliable
Web Characteristic	0.544356	0.728	Valid, Reliable
Performance Expectancy	0.743248	0.879	Valid, Reliable
Effort Expectancy	0.871412	0.950	Valid, Reliable
Intention to Adopt	0.839948	0.936	Valid, Reliable
Gamification	0.652761	0.843	Valid, Reliable
Intention to Recommend	0.871022	0.924	Valid, Reliable

The validity test results in the table above show that each variable has a AVE value above 0.5 which means that each instrument is valid. The reliability results of each variable above indicate that the Cronbach alpha value of each instrument is at a value above 0.7 which means that each instrument is suitable for use in this study.

Table 6: Hypothesis Test Results

Hypothesis	Relationship	β	SE	T-Value	Label
H1	C→PE	0.084	0.050	1.660	Not significant
H2	C→EE	0.175	0.051	3.398	Significant
H3	I→PE	0.095	0.046	2.044	Significant
H4	I→EE	0.095	0.040	3.707	Significant
H5	WD→PE	0.644	0.055	11.598	Significant
H6	WD→EE	0.575	0.050	11.472	Significant
H7	WC→PE	0.099	0.054	1.815	Not significant
H8	WC→EE	0.024	0.055	0.436	Not significant
H9	PE→INT	0.252	0.067	3.765	Significant
H10	EE→INT	0.611	0.055	11.086	Significant
H11	INT→INTRC	1.087	0.080	13.478	Significant
H12	INT*GAM	-1.094	0.185	5.896	Not significant

Source: Results of data processing with SmartPLS

Based on Table 6, it can be seen the results of hypothesis testing as follows:

H1: Compatibility does not have a significant positive effect on Performance Expectancy.

Internet banking users in the JaBoDeTaBek area feel that their suitability in using internet banking does not significantly affect the transaction process they do in internet banking. This result is not in accordance with the results of the test conducted by Rahi (2018), where compatibility has a positive effect on performance expectancy.

H2: Compatibility has a significant positive effect on Effort Expectancy.

The customer feels that there is a significant influence between compatibility in the use of internet banking and the perceived ease when making transactions. When someone feels compatible with new technology and feels ease when using the technology, they will use the technology intensely.

H3: Innovativeness has a significant positive effect on Performance Expectancy.

Internet banking users feel that with new innovations found in internet banking, it will further assist their transactions with internet banking. These test results are consistent with the results of tests conducted by Rahi (2018) that Innovativeness has a positive influence on Performance Expectancy.

H4: Innovativeness has a significant positive effect on Effort Expectancy.

From the results of the test, it can be stated that new innovations found in internet banking will make banking transactions easier for customers to do through internet banking. The results of this test are consistent with the results of tests conducted by Rahi (2018) that Innovativeness has a positive influence on Effort Expectancy.

H5: Web Design has a significant positive effect on Performance Expectancy.

With a beta value of 0.644, it shows that good web design has a high enough influence on the customer's banking transaction process through internet banking. These test results are in accordance with the results of previous tests conducted by Rahi et al (2018) which proves that Web Design has a positive influence on Performance Expectancy.

H6: Web Design has a significant positive effect on Effort Expectancy.

With a beta value of 0.575, it shows that a good web design has a high enough influence on the ease of the banking transaction process carried out by customers through internet banking. By creating a web design that contains 3 important aspects (system quality, information quality, and service quality), it will make it easier for customers to make transactions and increase the intensity of using internet banking to their relatives. Social networking allows users to express their opinions and experiences about new

products and technologies, reflecting that users with higher intensity to use internet banking are more likely to recommend internet banking to others.

H12: A positive relationship between the intensity of internet banking use and the intention to recommend will not be stronger when the gamification effect is getting down.

This shows that with the gamification system tends to weaken the desire of customers to use and recommend internet banking. When viewed from the results of the indicators on gamification, customers feel the addition of game elements in the internet banking website need not be done. Customers are more interested in the gamification system in the form of awarding points and rewards when they conduct financial transactions through internet banking.

CONCLUSION

Based on the results of Partial Least Square in this study, it can be concluded that the Compatibility factor does not have a significant influence on the use of internet banking. This can be seen in the results of the H1 hypothesis test. Likewise with the Web Characteristic factor that does not have a significant effect on the ease of using internet banking. The customer feels that the characteristics of the font and the bright appearance on the internet banking website are not important factors. This is evident in the results of hypothesis testing H6 and H7. From the results of this test, the design factor of a website has a high enough influence for customers to get ease in using internet banking. The layout of each menu and the ease of registering have a strong enough impact for customers to conduct financial transactions through internet banking. Another thing that has strong influence is the desire to recommend the use of internet banking to other relatives is also quite high if the customer feels the ease and comfort in using internet banking. This was proven through the results of the H10 hypothesis test. However, a negative effect was found on the gamification system on the intention to use and recommend. This can be seen from the results of the H12 hypothesis. The gamification system weakens the customer's desire to use and recommend. This can be caused by several factors, including customers in Indonesia tend to be included in the category of early adopter of the gamification system in banking. Another factor is the internet speed in Indonesia which is still ranked 93 for

connections via cable and ranked 106 for connections via mobile (Study of Global Speedtest Index, 2017). The average person will leave a website if the response time is too long when accessing. So it can be estimated if the addition of a gamification system on a website, will slow down the response time of the website.

Managerial Implication

The results of this study highlight several important issues regarding internet banking adoption that have not been addressed by previous studies. First, the innovation factor has a strong enough influence on the convenience that will be felt by customers when transacting using internet banking. Thus, bank management is required to innovate in programs related to transactions through internet banking. Secondly, the web design on internet banking also has a strong influence on the use of internet banking as well as the convenience found on the internet banking website. Banking management and internet banking website designers are also required to focus on internet banking web design, so that customers get the convenience of making transactions through internet banking. Third, the existence of a gamification system in internet banking moderates the relationship between customer intensity in using and recommending internet banking. This implies that adding gamification features on web internet banking can be done if supported by adequate system speed technology. Therefore, banking management and website designers are advised to provide adequate system speed if you want to add a game element to the internet banking website. Customers are more interested in the gamification system such as collecting points by multiplying transactions through internet banking that can be exchanged for certain rewards or prizes. Banking management is advised to increase the number of programs like this so that customers can make transactions more frequently and can recommend it to their relatives so that the banking company will get more profitable profits.

Based on the discussion of the theory, the results of the study to the conclusions in this study are expected that customers will get new knowledge about the gamification system in the banking system that has actually begun to be applied by various banks today. Gamification in internet banking is implemented through a system of collecting points that are obtained when customers make transactions through internet banking. These points can then be exchanged for various prizes or rewards such as shopping vouchers, cellphones, discounts for airplane tickets, and so on.

Limitation and Future Research

This study experiences several limitations as follows:

1. There is a population limitation in this study because it is only intended for internet banking customers in the Greater Jakarta area.
2. This study does not use 2 other constructs in the UTAUT namely Facilitating Conditions and Social Influence which may be considered important for the intensity of internet banking use.
3. The TAM construct used is only limited to behavioral intention.

Based on the above limitations, researchers provide the following recommendations for recommendations:

1. Further research is suggested that the customer population be expanded not only to the Greater Jakarta area but also to other areas in West Java.
2. Regarding only 2 constructs being used, it is recommended that further research use the four constructs contained in the UTAUT (Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence)
3. Extending the TAM construct using Actual Behavior.

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