ATLANTIS PRESS

Advances in Economics, Business and Management Research, volume 100

International Conference of Organizational Innovation (ICOI 2019)

FACTORS INFLUENCING CONSUMER AFFECTION AND CONSUMER ENGAGEMENT IN MOBILE APPLICATION

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Abstract-The need for internet technology is growing rapidly, leading many companies to develop services that can make it easier for consumers to access even when they are mobile. Mobile application is one of the solutions for consumers to connect with the internet anywhere through their gadget. PT. Telekomunikasi Indonesia, Tbk., one of the internet service providers in Indonesia, saw that chance and developed mobile application *wifi.id GO* that can connect seamlessly through Indonesia's Wi-Fi network. During the year 2018, however, of consumers of wifi.id GO that had the application in their gadget, only 1.9% of users install it throughout the year. Therefore, it is important to understand how to design mobile application wifi.id GO-based on consumer preferences so the consumers continuing to using the application is increased and builds a sustained relationship. This research seeks to understand which features of mobile application wifi.id GO stimulate consumer affection, leading to continuous use and consumer engagement behavior. This study used an online questionnaire to collect data from 364 respondents. The data were analyzed using Structural Equations Modeling. The results indicate that features such as information quality and design solutions will result in higher affection leading to continuous usage and consumer engagement behavior of mobile application wifi.id GO. Moreover, consumer affection positively influenced users' intention to continuous usage, and also positively influenced users' consumer engagement behavior of mobile application wifi.id GO. However, functionality and consumer interaction features are not found to be positively related to consumer affection with mobile application wifi.id GO.

Keywords: Consumer Affection, Consumer Engagement, Intention to use, Mobile Application.

I. INTRODUCTION

The need for internet technology is growing rapidly, leading many companies to develop services that can make it easier for consumers to access even when they are mobile. In everyday life, almost everyone uses their communication device all the time and are always connected to internet access anywhere, whether at home, on trips, school or campus activities, or work activities in both small and large-scale corporations. Mobile application is one of the solutions for consumers to connect with the internet anywhere through their gadget. PT. Telekomunikasi Indonesia, Tbk., one of the internet service providers in Indonesia, saw that chance and developed mobile application wifi.id GO that can connect seamlessly through Indonesia's Wi-Fi network. However, during the year 2018, of consumers of wifi.id GO that had the application in their gadget, only 1.9% of users installed it throughout the year.

The wifi.id GO application is a mobile application developed by @wifi.id to help customers to be seamlessly connected to the Indonesian Wi-Fi network using pay devices (e.g. Vouchers). wifi.id GO is an application for digital touch end point user Wi-Fi, namely @wifi.id, offload, community and so on; it can be white labeled and can be integrated with other applications or systems through providing API connection.

According to the results of the study conducted by Tarute, Nikou, and Gatautis (2017), perceptions of features such as design solutions and information quality will result in higher consumer engagement leading to continuous use of mobile applications. Moreover, consumer engagement positively influences the user's intention to continue using the mobile application. The ability to engage with consumers is very important in the midst of very tight market competition, especially in the mobile application market. The number of cellular applications continues to increase, but the benefits generated are still very low (Dovaliene, Masiulyte, & Piligrimiene, 2015; Lim, Bentley, Kanakam, Ishikawa, & Honiden, 2015).

Managing customer engagement behavior (CEB) is a strategic priority for firms to build and sustain long-term customer-firm relationships (Roy, Balaji, Soutar, Lassar, & Roy, 2018). Therefore, it is important to understand how to design application mobile wifi.id GO-based on consumer preferences so the consumers that continue using the application increases and the consumers-firm relationship is sustained. Based on this, our research seeks to understand which features of mobile application wifi.id GO stimulate consumer affection, and lead to continuous use and consumer engagement behavior (CEB) of mobile application wifi.id GO.

II. LITERATURE REVIEW

A. Consumer engagement

Science Marketing (2010) defines consumer engagement as an embodiment of customer behavior towards brands (companies) outside of purchasing activities resulting from individual customer motivations, such as interaction between consumers, recommendations, word of mouth, blogging, writing reviews on social media and other similar activities. Consumer engagement has been studied by various disciplines. Interest in consumer engagement is closely related to social, economic and technological changes that cause changes in consumer behavior (Tarute et al., 2017).

This current study adopted the concept of consumer engagement from Gatautis, Banyte, Piligrimiene, Vitkauskaite, and Tarute (2016) which identifies three general dimensions which can be explained as follows. First, cognitive engagement refers to the level of object engagement of consumers involved through a process, concentration, and interest in certain objects (business companies, brands, online social networking, brand communities). Second, emotional engagement refers to emotional activity, also known as feelings of inspiration or pride associated with and caused by objects of engagement. Finally, behavior engagement refers to the state of consumer behavior associated with the object of engagement and is understood as an effort and energy given for interaction.

Furthermore, this research adopted the concept of consumer engagement from Jaakkola and Alexander (2014) which has four types, namely: Co-developing behavior occurs when consumers contribute to helping the company's development process; Influencing behavior occurs when consumers contribute to influencing or changing the perceptions and/or behavior of other consumers; Augmenting behavior occurs when consumers provide contributions in adding to the offer; and Mobilizing behavior occurs when consumers contribute to mobilizing the behavior of other stakeholders towards the organization.

B. The role of mobile applications wifi.id GO in consumer engagement

Based on Tarute et al.'s (2017) research with a focus on identifying cellular application features that might have an impact on consumer behavior, this study addresses four main features of the mobile application design solutions, functionality, information quality and interaction between consumers or with content. The reason for researchers to use these features is that it is evident that the incorporation of these features into mobile application development can increase and foster a high level of consumer engagement. The four features of this cellular application will be described further and also in the research hypothesis.

Features of the mobile application: design solutions

Design solutions are one of the most important features of cellular applications that might have an impact on consumer behavior and consumer engagement (Kennedy-Eden & Gretzel, 2012; Lee & Benbasat, 2004; Vrechopoulos, Manganari, & Siomkos, 2010). Based on the product document of wifi.id GO, this application is related to the context of mobility and connectivity of wifi.id service users; the clear and easy design solution of wifi.id GO is important for users (User Acceptance Testing 2018 document) so that users can feel the maximum fulfillment of needs in connectivity. Design solution features will result in higher engagement, which leads to continuous usage of mobile applications (Tarute et al., 2017). As such, the researchers propose the following hypothesis:

H1: The wifi.id GO application design solution clearly illustrates that the usefulness of the wifi.id GO application has a positive impact on consumer affection.

Features of the mobile application: functionality

The functional features of a mobile application, defined as "actions that can be performed by users" (Adukaite, Reimann, Marchiori, & Cantoni, 2013, p.49), represent consumer perceptions of various functions in a mobile application. The importance of functional features can be based on the purpose of the mobile application. Based on the product document of wifi.id GO, this application aims to make it easier for users to connect to the wifi.id network so that the application functionality promotes the connectivity function by using various mobile application functions found on cellular devices, such as scanning technology QR code and location-based, allowing users to be more involved with their mobile devices and applications. Therefore, the researchers propose the following hypothesis:

H2: The functionality of the wifi.id GO application that makes it easier for users to connect to the wifi.id network automatically has a positive impact on consumer affection.

Features of the mobile application: information quality

Information that is timely and relevant is one of the main reasons why consumers use mobile applications (Kennedy-Eden & Gretzel, 2012; Nikou & Mezei, 2013). Based on the User Acceptance Testing 2018 document in developing the wifi.id GO mobile application, it is important to always update information regarding features, menus or application flow so that users feel confident and believe in the information submitted on the wifi.id GO application. The information quality feature will result in higher engagement, which leads to continuous usage of mobile applications (Tarute et al., 2017). Therefore, the researchers propose the following hypothesis:

H3: The clear and accurate information quality of the wifi.id GO application has a positive impact on consumer affection.

Features of the mobile application: interaction

Kennedy-Eden and Gretzel. (2012) state that the social features of cellular applications include communication, sharing, and collaboration. This social feature deals with two types of interactions. The first type of interaction refers to interactions with mobile application content. The second type refers to interactions between consumers who use the application or between consumers and application providers. The wifi.id GO application refers to interactions with mobile application content where users can easily make package purchases and interact with admin if there are obstacles or ask for something related to wifi.id services (User Acceptance Testing 2018 document). In addition, this application can allow users to provide location suggestions for wifi.id network installation. As such, the researchers hypothesize that:

H4: The interaction between users and admin included in the wifi.id GO application has a positive impact on consumer affection.

Consequences of consumer affection towards intention to use

Consumer engagement positively influences users' intention to continuous usage of mobile applications (Tarute et al., 2017). Kang, Mun, and Johnson. (2015) analyzed the factors of intention to return to product/service and concluded that emotional engagement was closely related to the intention to use a mobile application. Therefore, the researchers hypothesize that:

H5: Increased positive affection from the wifi.id GO application has a positive impact on intention to use the wifi.id GO application.

Consequences of intention to use towards consumer engagement behavior

According to De Wulf, Odekerken-Schröder, and Iacobucci (2001), loyalty is the amount of consumption and frequency of purchases made by a customer of a company and they found that the quality of connectedness consisting of satisfaction, trust and commitment had a positive relationship with loyalty. Customer loyalty is viewed as the strength of the relationship between an individual's relative attitude and repeat patronage. The relationship is seen as mediated by social norms and situational factors. Cognitive, affective, and conative antecedents of relative attitude are identified as contributing to loyalty, along with motivational, perceptual, and behavioral consequences (Dick & Basu, 1994). Therefore, the researchers hypothesize that:

H6a: The increased intention to use the wifi.id GO application has a positive impact on the consumer engagement behavior co-developing.

H6b: The increased intention to use the wifi.id GO application has a positive impact on the consumer engagement behavior interaction.

H6c: The increased intention to use the wifi.id GO application has a positive impact on the consumer engagement mobilizing behavior.

H6d: The increased intention to use the wifi.id GO application has a positive impact on the consumer engagement augmenting behavior.

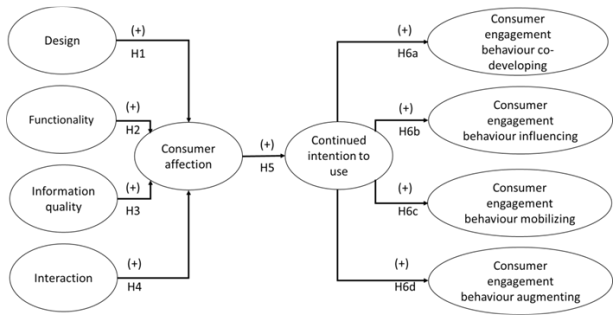

Fig 1. Proposed Conceptual Model

III. METHODS

Based on the above discussion, we design an empirical research to analyze the features of a mobile application that stimulates consumer affection, leading to intention to use mobile applications and consumer

engagement behavior. The dependent variables in this study are consumer affection, continued intention to use and consumer engagement behaviour (co-developing, influencing, augmenting, mobilizing) while the independent variable in this study is features of design solutions, functionality, information quality and interaction.

This quantitative research used an online questionnaire to collect data. The convenience sampling was used in this study, which included the nonprobability sampling category. The target for this research is user mobile application wifi.id GO in Indonesia. The survey consisted of several sections. The first section includes questions aimed to ensure the respondent is an active user of the wifi.id GO application. The next section includes statements that were used to examine how important the features of wifi.id GO mobile applications were for the respondents. In a further section, several statements were used to examine the level of user affection with mobile applications, examining the user perceptions towards the importance of mobile applications and to examine the level of user consumer engagement behavior with mobile applications. The last section was an addition to the demographic questions. This questionnaire used a 6-point Likert scale from strongly disagree (score 1) to strongly agree (score 6) and was sent through 2,000 email addresses listed in the wifi.id GO database. The pretest was conducted on 33 respondents. Pretesting approach allowed us to check for ambiguous expressions and to structure and refine, if needed, the wording of the items. IBM SPSS 23 software was used at pretest. For the main test, we used 364 respondents and analyzed using Structural Equation Modeling (SEM) (IBM AMOS 22).

IV. RESULTS AND DISCUSSION

In total, this research used 364 respondents collected from 29 provinces in Indonesia. Most of the respondents were male (93%) with a dominant age in the range 15-24 years (56%). At the stage of pretest, factor analysis was performed for each construct. Maximum likelihood extraction method, with Varimax rotation, was employed during the factor analysis. The result all the constructs has item loading > 0.5, KMO >0.5 and Cronbach's Alpha > 0.6, so all the constructs were valid and reliable (Hair et al., 2010; Malhotra, 2017). For measurement model test we used Confirmatory Factor Analysis (CFA) method to analyze the validity and reliability. To fulfill the requirements to be declared valid and reliable, SLF must be ≥ 0.5, CR must be ≥ 0.7, and AVE must be ≥ 0.5 (Hair et al., 2010). The analysis results reveal that the measurement model has a good fit with the data according to the indices listed in Table 1.

TABLE 1. VALIDITY AND RELIABILITY TEST OF MEASUREMENT MODEL.

Latent Construct	Items	SLF (>0.5)	AVE (>0.5)	CR (>0.7)
Design	FD1 FD2 FD3	0.925 0.922 0.741	0,752	0,900
Functionality	FF1 FF2 FF3 FF4 FF5	0.794 0.813 0.852 0.796 0.84	0.671	0.911
Information Quality	FKI1 FKI1 FKI1	0.85 0.888 0.899	0.773	0.911
Interaction	FI1 FI1 FI1	0.816 0.887 0.871	0.737	0.894
Consumer Affection	CA1 CA2 CA3 CA4	0.856 0.926 0.926 0.918	0.823	0.949
Consumer Intention to Use	Inten1 Inten2 Inten3	0.896 0.879 0.889	0.789	0.918
CEB Co-developing	CEBCo1 CEBCo2 CEBCo3	0.944 0.904 0.907	0.844	0.942
CEB Influencing	CEBIn1 CEBIn2 CEBIn3	0.93 0.944 0.926	0.871	0.940
CEB Mobilizing	CEBMob1 CEBMob2 CEBMob3 CEBMob4 CEBMob5 CEBMob6	0.893 0.923 0.917 0.936 0.941 0.933	0.854	0.972
CEB Augmenting	CEAug1 CEAug2 CEAug3	0.921 0.912 0.89	0.824	0.933

In this research, five different fit statistics, the root mean square error of approximation(RMSEA), the goodness-of-fit index (GFI), the normed fit index (NFI), Tucker-Lewis index (TLI), and the comparative fit index (CFI), were computed. The results show that the model fit indices satisfy the recommended guidelines with RMSEA < 0.08, GFI > 0.8, CFI > 0.9, NFI > 0.9, TLI > 0.9 and thus indicate that our proposed research model presents a good fit with the data (Browne & Cudeck, 1992). After that, the research model is assessed to verify the research formulated hypotheses. Four out of six hypotheses were supported (see Table 2). H1–H4 state that the different features of mobile applications have a positive impact on consumer affection, H5 states that consumer affection with mobile applications leads to continued intention to use, H6 states that continued using mobile application leads to consumer engagement behavior.

TABLE 2. RESULT OF HYPOTHESIS TESTING.

Hypothesis	IV	DV	SLF	C.R. (t-value)	p-values	Results
H1	Design	Consumer affection	0.174	2.938	0.003	Supported
H2	Functionality	Consumer affection	-0.013	-0.06	0.952	Not Supported
H3	Information quality	Consumer affection	0.767	4.906	<0.001	Supported
H4	Interaction	Consumer affection	0.03	0.156	0.876	Not Supported
H5	Consumer affection	Continued intention to use	0.943	20.644	<0.001	Supported
H6a	Continued intention to use	CEB co-developing	0.817	19,05	<0.001	Supported
H6b	Continued intention to use	CEB influencing	0.954	24,511	<0.001	Supported
H6c	Continued intention to use	CEB augmenting	0.919	21,215	<0.001	Supported
H6d	Continued intention to use	CEB mobilizing	0.844	19,088	<0.001	Supported

The results show that information quality is the most influencing variable to increase consumer affection, followed by design of the mobile application. However, functionality and interaction features are not positively related to consumer affection. This is related to the fulfillment of the main function of the cellular application, which is the connection to the Indonesian Wi-Fi network which depends a lot on the external conditions of the application such as the reliability of the Wi-Fi network. Users will use additional features and when the main functions of the application are fulfilled, the user feels satisfaction. The reason for such outcome might be related to the fact that interaction quality, environment quality, inertia, and user satisfaction are key determinants of continuance intention, while outcome quality is not (Wang, Ou, & Chen, 2019). The main purpose of making this application utilitarian is not to create a social environment, but that users would interact with other users or admin when they find problems in using the application. These findings could be related to the insights of Kim and Hwang (2012) stating that mobile applications should be adapted to consumers' hedonic/utilitarian needs and values.

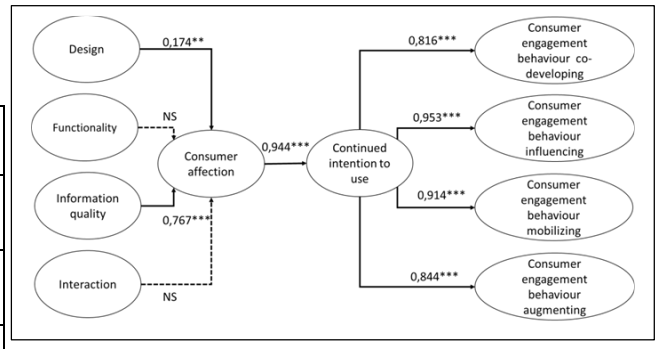

Fig 2. SEM analysis results (→ = hypothesis supported; - - → = hypothesis not supported; NS = Not supported; *** = $p \leq 0{,}001$; ** = $p \leq 0{,}05$)

Furthermore, intention to continuous usage of mobile applications positively influenced users' consumer engagement behavior. These results support previous theoretical insights provided by Dick and Basu (1994). As the consequences of continued intention to use, all four types of engagement behavior are positively impacted. Consumers are willing to contribute to influencing the perceptions and/or behavior of other consumers, including spreading positive word-of-mouth, recommending and even persuading family and friends to use this application. Consumers are also willing to contribute to mobilizing the behavior of other consumers towards the organization, such as helping and giving advice when other consumers facing problems. Next, consumers are willing to share their experiences through personal blogs or review on social media. While with co-developing behavior, consumers are willing to contribute to helping the company's development process of the mobile application.

V. CONCLUSION

Mobile application wifi.id GO is an application dedicated for consumers to be automatically connected with the wifi.id Indonesia network automatically and one of the tools for PT. Telekomunikasi Indonesia Tbk. to become a market leader in the Wi-Fi industry, offering a better understanding of how the different features of the application affect consumer engagement and what is required to cause such a consequence. In this research, we have investigated relationships between mobile application wifi.id GO features and consumer engagement, and their consequences. Based on the results of this quantitative research, wifi.id GO mobile application has a positive engagement with the user. To increase consumer engagement between user-firm, company should more focus on the design and information quality features, because these lead to more positive consumer affection towards the application. Furthermore, consumer affection strongly influences continued intention to use mobile application wifi.id GO, which lead to the higher willingness to perform all the four-engagement

behavior (i.e. influencing, mobilizing, augmenting and co-developing).

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