Measurement Tool for Continuance Intention towards Mobile Games Application

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Abstract: *Gaming industry is one of profitable industry in the world. One of the most popular types of gaming industry is mobile games. Mobile games can be use anytime and anywhere regarding all situations due to the ease of use of the smartphone. Indonesia is one of the biggest countries that have a big mobile games market around ASEAN. The development of mobile games has brought that XYZ game to become one of the most Indonesia's popular mobile games. The effect of consumer behavior towards behavioral intention that has to be done by the mobile games company need to be understand in the purpose of predicting their continuance intention towards the XYZ mobile games. Variables from both TAM and TPB with Flow are considered to be proper basis for this research. A modification from proposed model was made to fulfill the objectives of this research by replace perceive usefulness to perceived enjoyment and behavioral intention with continuance intention. Factors used are perceived behavioral control, perceived ease of use, subjective norms, flow experience and attitude. The pilot test was conducted on 31 respondents to prove the validity and reliability of the model. Result that from 7 construct and 34 items considered to be valid and reliable in the test. For that reason, the measurement tool is qualified to be used in further study.*

Keywords: mobile games, technology acceptance model, theory of planned behavior, flow

1. Introduction

Mobile games market in Indonesia is grow very fast proven by the growth of the market starting from 2016 to 2019 the user penetration and revenue generated by this market is very high in Indonesia, Indonesia rank 10 worldwide and rank 1 among ASEAN countries for its mobile games market [1]. That condition leads to emergence of mobile games company want to market their mobile games in Indonesia. The XYZ mobile games application become one of the most popular games in Indonesia.

The development of smartphone and internet user in Indonesia is considered to be one fastest in the world [2] has bought XYZ mobile games application to become one of the most popular games in Indonesia. Since smartphone and internet provides ease of use and convenience of user experience in terms of playing XYZ mobile game application, one of the ways to predict the attitude of XYZ mobile games application is through by investigating the intention of the consumer to continue playing the application, the more positive attitude user have towards XYZ mobile games the more user want to continue playing. This proposed measurement model is expected to be an inclusive tool that can be used to predict user continuity intention towards mobile games application for further study.

The combination of TAM, TPB and Flow proposed by Lee and Tsai (2010) [3] is the right foundation model for this research with a few modifications. This model describes the builds of perceived enjoyment, perceived ease of use, perceived behavioral control, subjective norms, flow experience and attitude towards continuance intention. An inclusive measuring tool is expected to find the results for further investigation.

2. Literature Review

As the baseline theory of this research, this research was developed by Lee and Tsai (2010). The research conducted to test a model from combination of TAM, TPB and Flow to specific games on website. Lee and Tsai (2010) use independent variables namely perceived enjoyment (PE), perceived ease of use (PEoU), perceived behavioral control (PBC), subjective norms (SN), social interaction (SI), human computer interaction (HCI) as antecedents of flow experience (FE), attitude (ATT) as an intervening variables and continuance intention (CI) as dependent variables. This research modified the independent variables by only use PE, PEoU, PBC, SN and FE. This research removes SI and HCI because authors want to put more focus on CI not on antecedents of FE. According to research conducted by Hsu and Lu (2005) [4], Ha et al (2007) [5] and Chen et al (2017) [6] PE is more important than perceived usefulness (PU) which is original variable from TAM model stated by Davis (1989) [7] to predict consumer behavior in gaming communities because perceived usefulness cannot reflect feelings of favorability or disadvantage in playing games of this nature.

Using questionnaire technique, data collection to 31 respondents concludes that 100% agreed that perceived enjoyment become the highest influences to their attitude towards XYZ mobile games. Previous study by Hsu and Lu (2005) [4], Ha et al (2007) [5] and Chen et al (2017) [6] supported the replacement of perceived usefulness to perceived enjoyment and discovered the variable to be influential in predicting user behavior towards gaming communities.
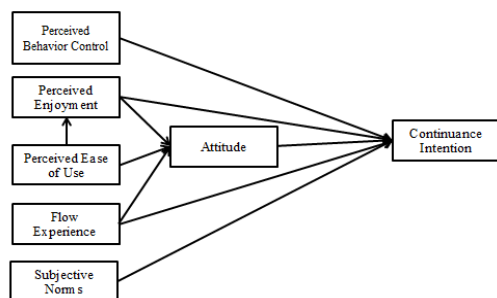
Figure 1: The research framework, combination of TAM, TPB and Flow.

In this research 7 constructs are used

The definition of the respective variable explains:

Perceived Behavioral Control refers to reflects perceptions of internal and external constraints on behavior of playing XYZ mobile games. Subjective Norms refers to a person's perception that most people who are important to them think they should or should not perform the behavior of playing XYZ mobile games. Perceived Enjoyment refers to the extent to which the activity of playing XYZ mobile games perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated. Perceived Ease of Use refers to the degree which a person believes that playing XYZ mobile game would be free of effort. Flow Experience considered an extremely enjoyable experience, in which an individual engages in an online game activity with full involvement, enjoyment, control, concentration and intrinsic interest. Attitude refers to the positive or negative feelings of an individual about carrying out the target behavior. Continuance Intention refers to user's intention to continue using the system in the future.

3. Methodology

In this research, the validity and reliability test are conducted in order to develop a good measuring tool. Validity tests consist of validity of the content, face validity, readability and pilot tests. According to Indrawati (2015:47) [8] explains that content validity is the extent to which items are logically used to measure research variables correspond to what is measured and conducted through the adoption and modification of items related to what has been released. Face validity was accomplished by expecting some marketing expert suggestions and recommendations. Readability was accomplished by understanding the questionnaire by respondents ' results. The questionnaire items are shown in Table 1.

Table 1: Items on Questionnaire

Item	Item	Items Code
Perceived Behavior Control (PBC)	I have the knowledge to play XYZ mobile game.	PBC1
	I have the resource to play XYZ mobile game.	PBC2
	I have the ability to play XYZ mobile game.	PBC3
	Playing XYZ was entirely within my control.	PBC4
	I would be able to play XYZ system well for	PBC5

	playing process.	
Subjective Norms (SN)	People important to me supported me playing XYZ.	SN1
	People who influence my behavior wanted me to play XYZ instead of any alternatives activities.	SN2
	Most people who are important to me would think that playing XYZ is a wise idea.	SN3
	People who influence my behavior would think that I should play XYZ.	SN4
	People whose opinion I value prefer that I should use XYZ.	SN5
Perceived Enjoyment (PE)	The process of playing XYZ is enjoyable	PE1
	While playing XYZ, I experienced pleasure	PE2
	Overall, I believe that XYZ is playful.	PE3
	Playing XYZ brings enjoyment to my daily life.	PE4
	Playing XYZ is entertaining.	PE5
Perceived Ease of Use (PEoU)	Learning to play XYZ is easy for me.	PEoU1
	It is easy for me to become skillful at playing XYZ.	PEoU2
	It is easy to play XYZ..	PEoU3
	Overall, the XYZ system is easy to use.	PEoU4
Flow Experience (FE).	I never thought of other things while playing XYZ.	FE1
	I felt curious while playing XYZ.	FE2
	While playing XYZ, I was entirely absorbed.	FE3
	I feel time passes quickly while playing XYZ.	FE4
	I will not lose interest in XYZ in a short time.	FE5
Attitude (ATT).	I think playing XYZ is good for me.	ATT1
	I think playing XYZ is good leisure activity.	ATT2
	I have a positive opinion of playing XYZ.	ATT3
	I like playing XYZ.	ATT4
	It is desirable to play XYZ.	ATT5
Continuance Intention (CI)	I will keep playing XYZ as regularly as I do now.	CI1
	I intend to continue playing XYZ in the future.	CI2
	I will continue playing XYZ as much as possible in the future.	CI3
	I will strongly recommend others to play XYZ.	CI4
	In the future, I will play XYZ significantly more often than other mobile games.	CI 5

4. Results

The pilot test was conducted on an online questionnaire of 31 respondents through Google forms. All respondents are those who have domiciled in Indonesia. And they played the XYZ Mobile Games Application for at least three months and unlocked some features inside games that takes time to unlock. The data gathered were calculated using SPSS Software. Based on Guilford in Indrawati (2015:149) The items shall be deemed valid if the "Corrected Item-Total Correlation" (CITC) exceeds 0.4. In this research all the items on seven constructs are considered to be valid. Also, where the Cronbach-Alpha (CA) score is greater than 0.7, the reliability test is. In this research all seven constructs satisfy the test of reliability. The pilot test results present in Table 2 below.

Table 2: Pilot Test Result

Item	Corrected Item Total Correlation	Corn bach Alpha (CA)
PBC1	0.766	0.867

PBC2	0.595	
PBC3	0.816	
PBC4	0.509	
PBC5	0.832	
SN1	0.417	0.854
SN2	0.704	
SN3	0.678	
SN4	0.745	
SN5	0.796	
PE1	0.677	0.771
PE2	0.580	
PE3	0.416	
PE4	0.579	
PE5	0.506	
PEoU1	0.548	0.756
PEoU2	0.522	
PEoU3	0.700	
PEoU4	0.513	
FE1	0.665	0.855
FE2	0.463	
FE3	0.811	
FE4	0.669	
FE5	0.778	
ATT1	0.725	0.823
ATT2	0.481	
ATT3	0.842	
ATT4	0.523	
ATT5	0.585	
CI1	0.839	0.909
CI2	0.779	
CI3	0.801	
CI4	0.812	
CI5	0.672	

5. Conclusion

Based on the pilot test results, the conclusion that can be described is that there are 7 constructs and 34 items that are considered valid and reliable. This means that the continuance intention measurement tool can be proposed to be used for further investigation in playing XYZ mobile games application.

References

[1] Statista (2019) Digital market outlook mobile games in Indonesia Statista.com. Retrieved 21 February, 2019 from https://www.statista.com/outlook/211/120/mobile-games/indonesia.

[2] Steven Millwards (2014) Indonesia diproyeksi lampau 100 juta pengguna smartphone di 2018, keempat di dunia. Retrieved 11 March, 2019 from https://id.techinasia.com/jumlah-pengguna-smartphone-di-indonesia-2018

[3] Lee, M.-C., & Tsai, T.-R. (2010). What Drives People to Continue to Play Online Games? An Extension of Technology Model and Theory of Planned Behavior. *International Journal of Human-Computer Interaction*, *26*(6), 601–620. doi: 10.1080/10447311003781318

[4] Hsu, C.-L., & Lu, H.-P. (2005). Consumer behavior in online game communities: A motivational factor perspective. Computers in Human Behavior, 23, 1642–1659.

[5] Ha, I., Yoon, Y., & Choi, M. (2007). Determinants of adoption of mobile games under mobile broadband wireless access environment. *Information & Management*, *44*(3), 276–286. doi: 10.1016/j.im.2007.01.001

[6] Chen, H., Rong, W., Ma, X., Qu, Y., & Xiong, Z. (2017). An Extended Technology Acceptance Model for Mobile Social Gaming Service Popularity Analysis. *Mobile Information Systems*, *2017*, 1–12. doi: 10.1155/2017/3906953

[7] Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of information technology: a comparison of two theoretical models. Management Science, 35(8), 982–1003

[8] Indrawati. (2015). *Metode Penelitian Manajemen dan Bisnis, Konvergensi Teknologi Komunikasi dan Bisnis.* (p. 149). Bandung: PT Refika Aditama.