

## INTENTION TO USE: STUDY ONLINE SHOPPING BASED ON ANDROID APPLICATIONS

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### ABSTRACT

*This research analyzes the effects of several variables that explain the intention to use an android-based application. This study confirms several variables in previous studies that are still being debated, namely the impact of knowledge on the intention to use. This research also uses attitude to mediate the influence of web-quality and e-WOM, with the consideration that discussing the direct effect on adoption behavior will ignore the cognitive aspects of consumers in making purchasing decisions. This research is a survey research with the questionnaire. The population in this study are all online shopping consumers who have adopted Android-based applications in Yogyakarta. Respondents in this study were 206 consumers. Data analysis in this research uses structural equation modeling. This research shows the result that there is a positive impact of knowledge on the perception of relative advantage. Web quality and e-WOM influence attitude. RA and attitude impact on intention to use. The model of intention to use is accepted, and the hypothesis proposed in this study is approved.*



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### 1. INTRODUCTION

Technology-based on Android has changed the paradigm and marketing strategy. Android-based information systems are beginning to be taken into account to increase company profits (Almada-Lobo, 2016). Information Technology (IT) brings a production and marketing system to a new level. This new information technology enables developing organizations to serve customers in new ways by using new businesses so they can create value for customers. This study discusses several issues related to the intention of using an android-based application for online shopping. This study analyzes android adoption

in Indonesia because, as a developing country, Indonesia is also invaded by e-commerce actors. The Indonesian e-commerce map in 2018 made by iPrice can be seen in table 1. E-commerce, which is the first place in downloading Indonesian applications through both the App-Store and Play-Store is Shopee.

The importance of understanding the advantages is relatively the first issue of this research. Relative advantage (RA), according to Fry et al., (2018); Vasilkova (2018) analyzed its direct effect on consumer adoption behavior patterns. This research explores the effects of RA on the intention to use (ITU) through attitude formation because the discussion of the direct

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influence of RA perceptions on adoption behavior ignores the cognitive aspects of consumers in making purchasing decisions. The next issue addresses the importance of understanding consumer knowledge of new technologies. Consumer knowledge of new technology is a specific condition to gain an understanding of the benefits and workings of new technology (Fry et al., 2018). Knowledge in previous research shows a non-significant relationship in technology adoption decision making because the use of

product knowledge constructs focuses more on subjective measurement approaches (Vasilkova, 2018). This study can confirm that the knowledge relationship with IT adoption is significant. The role of e-WOM in adopting technology adoption can minimize the risk of online purchases, another issue in this study. This risk perception is an unpredictable side for consumers that can disrupt existing consumption routines (Sung & Jo, 2018; Swiegers, 2018).

**Table 1.** Indonesian e-Commerce Map in 2018

Online Shop	The visitor (Month)	App Store rank	Play Store rank	Twitter	IG	FB
Toko pedia	111.481.100	2	3	170. 100	708. 400	5.591.100
Buka Lapak	85.138. 900	4	4	136. 500	307. 700	2.229.100
Lazada	49.990. 700	3	2	363. 600	692. 100	25.247.800
Shopee	30.843. 400	1	1	330. 100	889. 900	11.392.800
Blibli.com	29.044. 100	5	5	474. 700	239. 400	7.781.900

Sources: iprice.co.id (2018)

This study has several contributions: (1) This study analyzes the relative superiority in shaping the ITU through the formation of attitudes, which is different from previous studies which examined the effect of RA directly on the ITU and through mediating PU and PEU (Stieninger et al., 2018; Min et al., 2018). (2) This study analyzes consumer knowledge using several more comprehensive aspects (objective and subjective) to know the actual level of consumer knowledge. Product knowledge used in previous research shows a non-significant relationship in innovation decision making because the use of knowledge constructs focuses more on subjective measurement approaches (Fry et al., 2018; Vasilkova, 2018). (3) This research analyzes the effect of e-WOM on ITU. When perceptions of innovation characteristics are explained first in the attitudes or cognitive aspects of consumers, this will bring crucial practical understanding. In contrast to previous studies, which analyzed that e-WOM's direct effects on adoption gave little emphasis on consumer thought processes and attitudes (Swiegers, 2018).

## 2. LITERATURE REVIEW

### 2.1 Android technology

Android is an application designed by Google through a Linux-based operating system for touch screen phones on smartphones and tablet computers (McDonnell et al., 2013). The evolution of Android and mobile applications on smartphones has grown rapidly. One of the determining factors for the success of smartphone platforms is the number of apps available. Google introduced Android as an application that was already installed on a smart-phone device in Oct 2008 to make it easier for users to download applications from third parties. Android Market provides paid and free apps.

Aslam et al. (2018) explain that Android is a complete, open, and free future platform. Android provides a

comprehensive platform, can be developed quickly, the operating system is safe, and the tools are perfect in its development. The Android platform is free, making it easy to create applications without licenses or royalty fees; no fees can be easily distributed for trade. Aslam et al. (2018) show the popularity of android applications, among others (1) Speed, and the mobile app is made simple in providing data precisely in accordance with user wishes (2 ) Productivity, developing mobile applications to share needs and make it easier for users to overcome problems faced daily, ranging from just games to cooking tutorials are already available. (3) Design creativity, the design offered has user-friendliness. (4) Flexibility and reliability, The limitations of an application can be checked up by looking for other applications that are suitable for the user's needs.

### 2.2 Intention to Use (ITU)

Yoon & Rolland (2015) developed a confirmation model of expectations in the context of Information Technology (IT) to understand the behavior of IT use. The ITU is assumed to be the same as the consumer repurchase decision because it is accepted for the first time or when making a purchasing decision. The experience of using early will affect the ITU and allow effects on ex-post reversals from the initial decision (Yoon & Rolland, 2015). Expectation theory is accepted in post-admission variables because pre-adoption considerations have been included in the confirmation and satisfaction construct. In the expectation of IS use, the measurement after consuming is usually further than the expectation before consumption, and the ex-post model is more able to give hope to the user (Oghuma et al., 2015). Fry et al. (2018) state that technology offers several prospects of solutions and opportunities, namely: (a) more effective in solving problems, there are new and efficient opportunities to use natural materials; (B) more active, microchips and renewable

energy have become more robust and more efficient; (c) new technology is spreading rapidly throughout the world driven by Internet connectivity; (d) providing bargaining power for solving problems related to energy, food, clean water, health care and education needs; and (e) easy to adopt, IT has changed activities that were previously complicated, tiring and time-consuming, almost effortless and transparent to users.

### **2.3 Knowledge and Relative Advantage**

Al-Debei et al. (2015) define relative excellence as consumers' perceptions of website excellence in online transactions. The benefits of knowledge on consumer behavior are easier to find information, learn, and adopt the process of innovation of new products (Fry et al., 2018). Previous research based on technology acceptance models (TAM) was quite successful in analyzing the influence of knowledge and attitudes on IT adoption (Tseng, 2017). Knowledge is a form of consumer understanding of a product that is believed to have an important role in deciding IT adoption. Knowledge also shapes a person's RA perception of IT. The better consumer knowledge about new IT will increase the understanding of RA of a technology that is considered new (Fry et al., 2018).

H1: Knowledge influences relative superiority.

H2: The relative advantage influences attitude on the application of an android application.

### **2.4 Website quality**

Wang et al. (2015) show that the web quality is the effectiveness of a website when delivering messages to the audience." and web compatibility with stakeholder expectations. Bhat and Singh (2018) defines website quality as the desired characteristic of a website that is felt by users of online information systems. The results of research conducted by Bhat and Singh (2018) show the design of web quality affects ITU social commerce. Al-Debei et al. (2015) show the design and appearance of online shopping websites will influence consumer behavior in shopping. The better the quality of the website, the consumer will be interested in the website and the more influential the desire of consumers to the online shop.

Bhat & Singh (2018) stated that there are five dimensions of website quality, (1) Information, including content quality, usability, completeness, accuracy, and relevance. (2) Security, including trust, privacy, and security guarantees. (3) Ease, easy to operate, easy to understand, and speed. (4) Comfort, including visual appeal, emotional appeal, creative and attractive design. (5) Quality of service, including online completeness, and customer service. These factors can explain the IT adoption decision process of consumers.

The quality of the website shows an advantage and low level of service by the organization (Herrero et al., 2015). Purchase online is a need that person has to buy products and services on certain websites. The purchase rate will increase if buying ITU is positive (Shaouf et al., 2016). Therefore, the site becomes one of the most important things that must be considered by the company to be conveyed to consumers so that consumers feel facilitated by the website.

H3: Website quality has an influence on attitude toward adoption android application

H4: Attitude toward adoption android application has an impact on the intention to use

### **2.5 e-WOM**

Swiegers (2018) states that e-WOM is a non-commercial dialogue conducted by previous customers and consumers regarding company products and services via the internet. e-WOM has an important influence on consumer evaluations of products because the existence of the internet makes e-WOM dominant for exchanging information between consumers online. Customers consider word of mouth (WOM) information obtained from close friends to obtain information about product quality attributes more reliably. Information obtained from the experiences of other consumers reviewed on the internet is considered more relevant than information from producers (Kim et al., 2010; Sung & Jo, 2018). The review of consumer experiences, as expressed through internet media in the form of e-WOM, has the power to influence the purchase of other consumers. e-WOM can minimize the risks that arise with the selection of a decision (Sung & Jo, 2018). On the other hand, Word of mouth communication through interpersonal interaction also has an important influence on consumer purchasing decisions. WOM is considered more credible and flexible and has a more powerful impact than advertising and personal selling (Gvili & Levy, 2016). In a digital environment, digital channels are prioritized for sharing and distributing information for user groups who are members of online communities and networks. Digital channels make it easy for users to judge the source and credibility of messages. Lee and Ma (2012) state that consumers always rely on information from the informal from relatives and acquaintances to get in-depth information about a product. Reviews presented by customers are perceived as more relevant and objective than the information provided by the manufacturer. These customer reviews have more power in influencing purchases (Ullrich & Brunner, 2015).

H5: e-WOM has an effect on attitude toward adoption android application.

Attitudes are defined as psychological tendencies expressed in certain entities with a level of likes or dislikes and affect behavioral intentions (Ajzen &

Fishbein, 1980; Akroush et al., 2015). The definition of online shopping behavior is a consumer's belief about online shopping activities that are carried out pleasantly and require a relatively short amount of time (Akroush et al., 2015). The results of previous studies on online shopping decisions state that consumer attitudes towards online stores can influence consumer choice decisions. The researchers found that purchasing via the internet was significantly positively influenced by attitude. Research on the use of cellular internet conducted by Cheong and Park (2005) also shows the positive influence of user attitudes on smartphone purchase intentions. Besides, they also find that user attitudes influence intention, and subsequently influence the decision to adopt a website. Park and Chen (2007) clarify user attitudes toward technology drive that intention. Hsiao (2013) states that on the purchase of a smartphone, the positive attitude of the customer determines the purchase intention. Aslam et al. (2018) also noted that the formation of a positive attitude preceded the ITU an Android smartphone.

H6: Attitudes towards the adoption of android applications affect the intention to use.

### 3. RESEARCH METHOD

This research uses a method intending to conclude and analyze several variables through interviews and

observations. This survey is used to measure various phenomena, describe, analyze, and predict. The sample survey method in this research was conducted by taking a portion of the population. This research was conducted in Yogyakarta, Indonesia using primary data obtained through questionnaires using a five-point Likert scale. Respondents are customers who have shopped online using an Android application, amounting to 206 people. SEM-AMOS was used to analyze research data. Testing the model is justified by observing the Goodness of Fit index obtained from the SEM-AMOS output. (Hair et al., 1998). Path coefficient (standard regression) is used to observe the direction, magnitude, and significance based on the probability value (p). The significance limit used is the value of  $p \leq 0.05$ .

## 4. RESULT

### 4.1 Validity and Reliability

Evaluation of construct validity, convergent validity in this research uses CFA. To observe reliability using the Variance Extracted and Construct Reliability values (Hair et al., 1998). The results of testing the validity and reliability of each instrument used in this study can be seen in table 2.

**Table 2.** Validity and Reliability

Research Instrument	CV	CR	VE	$\alpha$
<b>Knowledge</b>		0.955	0.877	0.740
Android application is one of the advances in the field of information technology	0.720			
The Android application provides many applications	0.780			
Android-based applications can be used to make purchases online	0.800			
<b>Relative Advantage</b>		0.814	0.594	0.776
The android application makes shopping easier	0.550			
Android apps are more effective in conducting online shopping transactions	0.510			
Android application is more efficient for shopping online	0.510			
<b>Website Quality</b>		0.754	0.518	0.767
Speed in opening a catalog	0.510			
Complete catalog provided	0.520			
The application provided by the website is clear	0.810			
<b>E-WOM</b>		0.926	0.811	0.798
Online communities always provide reviews on products	0.600			
The online community provides confidence when going to buy a product	0.600			
An online community always shares its experience with product purchases	0.830			
<b>Attitude toward adoption android application</b>		0.879	0.708	0.787
Like using the Android application	0.620			
The android application is convenient to use	0.670			
Using the android application is a good idea	0.600			
<b>Intention to use</b>		0.937	0.835	0.729
The desire to continue to use the android application in online shopping	0.570			
The desire to use Android for other applications	0.610			
The desire to use the Android application soon	0.830			

\*CV= Convergent Validity, CR= Construct Reliability, VE= Variance extracted,  $\alpha$ = Cronbach Alpha.

Table 2 shows the convergent validity observed from the Standardized factor loading value ( $\leq 0.5$ ) and shows that all research instruments are valid. The reliability of the research instrument showed good results because the amount of the Variance Extracted was 0.5, and the Cronbach's Alpha was  $\leq 0.7$ . The results of the validity and reliability test state that all instruments are valid and reliable.

#### 4.2 Test results of the research model

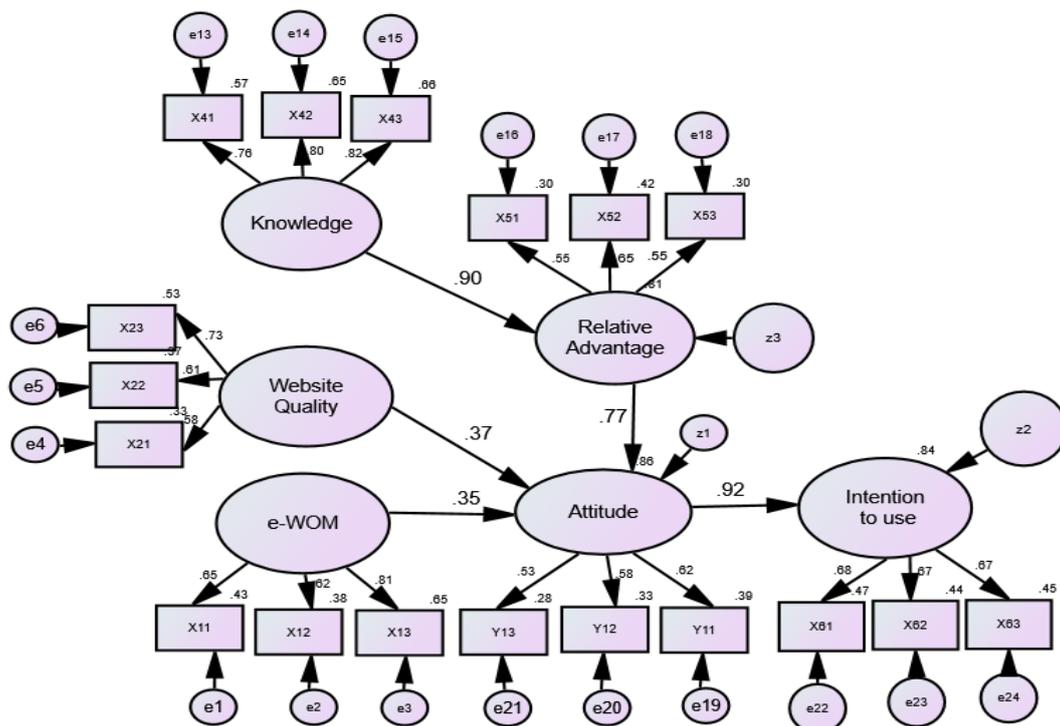
Primary data that has been collected from 206 online customers were analyzed to find out the characteristics of respondents, including gender, age, number of online applications based on android applications in the last six months. (table 3, 4)

**Table 3.** Characteristics of Respondents

Characteristics of Respondents	Description	%
Gender	Female	81.3
	Male	18.7
Age (years)	19-20	11.0
	21-22	75.0
	23-24	14.0
Number of online shopping transactions	$\leq$ Two times	44.5
	Tree - four times	24.0
	$\geq$ five times	31.5

The results of this study indicate that based on the analysis of the goodness of fit index, it shows that the ITU model of Android-based applications proposed in this study can be accepted. The goodness of fit index

test results shows that all the recommended criteria have good results. The P-value from this model is 0.088; GFI = 0.973; RMSEA = 0.023; TLI = 0.947; CFI = 0.900 and Normed  $\chi^2$  (CMIN/DF) = 2.574.



**Figure 1.** The model of intention to use android-based application

**Table 4.** Hypothesis testing

Path	Estimate	S.E.	C.R.	p	Hypothesis
K→RA	0.900	0.124	5.821	***	Supported
RA→Att	0.772	0.146	4.761	***	Supported
e-WOM→ Att	0.353	0.089	3.212	0.001	Supported
WQ→Att	0.374	0.098	3.092	0.002	Supported
Att→ITU	0.917	0.187	5.070	***	Supported

The indirect effect of knowledge variables, the perception of RA, e-WOM, and web quality on the ITU can be seen in Table 5 below.

**Table 5.** Standardized indirect effect

Variable	Knowledge	e-WOM	Web quality	RA
RA	-	-	-	-
Attitude	0.695	-	-	-
ITU	0.637	0.324	0.343	0.708

The influence of knowledge on attitude, which is mediated by the perception of RA, is 0.695. The perceived RA mediates the impact of knowledge on the ITU, and attitude is 0.637. The effect of e-WOM on the ITU, which is mediated by attitude, is 0.343. The impact of the perceived to ITU, which is mediated by attitude, is 0.708 so that it can be explained that the perceived RA and attitude can mediate the influence of knowledge, e-WOM, and website quality on the ITU.

## 5. DISCUSSION

Focus group discussions that have been carried out show that most respondents had relatively good objective knowledge of the applications provided by Android. Respondents realized that an android-based application launched by vendors made it easy for handphone users to do some online transactions. Most respondents are also easy to download this application-based Android because many of the applications are not paid. So this application based Android is fun to use, according to some respondents. Respondents stated that many facilities were obtained using this Android-based application. Preliminary studies conducted by researchers show that the application based Android most often used by respondents are shopping applications online, map applications, and navigation. The results conducted by researchers indicate that respondents sometimes feel hesitant to close transactions online. There are some doubts regarding the trustworthiness of respondents in online providers/stores, so they have a lot of well-known online stores. The survey results show that Shopee is the main choice of respondents in shopping online. The reason is Shopee is quite famous, and e-WOM delivered from other consumer experiences is relatively good, easy to provide transaction services, and many promotions provided by this online store. Respondents mostly conduct transactions based android through their smartphones, compared to PCs or laptops, because of the advantages and benefits that respondents can get in one click on their smartphones.

Regarding the quality of the website, the results of an exploratory study conducted by researchers show that Android-based applications provide many new ideas for its users. Mobile phones are now not only used for short messages and telephones but also many other benefits with the emergence of this Android. For online stores, android-based applications provide many

features and catalogs that provide smoothness for consumers to shop online. The clarity of the information provided by the android application is quite good, so it doesn't make it difficult for users. Internet technology has brought enormous changes to Word of mouth communication. Through the internet, consumers can easily share their experiences with products that have been adopted or bought. Word of mouth that is spread through online media can be easily accessed by consumers who want a product. e-WOM is trusted by consumers and is a recommendation to consider when making an online purchase. Most of the respondents stated that they knew about the application based Android and how to use this Android from other users. Exclamations and solicitation of other users to use Android-based applications caused respondents to be interested in adopting this Android application.

Online shopping has many more benefits than traditional shopping. Survey results show that online shopping makes it easy for consumers to interact and transact with products and services in every condition. Consumers can compare prices easily and easily get the information needed. According to Al-Debei et al. (2015), the ease of online transactions has a positive effect on online shopping decisions. However, respondents also stated that online transactions for buying products would increase the risk of high uncertainty. Online store respondents frequently look for reviews of other consumers who have done online shopping to find out about the experiences of consumers who have bought products through a website, so e-WOM is highly considered when deciding on a purchase decision. This research shows that customers who use android-based applications have good objective knowledge and subjective knowledge. Customers understand the benefits of an android application for online shopping and find it easy to implement this android application. So that users feel more benefits by using this android because it can be directly done using the cell-phone they have. The menus provided by the Android-based online shopping application are complete and easy to use. So that users feel that this Android-based application is an information technology that is better at meeting the needs for online shopping transactions. The results of this research support Fry et al. (2018).

Customers perceive that the quality of websites provided by this Android application is good, so users feel comfortable to use, and the user's attitude towards this Android-based application is good. Customers perceive that online sales applications provided by android are easy to get the catalog needed, ease in order and the information provided is also quite clear. This research supports Bath and Singh (2018); Al-Debei et al. (2015). Besides that, customers can also easily access reviews of previous consumers who have used this application online. The previous customer experience of this android application is effortless to

find on online communication. These positive statements (e-WOM) cause the attitude of the customer towards this android-based application is good. So with a good attitude, the ITU an android-based application to shop online. The results of this research support Swiegers (2018); Sung and Jo (2018).

## 6. CONCLUSIONS

This research can benefit Android smartphone manufacturers and cellular internet service providers in developing innovative products and marketing strategies. Android smartphone service providers must pay attention to several things related to consumer behavior in technology acceptance so that their products can successfully reach a significant market share. The results of this research can explain that knowledge, website quality, e-WOM, RA, and attitude can influence users in adopting android for online shopping. The intention model using an android-based application proposed in this research is supported. All relationships hypothesized in this research were supported. The influence of knowledge on the perception of RA is shown from the results of this research. The perceived RA, web quality, and e-WOM also influence attitudes. Attitude towards android adoption influential application on the ITU an android based application. Attitudes have the most considerable influence on increasing the ITU. Besides that, knowledge is also very

prominent in the perception of relative superiority perceived by consumers. The better the knowledge of consumers on Android-based applications, the consumers will recognize that apps based android have advantages compared to existing information technology. With a better perception of the RA, customers will be more comfortable using an android-based application for online shopping.

## 7. LIMITATIONS

This research only uses customer respondents who shop online through an Android-based application, whereas Android provides many other applications, such as marketing applications, financial applications, games, hobbies, and more. So that the generalization of this research must be made carefully, this research only analyzes the ITU android applications with antecedents of knowledge, RA, website quality, e-WOM, and attitude. Future studies can add other variables, including compatibility, complexity, visibility, social influence (Min et al., 2018), system quality, perceived usefulness, user satisfaction (Kim & Lee, 2014).

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