

## Undergraduate College Student Dependence on Smartphone and Its Effect to Purchase Intention in Indonesia

Roy Poan<sup>a\*</sup>, Mathias Ben Hardi<sup>b</sup>, Muana Nanga<sup>c</sup>

<sup>a,c</sup>President University, Bekasi, Indonesia

<sup>b</sup>Pradita University, Indonesia

\*roy.poan@president.ac.id

**Abstract-**This research was aimed to examine the factors that influence student dependence on smartphones and its effect to purchase intention. Quantitative research method used in this research with the Partial Least Square (PLS) path modeling approach and structural equation modeling (PLS-SEM) technique to test the proposed hypothesis. From 442 total questionnaire responses, 368 valid responses were collected and being tested using SmartPLS. This research found that Social Needs, Social Influence, and Convenience significantly affecting student Dependence on Smartphone. A similar result also found that Social Needs, Social Influence, and Convenience significantly affect purchase intention. For the dependent variable, Dependence on Smartphone significantly affects Purchase Intention. However, Social Influence were found to have the most significant influence on Dependence on Smartphone and Purchase Intention. Originality of this research is in finding out the influence of Social Needs towards Dependence on Smartphone and Purchase Intention.

**Keywords:** Social Needs, Social Influence, Convenience, Dependence on Smartphone, Purchase Intention

### Introduction

The rapid growth of technology in Indonesia can be seen from the growth of the smartphone market in Indonesia. According to Market research analyst IDC, Risky Febrian, smartphone market growth in Indonesia is relatively fast and promising. Due to the rapid growth of the smartphone market in Indonesia, it is estimated that this growth will continue to grow 5% to 7% every year (Brata, 2019).

Based on the research by the Indonesian Internet Service Providers Association (APJII), In Indonesia, smartphones become the primary device for most people to access the internet. In 2018 the Indonesian Internet Service Providers Association recorded the total number of internet users in Indonesia reaching 171.17 million or 64.8% of the total population of Indonesia. According to Badan Pusat Statistik (BPS), the total of the Indonesia population in 2018 is 265.015,3 million (BPS, 2019). According to a survey conducted by the Indonesian Internet Service Providers Association (APJII), based on the age of internet users, it is dominated by the age of 15-19 years, reaching 91% or a total of 20.017,8 million users. In the second position, internet users aged 20-24 years, reaching 88.5% or a total of 19,313,4 million users (Untari, 2019). This statement is also supported by research conducted by Imtiaz (2016); the majority of undergraduate students prefer to fulfill their needs by buying smartphones rather than other devices (Imtiaz, 2016).

According to research conducted by Nugraha (2017), in the learning process, students can use smartphones as a tool to help for their research. With smartphones, students can access the internet anywhere and anytime, providing unlimited access in search of knowledge. The research also said that smartphones facilitate the dissemination of learning materials. Smartphones also make it easier for the lecture to share the learning material in the form of E-book which can be downloaded by the student by the internet.

In learning activities, the majority of students use smartphones to help with the daily learning process, reading learning material, looking for information related to the learning topic, and doing with assignments. Even though the learning activity is being interrupted by the pandemic COVID 19 during this research conducted, learning activity must still be carried out. Smartphones have an essential role in the learning process via online. It is easier for remote

communication between the student and the lecture using social platforms as Zoom, WhatsApp et cetera (Pradolo, 2020).

Aside from online learning, another favorite function of smartphones is online payment. Based on research conducted by MDI Ventures & Mandiri Securities, It is predicted that in 2020, Indonesia's total mobile payments will reach IDR 459 trillion of the total gross transaction (GTV) value or grow 158% since 2016. The presence of digital payment platforms such as OVO, GOPAY, DANA, et cetera is the reason most people switch to using mobile payment (CNN, 2019).

Another useful function of a smartphone is for entertainment. According to research conducted by Pokkt, Decision labs, and MMA, There are 60 million mobile gamers in Indonesia (CNN, 2019). The trigger of the success of mobile gaming is accessibility, which allows us to play interactive games anywhere, anytime. 92% of teenagers and adults prefer to play games using their smartphones rather than using a computer. (Wahyudi, 2019).

Activities such as source of entertainment and online payments are activities that most people cannot avoid. This is evidence that convenience has a significant influence on smartphone dependence. In addition to continuing the learning process, smartphones also help students to keep in touch with friends, family, and meet academic needs. Activities such as online learning are proof that smartphones help humans to meet their social needs.

The concept of this research is to ensure that Social Needs influence Purchase Intention by mediating the Dependence on the Smartphone variable. The target respondents of this research were smartphone users among undergraduate college students. Various past research only examined and explained the effect of Social Needs on Purchase Intention. Thus, this research found several aspects through the following objectives:

1. Does Social Need influence Dependency on smart phone?
2. Does Social Influence Influencing Dependency on smart phone?
3. Does Convenient influence Dependency on smart phone?
4. Does Social Need influence Purchase Intention?
5. Does Social Need influence Purchase Intention?
6. Does Convenient influence Purchase Intention?
7. Does Dependency on Smart phone influence Purchase Intention?

## **Literature Review**

### **2.1 Social Need**

Basic human needs can be categorized, such as food, clothing, and shelter. However, other needs must also be met to survive. Some of these needs are being accepted in a social group, being loved and respected (Aslam et al., 2018). According to Imtiaz (2016), social needs are the human needs to live side by side with one another. This study also mentioned smartphones as one of the tools that help humans to meet their social needs (Imtiaz, 2016).

The smartphone makes communication fast and easy. With a smartphone, we can communicate through many kinds of social networking applications. Smartphones make it easier to gain new information from all over the world, through social media or news web browsers (Imtiaz, 2016; Widyawati, 2017). Other smartphone functions are a source of entertainment, either playing games or watching movies. Furthermore, with a smartphone, we can shop to meet daily needs (Aslam et al., 2018).

According to research conducted by Imtiaz (2016), the smartphone has a variety of functions; the majority of undergraduate students using their smartphone for socialization purposes. It can be used to exchange photos or other data or even updating their activity on their social media

---

(Imtiaz, 2016). This statement is also supported by research conducted by Growth from Knowledge (2018), which stated that most of our smartphone usage is for communication purposes (Galín, 2018).

According to Widyawati (2017) and Aslam et al (2018), social needs are one of the factors that make humans dependent on their smartphones (Aslam et al., 2018; Widyawati, 2017). With smartphones, human can meet their daily social needs (Swapana & Padmavathy, 2017).

## **2.2. Social Influence**

Social influence is an activity that affects and individuals' emotions or feeling (Imtiaz, 2016). Social influence can influence others to change their feeling, attitude, thought, and even their behavior. The effect itself can be felt directly or indirectly (Kaushal & Kumar, 2016). Social influence can come from anywhere; it can come from the people closest to us, advertisements in social media or television. The people closest to us can influence our decision when choosing a product (Imtiaz, 2016). According to Rahim (2016), there are two approaches related to social influence. First is a direct influence, where the prospective customers are looking for direct references. Those references can be through the people closest to them (Rahim et al., 2016).

Second is indirect influence such as specialist opinions or social media. In this era, many social media provide smartphone reviews about impression and usage experience (Rahim et al., 2016). Most people use opinions from experts or specialists as their reference. Opinions from experts or specialists have the most significant impact before buying the product sought (Goh et al., 2016).

There is a possibility of social influence as a driver of dependence on his smartphone (Aslam et al., 2018). According to Sthapit (2018), Every person has different needs for smartphones. Some people are more concerned with needs and functions, and others looked at smartphones as a measure or a driver of social status (Sthapit et al., 2018).

## **2.3 Convenience**

Convenience usually refers to any situation where work is made easy without having to spend a lot of effort (Aslam et al., 2018; Imtiaz, 2016). According to Kaushal (2016) and Kumar (2016), smartphone in this era is a necessity that must be fulfilled by most people. With smartphones, we are still productive wherever and whenever without having to have to stay in a fixed position (Kaushal & Kumar, 2016).

Smartphones offer quick and easy access to various types of applications, which allows us to do work done on laptops with our smartphones (Imtiaz, 2016). In terms of daily life, smartphones also make it easy for us to fulfill our daily needs. Currently, financial transactions can also use a smartphone. For payments, it is no longer necessary to carry large amounts of fiat money. With a few clicks on our smartphone, purchase and payment transactions are done (Swapana & Padmavathy, 2017). According to a research conducted by Widyawati (2017), Convenience is one of the reasons that drive humans to keep on using smartphones (Widyawati, 2017).

## **2.4 Dependence on Smartphone**

Individual dependence on smartphones usually becomes a means to achieve its goal (Li & Lin, 2019). The functions and variety of applications on smartphones are what make humans depend more on their smartphones (Um et al., 2019). Compared to other devices, smartphones are the preferred devices to carry anywhere. The size and diverse functions become a mainstay, especially when we travel or at work. A smartphone is a device we use most frequently.

---

Therefore, for most people, smartphones are a must-have device (Aslam et al., 2018; Imtiaz, 2016).

According to a research conducted by Aslam et al (2018), Customers are willing to spend more money to get a smartphone with sophisticated technology for their work or daily activities needed (Aslam et al., 2018). Human dependence on smartphones has a positive influence on the buying behavior of smartphone customers (Imtiaz, 2016). According to research conducted by Widyawati (2017), there are several aspects that affect the dependence on smartphones, such as social needs, social influence, and convenience.

## **2.5 Purchase Intention**

The awareness that arises from the intention or plans to purchase a product or service is defined as purchase intention (Lee et al., 2017). In this research, variable purchase intention is important because, according to Adhi Santoso (2019), With the purchase intention variable, this research can measure the potential behavior of consumers or potential consumers of smartphones (Santoso, 2019). According to research conducted by Rahim (2016), Purchase intention of a product or service does not always result in sales. Purchase intention can be just a discourse; The decision to buy or not to buy a product also depends on the affordability of the smartphone to the individual (Rahim et al., 2016). According to a research conducted by Martins (2019), also stated that the greater the intention to buy, the more likely for that individual to make a purchase is higher (Martins et al., 2019). Everyone has different choices and tastes, and this also applies to the purchase intention of a smartphone.

Before deciding to buy a smartphone, there are several processes to consider before buying a smartphone, such as types of needs, information, evaluation of alternatives, and purchase decisions (Rendika Nugraha 1, Kunthi A. Kusumawardani 2, n.d.). With various choices of smartphones on the market, the final decision on purchasing a product depends on the buyer itself. There are two characteristics of buyers, loyal buyers, and flexible buyers. The first is buyers who only use one particular type of brand. The second is buyers who are not concerned with the brand but other factors such as functionality or price (Rahim et al., 2016).

Research conducted by Imtiaz (2016), stated that the majority of undergraduate students prefer to buy a smartphone rather than other electronic devices. This research also states that the majority of undergraduate students found were heavy smartphone users, and be one of the factors and became one of the factors that protected the rapidly growing smartphone sales (Imtiaz, 2016).

## **Hypotheses Development & Framework**

### **2.1 Social Needs and Dependence on Smartphone**

Social needs are very important. According to a research conducted by Imtiaz (2016), a smartphone is a tool that can help humans to be able to meet their social needs. Most people depend on their smartphones to stay connected with friends and family. Social needs are different for each age group (Imtiaz, 2016). According to a research conducted by Aslam et al (2018) shows, that young customers are more likely to use smartphones for social media and entertainment purposes. This research also states that adult customers are more likely to use a smartphone as a daily life support tool (Aslam et al., 2018). Therefore, we hypothesize that:

*H1: Social needs has a positive effect on the dependence on smartphones*

### **2.2 Social Influence and Dependence on Smartphone**

According to a research conducted by Aslam et al (2018), social influence determines human dependence on smartphones. In-addition, a research conducted by Imtiaz (2016) shows that social influence has a persuasive attitude, where smartphones become their main communication devices. This makes the smartphone an important component and must be

---

fulfilled in social life (Imtiaz, 2016). Everyone has different social relations and status; therefore, human needs for smartphones are also different (Aslam et al., 2018). Therefore, we hypothesize that:

*H2: Social influences has a positive effect on the dependence on smartphones*

### **2.3 Convenience and Dependence on Smartphone**

With the availability of various applications that can be downloaded, it can help the student do their assignments, open learning materials, and search for learning materials on the internet. Applications on smartphones are the main factor that humans depend on smartphones (Swapana & Padmavathy, 2017). The practicality and convenience offered by smartphones have become a human intention to continue to depend on smartphones. The development of smartphones from time to time always puts comfort and easiness in how to use the smartphone as prioritizing the main priority (Widyawati, 2017). Therefore, we hypothesize that:

*H3: Convenience has a positive influence on the dependence on smartphone*

### **2.4 Social needs and Purchase Intention**

The third level in Maslow Theory's of Hierarchy is social needs. Social needs concerned about an individual needs to belongs to certain group, being loved. Furthermore, According to his paper entitle "Theory of Motivation" that our action is based and motivated by certain physiological needs. Thus, the intention of purchasing a certain goods can be motivated by our needs in order to be accepted by a certain group. It is common to see many individuals purchasing an item just to get into a certain group. According to Ang et al. (2001), Wang et al. (2005), Penz and Stottinger (2005) showed individual may purchase products or services to impress or being accepted in the group. Therefore, we hypothesize that:

*H4: Social needs has a positive dependence on purchase intentions*

### **2.5 Social Influence and Purchase Intention**

According to research conducted by Sthapit (2018), social influence has a direct influence on smartphone purchase intentions. Human life faced with various types of choices. Usually, the choice can come from two ways, directly coming from family, as well as friends and indirectly, such as advertisement media (Sthapit et al., 2018). According to research conducted by Zahid (2016), social influence has a large impact on buyer intentions. The direct influence that came from family and friends is a strong factor in the decision to purchase a smartphone (Zahid & Dastane, 2016). Social influences, such as advertisements on social media or public places, also have the same impact as a direct influence. Just by looking at the advertisement, a curiosity about the smartphone will appear. This has the same impact as from family and friends on buying intentions on a smartphone (Sarjono et al., 2019). Therefore, we hypothesize that:

*H5: Social influence has a positive influence on smartphone purchase intentions*

### **2.6 Convenience and Purchase Intention**

According to research conducted by Mohammed (2018), convenience one of the reasons for the increase in smartphone purchase intention. In this research states that smartphones simplify our research and work every day. Smartphones are also very easy to use and understand by anyone. Even with the latest technology, the use of smartphones can be easily understood by most users (Mohammed, 2018). The perception of the convenience of using a smartphone is very important. According to research conducted by Kaushal (2016), convenience becomes a determining factor for the buying intentions of smartphones and translated into purchases. Convenience can be interpreted as installed software to help users with their daily activities,

---

smartphone size for comfort purpose, and smartphone ability to run applications (Kaushal & Kumar, 2016). Therefore, we hypothesize that:

*H6: convenience has a positive effect on smartphone purchase intentions*

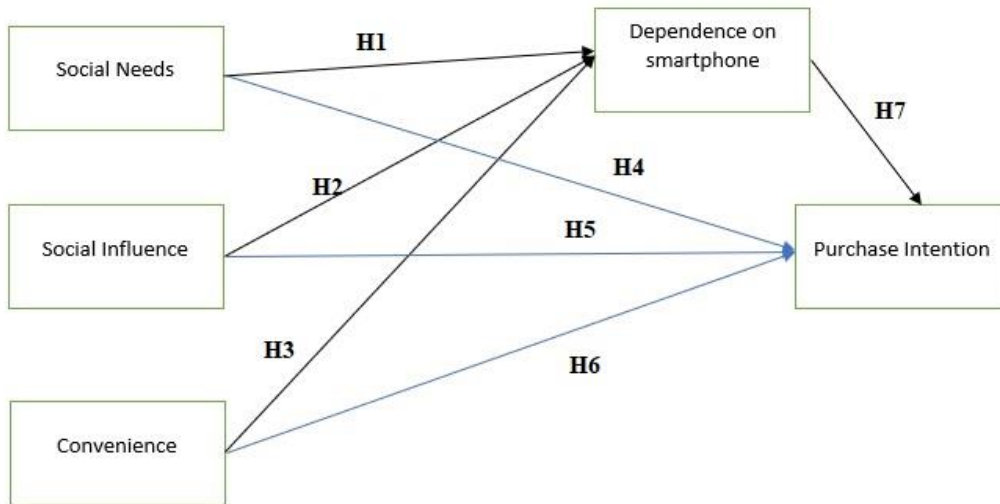
**2.7 Dependence on Smartphone and Purchase Intention**

According to research conducted by Kim Dae Kop (2016), smartphone dependency is what drives the intention to buy a smartphone. This research also said that, because of the experience and a good impression on smartphones, it would increase the purchase intention of smartphone users (Kim & Shin, 2016). According to research conducted by Mohammed (2018), smartphones are seen as a necessity that must be fulfilled by most users. This attitude change is the reason why users replace their smartphones with newer models (Mohammed, 2018). Therefore, we hypothesize that:

*H7: smartphone dependency has a positive impact on smartphone purchase intentions*

**Theoretical Framework**

This research aims to examine undergraduate college students' dependence on smartphones and their effect to purchase intention. This research will discuss the relationship between Social needs, Social Influence, and Convenience on smartphone dependence. The dependent variable in this research is smartphone dependence and smartphone purchase intention. Variable Social needs, Social influence, and convenience are independent Variables. The details of the research procedure can be illustrated in Figure 1.



**Figure 1. Research Framework**

**Method**

**3.1 Research design, Research instrument**

The population in this research were respondents who were undergoing an undergraduate education program and using a smartphone. Based on trends in Indonesia, the majority of Indonesians make smartphones the primary device for accessing the internet (Haryanto, 2019). Based on data from the Indonesian Central Statistics Agency, the population aged 20-24 is 21.9 million, which is the ideal age when someone is carrying out education (BPS, Badan Pusat Statistik, 2019). This proves that Indonesia is an ideal place to conduct this

research because of the large population of young people and the trend of smartphones that occur in Indonesia.

In this research, the method of collecting data samples in populations using non-probability samples. In the non-probability method, the sample selection is based on certain subjective criteria, so it does not require the sample to have the same opportunity to be selected as a sample (Christof Wolf, 2016). According to Mohammed Elfil and Ahmed Negida (2017), the Non-probability method has several techniques in its application, such as convenience sampling, judgmental purposive sampling dan snowball sampling (Elfil & Negida, 2017). In this research, a judgmental purposive sampling method was used. In this method, sample selection has specific criteria to be able to meet the requirements of a sample (Sharma, 2017). Therefore, this research used a screening question in order to find respondents who meet the requirements as samples.

This research has distributed a total of 442 questionnaires using google form and distributed through social media. However, Of the 442 questionnaires distributed, 367 valid data fit the criteria in this research. According to Ned Kock and Pierre Hadaya (2018), assessment of one construct, in order to be eligible, a sample must have at least ten times the total indicator. This research has a total of five variables, with 25 indicators, and must have at least 250 samples. The statement in the questionnaire is mention in Table 1 below.

**Table 1. Questionnaire**

Legend	
SN1	Smartphone allow me to stay connected with those I care
SN2	Social media makes it easy to communicate with friends and family
SN3	Smartphone makes it easy for me to share activities with friends using social media
SN4	Smartphone allow me to transfer photo/video or other data in my social network
SN5	It is important that my smartphone has the same as my friend
SI1	I would buy a smartphone because because it helped me to elevate my social status
SI2	I trust my friends and family with their opinions and advice before buying a smartphone
SI3	Its important if my friend likes the smartphone brand that I use
SI4	I will buy a particular smartphone brand to be accepted in my association
SI5	Social interaction with friends and family increase my usage rate of smartphone
CO1	Using smartphone would allow me to accomplish task more quickly
CO2	Having a smartphone is like having both a mobile phone and a computer together
CO3	I would prefer carrying my smartphone rather than other electronic device
CO4	Smartphone enables me to receive important message or learning materials wherever i am
CO5	Smartphone saves me time and effort in doing my work
DS1	In my daily life, usage rate of my smartphone is high
DS2	Most of the time I spend using my smartphone
DS3	I am totally dependent on my smartphone
DS4	I always use smartphone to help me deal with my job
DS5	Without smartphone I felt lost
PI1	I intend to purchase smartphone in the near future
PI2	I am interested in finding more information about smarphones before buying
PI3	I would buy smartphone rather than any other electronic device
PI4	I prefer to buy the same smartphone as my friend
PI5	I willing to recommend my friend to buy smartphone

### 3.2 Respondent Profile

To get valid respondents in this research, two screening questions were conducted. The first screening question is, are you currently enrolled as an undergraduate college student. The second screening question is, have you ever changed your smartphone while researching at

university. The reason for the first screening question is to ensure that only undergraduate students can answer the next question. The reason for the second screening question is to find out whether the respondent feels that the smartphone they have is outdated or still capable to do the given task. In this research, demographic questions were not applied because the first screening question covered all demographic questions where the average undergraduate student was at least 18 years old, and the majority were entirely students.

## **Results and Discussion**

In this research, the process of analyzing data will use Partial Least Square-Structural Equation Modeling (PLS-SEM), and the application used Smart-PLS. The Smart-PLS application has been widely used for other studies, and this research will apply the same thing that focuses on the analysis of variance. The purpose of this research is to prove the correlation between independent variables (Social Needs, Social Influence, and Convenience) with the dependent variable on smartphones and also support purchase intention (Hair et al., 2018; Sarstedt et al., 2020). By using Smart-PLS in this research, it will prove the reciprocal relationship between the independent variable and the dependent variable. (Wong, 2013).

### **4.1 Validity and Reliability Test**

Before doing the hypothesis testing, the data must pass the validity and reliability test first. Validity and reliability test are needed to ensure the data that used is valid and reliable In this research will measure outer loading and Average Variance Extracted (AVE); using SmartPLS. Outer Loading and AVE tests were performed to measure convergent validity. The following is the Outer Loading results shown in the Table 2.

**Table 2. Outer Loading**

---



	Social Needs	Social Influence	Convenience	Smartphone Dependency	Purchase Intention
SN1	0.831				
SN2	0.720				
SN3	0.770				
SN4	0.697				
SI1		0.815			
SI3		0.777			
SI4		0.799			
SI5		0.555			
CO1			0.723		
CO3			0.698		
CO4			0.754		
CO5			0.698		
DS1				0.642	
DS2				0.763	
DS3				0.769	
DS5				0.724	
PI1					0.699
PI3					0.764
PI4					0.722
PI5					0.786

All outer loading in this research has a value passed the recommended minimum value of 0.5. This research removes several indicators in order to get the best results. According to Hair et al (2017), the indicator should be removed if the outer loading value is found below 0.4. In this research, there were a total of 25 questions and a minimum of 250 samples. Total of 442 samples with 367 samples that could be used. The indicators that are removed are those that do not meet the recommended minimum value that is more than >0.5, namely SN5, SI2, CO2, DS4, and PI2.

**Table 3. Average Variance Extracted**

	Average Variance Extracted (AVE)
Social Needs	0.572
Social Influence	0.553
Convenience	0.516
Smartphone Dependency	0.528
Purchase Intention	0.553

The results of Average Variance Extracted in the table 2 showed all variables exceed the minimum value, which is above >0.5. The highest AVE value in Table 3 is Social Needs, with a value of 0.572. This proves that the majority of students use their smartphones to meet their social needs. The lowest AVE value is Convenience with a value of 0.516. This proves that Convenience is not the main thing that is the primary consideration for students to use smartphones, but still, Convenience remains an incentive for students to use smartphones. This value proves that all the variables in this construct can explain the variance of 51 to 57 percent.

**Table 4. Heterotrait-Monotrait Ratio**

	Convenience	Purchase intention	Smartphone Dependency	Social Influence
Convenience				
Purchase intention	0.718			
Smartphone Dependency	0.723	0.882		
Social Influence	0.393	0.794	0.813	
Social Needs	0.972	0.628	0.622	0.278

For Discriminant validity, the Heterotrait-Monotrait results in table 4 shows the valued to be lower than <1. However, there is one result that reaches 0.9, and this value can be categorized as moderate.

**Table 5. Reliability Test**

	Composite Reliability
Social Needs	0.842
Social Influence	0.829
Convenience	0.810
Smartphone Dependency	0.816
Purchase Intention	0.831

Table 5 showed reliability test which used Composite Reliability (CR) as a measure of internal consistency. The results of the Composite Reliability (CR) test in the table above show that all results are above 0.7. The result of Composite Reliability (CR) must have a value between 0.7 and 0.95 for a construct to be reliable and conform to the recommended conditions. In this research, all data were found to meet the requirements, and the construct did not face problems with Composite Reliability (CR).

#### 4.2 Descriptive Analysis

In table 6 shows the Descriptive Analysis of the respondents. The data shown in Descriptive Analysis is data in the form of the mean or average value of each question. The following will discuss the answers given by the respondents.

**Table 6. Descriptive Analysis**

	No.	Mean	Median	Min	Max	Std. Deviation
SN1	367	5.932	6.000	2.000	7.000	1.348
SN2	367	5.804	6.000	1.000	7.000	1.233

SN3	367	5.801	6.000	1.000	7.000	1.294
SN4	367	5.728	6.000	2.000	7.000	1.269
SI1	367	4.823	5.000	1.000	7.000	1.686
SI3	367	4.856	5.000	1.000	7.000	1.805
SI4	367	4.523	5.000	1.000	7.000	1.889
SI5	367	5.161	5.000	1.000	7.000	1.427
CO1	367	5.474	6.000	1.000	7.000	1.322
CO3	367	5.526	6.000	2.000	7.000	1.314
CO4	367	5.659	6.000	1.000	7.000	1.311
CO5	367	5.515	6.000	1.000	7.000	1.367
DS1	367	5.447	6.000	1.000	7.000	1.275
DS2	367	5.327	6.000	1.000	7.000	1.376
DS3	367	5.155	5.000	1.000	7.000	1.416
DS5	367	5.114	5.000	1.000	7.000	1.527
PI1	367	5.357	6.000	1.000	7.000	1.454
PI3	367	5.281	6.000	1.000	7.000	1.424
PI4	367	5.580	6.000	1.000	7.000	1.314
PI5	367	5.548	6.000	1.000	7.000	1.438

### 4.3. Social Needs

Social Needs variable is one of the independent variables in this research. Four out of the five questions in this variable are accepted for this construct. The results showed SN1 with an average score of 5,932 shows that smartphones allow respondents to stay connected with loved ones. SN2 explained that social media makes it easier for respondents to communicate with friends and family, and with an average score of 5.804. SN3 explained that smartphones make it easier for respondents to share activities with friends using social media, and with an average score of 5.801. The last, SN4 explained that smartphones allow respondents to transfer photos/videos or other data on their social media with an average score of 5,728.

#### 4.3.2 Social Influence

The Social Influence variable is the independent variable in this research. Four out of the five questions in this variable are accepted for this construct. The results showed that SI1 respondent could improve their social status by buying smartphones with an average score of 4,823. SI3 explains that it is important for the respondent if his friend likes the smartphone that the respondent uses and with an average value of 4,856. SI4 explained the respondent would buy a particular smartphone to be accepted in his association, and with an average value of 4,523. The last, SI5 explains that social interaction with friends and family increases the respondent's level of smartphone usage, and with an average score of 5,161.

#### 4.3.3 Convenience

The convenience variable is the last independent variable in this research. Four out of the five questions in this variable are accepted for this construct. The results showed that CO1 showed that the respondent could complete the task faster if he used a smartphone with an average score of 5.474. CO3 explained that respondents preferred to carry a smartphone rather than bring their other electronic device, and with an average value of 5,526. CO4 explains that the respondent's smartphone is likely to be able to receive important messages or learning materials wherever the respondent is, and with an average value of 5,659. The last, CO5 explained that smartphones save time and energy for respondents to do their jobs, and with an average value of 5,515.

#### 4.3.4 Dependence on Smartphone

Dependence on smartphones is the dependent variable, which becomes the mediation with the independent variable Social Needs, Social Influence, and Convenience. Four out of the five questions in this variable are accepted for this construct. The results showed DS1 that in everyday life, the level of use of the respondent's smartphone was high, and with an average score of 5.447. DS2 explained that most of the respondents' time was spent using smartphones, and with an average score of 5,327. DS3 explained that respondents are very dependent on their smartphones, and with an average score of 5,155. The last, DS5 explains that respondents feel lost without their smartphones, and with an average score of 5,114.

#### 4.3.5 Purchase Intention

Variable Purchase Intention is the last dependent variable in this research. Four out of the five questions in this variable are accepted for this construct. The results showed PI1 the respondent has the intention to buy a smartphone in the future, and with an average value of 5,357. PI 3 explains that respondents prefer to buy smartphones rather than buying other electronic devices, and with an average value of 5,281. PI4 explains that respondents have a good impression of smartphones and with an average value of 5,580. The last, PI5 explained the respondents would recommend their friends to buy a smartphone, and with an average value of 5,548.

#### 4.4 Goodness of Fit

Goodness of Fit test in this research is carried out to measure whether the model can explain the data as a whole. In this research, the measurement of Goodness of fit used the SRMR to assess this construct as shown in table 7.

Table 7. Goodness of fit

	Saturated Model	Estimated Model
SRMR	0.098	0.098

#### 4.5 Hypothesis Testing

Hypothesis testing in this research follows the Structural Equation Model (SEM) method. In this research, the hypotheses acceptance indicator is seen from the number of P values that must be below <0.05, and the T values must exceed >1.96. The hypotheses tested in this research are Social Needs (SN), Social Influence (SI), Convenience (CO), to Dependence on Smartphone (DS) as a moderating variable, and Purchase Intention (PI) as the dependent variable. Table 8 showed seven hypotheses that will be tested, and using 5% of the specific confidence level. As can be seen, all hypotheses are acceptable and passed the recommended conditions. For all the hypothesis number, their P values number. Most significant result is T-

value of Social Influence towards the dependency in Smartphone (H12) which is 12.479. This indicates that Social Influence significantly influencing students to depend on smartphone.

**Table 8. Hypothesis Testing**

	P Values	T Value
H1: Social Needs -> Dependence on Smartphone	0.0000	3.727
H2: Social Influence -> Dependence on Smartphone	0.0000	12.479
H3: Convenience -> Dependence on Smartphone	0.0000	3.594
H4: Social Needs -> Purchase Intention	0.0010	3.617
H5: Social Influence -> Purchase Intention	0.0000	6.69
H6: Convenience -> Purchase Intention	0.0120	2.702
H7: Dependence on Smartphone -> Purchase Intention	0.0000	3.808

In the next process, this construct will test the value of R Square. The purpose of the R Square test is to determine how much influence the independent variable has on the dependent variable (Kante et al., 2018). The value on R Square is said to be good if the resulting value is close to zero. The result in table 9 showed the Dependence on Smartphone gets a value of 0.554 and the Purchase Intention variable gets a value of 0.511, which is categorized as moderate.

**Table 9. R Square**

	P Value
Dependence on Smartphone	0.554
Purchase Intention	0.511

## Discussion

The research indicate that Social Needs have a significant effect on Dependence on Smartphone (H1). From this research, it was found that Social Needs was the main drive the high usage smartphone among undergraduate college students. Students usually use their smartphones for socializing using social media for interacting with friends or family. However, another research conducted in Pakistan explained that Social Needs were found to have no significant effect on Dependence on Smartphone. The reason behind this statement is that researchers stated that Social Needs could be fulfilled by communicating using traditional telephones or by other methods (Imtiaz, 2016). This research received a different result from that research because of the time difference, which makes technological developments more advanced, and the function of the smartphone has developed. It is not a luxury item but a primary function in today's society. Based on the results of the questionnaire in this research, it can prove that the use of social media as a means of communication has a significant role on smartphone dependency.

This research found that Social Influence has a significant effect on Dependence on Smartphone (H2). During the research, the influence of family and friends has the most significant affect on the level of smartphone usage among students. New application, games and staying in touch increases students to be more dependent with smartphone. Being kept in fashion and staying up to date, knowing what is trending forces students to be more reliance to smartphone.

---

Convenience has a positive effect on Dependence on smartphones are accepted (H3). In this research, it was found that Convenience was not the main thing that students considered when buying a smartphone. However, Convenience remains the main reason for students to depend on their smartphones compared to other electronic devices. Students prefer to bring their smartphones for the reason that with its compact size, and aims to simplify our work (Swapana & Padmavathy, 2017). Now days most applications that are used in laptop can be operated in using handphone. Thus, students preferred to bring smartphone as compared to laptop.

The research also found that the Social Needs variable also significantly affected Purchase Intention (H4). The results of this research can be supported by statements from previous studies which state that smartphones are one of the tools that help humans meet their social needs (Imtiaz, 2016). This can also be proven based on the results obtained from the research questionnaire, which states that smartphones can help students stay connected and make it easier to communicate with friends and family by using various social media applications. Based on the latest evidence in Indonesia, smartphones during the COVID-19 pandemic became essential electronic devices. Smartphone function is not only for communication but also capable of supporting the student learning process, not only for college students but also for all levels of students in Indonesia. However, the government realizes the importance of smartphones as a means of supporting the education process (Farisa, 2020).

Social Influence has a significant positive effect on Purchase Intention (H5). When deciding to buy a smartphone, students tend to get an opinion from their surroundings, such as family and friends, or it also can be in the form of advertisements from social media (Sthapit et al., 2018). This research also in line with two other studies that were also carried out in Pakistan and Indonesia, where researchers concluded that Social Influence was found to have a powerful influence on student decisions when buying a smartphone. (Aslam et al., 2018; Widyawati, 2017).

Convenience had a positive effect on Purchase Intention (H6)., thereby increasing students' intention to buy smartphones (Mohammed, 2018). With all the tasks that undergraduate must complete during his/her study, it makes more sense that they to be more efficient. To be more efficient means that that they need the latest in technology and more powerful smartphone. It is no surprise that most phone companies now racing and equipping the latest smartphone with more RAM, more processing power and light in weight.

The results of this research indicate that Dependence on Smartphone has a positive effect on Purchase Intention (H7). Student dependence on smartphones shows a significant direct impact on Purchase Intention. This is also supported by previous research from Korea, which states that a good experience when using a smartphone is the reason for the high dependence on smartphones, and dependence on smartphones is the main thing that increases one's purchase intention (Kim & Shin, 2016).

## **Conclusion and Recommendation**

### **5.1 Conclusion**

Based on the analysis results obtained, from a total of seven hypotheses submitted, all seven hypotheses were accepted. Social Needs has a positive effect on Dependence on Smartphone, whereby, depending on smartphones, students can fulfill their social needs. Social Influence has a positive effect on Dependence on Smartphone, where the influence of the social environment can affect the level of dependence of students with smartphones. Convenience has a positive effect on Dependence on Smartphones, where convenience is a supporting factor when students prefer to use smartphones than other electronic devices. Social Needs have a positive effect on Purchase Intention, where because they feel the need to fulfill their social

---

needs, students choose smartphones as the primary device for communicating and accessing the internet. Social Influence has a positive effect on Purchase Intention, where the influence of the social environment is very influential on student decisions to buy a smartphone. Convenience has a positive effect on Purchase Intention, where convenience is not the main reason students buy a smartphone. However, convenience remains one of the reasons students buy and use a smartphone.

## 5.2 Recommendation

For future research, it can be broadened into all levels of education in Indonesia. Not only for undergraduate college students, but smartphones can also help the learning process at the educational level in schools such as elementary, junior high, and high school. Currently, the Indonesian government has provided quota subsidies for students who need internet during the COVID-19 pandemic. With the help of internet quota subsidies from the government, students can access the internet using their smartphones. However, it does not solve the problem because some of the students do not have smartphones to access the internet (Maharani, 2020).

This research can also be developed in the future by adding variable second-hand phones. As discussed above, many students cannot buy a smartphone because of the high price or because of family economic factors so they cannot buy a smartphone. Second-hand smartphones are a good alternative for people who are looking for a smartphone with a lower budget than a brand new in box condition smartphone. The second-hand smartphone market in Indonesia is classified as a vast market, which was recorded by IDC in 2019 the second-hand smartphone market reached 206.7 million units, an increase of 17.6%, compared to only 175.8 million units in 2018 (Clinton, 2020). A large number of second-hand smartphone enthusiasts make it an option for students in Indonesia to be able to buy a smartphone with a cheaper budget that can meet their needs.

This research is beneficial for the country and the smartphone seller itself. Compared to laptops, smartphones can be purchased at a lower price, and students can access the internet anywhere and anytime. With smartphones, students in Indonesia can more easily connect to the internet so they can access various sources of education and news. Countries and smartphone vendors need to know that smartphones are not only products that are sold to make money and win the competition between brands, but smartphones can also be a source of education for most students in Indonesia.

## Reference

- Ab Hamid, M. R., Sami, W., & Mohmad Sidek, M. H. (2017). Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion. *Journal of Physics: Conference Series*, 890(1). <https://doi.org/10.1088/1742-6596/890/1/012163>
- Ang, S.H., Cheng, P.S., Lim, E.A., Tambyah, S. (2001). Spot the difference: Consumer responses towards Consumer Marketing, 18(3), 219-235
- Aslam, W., Farhat, K., & Arif, I. (2018). Smartphone dependence among students: gender-based analysis. *International Journal of Electronic Marketing and Retailing*, 9(3), 269. <https://doi.org/10.1504/ijemr.2018.10010928>
- BPS. (2019). Jumlah Penduduk Menurut Kelompok Umur dan Jenis Kelamin, 2018. Retrieved from Badan Pusat Statistik Indonesia: [https://www.bps.go.id/indikator/indikator/view\\_data\\_pub/0000/api\\_pub/58/da\\_03/2](https://www.bps.go.id/indikator/indikator/view_data_pub/0000/api_pub/58/da_03/2)
- Brata, E. S. (2019). Menjanjikan, Pertumbuhan Pasar Smartphone Capai 7%. Retrieved from CNBC Indonesia: <https://www.cnbcindonesia.com/news/20190827134521-8-95031/menjanjikan-pertumbuhan-pasar-smartphone-capai-7>
-

- 
- Batocchio, A., Minatogawa, V. L. F., & Anholon, R. (2017). Proposal for a method for business model performance assessment: Toward an experimentation tool for business model innovation. *Journal of Technology Management and Innovation*, 12(1), 61–70. <https://doi.org/10.4067/S0718-27242017000100007>
- Cepeda-Carrion, G., Cegarra-Navarro, J. G., & Cillo, V. (2019). Tips to use partial least squares structural equation modelling (PLS-SEM) in knowledge management. *Journal of Knowledge Management*, 23(1), 67–89. <https://doi.org/10.1108/JKM-05-2018-0322>
- Christof Wolf, D. J.-c. (2016). *The SAGE Handbook of Survey Methodology*. Washington DC: Sage Refrence.
- Clinton, B. (2020). Pasar Smartphone bekas di 2019 tembus 206 juta unit. Retrieved from Kompas.com: <https://teknokompas.com/read/2020/01/23/08070077/pasar-smartphone-bekas-di-2019-tembus-206-juta-unit>
- CNN. (2019). 6 Tren Pengguna Ponsel Indonesia di 2019. Retrieved from CNN Indonesia: <https://www.cnnindonesia.com/teknologi/20190301072252-185-373652/6-tren-pengguna-ponsel-indonesia-di-2019>
- Databoks. (2019). Pengguna Smartphone di Indonesia 2016-2019. Retrieved from Databoks: <https://databoks.katadata.co.id/datapublish/2016/08/08/pengguna-smartphone-di-indonesia-2016-2019#>
- Elfil, M., & Negida, A. (2017). Sampling methods in Clinical Research; an Educational Review. *Emergency (Tehran, Iran)*, 5(1), e52. <https://doi.org/10.22037/emergency.v5i1.15215>
- Farisa, F. C. (2020). DPR dorong pemerintah subsidi pembelian smartphone untuk orangtua siswa yang tak mampu. Retrieved from Kompas.com: <https://nasional.kompas.com/read/2020/07/26/14575691/dpr-dorong-pemerintah-subsidi-pembelian-smartphone-untuk-orangtua-siswa-tak?page=all>
- Galin, M. (2018). Smartphone shopping in Indonesia. Retrieved from Growth from Knowledge : <https://www.gfk.com/blog/2018/05/smartphone-shopping-in-indonesia>
- Goh, S. K., Jiang, N., Hak, M. F. A., & Tee, P. L. (2016). Determinants of smartphone repeat purchase intention among Malaysians: A moderation role of social influence and a mediating effect of consumer satisfaction. *International Review of Management and Marketing*, 6(4), 993–1004.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2018). Article information : When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24.
- Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107. <https://doi.org/10.1504/ijmda.2017.10008574>
- Haryanto, A. T. (2019, 05 17). Smartphone Jadi Pintu Masuk Orang Indonesia ke Internet. Retrieved from Detik.com: <https://inet.detik.com/telecommunication/d-4552912/smartphone-jadi-pintu-masuk-orang-indonesia-ke-internet>
- Haryanto, A. T. (2019). Smartphone Jadi Pintu Masuk Orang Indonesia Ke Internet. Retrieved from Detik.com: Based on trends in Indonesia, the majority of Indonesians make smartphones the main device for accessing the internet
- Imtiaz, A. (2016) Students' dependence on smartphones and its effect on purchasing behavior. *South Asian Journal of Global Business Research*.
- Kante, M., Kipchumba Chepken, C., Oboko, R., & Chepken, C. (2018). Partial Least Square Structural Equation Modelling' use in Information Systems : an updated guideline of practices in exploratory settings Developing a maturity model for the adoption of Mobile-based Internet of Things Health services in South Africa Vie. *Kabarak Journal of Research & Innovation*, 6(1), 49–67. <http://eserver.kabarak.ac.ke/ojs/>
-



- Kaushal, S. K., & Kumar, R. (2016). Factors Affecting the Purchase Intention of Smartphone : a Study of Young Consumers in the City of Lucknow. *Pacific Business Review International*, 8(12), 1–16. [http://www.pbr.co.in/2016/2016\\_month/June/1.pdf](http://www.pbr.co.in/2016/2016_month/June/1.pdf)
- Khalifa, N. E. M., & Taha, M. H. N. (2019). Aquarium Family Fish Species Identification System Using Deep Neural Networks NourProceedings of the International Conference on Advanced Intelligent Systems and Informatics 2018. In *Proceedings of the International Conference on Advanced Intelligent Systems and Informatics (Vol. 2018, Issue January)*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-99010-1>
- Kim, D.-E., & Shin, J.-I. (2016). The Impacts of Dependency and Addition of Smartphone on Behavior Intentions in South Korea. *126(Business)*, 107–111. <https://doi.org/10.14257/astl.2016.126.21>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Kong, Y., & Ye, Z. (2017). Goodness-of-fit tests in the multi-state Markov model. *Reliability Engineering and System Safety*, 166(January), 16–24. <https://doi.org/10.1016/j.ress.2017.02.010>
- Lee, E. B., Lee, S. G., & Yang, C. G. (2017). The influences of advertisement attitude and brand attitude on purchase intention of smartphone advertising. *Industrial Management and Data Systems*, 117(6), 1011–1036. <https://doi.org/10.1108/IMDS-06-2016-0229>
- Li, L., & Lin, T. T. C. (2019). Smartphones at Work: A Qualitative Exploration of Psychological Antecedents and Impacts of Work-Related Smartphone Dependency. *International Journal of Qualitative Methods*, 18, 1–12. <https://doi.org/10.1177/1609406918822240>
- Martins, J., Costa, C., Oliveira, T., Gonçalves, R., & Branco, F. (2019). How smartphone advertising influences consumers' purchase intention. *Journal of Business Research*, 94, 378–387. <https://doi.org/10.1016/j.jbusres.2017.12.047>
- Mohammed, A. B. (2018). Selling smartphones to generation z: understanding factors influencing the purchasing intention of smartphone. *International Journal of Applied Engineering Research*, 13(6), 3220–3227. <http://www.ripublication.com>
- Maharani, T. (2020). DPR: Subsidi kuota tak selesaikan masalah, banyak siswa tak punya smartphone . Retrieved from Kompas.com: <https://nasional.kompas.com/read/2020/09/09/13045951/dpr-subsidi-kuota-tak-selesaikan-masalah-banyak-siswa-tak-punya-smartphone?page=all>
- McCombes, S. (2019). How to create a research design. Retrieved from Scribbr : <https://www.scribbr.com/research-process/research-design/>
- Nugraha, A. I. (2017). Faktor-Faktor Yang Mempengaruhi Penggunaan Smartphone Dalam Aktivitas Belajar Mahasiswa Teknologi Pendidikan Universitas Negeri Yogyakarta. *E-Jurnal Prodi Teknologi Pendidikan*, 7(No.3), 267–282.
- Penz, E., Stottinger, B. (2005), Forget the "real" thing-take the copy! An explanatory model for the volitional purchase of counterfeit products. *Advances in Consumer Research*, 32, 568
- Pradolo, F. (2020). OPINI: Transformasi Media Pembelajaran pada Masa Pandemi Covid-19. Retrieved from Liputan6.com: <https://www.liputan6.com/citizen6/read/4248063/opini-transformasi-media-pembelajaran-pada-masa-pandemi-covid-19>
- Rahim, A., Safin, S. Z., Kheng, L. K., Abas, N., & Ali, S. M. (2016). Factors Influencing Purchasing Intention of Smartphone among University Students. *Procedia Economics and Finance*, 37(16), 245–253. [https://doi.org/10.1016/s2212-5671\(16\)30121-6](https://doi.org/10.1016/s2212-5671(16)30121-6)
-

- Rahmayani, I. (2015). Indonesia Raksasa Teknologi Digital Asia. Retrieved from Kementerian Komunikasi Dan Informatika Republik Indonesia: [https://kominfo.go.id/index.php/content/detail/6095/Indonesia+Raksasa+Teknologi+Digital+Asia/0/sorotan\\_media](https://kominfo.go.id/index.php/content/detail/6095/Indonesia+Raksasa+Teknologi+Digital+Asia/0/sorotan_media)
- Rendika Nugraha & Kunthi A. Kusumawardani (2018) FIRM Journal of Management Studies the Influence Of Celebrity Endorsement In Instagram Towards Customer Behavior And Purchase Intention In.
- Santoso, A. S. (2019). The Influence of Discount Framing towards Brand Reputation and The Influence of Discount Framing towards Brand Reputation and Brand Image on Purchase Intention and Actual Behaviour in e- Brand Image on Purchase Intention and Ac. *Procedia Computer Science*, 161, 851–858. <https://doi.org/10.1016/j.procs.2019.11.192>
- Sarjono, H., Sasmita, C. B., & Handoko, B. L. (2019). Factors influencing purchase intention in the smartphone selection context in millennials generation. *ACM International Conference Proceeding Series*, 231–236. <https://doi.org/10.1145/3335484.3335525>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2020). Handbook of Market Research. In *Handbook of Market Research (Issue September)*. <https://doi.org/10.1007/978-3-319-05542-8>
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749–752. [www.allresearchjournal.com](http://www.allresearchjournal.com)
- Sthapit, A., Laohakosol, W., & Sharma, A. (2018). Impact of Product-Related and Social Factors on Purchase Intention of Smart-Phone Buyers in Nepal. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3238642>
- Swapana, M., & Padmavathy, C. (2017). Factors influencing dependency on smartphone and the impact on purchase behaviour: An empirical research. *International Journal of E-Business Research*, 13(2), 79–92. <https://doi.org/10.4018/IJEER.2017040105>
- Taherdoost, H. (2018). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *SSRN Electronic Journal*, January 2016. <https://doi.org/10.2139/ssrn.3205040>
- Thoma, R. J., Cook, J. A., McGrew, C., King, J. H., Pulsipher, D. T., Yeo, R. A., Monnig, M. A., Mayer, A., Pommy, J., & Campbell, R. (2018). Convergent and discriminant validity of the ImPACT with traditional neuropsychological measures. *Cogent Psychology*, 5(1). <https://doi.org/10.1080/23311908.2018.1430199>
- Um, Y. J., Choi, Y. J., & Yoo, S. Y. (2019). Relationships between smartphone dependency and aggression among middle school students: Mediating and moderating effects of ego-resilience, parenting behaviour, and peer attachment. *International Journal of Environmental Research and Public Health*, 16(19). <https://doi.org/10.3390/ijerph16193534>
- Untari, P. H. (2019) Pengguna Internet Indonesia Paling Banyak di Usia 15-19 Tahun. Retrieved from OKETECHNO: <https://techno.okezone.com/read/2019/05/21/207/2058544/2018-pengguna-internet-indonesia-paling-banyak-di-usia-15-19-tahun>
- Widyawati, K. S. (2017). Dependency on Smartphone 4G and the Impact on Purchase Behavior in Indonesia. *International Journal of Business and Economic Affairs*, 2(2), 149–158. <https://doi.org/10.24088/ijbea-2017-22008>
- Wang, F., Zhang, H., Zang, H., Ouyang, M. (2005), Purchasing pirated software: An initial examination of Chinese consumers. *Journal of Consumer Marketing*, 22(6), 340-351.
- Wong, K. K. K.-K. (2013). Partial Least Squares Structural Equation Modeling (PLS-SEM) Techniques Using SmartPLS. *Marketing Bulletin*, 24(1), 1–32. [http://marketing-bulletin.massey.ac.nz/v24/mb\\_v24\\_t1\\_wong.pdf%5Chttp://www.researchgate.net/profile/Ken\\_Wong10/publication/268449353\\_Partial\\_Least\\_Squares\\_Structural\\_Equation\\_Modeling\\_\(PLS-SEM\)\\_Techniques\\_Using\\_SmartPLS/links/54773b1b0cf293e2da25e3f3.pdf](http://marketing-bulletin.massey.ac.nz/v24/mb_v24_t1_wong.pdf%5Chttp://www.researchgate.net/profile/Ken_Wong10/publication/268449353_Partial_Least_Squares_Structural_Equation_Modeling_(PLS-SEM)_Techniques_Using_SmartPLS/links/54773b1b0cf293e2da25e3f3.pdf)

- Wahyudi, R. (2019). Mobile Gaming Terus Naik saat Bisnis Ponsel Lesu. Retrieved from Kompas.com: <https://tekno.kompas.com/read/2019/01/19/10405017/mobile-gaming-terus-naik-saat-bisnis-ponsel-lesu>
- Xiao, Y., Liu, H., & Li, H. (2017). Integration of the forced-choice questionnaire and the likert scale: A simulation study. *Frontiers in Psychology*, 8(MAY). <https://doi.org/10.3389/fpsyg.2017.00806>
- Zahid, W., & Dastane, O. (2016). Factors Affecting Purchase Intention of South East Asian (SEA ) Young. *Asean Marketing Journal*, 1, 66–84. <https://doi.org/10.21002/amj.v8i1.5486>
-