

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

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### Keywords:

*Knowledge; Relative advantage; Web quality; e-WOM; intention to use.*

### ABSTRACT

*This study aims to examine the relationship between variables in the model that explains the intention to use an application based android. This study confirms several variables which in previous studies are still a debate, namely the influence of knowledge on the intention to use. This study also uses attitudes to mediate the influence of website quality and electronic Word of Mouth (e-WOM), with the consideration that the discussion of the direct influence on adoption behavior will ignore the cognitive aspects of consumers in making purchasing decisions. This research is a survey research with a questionnaire. The populations in this study are all online shopping consumers who have adopted an application based android in the Special Region of Yogyakarta. The number of respondents in this study was 206 consumers. Data analysis in this study used structural equation modeling (SEM). The results showed that knowledge has a positive effect on perceived relative advantage. Web quality and e-WOM affect attitudes, and relative advantages and attitudes influence the intention to use. The results of the study show that the intention to use model is acceptable. All proposed hypotheses are also supported. Knowledge has a positive effect on relative advantages. Website quality, e-WOM and relative advantages have an influence on attitudes, and attitudes influence the intention to use the android application.*



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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 in order 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 (Hood et al., 2016). 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. iPrice shows data competition in online stores in Indonesia based on average website visitors in each quarter, application ranking, and followers of social media. The Indonesian e-commerce map in 2018 made by iPrice can be seen in

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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 study analyzes the effect of relative advantage (RA) on intention to use through attitude formation, because the discussion of the direct 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 an individual condition to gain an understanding of the benefits and workings of new technology (Lynn et al., 2018; Fry et al., 2018; Njuguna, 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. Another issue to explain the adoption of new technology is electronic word of mouth (e-WOM). E-WOM can minimize the risk of online purchases. This risk perception is unpredictable side for consumers that can create disruption to existing consumption routines (Savas, 2017; Sung and Jo, 2018; Swiegers, 2018).

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

Online Shop	Visitor ( Month)	AppStore ranking	PlayStore ranking	Twitter	Instagram	Facebook
Tokopedia	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	33.100	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 intention to use through the formation of attitudes, which is different from previous studies which analyzed the effect of RA directly on the intention to use and through mediating perceived usefulness and perceived ease of use (Stieninger et al., 2018; Min et al., 2018). (2) This study analyzes consumer knowledge using several more comprehensive aspects (objective and subjective) in order 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 (Lynn et al., 2018; Fry et al., 2018; Njuguna, 2018; Vasilkova, 2018). (3) This study analyzes the influence of e-WOM on the intention to use. When perceptions of innovation characteristics are explained first in the attitudes or cognitive aspects of consumers, this will bring important 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; Rahim et al., 2016).

## 2. LITERATURE REVIEW

### 2.1 Android technology

Android is a Linux-based operating system that is owned by Google and designed for touch screen phones on smart phones and tablet computers (McDonnell et al., 2013). The evolution of Android and mobile applications on smart phones has grown rapidly. One of the determining

factors for the success of smart phone platforms is the number of applications available. August 2008 Google introduced Android Market, an online application for Android devices and began to be ready to provide applications for users in October 2008, with the market application (application pre-installed on Android devices) users easily download applications from third parties directly through their devices. Android Market provides paid and free applications (Suprianto, & Agustina, 2012).

Safaat (2012) explains that Android is a complete, open and free future platform. (1) Complete platform, software makers can freely make approaches in developing software. Android is also a safe operating system and many tools are available to build software. (2) Open Source Platform, Android is provided openly so developers can freely develop applications. (3) Free platforms, developers can freely create applications without licenses or royalty fees to be paid, no membership fees, no testing fees, no contract is needed and can be distributed and traded freely in various forms. Istiyanto (2013) explains the factors causing the popularity of android applications, among others (1) Speed, the mobile application 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, 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**

Yoon & Rolland, (2015) developed a confirmation model of expectations in the context of Information Technology (IT) to understand the behavior of IT use. The intention to use is assumed to be the same as the consumer repurchase decision because it is acceptance at the first time or when making a purchasing decision. The experience of using first will affect the intention to use 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 usage, measurement in post-consumption (ex-post) is further than the pre-consumption expectation (ex-ante). Models, (ex-post) accepted have been accepted (ex-post) expectations (Oghuma et al., 2015). Sirimanne (2018) states that technology offers several prospects of solutions and opportunities, namely: (a) can solve problems more effectively, provide new capabilities and opportunities, and use natural and human resources efficiently; (b) cheaper, microchips and renewable energy have become stronger and more efficient; (c) new technologies are spreading rapidly throughout the world driven by Internet connectivity; (d) offering small-scale solutions that can be rapidly upgraded to meet human needs for energy, food, clean water, health care and education; and (e) easy to use, IT has changed activities that were previously complicated, tiring and / or time consuming, almost effortless and transparent to users.

## **2.3 Knowledge and Relative Advantage**

Al-Debei et al., (2015) defines relative advantages in the online context as consumer beliefs about the extent to which a website is better than other websites in online transactions. Knowledge is an important construct for consumer behavior because it plays a role in finding information including learning new products and adopting innovation processes (Lynn et al., 2018; Fry et al., 2018; Njuguna, 2018). From an individual perspective, many studies are based on the technology acceptance model (TAM) has managed to analyze the influence of knowledge and attitudes towards IT adoption (Tseng, 2017). Knowledge is an understanding that someone receives on a product, so product knowledge is believed to be an important factor that determines consumer decisions and knowledge can influence one's perception of the relative superiority of a technology. A good level of knowledge of new technologies will enhance the perception of the relative superiority of the new technology (Fry et al., 2018).

H1: Knowledge has an influence on relative advantage.  
H2: Relative advantage has an influence on attitude toward adoption android application.

## **2.4 Website quality, attitude and intention to use**

Web quality is the overall effectiveness of websites in delivering messages intended for audiences (Wang et al., 2015), and web compatibility with stakeholder expectations (Canziani et al., 2016). 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 that the quality of website design influences the user's intention to use social commerce. Al-Debei et al., (2015) argue that the design and appearance of online shopping websites will influence consumer behavior in shopping. The better quality of the website, the consumer will be interested in the website and the higher the desire of consumers to online shop (Zhou, 2011).

Hyejeong and Niehm (2009) 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 influence the decision making process of a consumer.

Website quality can identify the strengths and weaknesses of services provided by the organization (Herrero et al., 2015). Research conducted by Dedeke (2016) shows that information and website design play an important role in the tourism industry, and influence purchase intentions. The intention of online purchases is the desire of consumers to buy products or services on a specific website. Purchase rate will increase if buying intention is positive (Shaouf et al., 2016). Therefore, the website becomes one of the most important things that must be considered by the company to be conveyed to consumers so that consumers really feel facilitated by the website. Octavia and Tamerlane (2017) conducted research on e-commerce in Indonesia, the results showed that website quality had an effect on the intention to use consumers in ordering hotel rooms.

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

H4: Attitude toward adoption android application has influence on the intention to use.

## **2.5 e-WOM, Attitude and Intention to Use**

e-WOM is non-commercial and interpersonal dialogue that can be either positive or negative statements made by potential customers and former customers through the internet about a product, company, or institution (Rahim et al., 2016). 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 on line (Swiegers, 2018). Consumers usually always rely on word-of-mouth (WOM) information from relatives and acquaintances to find out about product attributes and quality (Savas, 2017). Other consumer experiences reviewed through the internet are considered more relevant than information provided by producers (Kim et al., 2010; Sung and 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 (Labrecque et al., 2013; Broniarczyk and Griffin, 2014). e-WOM can minimize the risks that arise with the selection of a decision (Sung and Jo, 2018). On the other hand, WOM communication as a general concept of interpersonal interaction also has an important influence on consumer purchasing decisions. WOM has a more effective influence than advertising or personal sales, because it is considered more credible and flexible (Gvili & Levy, 2016). In a digital environment, digital channels are more widely used to share and distribute information between user groups (social networks, community online), and allow users to identify message sources, and easily assess their credibility (Schumann et al., 2014). Lee and Ma (2012) state that consumers always rely on word-of-mouth (WOM) information from relatives and acquaintances to find out about product attributes and quality. Consumer reviews are seen as more relevant than information provided by producers and have more power to influence purchases (Ullrich and Brunner, 2015). Consumer Review as a form of word-of-mouth (WOM) can reach a broad audience and interact with each other.

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

The Theory of Resoned Action states that attitude is the main predictor of intention to behave (Ajzen & Fishbein, 1980; Akroush et al., 2015). Attitude is defined as psychological tendencies expressed in certain entities with a level of likes or dislikes and influences behavioral intentions (Ajzen & Fishbein, 1980). Online shopping behavior is defined as consumer beliefs about online shopping activities that are carried out pleasantly and take a relatively short time (Seock & Norton, 2007). Research on online shopping behavior shows that consumer behavior towards online shops can influence consumer choice. The researchers found a positive relationship between consumers' online shopping behavior and their purchases through the internet (Seock and Norton, 2007). The study of cellular internet use by Cheong and Park (2005) supports a positive relationship between user attitudes and their intention to buy a smart phone. Lin (2007) also found that user attitudes influence intention, and subsequently influence the use of the website. Park and Chen (2007) clarify that intentions are driven by user attitudes toward technology. Hsiao (2013) states that a customer's positive attitude is the most valuable factor for determining smart phone purchase intentions. According to Aslam et al. (2018), that attitude

also emerged as a significant factor in influencing the intention to adopt a smart phone supported by Android.

H6: Attitude toward adoption of android application has an effect on the intention to use.

### 3. RESEARCH METHOD

This study uses a survey because it considers a number of factors that explain the existence of the phenomenon under study. This study uses primary data obtained through in-depth interviews and questionnaires with a five-point Likert scale. The populations in this study are consumers who have adopted the android application only for online shopping transactions. Respondents are customers who have been shopping online using Android apps in the Special Region of Yogyakarta, Indonesia. The number of samples used in this study were 206 respondents. The data analysis tool in this study uses SEM-AMOS (Hair et al., 2012). Direct effect is observed from standardized regression weights, by testing the comparative significance of the Critical Ratio (CR). From the output of the AMOS program a causal relationship between variables can also be observed by looking at the direct effects and indirect effects and their total effects. Testing of models developed with various criteria for Goodness of Fit. Measuring the goodness of fit of a model is a relative criterion (Hair, et al., 1998). The measurement of the value of goodness of fit is divided into three types, namely absolute fit measures, incremental fit measures, and parsimonious fit measures. Absolute fit measures measure the level of the model that overall predicts the covariance matrix. The interpretation of the measurement results of latent extracts based on the level of significance of the loading factor or lambda coefficient ( $\lambda$ ) which is based on the probability (p) value, is considered significant if the p value is  $p \leq 0.05$ . Furthermore, testing the complete model derived from all constructs and significant indicators to examine the factors that influence the adoption of android-based technology by observing the path coefficient (standardized regression), both direction, magnitude, and significance. Assessment of significance is based on the probability value (p). The significance limit used is the p value  $\leq 0.05$ .

### 4. RESULTS

#### 4.1 Validity and reliability test results

Confirmatory factor analysis was used to assess construct validity consisting of Convergent Validity, Variance Extracted and Construct Reliability (Hair et al., 2012; Hair et al., 2016). The results of testing validity and reliability can be seen in table 2.

Standardize factor loading (SFL) is used to observe the convergent validity of each research instrument. The SFL limit value is  $\geq 0.5$ . From table 2 it can be seen that the SFL values all have values greater than 0.05. Internal

consistency test is one of the reliability tests in addition to construct reliability and extracted variance. Internal consistency tests can be observed from the Cronbach's Alpha reliability coefficient with condition  $\geq 0.7$ , construct reliability  $\geq 0.7$ , and variance extracted  $\geq 0.50$ . The limit value used to assess an acceptable level of

reliability is 0.70, even though the number is not a "dead" measure. This means that if the research conducted is exploratory, values below 0.70 are still acceptable as long as they are accompanied by empirical reasons seen in the exploration process (Hair et al., 2016). Validity and reliability test results stated that all instruments are valid and reliable.

**Table 2.** Convergent Validity, Variance Extracted and Construct Reliability, internal consistency

Research instrument	Convergent validity /SFL	Construct Reliability	Variance Extrated	Cronbach's Alpha
<b>Knowledge</b>				
Android application is one of the advances in the field of information technology	0.720	0.955	0.877	0.740
The Android application provides many applications	0.780			
Android-based applications can be used to make purchases online	0.800			
<b>Relative Advantage</b>				
Android application makes shopping easier	0.550	0.814	0.594	0.776
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>				
Speed in opening a catalog	0.510	0.754	0.518	0.767
Complete catalog provided	0.520			
The application provided by the website is clear	0.810			
<b>E-WOM</b>				
Online communities always provide reviews on products	0.600	0.926	0.811	0.798
The online community provides confidence when going to buy a product	0.600			
On line community always shares its experience with product purchases	0.830			
<b>Attitude toward adoption android application</b>				
Like using the Android application	0.620	0.879	0.708	0.787
The android application is convenient to use	0.670			
Using the android application is a good idea	0.600			
<b>Intention to use</b>				
The desire to continue to use the android application in online shopping	0.570	0.937	0.835	0.729
The desire to use Android for other applications	0.610			
The desire to use the Android application in the near future	0.830			

## 4.2 Test results of the research model

Primary data that has been collected from 206 online customers was analyzed to find out the characteristics of respondents including: gender, age, number of online applications based on android applications in the last 6 months (Table 3).

The test model measurement results are good, so that it can proceed to the structural model analysis stage without modification. The results of the structural model analysis are presented in table 4 and figure 1 shows the model is fit.

The results of this study indicate that the model is acceptable, and all proposed hypotheses are supported (shown in table 5). This shows that the intention to use android-based applications is influenced by knowledge,

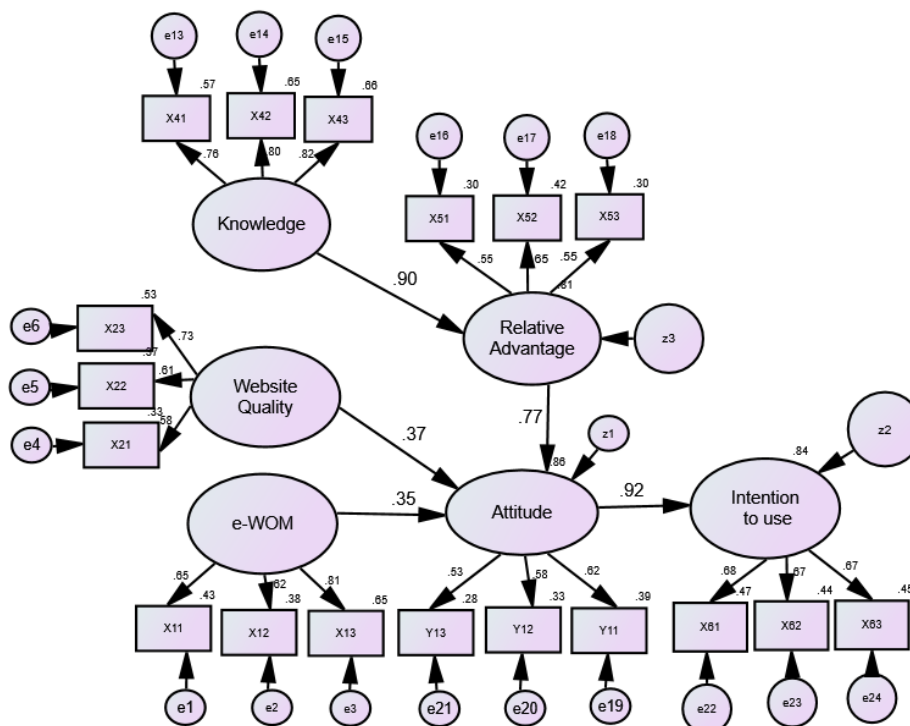
website quality, e-WOM, RA and attitude. The effect of knowledge on the intention to use, through RA and attitude is 0.637. The effect of website quality on intention to use is 0.343, and the effect of e-WOM on the intention to use through attitude is 0.324.

**Table 3.** Profile of Respondents

Profile 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	1-2 times	44.5
	3-4 times	24.0
	> 5 times	31.5

**Table 4.** Results of Testing Structural Models

Type of goodness of fit models	Index goodness of fit models	Recommended value	Results	Descriptions
Absolute fit measures	P	≥ 0.05	0.088	Good
	GFI	≥ 0.90.	0.973	Good
	RMSEA	≤ 0.08	0.023	Good
Incremental fit measures	TLI	≥ 0.90	0.947	Good
	CFI	≥ 0.94	0.900	Good
Parsimonious fit measures	Normed $\chi^2$ (CMIN/DF)	$1 \leq \text{Normed } \chi^2 \leq 5$	2.574	Good



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

**Table 5.** Results of hypothesis testing

Path	Estimate	S.E.	C.R.	p	Hypothesis
Relative advantage ← Knowledge	0.900	0.124	5.821	***	Supported
Attitude ← Relative Advantage	0.772	0.146	4.761	***	Supported
Attitude ← e-WOM	0.353	0.089	3.212	0.001	Supported
Attitude ← Website quality	0.374	0.098	3.092	0.002	Supported
Intention to use ← Attitude	0.917	0.187	5.070	***	Supported

The indirect effect of knowledge variables, the perception of relative advantage, e-WOM and web quality on the intention to use can be seen in table 6 below.

**Table 6.** Standardized indirect effect

Variable	Knowledge	e-WOM	Web quality	Relative advantage
Relative advantage	-	-	-	-
Attitude	0.695	-	-	-
Intention to use	0.637	0.324	0.343	0.708

The influence of knowledge on attitude which is mediated by the perception of relative advantages is

0.695. The influence of knowledge on intention to use is mediated by the perception of relative advantage and attitude is 0.637. The effect of e-WOM on intention to use which is mediated by attitude is 0.343. The influence of the perception of relative advantage on intention to use which is mediated by attitude is 0.708. So that it can be explained that the perception of relative advantage and attitude can mediate the influence of knowledge, e-WOM and website quality on the intention to use.

## 5. DISCUSSION

The results of the focus group discussion conducted showed 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 hand phone 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. Many facilities that can be received by respondents regarding this application based Android. 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 through 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 smart phones, compared to PCs or laptops, because of the advantages and benefits that respondents can get in one click on their smart phones.

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. To online shop, an application based android provides many features and catalogs that make it easy for consumers to online shop. The information provided by this android application is also quite clear and clear 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.

Compared to traditional shopping, online shopping has advantages and benefits. The survey results show that online shopping allows consumers to buy products and services at any time, and wherever they are. Consumers can compare prices easily, and easily get the information needed. According to Al-Debei et al., (2015) these benefits have a significant and positive effect on online shopping behavior. According to respondents, buying products online can create a high level of uncertainty

compared to transactions carried out in physical stores. Will online shop respondents often search for reviews of consumers who have already done online shopping knowing the actual consumer experience in purchasing and / or consuming products and services made through a website, so that WOM is highly considered when deciding purchasing decisions.

This study shows that customers who use android-based applications have good objective knowledge and subjective knowledge. Customers really 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 very 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 study support Lynn et al., (2018); Fry et al., (2018); Njuguna (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, easy in ordering and the information provided is also quite clear. This research supports Bath and Singh (2018); Al-Debei et al., (2015) (Zhou, 2011). Besides that, customers can also easily access reviews of previous consumers who have used this application online. Previous customer experience of this android application is very easy 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 intention is to use an android-based application to shop online. The results of this study support Swiegers (2018); Savas (2017); Labrecque et al., (2013); Broniarczyk and Griffin (2014); Sung and Jo (2018).

## **6. CONCLUSIONS**

This study can benefit Android smart phone manufacturers and cellular internet service providers in developing innovative products and marketing strategies. Android smart phone service providers must pay attention to several things related to consumer behavior in technology acceptance so that their products can successfully reach broad market share. The results of this study can explain that knowledge, website quality, e-WOM, RA and attitude can influence users in adopting android for online shopping. The intention to use model proposed in this study is supported. All hypotheses proposed in this study are also supported. The results of this study indicate that knowledge can influence the perception of relative advantage. The perception of relative advantage, web quality and e-WOM also has an

influence on attitudes. Attitude towards android adoption influential application on the intention to use an android based application. Attitudes have the greatest influence in increasing the intention to use. Besides that, knowledge is also very influential on the perception of relative superiority perceived by consumers. The better the knowledge of consumers on Android-based applications, the consumers will perceive that applications based android have advantages compared to existing information technology. With the better perception of the relative advantage, customers will be more comfortable using an android-based application for online shopping.

## 7. LIMITATIONS

This study 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 done carefully. This study only analyzes the intention to use 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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