CHAPTER 3

RESEARCH METHODOLOGY

This chapter is written with the purpose to present and explain the methodological choices made for this thesis, concerning research approach, as well as, data collection method, operational definitions, sampling and data analysis method. Followed by quality criteria and ethical principles. The discussion of each part is presented below.

3.1. Research Method

Quantitative research will be conducted in this study. Kasiram (2008) described quantitative research as the research method that process numeric data as a tool to analyze and conduct research studies, especially regarding what has been examined. There are some ways to collect the data such as conducting interview, spreading questionnaire, or doing observation (Sugiyono, 2006).

Finally, author choose questionnaire to collect the data. According to Kusumah and Dwitagama (2011), questionnaire is a list of written questions given to the subject of the study to gather information that is needed by the researcher. There are two kinds of questionnaires namely structured questionnaire or closed questionnaire, and unstructured questionnaire or open questionnaire. In the closed questionnaire, there are questions accompanied by answer choices whereas in the open questionnaire, there is no answer choice available.

The approach that will be taken in this study is cross sectional approach. According to Creswell (2012), cross sectional research is a research design that collects data at one time, but from different age groups. While according to Notoatmodjo (2002), cross sectional is a study to study the dynamics of the correlation between risk factors and effects, by approaching, observing or collecting data at one time (point time approach). It means that each research subject will only be observed once. Cross-sectional research is able to explain the relationship of one variable with other variables in the population studied, it can also test the validity of a model or hypothesis formulation and the level of difference between the sampling groups at one particular time point.

Questionnaires will be spread online by sharing google form's link to the customers of Oppo and Samsung in all over Indonesia. There is no specific requirement for the demographic like age, gender, or allowances. However, the respondents must be Indonesian people who have ever bought Oppo or Samsung products before so that they have experience with the products and more familiar, also have better understandings about the features from Oppo or Samsung. Also, Indonesia is not the country-of-origin of Oppo neither Samsung, so the answers towards two brands are purely from Indonesian's perspectives.

3.2. Population, Sample, and Data Collection Method

3.2.1. Population

Before collecting the sample, author need to determine the population. According to Fraenkel and Wallen (2006), population is a group of people who attract the attention of researchers to realize the results of their research. Hartono (2011) stated that populations with certain characteristics are finite and infinite and research can only be done on a finite population.

So, the population determined in this research are everyone who has experience with Oppo and Samsung smartphone products since those two brands are always upgrading their features in each of the new series, it can attract many people to purchase.

3.2.2. Sample

Sample is part of the amount and characteristics obtained by each population (Sugiyono, 2008). There are several types of sampling methods to determine the sample to be used in research that author has learned before and non-probability sampling considered as the most suitable one. Non-probability sampling is a sampling technique that does not provide chance or opportunity for each member of the population to be included as sample members (Riduwan, 2015). Not the entire population element has the same probability to be picked as sample. Before the questionnaire be distributed, the target has been settled by author, so the samples are not chosen randomly.

The technique that will be used in this non-probability sampling is purposive sampling. Arikunto (2006) explained that purposive sampling is one of sampling techniques that is done by taking subject based on the existence of certain purposes, not based on level, random or regional. Based on the description above, author chooses the sample based on characteristics of the samples which is considered fulfill the purpose of this study, so that it is expected to answer the identification of the research in the end.

There are some criteria that has been settled by author to filter the large population size. It should be fulfilled in order to get suitable representatives for the sample. Those criteria are:

1. They must be the customers who has experienced to use Oppo and Samsung's smartphone product within one year.
2. They must be Oppo and Samsung's customers who are living in Indonesia.

When determining the sample size, Roscoe (1975) quoted by Sekaran (2006) provides four references, which are:

1. The number of sample size which is more than 30 and less than 500 is usually appropriate for most studies.
2. If the sample is divided into subsamples (male / female, junior / senior, etc.), a minimum sample size of 30 for each category is appropriate.
3. In multivariate studies (including multiple regression analysis), the sample size should be 10 times larger than the number of variables in the study.
4. For simple experimental studies with strict experimental control, successful research is possible with small sample sizes between 10 until 20.

This research takes primer data that will be obtained by asking the respondents to fill the provided questionnaires. Based on the statement by Sekaran (2003), author will spread the questionnaires to 150 respondents to minimize the possibility in case the data cannot be used for this research, even though Sekaran stated that the minimum number of respondents is only 100.

3.2.3. Questionnaire Design

The designed questionnaires will be distributed into some parts latterly. The first part contains about author's introduction, including purpose of research, continued by filter question. The second part contains about demographic profile and basic information about the respondents that only can be filled after passing the filter question. The third part shows about instructions for filling out the questionnaire, and the last part is about the questions about the three variables which are country of origin image, perceived quality, and purchase intention that should be answered using scales.

There are total 16 questions for the three variables. Questions number 1 – 8 are about Country-of-Origin Image variable; it is written by Shirin and Kambiz (2011). The questions number 9 – 12 are about Perceived Quality variable; these questions are written by Pappu et al. (2005, 2006), and cited from Buil et al. (2013). The questions number 13 – 15 are about Purchase Intention variable; these questions are written by Esch et al. (2006), cited from Rizwan, M. et al. (2014) and the last question number 16 is still about the Purchase Intention variable; written by Shirin and Kambiz (2011).

3.2.4. Measurement Scaling

Author choose 5-point likert scale ranging from 'strongly agree' to 'strongly disagree' to be used in the questionnaire. Likert scale was made to know how strong a subject agrees or disagrees in each question (Sekaran & Bougie, 2013). Other reason why author choose 5-point likert scale is because it is common to be used so the respondents can easily understand it. It is also has been most recommended by many researchers. Those 5 scales are:

a. Strongly Agree = 5
b. Agree = 4
c. Neutral = 3

d. Disagree = 2

e. Strongly Disagree = 1

3.3. Operational Definition

This part contains several questions which have been written in the previous study. The questions have been modified by author based on the related topic. Operational variables in this study can be explained as follows:

Table 3.1

Questionnaire Items

Variables	Indicators (in English and Indonesian)		Scales
	Questions for Oppo and Samsung's customers (in English)	Questions for Oppo and Samsung's customers (in Indonesian)	
Country-of-Origin Image: The formation of people's viewpoints towards a country based on information scattered from various sources (Jenes, 2005).	1. The level of economic development in China / South Korea is high 2. The level of democratic politics in China / South Korea is high. 3. China / South Korea has high industrialization level. 4. The standards of living in China / South Korea is high. 5. China / South Korea is technically advanced.	1. Tingkat perkembangan ekonomi di Tiongkok / Korea Selatan tinggi. 2. Tingkat politik demokrasi di Tiongkok / Korea Selatan tinggi. 3. Tiongkok / Korea Selatan memiliki tingkat industrialisasi yang tinggi. 4. Standar hidup di Tiongkok / Korea Selatan tinggi. 5. Tiongkok / Korea Selatan memiliki kemajuan dalam hal teknik.	5-point Likert Scale

	6. China / South Korea produces high quality products. 7. It is great to have the product from China / South Korea. 8. The products from China / South Korea is reliable.	6. Tiongkok / Korea Selatan menghasilkan produk berkualitas tinggi. 7. Sangat menyenangkan memiliki produk dari Tiongkok / Korea Selatan. 8. Produk dari Tiongkok / Korea Selatan dapat diandalkan.	
Perceived Quality: Consumer perceptions to the overall quality or superiority of a product or service (Aaker, 1997).	1. Oppo / Samsung offers very good quality products. 2. Oppo / Samsung offers consistent quality for its products. 3. Oppo / Samsung offers very reliable products. 4. Oppo / Samsung offers products with excellent features.	1. Oppo / Samsung menawarkan produk dengan kualitas sangat baik. 2. Oppo / Samsung menawarkan kualitas yang konsisten untuk produk-produknya. 3. Oppo / Samsung menawarkan produk yang sangat bisa diandalkan. 4. Oppo / Samsung menawarkan produk dengan fitur yang luar biasa.	5-point Likert Scale
Purchasing Intention: The possibility for someone to buy a certain product (Dodds, Grewal, & Monroe, 1991).	1. I would intend to buy Oppo / Samsung products in the future. 2. I have a big willingness to buy smartphone products from Oppo / Samsung. 3. I am likely to purchase any smartphone products from Oppo / Samsung. 4. It is possible that I will recommend Oppo / Samsung products to other people.	1. Saya berniat untuk membeli produk Oppo / Samsung di masa yang akan datang. 2. Saya memiliki keinginan besar untuk membeli produk smartphone Oppo / Samsung yang lain. 3. Saya cenderung membeli produk smartphone apapun dari Oppo / Samsung. 4. Kemungkinan, saya akan merekomendasikan produk Oppo / Samsung kepada orang lain.	5-point Likert Scale

3.4. Instrument Test

Validity and Reliability test is important for this research. Both validity and reliability are a way to try to ensure that measurement errors are kept to a minimum by determining the properties of a measure that gives us confidence that it is doing its job properly (Field, 2009).

The software that will be used to analyze the result from the respondents is Statistical Package for Social Science (SPSS) which is developed by IBM corporation in year 1968. Latterly, the result will be used to answer the identification of the problems and to test the hypothesis.

3.4.1. Validity Test

Validity test is done to test whether a questionnaire is valid or not. Ghozali (2009) states that a questionnaire is considered to be valid if the listed questions are able to prove something. The validity test will be done by the help of SPSS Statistics software version 17.0. Author will use Pearson correlation coefficient formula to test each questionnaire. The formula is as follows:

$$r_{xy} = \frac{N \sum XY - (\sum X)\,(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\}\,\{N \sum Y^2 - (\sum Y)^2\}}}$$

a. r_{xy} = simple coefficient correlation

b. N = the number of respondents

c. ΣX = the total score of value (X)

d. ΣY = the total score of value (Y)

e. $\Sigma X2$ = the total score of value (X) quadrat

f. $\Sigma Y2$ = the total score of value (Y) quadrat

g. ΣXY = the total score from multiplication of value (X) and value (Y)

Criteria are as follows:

- The instrument is valid, if $\mathbf{r_{stat}} \geq r_{table}$
- The instrument is invalid, if $\mathbf{r_{stat}} < r_{table}$

The formula to find the exact r_{table} is:

- Number of respondents for the pre-test – 2 (degree of freedom)

Table 3. 1

Validity Test Result

Variables	Questions	r_{stat}	r_{table}	Validity
Country-of-Origin Image	COI1	0.679	0.361	Valid
	COI2	0.543	0.361	Valid
	COI3	0.635	0.361	Valid
	COI4	0.675	0.361	Valid
	COI5	0.818	0.361	Valid
	COI6	0.633	0.361	Valid
	COI7	0.613	0.361	Valid
	COI8	0.596	0.361	Valid
Perceived Quality	PQ1	0.970	0.361	Valid
	PQ2	0.948	0.361	Valid
	PQ3	0.946	0.361	Valid
	PQ4	0.956	0.361	Valid
Purchase Intention	PI1	0.901	0.361	Valid
	PI2	0.774	0.361	Valid
	PI3	0.794	0.361	Valid
	PI4	0.876	0.361	Valid

Source: data processed by using SPSS Statistical 17.0

Based on the validity test above, this table shows that all of 16 items in this variable are all valid, which means all the items can be used to analyze the hypothesis further.

3.4.2. Reliability Test

In this research, reliability test will be done using SPSS 17.00 through statistical test Cronbach Alpha because there is 5-point likert scale in questionnaire and author wants to know whether the scale is reliable. Coefficient of Cronbach Alpha can be formulated as:

$$ri = \frac{K}{(K-1)}\{1- \frac{\Sigma Si^2}{St^2}\}$$

a. ri = Coefficient Cronbach Alpha

b. K = mean quadrat between subject

c. Si^2 = mean quadrat of mistakes

d. St^2 = total variant

Table 3. 2

Cronbach's Alpha Reliability Level

Cronbach' Alpha Value	Reliability Level
0,0 - 0,20	Not reliable
>0,20 - 0,40	Slightly reliable
>0,40 - 0,60	Reliable enough
>0,60 - 0,80	Reliable
>0,80 - 1,00	Very reliable

Source: Sekaran and Bougie (2013)

Table 3. 3

Reliability Test Result

Variable	Cronbach's Alpha Coefficient	Reliability Level
Country-of-Origin Image	0.880	Very Reliable
Perceived Quality	0.982	Very Reliable
Purchase Intention	0.929	Very Reliable

Source: data proceed and analyzed by SPSS Statistics 17.0

Based on the result of the reliability test analysis above, it shows that the variables are above the minimum score of reliability level's requirements which is 0.60, even more than 0.80 that means all of them are not just reliable, but very reliable. So, all the three variable instruments are very reliable to be analyzed further in the regression section.

3.5. Data Analysis Method

To analyze the role of independent variable and mediating variable to the dependent variable, author uses certain tools as follows:

3.5.1. Descriptive Analysis

This analysis is important to transform the raw data so the data can be easily to be interpreted. It is very useful, especially to calculate the large numbers of data. Percentage, frequency and mean analysis are included as parts of descriptive analysis. Frequency and percentage statistics should be used to represent most personal information variables. Frequency statistics should be reported whenever the data is discrete, meaning that there are separate categories that the participant can tick. The percentage is calculated by taking the frequency in the category divided by the total number of respondents and multiplying by 100%.

3.5.2. Regression Analysis

Regression is one of the basic tools for analysis that can be used to create predictive models for various types of data (Olson & Shi, 2008). First, the simple linear regression analysis will be used to analyze the relationship between country-of-origin image and perceived quality, the relationship between perceived quality and purchase intention, also the relationship between country-of-origin image and purchase intention. After that, multiple regression analysis will be used to analyze the relationship of country-of-origin image and perceived quality to purchase intention. The outcome that is provided by SPSS later will be useful to do comparation for the result based on respondents' demographic factors.

3.5.1.1. Simple Linear Regression

Simple Linear Regression is a Statistical Method that functions to test the extent of the causal relationship between the cause factor variable (X) and the consequence variables (Y). The cause factor variable also can be called as predictor. Simple linear regression is also one of the statistical methods used in production to forecast or predict quality and quantity characteristics (teknikelektronika.com, accessed on October 24th, 2019). The simple linear regression equation model is as follows:

$$Y = \mathrm{a} + bX$$

Explanation:

Y = response variable or dependent variable

X = predictor variable or cause factor variable (independent)

a = constanta

b = regression coefficient (slope)

The values of a and b can be found by using this formula:

$$a = \frac{(\sum y)\left(\sum x^2\right) - (\sum x)(\sum xy)}{n\left(\sum x^2\right) - (\sum x)^2}$$

$$b = \frac{n(\sum xy) - (\sum x)(\sum y)}{n\left(\sum x^2\right) - (\sum x)^2}$$

3.5.1.2. Multiple Regression

Multiple regression is an extension of simple linear regression. It is used when the value of a variable wants to be predicted. It is based on the value of two or more other variables (statistikian.com, accessed on October 24th, 2019). The multiple linear regression model is described with the following equation:

$$Y = a + \beta 1\, X2 + \beta 2\, X2 + \beta n\, Xn + e$$

Explanation:

Y = Dependent or response variable.

X = independent variable or predictor.

α = Constant.

β = Slope or estimated coefficient.

a. F – test

According to Widarjono (2010), F statistical test is used to evaluate the effect of all independent variables on the dependent variable. To test this hypothesis F statistics are used with the following decision-making criteria:

Ho = There is no significant effect of the independent variables on the dependent variable simultaneously.

Ha = There is a significant effect of the independent variables on the dependent variable simultaneously.

The testing criteria are carried out by:

1. If the sig value ≥ 0.05 then Ho is accepted, Ha is rejected.
2. If the sig value <0.05 then Ho is rejected, and Ha is accepted.

b. T – test

According to Kuncoro (2013), t test is often called a partial test, this test is done to see the effect of independent variables on the dependent variable individually. The steps that must be carried out are as follows:

1. Finding the Hypothesis

   Ho: b = 0, meaning that the independent variable has no significant effect

   on the dependent variable individually.

   Ha: b ≠ 0, meaning that the independent variable has a significant effect on dependent variable individually.

2. Significant values are in the Coefficients output table from the results of the linear regression test. T-table values with significance (α = 5%), degrees of freedom (df) = (n-k) and two-tailed testing.

3. Testing Criteria

   If p-value> level of significant (5%) then Ho is supported and Ha is not supported.

   If p-value ≤ level of significant (5%) then Ho is not supported and Ha is supported.

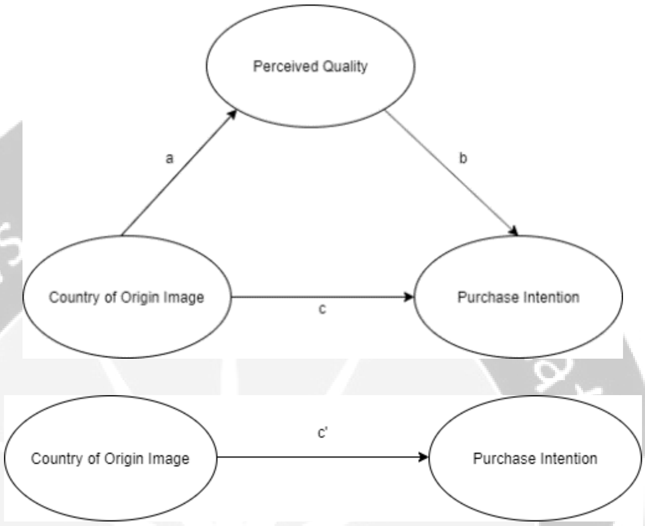
3.5.3. Path Analysis (Mediation)

Mediation analysis from the previous study which is done by Baron & Kenny's (1986) will be carried out in this study. Mediation analysis brings easier understanding of the relation between independent variables and dependent variables that do not have distinct connections. Linear and multiple regression will be used as the analysis tool. Baron and Kenny's (1986), defined four-step approaches to do mediation and it can be easily implemented through basic regression analyses:

1. Hold a simple regression analysis to predict the mediator (M) from the predictor (X).
2. Hold a simple regression analysis to predict the outcome (Y) from the mediator (M).

3. Hold a simple regression analysis to predict the outcome (Y) from the predictor (X).

4. Hold a multiple regression analysis to predict the outcome (Y) from both the predictor (X) and the mediator (M).



Source: primary data, 2019

Figure 3.1 PATH Analysis

The purpose of Steps 1-3 is to establish that zero-order relationships among the variables exist. If one or more of these relationships are nonsignificant, researchers usually conclude that mediation is not possible or likely, although this is not always true (MacKinnon, Fairchild, & Fritz, 2007).

Assuming there are significant relationships from Steps 1 through Step 3, one proceeds to Step 4. In the Step 4 model, some form of mediation is supported if the effect of M remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports full mediation. If X is still significant (i.e., both X and M both significantly predict Y), the finding supports partial mediation (Newsom, 2018).

3.6. One Way ANOVA

One-way ANOVA aims to find out if there is an average difference between two or more variables. What is meant by one way is that the source of diversity analyzed only goes one way, namely between groups (Ilhamzen, 2013). Author choose to conduct the ANOVA based on respondents' income or pocket money. It is to identify:

1. Whether there is any difference of country-of-origin image effect on Indonesian customers when buying smartphone products based on their income or pocket money.
2. Whether there is any difference on Indonesian customers in perceiving quality when buying smartphone products based on their income or pocket money.
3. Whether there is any difference in purchase intention on Indonesian customers when buying smartphone products based on income or pocket money.

The criteria of ANOVA are:

- Rejected if F > Critical value
- Accepted if F < Critical value
- Statistically significant evidence at α = 0.05 to show that there is a difference vise-versa.

The formula for ANOVA can be explained below:

$$F = \frac{\Sigma n_j(\bar{X}_j - \bar{X})^2/(k-1)}{\Sigma\Sigma(X - \bar{X}_j)^2/(N-k)}$$