Factors affecting the use of mobile news applications

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Abstract. The objective of this study was to analyze the factors that influence the use of mobile news applications. The research model used in this study was adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT). This study was classified as a quantitative study with data processing using Structural Equation Modeling (SEM). The results of this study indicated that the Perceived Visual Attractiveness, Perceived Enjoyment, Performance Expectancy, and Effort Expectancy had a positive effect, but Image has no positive effect on Behavioral Intention in using mobile news applications. Also, perceived Behavioral Control and Behavioral Intention have a positive effect on Use Behavior.

1. Introduction

Internet users in Indonesia are increasing from year to year. The survey of the Indonesian Internet Service Providers Association (APJII) states that internet users in Indonesia in 2018 are 171,17 million users of the total Indonesian population of 264,16 million people or around 64.8% of the total population [1]. This is a significant increase, wherein 2017 the number of Internet users in Indonesia was still 54.68%. The internet provides effectiveness and efficiency in terms of time, cost and energy. Also through the internet, distribution time can be shortened to seconds or minutes. The internet has properties that simplify human work, so it's only natural that the internet continues to be explored. The internet has brought significant changes in human life today [2], [3]. The internet has changed the pattern of daily life, the behavior of technology users and various concepts and systems of business, government, education, social relations, and journalism is no exception.

In Indonesia, online news is generally owned and developed by major newspapers and magazines that already have well-known names or newspapers that previously existed in print and were strong in the capital. The emergence of online news sites pioneered by detik.com and then followed by the emergence of online media such as kompas.com, republika.co.id, and others. According to the APJII survey, 93.9% of internet users in Indonesia access the internet via Smartphones or Cell Phones [1]. Along with the rapid use of smartphones, there is a technology that changes the pattern of delivery of news and information. This technological progress has a significant impact on journalism. One such impact is by presenting news from print to web-based media, then switching to mobile news applications.

Mobile news application is defined as a news broadcasting media, with content that can be accessed through mobile devices such as smartphones. The practical and easy-to-carry nature of smartphones makes people more often get information or news through smartphone devices than others, for example, Personal Computer (PC), or Laptop. But in reality, more people get information from Online Messenger and Social Media. According to an article written at journalism.org, on average, 62% of the world's population uses smartphones to access news on the internet [4]. However, at the same time, 54% of the population are also worried about fake news or hoaxes spread on the internet, especially on social media. Another problem that arises is the use of smartphones to search for news or information through media whose credibility is guaranteed to only be around 5.5% [1]. Lack of interest in reading news through

media such as mobile news applications is the reason why people are easily consumed by hoaxes. For this reason, a study is required to examine factors that can increase the use of mobile news applications. It is expected that the results of these studies can facilitate the parties involved in improving the quality of the mobile news application following the users' needs and expectations.

2. Literature review

2.1. Mobile News Application

Mobile News is a news presentation media that can be accessed through mobile devices. The Mobile News Application has become a tool for several people to get the latest news. As technology develops, newspapers, tabloids, and even radio broadcasts seem to be out of date. In addition, in this era there are already many news sources that do not need to rely on advertisers' approval to deliver news that doesn't contain bias. Mobile News Application generally uses trusted sources so that users can avoid hoax news. Mobile News opens competition for developers to provide news services that are always up to date and compatible with many mobile devices. Many people are familiar with mobile news applications, but not all people want to use this facility for several reasons. One of the main reasons is because they are not accustomed to mobile news applications [5].

2.2. UTAUT

Unified Theory of Acceptance and Use of Technology (UTAUT) was developed through an assessment conducted on eight models or theories of technology acceptance that are widely used in studies [6]. The eight models consists of Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined TAM and TPB, Model of PC Utilization (MPTU), Innovation Diffusion Theory (MM) IDT), and Social Cognitive Theory (SCT). In the UTAUT model, four constructs are significant direct determinants to the Use Behavior. The four variables include Performance Expectancy, Effort Expectancy, Influence, and Facilitating Condition. The connection of all constructs is explained in Figure 1.
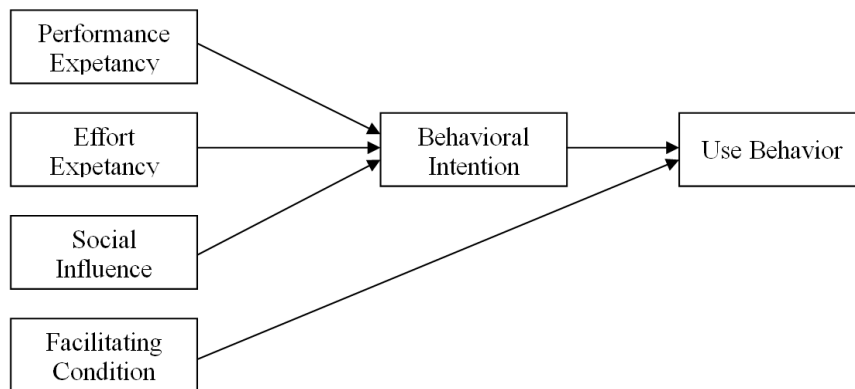

Figure 1. UTAUT Model [6]

Many studies have adopted the UTAUT model. Some of them use UTAUT as a whole, others modify the model. UTAUT can calculate up to 70% of the variant (adjusted R2) usage intention [6]. The UTAUT variant value is higher than the previous eight models which are valued between 17% to 53% [7]. Therefore, UTAUT is the most comprehensive theory of technology usage [8]. However, it does not mean that UTAUT is perfect. Van Raaij and Schepers found deficiencies in UTAUT [9]. They considered that the construct named Facilitating Conditions in the UTAUT model which consisted of Perceived Behavioral Control [10], Facilitating Conditions [11], and Compatibility [12] could not be integrated into one construct because they had different characteristics. Besides that, Subjective Norm [10], Social Factors [11], and Image

[12] also cannot be integrated into one construct called Social Influence in UTAUT for the same reason.

3. Method

This study was a quantitative study using a survey approach. The population in this study was residents of Yogyakarta Special Region. The study was conducted using SEM techniques through the Maximum Likelihood Estimation (MLE) procedure. A sample size of 100 to 200 is required [13]. Considering the existence of inappropriate data or outlier data, 200 people were selected as samples. A set of computers with sufficient specifications is required to run AMOS as a data processing software.

The model used in this study was a modification of the UTAUT model. Perceived Enjoyment and Perceived Visual Attractiveness were added to the framework of the research model. The addition of these two constructs was based on studies conducted by Heerink, et al. [14] and Watcharawaleem & Borworn [15]. The results of their studies showed that Perceived Enjoyment and Perceived Visual Attractiveness had a positive effect on Behavioral Intention. Based on the findings of Van Raaij & Scheper regarding UTAUT deficiencies [9], then Social Influences and Facilitating Conditions were not included in the framework of the research model. Instead, images added that were adopted from IDT [12] and Perceived Behavioral Control was adopted from TPB [10]. The flow of relationships of all constructs in this study can be seen in Figure 2.
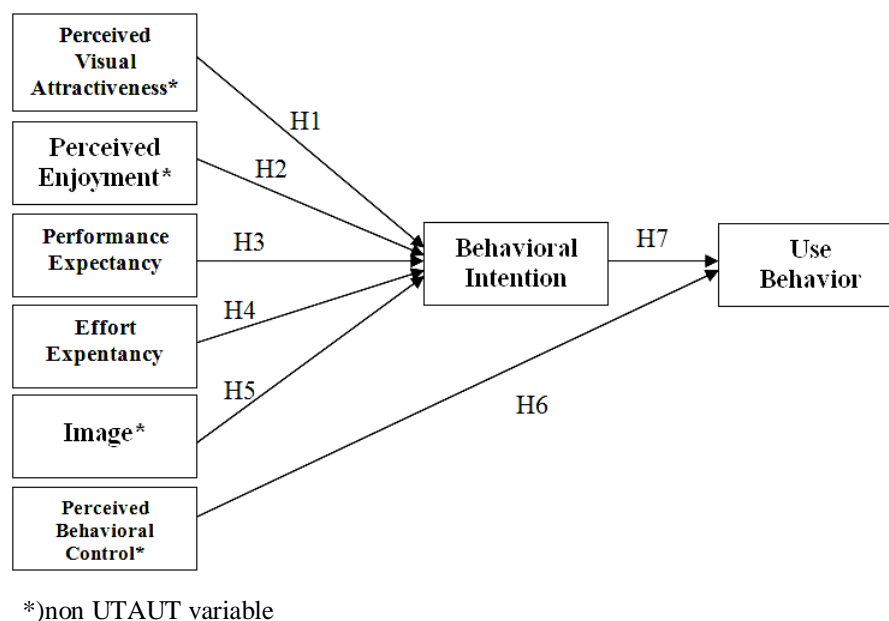

*)non UTAUT variable

Figure 2. The framework of the Research Model

This study used an associative hypothesis to examine the relationship between several variables in the model. The questionnaire was designed following the Likert scale, while the instruments can be seen in Table 1.

Table 1. Survey Instrument

Perceived Visual Attractiveness (PVA)		
Lertlum and	PVA1	The colors used in mobile news applications looks interesting.
Papasratorn	PVA2	Overall, mobile news applications looks interesting.
[16]	PVA3	The design of mobile news applications looks attractive.
	PVA4	The layout of the content mobile news applications looks interesting.
Perceived Enjoyment (PEN)		
Heerink, et	PEN1	I enjoy the way of delivering the news through mobile news applications.
al. [14]	PEN2	I am happy to pass the time by using mobile news applications.
	PEN3	I am interested in using mobile news applications.
	PEN4	I do not feel bored to use mobile news applications
Performance Expectancy (PEX)		
Schoneville	PEX1	Mobile news applications make reading more interesting news.
[5]	PEX2	Mobile news applications allow me to follow the latest news for the better.
	PEX3	Mobile news applications allow me to read the news more quickly.
Venkatesh,	PEX4	Mobile news applications are useful systems for my activities.
et al. [6]		
Effort Expectancy (EEX)		
Schoneville	EEX1	I find it easy to use mobile news applications
[5]	EEX2	I do not find it difficult to learn how to use mobile news applications
	EEX3	I think mobile news applications has a structure that is clear and understandable.
Venkatesh,	EEX4	I easily became the skillful use of mobile news applications.
et al. [6]		
Image (IMG)		
Moore and	IMG1	Using mobile news applications improves self-image and confidence.
Benbasat	IMG2	By using mobile news applications, other people see me have extensive knowledge and dependable.
[12]	IMG3	People who use mobile news applications have seen more levels than those who did not use.
	IMG4	Reading mobile news applications has become a regular habit in my surrounding environment.
Perceived Behavioral Control (PBC)		
Venkatesh,	PBC1	I have the tools to use mobile news applications.
et al. [6]	PBC2	I know how to use mobile news applications.
	PBC3	With mobile news applications, I can share with social networking sites, forums, or blogs that I use.
Behavioral Intention To Use (USE)		
Venkatesh,	BIU1	I intend to use mobile news applications for the next few months
et al. [6]	BIU2	I expect I'll still use mobile news applications for the next few months
	BIU3	I plan to use mobile news applications for the next few months
Use Behavioral (UB)		
Liang, et al.	USE1	Almost every day, I use mobile news applications.
[17]	USE2	I use mobile news applications more than once every day.
Wu, et al.	USE3	Overall, I am satisfied with using the mobile news applications.
[18]		

4. Results and discussion

To get the best model, the model in this study needs to be modified. Modifications made in this study included adding data and reducing indicator variables with low variance. Indicator variables omitted

from the model include: PVA4, PEN4, PEX1, EEX3, and IMG4. Full description of structural models in this study can be seen in Figure 3. The final model of this study was then tested based on the model feasibility index. Through parsimonious fit measure testing, the model is declared feasible to use.
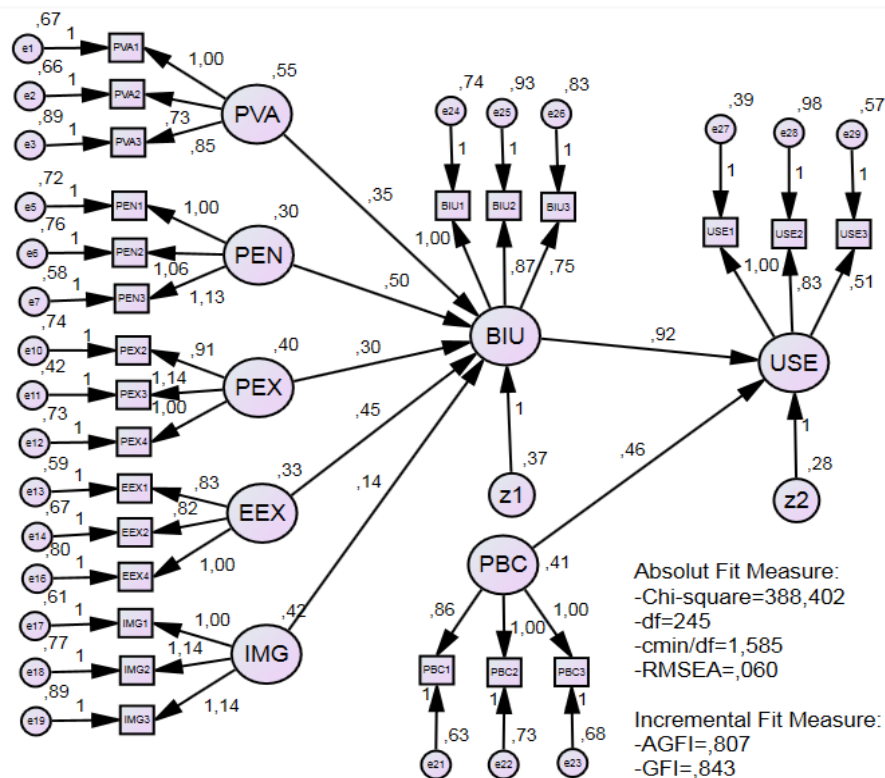

Figure 3. Full Model of Structural Research

The coefficient of determination was addressed by the value of squared multiple correlations. From the squared multiple correlations, the variability of behavioral intention that can be explained by Perceived Visual Attractiveness, Perceived Enjoyment, Performance Expectancy, Effort Expectancy, and Image is 39.7%. The remaining 60.3% are other variables not examined in this study. The use behavior variability explained by Perceived Behavioral Control and Behavioral Intention is 68.6%. As for the rest, amounting to 31.4% are other variables not examined in this study. Therefore, it can be concluded that the model is quite good in explaining the factors that influence the use of mobile news applications.

There is a very significant effect of the predictor variable on the use of mobile news applications. Of all the hypotheses tested, only images did not have a positive effect on Behavioral Intention. In other words, there are still many mobile news application users who do not feel a positive impact on their prestige after using this application. Although Image has no positive effect on Behavioral Intention, Image has an indirect effect on Use Behavior with a standardized coefficient of 0.091. The relationship of indirect effect on Use Behavior with a greater standardized coefficient is obtained by other variables, such as PVA (0.249), PEN (0.270), PEX (0.187), and EEX (0.250).

From the predictor variables used in this study, the variable that has the strongest relationship to Behavioral Intention is Perceived Enjoyment, which is then followed by Perceived Visual Attractiveness, Effort Expectancy, and Performance Expectancy variables. The variable that has the strongest relationship with the use of mobile news applications is Behavioral Intention, which is then followed by Perceived Behavioral Control. These findings are a challenge for mobile news application developers.

5. Conclusion

Based on the results of statistical data analysis and discussion of this study, it can be concluded that Behavioral Intention and Perceived Behavioral Control have proven to be influential in the use of mobile news applications. While the factors that influence Behavioral Intention in using mobile news applications are Perceived Enjoyment, Perceived Visual Attractiveness, Effort Expectancy, and Performance Expectancy. Besides, Image has not been proven to have any effect on Behavioral Intention. In other words, there are still many mobile news application users who do not feel a positive impact on prestige after using this media. As technology develops, information and news delivery media will continue to innovate. It is not impossible that every innovation produced will cause new problems. To get a better solution, further research is needed considering the problems regarding the use of the news media are still very complex. Thus other studies that have the same study but with different variables and larger sample sizes will emerge.

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