



**THE INFLUENCES OF PRODUCT
QUALITY, PRODUCT PRICE, BRAND BENEFITS AND
CUSTOMER EVALUATION TOWARD
PRODUCT SALES**

**(A Case Study of OPPO Mobile phone users in Jakarta Taman
Anggrek)**

By

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PANEL OF EXAMINERS
APPROVAL SHEET

The Panel of Examiners declares that the skripsi entitled “**THE INFLUENCES OF PRODUCT QUALITY, PRODUCT PRICE, BRAND BENEFITS AND CUSTOMER EVALUATION TOWARD PRODUCT SALES**” that was submitted by Han shipeng majoring in Management from the Faculty of Business was assessed and approved to have passed to Oral Examinations on 4 May,2018

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DECLARATION OF ORIGINALITY

I declare that this skripsi, entitled **“THE INFLUENCES OF PRODUCT QUALITY, PRODUCT PRICE, BRAND BENEFITS AND CUSTOMER EVALUATION TOWARD PRODUCT SALES”** is to the best of my knowledge and belief, an original piece of work that has not been submitted, either in whole or in part, to another university to obtain a degree.

Cikarang, Indonesia, April 27 , 2018.

Han Shipeng

ABSTRACT

This research aimed to find the factors that influence the product sales of OPPO store in the Taman Anggrek Mall in Jakarta Indonesia. The researcher used quantitative method with data that taken from the customers in the malls in Jakarta by questionnaire. This research includes four independent variables (product quality, product prices, brand benefits and customer evaluation) and dependent variable (product sales). The T-test and the F-test were used to test the multivariate recurrence test to examine the effect of factors on the ward factor. A quantitative study was conducted on samples of 100 interviewees and their responses were analyzed using factor analysis. Before the actual investigation, the researchers also conducted pre-examination of 30 respondents. Quantitative analysis and secondary data from multiple sources. SPSS 20.0 test was used to find out the significant difference between the hypothesis group and the sales volume based on the independent variables. The result of the product quality, product prices, brand benefits and customer evaluation all have significant influence on the product sales in the OPPO store in the Taman Anggrek mall, Jakarta.

Key words: *quality, price, brand benefits, customer evaluation, OPPO mobile phone.*

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CHAPTER I

INTRODUCTION

1.1 Background

Mobile phone is an indispensable daily communication tool, we can think that mobile phone is a small computer, you can at any time at any time to complete their work did not finish, you can at any time want to miss us Of people send messages or call. The phone has been fully integrated into our lives. In 1876, Bell invented the first phone, but the phone is not so easy to carry the phone. The first mobile phone was led by Martin Cooper, a former general manager of the Motorola Systems Division, in 1984, producing the DynaTAC 8000x, the first commercial phone that can be easily loaded, and the first phone call. He is the first real portable phone. Before the phone was considered "car phone", but they were too big to carry. Motorola DynaTAC 8000x and we are now using the smart phone contrast is very different. This phone was released in 1984 when it was very expensive (Lane Clare, 2013).

With the changes in the times, so that people have a constant pursuit of mobile phones, hoping the phone can be very perfect to do their own difficult to complete things. Since the first mobile phone sale, the mobile phone industry has developed rapidly, a lot of mobile phone features continue to develop, in the present society, many people choose to use mobile phone features to replace some professional tools. Mobile phones can change the relationship between modern people and their families, colleagues, friends, to enhance feelings and increase communication. The increase in the use of mobile phones has been greatly improved with education, gender equality and political participation, especially in the developing countries' economies, cultures, exchanges and employment. In

many developing countries, economic growth is also related to mobile phones. Between 2010 and 2020, the growth in mobile phone usage will have a significant impact on global GDP growth and show positive growth(Geoff, 2013).

The following picture is the world's major smart phone manufacturers on the global and market share in China:

SMARTPHONE VENDORS MARKET SHARES [Q3 2016]

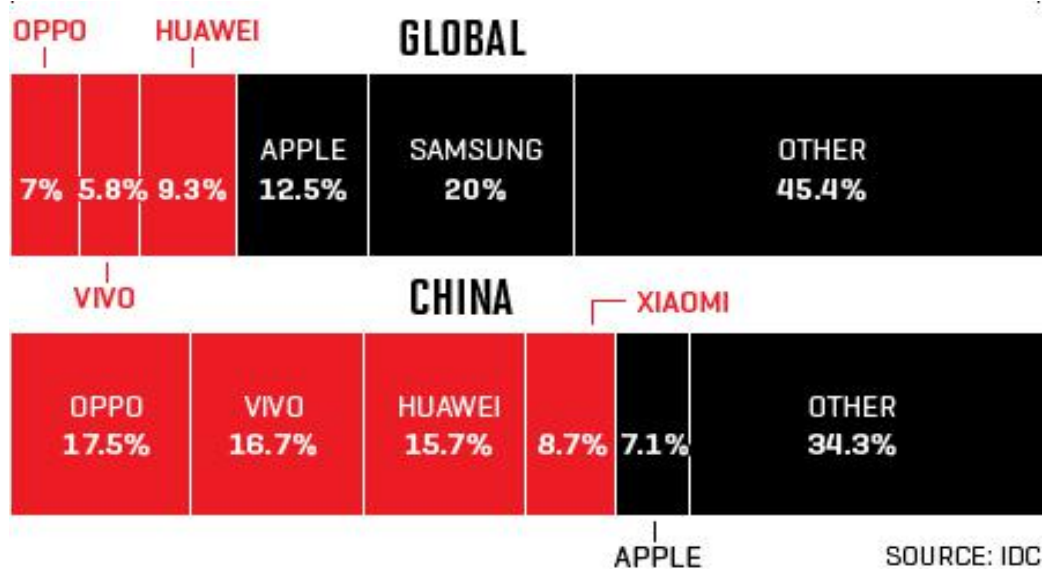


Figure 1.1 the world's major smart phone manufacturers on the global and market share in China

Source: <http://fortune.com/2017/01/24/china-smartphones-oppo-vivo-huawei-xiaomi/> (2016)

According to the latest mobile phone market survey in 2016, by the picture, we can first see in the world, mobile phone users choose other brands of mobile phone market share of 45.4%, the second is Samsung mobile phone, accounting for 20% of market share, Third is the Apple mobile phone, accounting for 12.5% of the market share, the fourth is Huawei mobile phone, accounting for 9.3% of market share, the fifth is OPPO mobile phone, accounting for 7% of market share,

the last one is VIVO mobile phone, only Accounting for 5.8% of the market share. We can see in China, mobile phone users choose other brands of mobile phone market share of 34.3%, the second is OPPO mobile phone, accounting for 17.5% of market share, the third is VIVO mobile phone, accounting for 16.7% of market share, , The fourth is Huawei mobile phone, accounting for 15.7% of market share, the fifth is XIAOMI accounting for 8.7% of market share, the last one is Apple's mobile phone, accounting for only 7.1% of market share (Pility, 2014).

Table 1.1 Several Famous Mobile Phone Brands in Indonesia's Sales

Top Five Smartphone Vendors, Worldwide Shipments, Market Share, and Year-Over-Year Growth, Q1 2017 Preliminary Data (Shipments in Millions)					
Vendor	1Q17 Shipment Volume	1Q17 Market Share	1Q16 Shipment Volume	1Q16 Market Share	Year-Over-Year Change
1. Samsung	79.2	22.8%	79.2	23.8%	0.0%
2. Apple	51.6	14.9%	51.2	15.4%	0.8%
3. Huawei	34.2	9.8%	28.1	8.4%	21.7%
4. OPPO	25.6	7.4%	19.7	5.9%	29.8%
5. vivo	18.1	5.2%	14.6	4.4%	23.6%
Others	138.7	39.9%	140.0	42.1%	-1.0%
Total	347.4	100.0%	332.9	100.0%	4.3%

Source: IDC Quarterly Mobile Phone Tracker, April 27, 2017

Source:

<https://id.techinasia.com/idc-oppo-dan-vivo-raih-pertumbuhan-penjualan-tertinggi-di-q1-2017>

The above data can be seen in Indonesia several well-known mobile phone brand mobile phone sales, Apple and Samsung mobile phone sales leader, the third is Huawei mobile phone, the fourth is OPPO phone, the fifth is VIVO mobile phone.

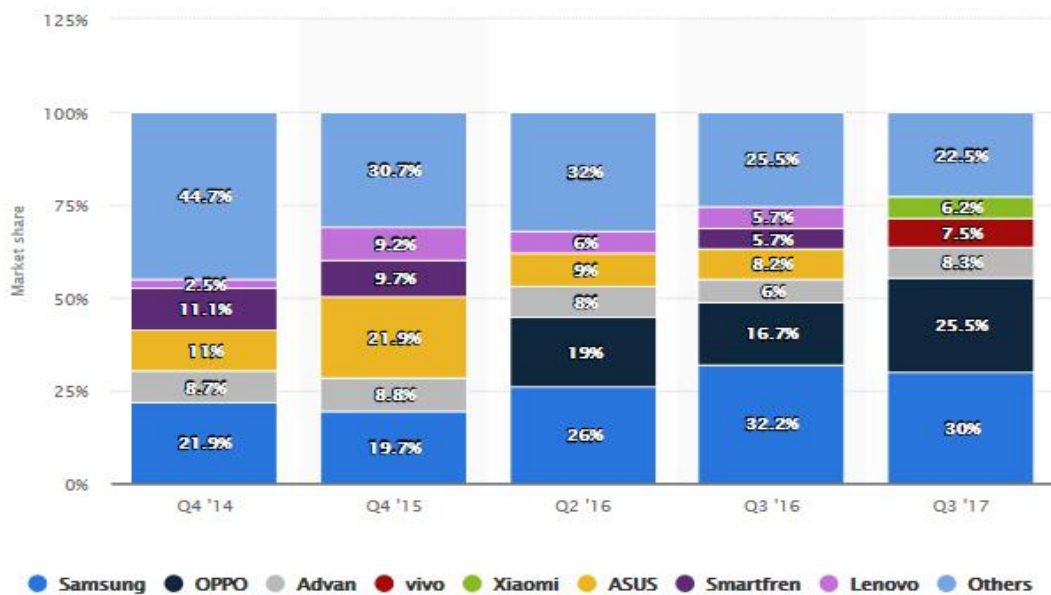


Figure 1.2 Vendors' Market Share of Smartphone Product Sles in Indonesia From 2014 to 2017

Source: <https://translate.google.com.hk/translate?hl=zh-CN&sl=en&tl=zh-CN&u=https%3A%2F%2Fwww.statista.com%2Fstatistics%2F516302%2FIndonesia-smartphone-shipments-vendor-market-share%2F>

As we can see in Figure 1.2, OPPO mobile phone did not appear in the Indonesian mobile phone market during 2014 and 2015. This proves that OPPO mobile phone is a brand new brand in Indonesia. but from the second quarter of 2016 to the third quarter of 17th, the sales of OPPO mobile phones are not stable in the mobile phone market in Indonesia. It can be seen in the figure that the OPPO mobile phones in the second quarter and third quarter of 2016 Comparable sales decreased by 2.3%, while the comparable sales volume in the third quarter of 2017 compared to the third quarter of 2016 increased by 8.8%. This shows that the OPPO mobile phone is a new brand in the country of Indonesia. According to the icons, it can be seen that there are many factors causing instability in sales.

In fact, the customer's evaluation is seen as a key determinant of the customer's

decision to leave or stay in the organization (Thakur, 2013). The sales of mobile phones are a direct response to consumption. Once customers are satisfied with the performance of mobile phones, long-term relationships between customers and organizations may arise (Munusamy & Chelliah, 2013). Good customer evaluation has been proven to promote the development of the mobile phone market. Improving good customer reviews will improve your sales (COM, 2015).

In Indonesia, electronic products are leading Indonesia into the trend of a new electronic era, especially the development of mobile phones. Indonesian consumers are more concerned about the practicality and brand of mobile phones than ever before. In factors such as value, quantity, and new function development, consumers pay more attention to these factors before buying. They also pay more attention to the development of mobile phones. In the large shopping malls in Jakarta, you can see the emergence of many new mobile phone brands (Indonesian Mobile Market, 2013).

Customer evaluation can help an enterprise not only keep its customers, but also provide valuable insights on how to attract new customers (Singer and pattanayak, 2014). The image presented by Andreassen and lindestad (2013) affects customer evaluation through a filtering effect. In the same way, Davies (2013). brand benefit is related to customer evaluation. Brand benefit is considered to be an important prerequisite for customer evaluation. Therefore, a positive brand benefit often leads to better customer evaluation (Chao, 2015). According to Ozturk and Se, 2005 can win the potential of customers, the enterprises that increase the value of their value in the increasingly competitive market structure, provide the products and services they need, and meet the needs of the customers (Tianal,2014). According to Hanlong (2016), service management literature

suggests that the customer perceived value influence customer satisfaction. In addition, Qiao Lin and others. (2014) it is suggested that customer evaluation is a function of quality, price and expectation. It's very important for a company to satisfy customers. After customer satisfaction, it will be better to evaluate the company so that the company can rely on this customer base to improve its profitability (Rachman, 2015).

In the modern world, whether it is work or life, or entertainment and news information, we need to use the phone. In modern life, the basic everyone has a cell phone. With the development of the times, the mobile phone market is also developing, the per capita GDP growth, mobile phone sales increased. Consumers are very important to see the sales of mobile phones. When people need to buy electronic products, whether it is computer or television, and even mobile phones, product sales is also a direct consumer to buy products. When the brand product sales that is very good, many customers will continue to choose the brand of products. Therefore, sales have a direct impact on the purchase of goods, different companies goods, sales are not the same (Ahmad , 2015).

1.2 Problem Identification

More than half of Jakarta's consumers know the OPPO brand. Explaining further, OPPO is a new brand. Using the same model as traditional mobile phones in mainland China, many consumers understand OPPO brand mobile phones through large-scale publicity campaigns. These factors affect the OPPO mobile phone sales have these. This is because OPPO manufacturers have just entered the Indonesian mobile phone market and do not understand the sales model of the Indonesian mobile phone market. In the Indonesian mobile phone market, many consumers value the quality and price of mobile phones, the practicality of mobile phone plants and the fear of brand influence. At the same time, price and quality as long as manufacturers can meet the needs of customers, as well as the company's branding expertise, mobile phone after-sales service must be more professional, only to improve their own brand effect and professional service attitude, which can bring more customers to be consistent Praise, mobile phone sales will grow steadily.

1.3 Statement of Problem

After professional personnel statistics found these problems, plans to OPPO mobile phone sales factors to carry out research:

1. Does the product quality have an influence on product sales?
2. Does the product price have an influence on product sales?
3. Does the brand's benefits have an influence on product sales?
4. Does the customer's evaluation have an influence on product sales?
5. Do the product quality, price, product brand's benefits and after use the customer evaluation have an influence on product sales?

1.4 Research Objectives

After the researchers' research objectives and research purposes can have the following explanations:

1. Understand the influence of product quality on product sales.
2. Understand the influences of product prices on product sales.
3. Understand the influences of brand benefits on product sales.
4. Understand the influences of customer evaluation on product sales.
5. Understand the influence of product quality, price, product brand benefits and customer evaluation on product sales.

1.5 Significance of the Study

The aim is through the study of OPPO phones in the Indonesian market. Product quality, product price, brand efficiency and customer evaluation of product sales.

This research on the manufacturers of marketing and management has a very valuable meaning, embodied in the following aspects:

1. For OPPO companies: OPPO mobile phones continue to develop and innovate in China and the world are very popular, the Indonesian country in the Asia-Pacific region's smart phone market occupies a certain important position, but the phone in the market too many types of The competitiveness of relatively large. In order to highlight the unique nature of the OPPO phone, as well as product sales, OPPO companies need to Indonesia's mobile phone market has a comprehensive investigation, and make the appropriate improvement, so as to better in the market development and create good results.

2. For future researcher: Can help researchers to give more reference, and can help researchers encounter research difficulties in the future.

1.6 Scope and Limitation of the Study

a. Scope

The survey was conducted in the Jakarta Taman Angrek mall

b. Limitation

For this study, the limitations of the study were:

- A. Fewer mobile phone types investigated.
- B. The price of mobile phones surveyed is not stable.
- C. The investigated mobile phone brand is not concerned.
- D. The phone evaluation of the survey is not true.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

In Chapter 2, the researchers will focus on factors that affect sales. First, sections 2.2-2.6 explain various variables, including one independent variable (sale) and four dependent variables (product quality, product price, brand benefits, customer evaluation). The second section 2.7 shows a review of previous studies and 2.8 summarizes the gaps discussed in the above sections. The last 2.9 shows the theoretical framework. The theory and literature in this chapter will support research to achieve the goal.

2.2 Product Sales

Sales are multiple quotes sold during a specific time period. The sales volume is also the number or quantity of seller service personnel in the ordinary business association of the business association during the specified period (Druck, 2013).

Sales are the total revenue delivered, or the total number of units sold in (trade) is the total revenue delivered or the total number of units sold during a given time period (Bradmore, 2014).

Sales efficiency measures the business units that each sales representative produces in normal quantities. This is more helpful in combining and processing support parameters for business execution. The efficiency of trading volume must be deliberately adjusted because of its poor quality. There are many factors that affect the volume of transactions, such as the quality of product prices and customer satisfaction, as well as brand awareness and other factors that affect their sales (Mohamad, 2017).

2.3 Product quality

Understanding and appreciating the true value of what quality brings to an organisation, product or service is essential for driving effective continuous improvement. By acting on this key knowledge, increases in employee morale, customer satisfaction and profit margins invariably become by-products of a well run business (Goseph, 2016).

Quality is the life of an enterprise and the soul of an enterprise. If any enterprise wants to survive and develop, it must do everything possible to improve the quality of its products, innovate and surpass, and pursue higher goals (Fuxiang, 2014).

Quality is our survival and development of the basic conditions, an enterprise if you want to build their own first-class brand, first-class quality is one of the indispensable conditions. Like a machine, is composed of tens of thousands of different parts with the function and effect on the normal operation of the machine in each part is normal, whether the function of play, with accuracy in place. And quality is one of those parts. Only when the function of each component is well brought into play can the normal operation of the machine be ensured (Wang, 2013).

2.4 Product price

The general sense of the amount of product payment is called the price, he is the company's profitability and revenue of the main factors. However, in the sense of marketing, consumers use money to exchange the value of goods and services, or the costs of products and services, that is, the so-called price (Niharika, 2015).

Pricing system is an integral part of sales. Sales personnel have nothing to do with actual pricing, but they should know the company's pricing policies to show their value to the customer. Pricing systems differ from sellers and sellers in terms of the type of sales organization, the type of product the customer deals with, the company's competitors and the overall economic environment (John, 2012).

2.5 Brand benefits

The brand benefits is brought by the brand for the enterprise. It is the continuation of the enterprise value in the commercial society. In the current brand leading business model, it means the product positioning, business model, consumer groups and profit returns. The establishment of a corporate brand requires that companies have a strong ability to integrate resources and display the essence of the company to the world through the brand. Establish methods: Advertising, daily marketing, and after-sales service have a direct impact. The brand effect is the use of the brand in the product, which brings benefits and impact to the brand user. Brand is the product of commodity economy development to a certain class. The initial use of brand is to facilitate the identification of products. The rapid development of the brand is produced under the highly developed conditions of modern and modern commodity economy. Its rapid development is the use of brand to produce goods. The person has brought great economic and social benefits (Bai, 2014).

Sales of digital products are more competitive and they place more emphasis on digital products. Knowing that sales depend on brand benefits in the product competition and the intended target shopping center and consumers, it is important to consider how to supply and understand the brand benefits of the company's products. Brand benefits, providing value through business and developing customer value (Aditya, 2013). This article uses media categories to

analyze brand benefits, determine the suitability of management decisions, and determine brand effects through communication and goal awareness (Blankson, 2014). Branding is a powerful indicator of product sales (Kalafatis, 2014).

2.6 Customer evaluation

The customer evaluation is very important in product sales. In the normal sale, the refund guarantee is not allowed for consumption and negative experience because of the purchase before the consumption takes place. Compared with normal sales, there are additional positive effects of perceived quality or fair dealing with transactional utility (Thaler, 2013).

In other words, at the moment of payment, there is a guarantee that you can recover your money. WTP is neither affected by consumption nor affected by negative experiences, but may be affected by the positive impact of transaction utility. What is WTP? Wireless transport protocol (WTP) is a protocol in the wireless application protocol group, which can be operated effectively through secure or insecure wireless data network. It provides three different transport services: unreliable one-way transmission, reliable one-way transmission and reliable two-way transmission. This layer also includes an optional user to user reliability that controls the security of each received message. In order to reduce the amount of information sent, delayed acknowledgement can be applied (Manon, 2015).

Some companies have some trial period products available to the customer experience, so that the tiger's customers to product evaluation, and then further improve the product, so that it can improve product sales. Consumers with a product trial period can experience the product within a fixed period of probation. After the trial period, they decide whether to buy the product or not. Product

information is therefore available prior to purchase decisions. Once the product is purchased, the purchase cannot be undone. These two strategies help consumers to make better purchase decisions and promote retailers' promotions. Because consumers can take the initiative to use these strategies, you can "update" the interaction of information products (Gerrit, 2014).

2.7 Previous Researches

In the past, the research on the factors influencing the sales of products has the most important and most realistic factors in the influence of product sales. Through the analysis and research of many data, it is determined that the following variable are the most important. Table 2.1 shows the previous research:

Table 2.1 Previous Researches

No	Title&Auther&Year	Variables	Results
1	Product sales factors. Berhe (2013)	1.Product sales	We conduct research based on factors that influence sales, product prices, product quality, and sales locations.
2	Price changes have an influence on sales. Karpoff (2015)	1.Product Price 2.Product sales	which is consistent with several seemingly unrelated or contradictory observations. Finally, some directions for future research are identified.

3	Analyzing the influence of price of product quality on buying decision. Tumewu (2013)	1.Product quality 2.Product sales	The results show that variable prices and product quality variables affect purchase decisions.
4	The purpose of this paper is to investigate the relationship between the sales volume of a company and its brand benefits. Adil (2016)	1.Brand benefits 2.Product sales	Research shows that a good brand image, should positively affect customer loyalty, long-term will also affect the customer perceived quality, customer satisfaction, will also affect more customers willing to express commitment to provide sustainable profits.
5	Customer evaluation and customer incentives on the impact of online retail sales. Kim (2015)	1. customer evaluation 2.Product sales	The results show that most relational hypotheses exist. These findings support the direct and interactive impact of customer reviews and incentives on product sales.

Source: Adjusted by previous research (2018)

2.8 Research Gaps

Different research results have different results on the factors affecting sales. Compared with previous studies, the gap between the above research and this study is summarized as follows:

Berhe (2013) in Product sales factors. He conducts research based on factors that influence sales, product prices, product quality, and sales location. He emphasized

that product prices, product quality, and sales locations all have an impact, but in this study, the researcher's price, product quality and brand effect, and customer evaluation are all factors that affect sales.

Karpoff (2015) has an influence on sales for price changes. This article reviews how the price changes affect the early and current research on financial market trading volume, and gives four contributions. In this study, researchers will focus on whether price positioning is acceptable.

Tumewu (2013) pointed out that using five factors and three brand and network source data analysis concluded that peripheral equipment specifications, core technologies and value-added features will affect consumers' purchase of mobile phones. This paper uses four factors to conduct a sample survey to collect first-hand data, and only conducts research on users from the perspective of quality. More targeted and accurate.

Adil (2016) the relationship between company sales and brand benefits. This article reviews that a good brand image should positively affect sales and affect the willingness of more customers to buy and thus increase sales. In this study, researchers will focus on whether the branding benefits of brand promotion can increase sales.

Kim (2015) Customer Reviews and Customer Incentives on Online Retail Sales Impact. This article reviews the direct and interactive impact of customer reviews and incentives on product sales. In this study, researchers will focus on whether good customer evaluation has an impact on product sales.

2.9 Theoretical Framework

The purpose of the article is to study and analyze the factors that sell OPPO hands in Taman Anggrek, Jakarta, Indonesia, In order to achieve the OPPO mobile phone sales target, should include four subsystem product quality, product price, brand benefits and customer evaluation.

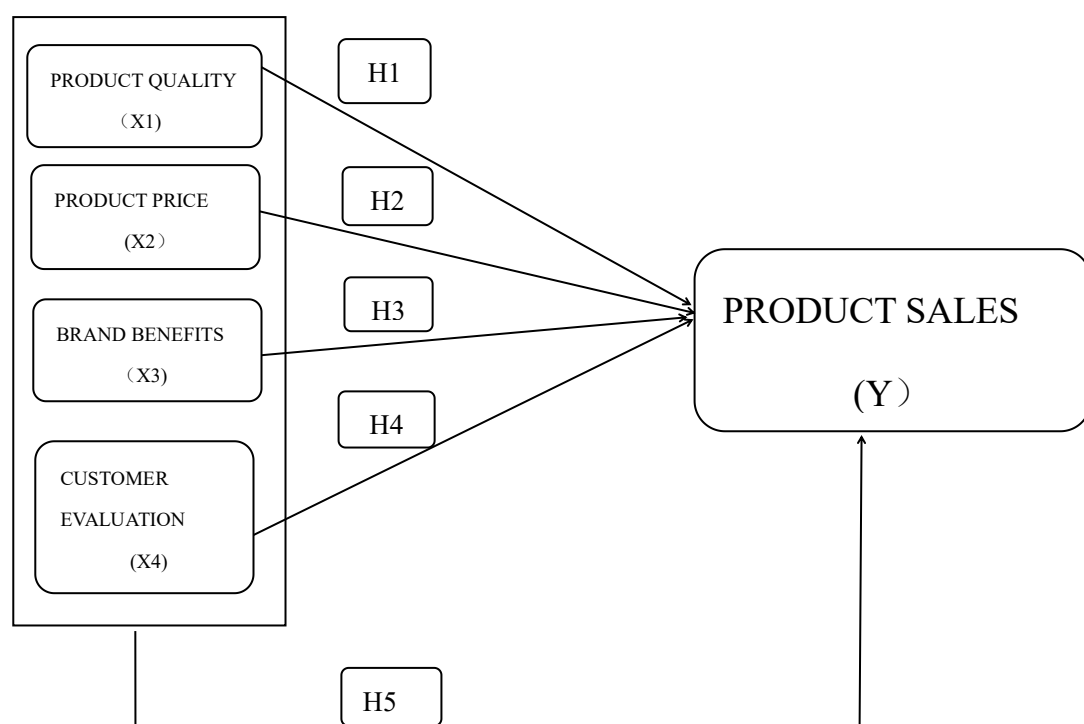


Figure 2.2 Theoretical Framework

Source adjusted by researcher : Wang (2014), Zhang (2015), Ajzen, I. (2012).

There are four independent variables: X1 is the product quality, X2 is the product price, X3 is the brand benefits, X4 is the customer evaluation. The one dependent variable is the product sales for Y. If any enterprise wants to survive and develop, it must do everything possible to improve the quality of its products, innovate and surpass, and pursue higher goals (Fuxiang, 2014).

CHAPTER III

METHODOLOGY

3.1 Research Method

Research is the process of collecting and analyzing information to help researchers achieve research results and improve standards (Edmonds, 2013). There are two methods of scientific research: quantitative research and qualitative research. Examples of quantitative variables are word scales and statistics, which are usually used to measure or measure something. The purpose of the quantitative approach is to determine whether the theoretical generalization of the theory is true. Quantitative methods include fewer respondents, using open questionnaires or protocols, and are best suited to answering questions about the causes and causes (Karim, 2012). Quantitative description of social phenomena such as beliefs, emotions and attitudes can not be measured directly, and its essence is not quantitative (Sreevidya, 2013).

Qualitative method theory comes from science, including linguistics, sociology, philosophy, anthropology and psychology. Through the researcher's experience, views and history to understand the social and material situation. Researchers using qualitative methods seek deeper truths. Its purpose is to "study things in the natural environment", from the people's sense to understand or explain the phenomenon (Moriarty, 2014).

In this research project, the researchers chose to take a quantitative approach to research, that is, a variable (dependent variable) and other variables (a dependent variable or result variable) to study and find the relationship between the existence of mutual influence.

3.2 Operational definition

Table 3.1 Operational Definition

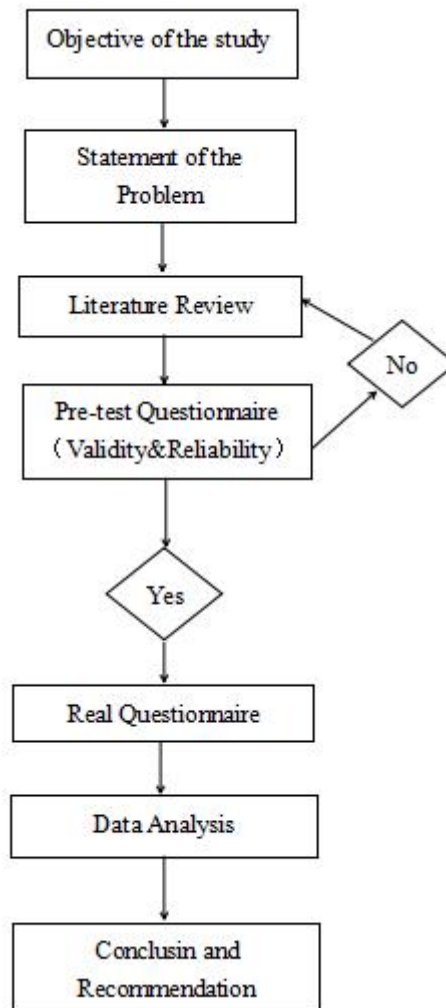
Variables	Definition	Indicators
Product Quality	The quality is Performance refers to the physicochemical or technical performance of a product, its durability or duration, and appearance (Zhang, 2016)	<ol style="list-style-type: none"> 1. Very quickly, it will not crash. 2. Long standby time. 3. Complete internal facilities and powerful functions.
Product Price	The price is the remuneration of the goods or services provided by the other party to the other party (Chen, 2017).	<ol style="list-style-type: none"> 1. Low price. 2. Sometimes there are promotions. 3. Discount.
Brand Benefits	The brand benefits is the brought by the brand for the company is the continuation of the corporate value in the commercial society. In the current business model of the brand, the brand means the product orientation, business model, consumer groups and profit return (Lakhani, 2015).	<ol style="list-style-type: none"> 1. High brand status. 2. Star advertise. 3. Advertisements everywhere.

Customer evaluation	The customer evaluation is performed by the customer independently and the system automatically performs statistical analysis so as to effectively supervise and improve the service quality of the service personnel. (Lai 2014)	<ol style="list-style-type: none"> 1. Good evaluation. 2. Friends recommend. 3. The evaluation of magazine. news.
Product Sales	Sales is a number of sold units of sales in a certain period of time (Druker,2014)	<ol style="list-style-type: none"> 1. Quality 2. Price 3. Brand Benefits 4. Customer evaluation

3.3 Research Framework

This study mainly analyzes the influence of product quality, product price, brand benefit and customer evaluation, product sales, research in Jakarta during the study period Taman Anggrek OPPO mobile phone users. After the data collection was completed, the researchers identified the problem and found out the impact of each independent variable on the dependent variable from the collected data. In the second chapter of the literature, each factor is theoretical support. The support of these theories and ideas will help researchers to improve the questionnaire.

The research framework shows the steps to follow in this study:



Source: Constructed by researchers (2018)
Figure 3.1 Research Framework

3.4 Hypothesis

A study hypothesis is made by researchers when they speculate on the results of research or experimentation (Martin, 2012). Will take the hypothesis that will come from four independent variables affecting the sales volume as the dependent variable.

Ho 1: There is no significant influences between quality and sales of OPPO Mobile phone.

Ha 1: There is a significant influences between the quality and sales of OPPO Mobile phone.

Ho 2: There is no significant influences between price and sales of OPPO Mobile phone.

Ha 2: There is a significant influences between the price and sales of OPPO Mobile phone.

Ho 3: There is no significant influences between brand benefits and sales of OPPO Mobile phone.

Ha 3: There is a significant influences between the brand benefits and sales of OPPO Mobile phone.

Ho 4: There is no significant influences between customer evaluation and sales of OPPO Mobile phone.

Ha 4: There is a significant influences between the customer evaluation and sales of OPPO Mobile phone.

Ho 5: There is no significant influences between the quality, price, brand benefits, customer evaluation and sales of OPPO Mobile phone.

Ha 5: There is a significant influences between the quality, price, brand benefits, customer evaluation and sales of OPPO Mobile phone.

3.5 Research Instrument

Researchers use quantitative methods to investigate questionnaires as a tool, the questionnaire is composed of two parts. Part1 respondents the population of the attributes and information, and then integrated issues into the study of

professional goals on the subject. Part2 is composed of 4 Independent variables and 1 dependent variable found and raised 20 questions. Each factor is a set of five data sets, each with four statements. Each statement measured on five-point Likert scale, 1-5 are Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree.

In addition, this study collected data using the excel table, analyzed the data using SPSS, and obtained the results to determine the relationship between independent variables and dependent variables.

3.6 Sampling Design

3.6.1 Research population

In the study, the personnel who need to be investigated must be within the scope of the study. In order to ensure that the number of investigators of the population accurately, researchers must take a sample to ensure the accuracy of the population, in order to ensure the authenticity of the data, in order to reduce factors of inaccurate data (Brian, clocks, factories & Yue, 2013). In the study, to investigate the Jakarta Mal Taman Anggrek using the sampling survey researchers of mobile phone consumers' purchase intention.

3.6.2 Sample size

In the sample range, large sample is more accurate than the small sample better, but in Jakarta, there are many users use smart mobile phone, digital can not be estimated, so there is no need for investigation of the whole group. According to the Maltotra (2012). Because customers who come to OPPO cell phone shop every day can not determine the exact number, we set up 100 questionnaires to investigate.

Confidence Level: confidence level refers to the how confident do you want to be that the actual mean falls within your confidence interval. The most common confidence intervals are 90% confident, 95% confident and 99% confident. The researcher will use confidence level of 95%. The confidence levels correspond to different Z-scores. Here are the z-scores for the most common confidence levels:

Table 3.2 The confidence level corresponds to the Z-score

Confidence Level	Z-score
90%	1.645
95%	1.96
99%	2.326

(Source: Scott, 2013)

Standard of Deviation: Since the researcher hasn't actually administered the research yet, the safe decision is to use 0.5, which is the most forgiving number and ensures that the sample will be large enough.

Margin of error: The margin of error that describe in this research is the percentage for allowance of error as the cause of using the sample to represent the population. The researcher decides to use the (+/-) 8% as the margin of error.

So a 90% confidence level with the Z-score=1.645, Standard of Deviation=0.5,
Margin of error = +/- 8%

$$\begin{aligned}
 \text{Necessary Sample Size} &= (Z\text{-score})^2 * \text{StdDev} * (1\text{-StdDev}) / (\text{margin of error})^2 \\
 &= (1.645)^2 * 0.5(1-0.5) / (0.08)^2 \\
 &= 106
 \end{aligned}$$

The total 106 questionnaires were distributed to the respondents. In the process of

collecting and organizing data, the researcher found 100 questionnaires are completed and valid for using. But there are 6 questionnaires were incompleted which would not be used in the data collection.

So in this research, the Actual Sample Size is :

$$n = 100$$

And, researcher takes 100 samples in this research by using the method of simple random sampling.

Therefore, the researchers took 100 samples from this study. Researchers will disseminate the survey questionnaire to the customers of the OPPO mobile phone shop that will be analyzed in this study according to the personal judgment of the researcher.

3.6.3 Sampling technique

In the usual research, sampling techniques are common in three categories: random sampling, stratified sampling and systematic sampling. In this study, researchers used random sampling techniques. Since the number of people using smart phones is not clear, the researchers set up 100 individuals for investigation and research. The researchers randomly distributed questionnaires in Mal Taman Angrek, Jakarta. To ensure the authenticity and accuracy of the data, you can ask visitors whether they understand and use the OPPO phone and distribute the questionnaire.

3.6.4 Data collection method

Data can be obtained from master or non master data. The main data is that researchers first obtain information about the interesting variables of a particular

goal. Second hand information refers to the available information (Bougie,, 2010).This study collects survey data from questionnaires. Researchers used questionnaires to collect data. In order to collect the original data of the sample population, the will will use the questionnaire in advance to use the content of the simple language statement, and the respondent can quickly investigation. Finally, the results of the questionnaire were analyzed.

3.7 Validity and Reliability Test

3.7.1 Validity Test

Validity is based on the degree of comprehensive evaluation of test results or other behavioral measurement models, the adequacy of empirical support for the theory, and the appropriateness of reasoning. Validity is not an inherent characteristic test. The use of test scores is reasonable, specific purpose and reasoning. Validity can not be summarized by numbers, such as reliability figures or standard measurement errors. Through the accumulation of experience, statistics, concepts and theoretical support (Thompson, 2013), specific test results are used to support meaningful test scores.

The correlation coefficient is a measure of the relationship between the measurement point and the two variables X and Y (David, Dennis& Thomas, 2014).

The Pearson product moment correlation coefficient is given by the following formula.

where:

$$r_{xy} = \frac{S_{xy}}{S_x S_y}$$

r_{xy} = sample correlation coefficient

S_{xy} = sample covariance

S_x = sample standard deviation of x

S_y = sample standard deviation of y

3.7.2 Reliability Test

Reliability is the accuracy of test scores or repeatability. The reliability assessment method is an internal consistency indicator, called KR-20 or α (α). The KR-20 index ranges from 0 (test scores include only random errors). For high-risk certification exams, complete reliability is not possible and is expected to reach 0.90 or higher (Thompson, 2013).

$$\alpha = \frac{K \times r}{1 + (K - 1)r}$$

Where:

K = total number of items

r = mean correlation between any variables

α = instrument reliability's coefficient

Table 3.3 Cronbach's Alpha Internal consistency

Cronbach's alpha	Internal Consistency
$a \geq 0.9$	Excellent
$0.8 \leq a < 0.9$	Good
$0.7 \leq a < 0.8$	Acceptable

$0.6 \leq a < 0.7$	Questionable
$0.5 \leq a < 0.6$	Poor

Source: Andale (2018)

According to the standard, the higher the alpha value in Table 3.3, the better, and the reliability test shall not be less than 0.6. If less than 0.6, then the result will be rejected.

3.8 Descriptive Statistics Analysis

3.8.1 Mean

The most important position in the measurement is the average of the measured variables. The center position measurement needs to be averaged. If the data is sufficient, the average is, if the data is the population, average μ (Davey, Dennis & Thomas, 2011). In the first statistical formula, the value of the variable x is X1, the second is x2, and the first observation variable i is XI. The average formula is as follows:

$$\bar{x} = \frac{\sum x_i}{n}$$

Where:

\bar{x} = mean

\sum = summation

x = represents scores

n = number of scores

3.8.2 Standard deviation

The standard deviation is the square of the difference between the data in a set of data, and the average of the data set divided by the square root of the number of data. The standard deviation is defined as the square root of the variance (David, Dennis & Thomas, 2011).

$$S = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2}$$

Where:

S = sample standard deviation

N = number of scores in a sample

N-1 = degrees of freedom or Bessemer's correction

x = value of a sample

\bar{x} = mean

3.9 Classical Assumption Test

3.9.1 Normality Test

Normal test is the process of data analysis, used to analyze the normal distribution, mathematical or graphical analysis of samples and data normal distribution. The most common normal distribution analysis model is Alamo - Smirnov . The AS test compares normal distribution concentration sample values with the same standard deviation and the same average, with significance levels above 0.05 (Aileen, 2015) .

3.9.2 Multicollinearity Test

Multicollinearity refers to the fact that independent variables are only used to interpret or predict the value of the dependent variable. In multivariate regression, most independent variables are, to some extent, mutually dependent (David, Dennis and Thomas, 2011). Multicollinearity test used to test the linear regression of the correlations between independent variables. The higher the value, the independent variables between the co-linearity and dependence of the relationship between the variables will be independent variables (Samuel, 2015).

3.9.3 Heterosexuality Test

Heterosexuality testing is an important assumption of the classical linear regression model to ensure that regression parameter estimates have good statistical significance. Assumptions can not be fulfilled if random errors in global function regressions fail to satisfy exogenous variance (Dennis, 2015).

3.9.4 Auto correlation Test

Auto correlation is a periodic variable used to test T, and whether variables between its previous variables and test T (Samuel, 2015) are relevant. The y value of t (YT) is related to the y value of the previous period. In this case, the existence of data is called auto correlation, also called sequence correlation(David, Dennis & Thomas, 2015).

3.10 Multiple Linear Regressions

In regression analysis, when there are two or more independent variables, this situation is often related to a number of factors. The joint prediction or estimation of multiple independent variables uses independent variables to predict or

estimate the optimal combination of variables. This equation is more efficient and realistic:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = dependent variable (consumer purchasing decisions)

β_0 = Y intercept

$\beta_1 - \beta_4$ = regression coefficient

X1 = independent variable (product value)

X1 = independent variable (product evaluation)

X1 = independent variable (price)

X1 = independent variable (brand positioning)

ε = random error

3.11 Hypothesis Test

3.11.1 F - Test

The F test is a measure of the global explicit test that can be used to analyze whether variables are affected by independent variables under study. The results are compared with the standard means (Samuel, 2015) as follows. :

$$F = \frac{\left[\frac{R^2}{k} \right]}{\left[\frac{(1-R^2)}{(n-k-1)} \right]}$$

Where:

F = statistic test for F distribution

R² = coefficient of determination

k = number of independent variables in the model

n = number of samples

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4$, when the significance of $F > 0.05$, then result will be accept H_0 . Then the result will be rejected H_0 . In this study, $\alpha = 0.05$ is considered significant. When the F test result is less than $\alpha = 0.05$, the result will be accepted. When the result of the F test is greater than $\alpha = 0.05$, the result is rejected.

3.11.2 T - Test

In the T-test, the result of the T-test is compared with the T-test. The explicit tonnage (p-value) is used to determine whether the dependent variable affects each independent variable (Samuel, 2015). In the T-test, the result of the T-test is compared with the T-test. The explicit tonnage (p-value) is used to determine whether the dependent variable affects each independent variable (Samuel, 2015).

Where:

$j = 1, 2, 3, \dots, n$

t = the significance of in dividable regression coefficients

b_j = estimated coefficient of independent variable

β_j = actual coefficient of independent variable

S_{bj} = standard error of the regression coefficient

A significant result (P-value) was detected after the test. An important P-value criterion is $= 0.05$. When the F test result is less than or equal to 0.05, the result will be accepted. F test is greater than or equal to 0.05, the result is rejected.

1) $H_{01}: \beta_1 = 0, t > 0.05$, accept H_{01}

product quality has a significant impact on OPPO handset sales.

$H_{a1}: \beta_1 \neq 0$, when $t < 0.05$, and then accept H_{a1}

The quality of the product has an important impact on OPPO handset sales.

2) $H_{02}: \beta_2 = 0, t > 0.05$, accept H_{02}

OPPO mobile phone prices have no significant impact on sales.

Ha2: $\beta_2 \neq 0$, $t < 0.05$, then Ha2

The price of OPPO mobile phone sales have a significant impact.

3) H03: $\beta_3 = 0$, $t > 0.05$, accept H03

Without branded benefits, it will have a major impact on OPPO handset sales.

Ha3: $\beta_3 \neq 0$, $t < 0.05$, then Ha3

Brand benefits has a significant impact on the sales of OPPO handsets.

4) H04: $\beta_4 = 0$, $t > 0.05$, accept H04

Without customer evaluation, it will have a significant impact on OPPO handset sales.

Ha4: $\beta_4 \neq 0$, $t < 0.05$, then Ha4

Customer evaluation of OPPO mobile phone sales have a significant impact.

3.12 Coefficient of Determination (R^2)

R^2 refers to the proportion of the total variance of the response dependent variable that can be explained by the independent variable. If the R-square is 0.8, it means that the regression relationship can explain 80% of the dependent variable variation. If you can control the independent variable, the variation of the dependent variable will be reduced by 80% (Thomas, 2016).

CHAPTER IV

ANALYSIS AND RESULTS

4.1 Pre-Test Result

4.1.1 Validity Test

In this test, the researchers selected 30 individuals for preliminary testing. If the result of R is less than the R table, the result is invalid and unavailable. If the result of R is greater than the R table, the result is valid and available. According to SPSS 20 results, the results in Table 4.1 show that all the data is available.

Table 4.1 Result of Validity Test

Validity		R-Table	Corrected Item Total correlation	Validity
Product Quality	PQ1	0.361	0.853	Valid
	PQ2	0.361	0.770	Valid
	PQ3	0.361	0.637	Valid
	PQ4	0.361	0.565	Valid
Product Price	PP1	0.361	0.721	Valid
	PP2	0.361	0.889	Valid
	PP3	0.361	0.787	Valid
	PP4	0.361	0.816	Valid
Brand Benefits	BB1	0.361	0.852	Valid
	BB2	0.361	0.782	Valid
	BB3	0.361	0.849	Valid
	BB4	0.361	0.782	Valid

Customer Evaluation	CE1	0.361	0.659	Valid
	CE2	0.361	0.695	Valid
	CE3	0.361	0.833	Valid
	CE4	0.361	0.761	Valid
Product Sales	PS1	0.361	0.811	Valid
	PS2	0.361	0.875	Valid
	PS3	0.361	0.908	Valid
	PS4	0.361	0.839	Valid

Source: Constructed in SPSS 20.0 (2018)

4.1.2 Reliability Test

Table 4.2 Result of Reliability Test

Variable	Cronbach's Alpha	Reliability
Product Quality	0.800	Reliable
Product Price	0.891	Reliable
Brand Benefits	0.899	Reliable
Customer Evaluation	0.833	Reliable
Product Sales	0.929	Reliable

Source: Constructed in SPSS 20.0 (2018)

Based on Table 3.4, the minimum value of the standard value obtained Internal consistency is $\alpha > 0.8$. In reliability test, all the results are all greater than 0.8 so these results are Available.

4.2 Descriptive Statistics Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
APQ	100	1.50	4.75	3.7800	.68928
APP	100	1.50	4.50	3.4050	.69065
ABB	100	1.50	5.00	3.6250	.77403
ACE	100	1.75	4.75	3.3150	.68684
APS	100	1.75	4.75	3.2800	.69837
Valid N (listwise)	100				

Source: Constructed in SPSS 20.0 (2018)

Based on the results of SPSS, the minimum and maximum values of the product sales (APS) is 1.75 and 4.75, respectively, and the mean and standard deviation is 3.2800 and 0.69837, respectively. The standard deviation shows a maximum the brand benefits (ABB) is 0.77403. This result indicates that brand benefits will be a key factor in customer acquisition decisions in this study.

4.3 Classical Assumption Test

4.3.1 Normality Test

Quantitative data is a histogram. You can use the percentage of data to outline the histogram. Place the variable on the horizontal axis and the frequency on the vertical axis to generate a histogram. The relative frequency of the rectangles shown is used to limit the frequency of the corresponding high ground.

Quantitative data is a histogram. You can use the percentage of data to outline the histogram. Place the variable on the horizontal axis and the frequency on the vertical axis to generate a histogram. The relative frequency of the rectangles shown is used to limit the frequency of the corresponding high ground. (David,

Dennis & Thomas, 2014).

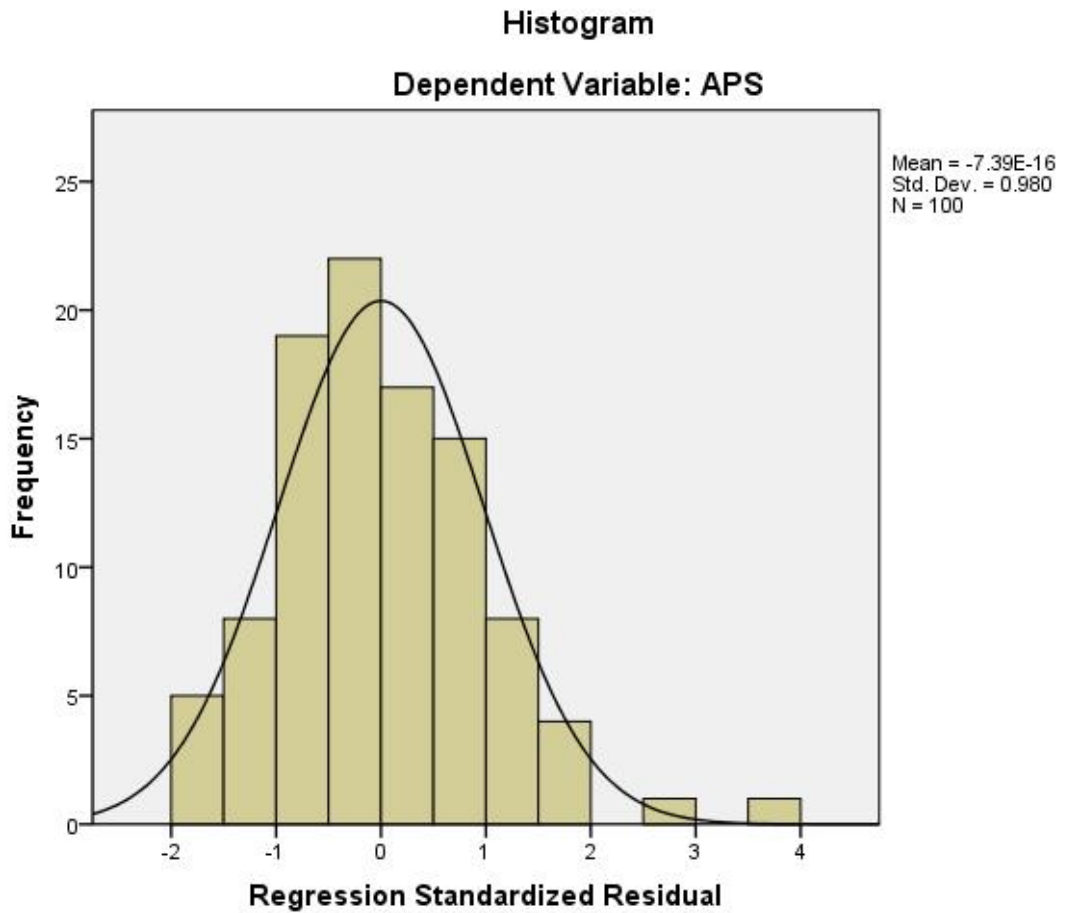


Figure 4.1 Histogram

Source: Constructed in SPSS 20.0 (2018)

As can be seen from the histogram in Figure 4.1, most of the results show a normal distribution of graphical data between -2 and 2, based on the SPSS 20 output. The result shows a good distribution around the rectangle.

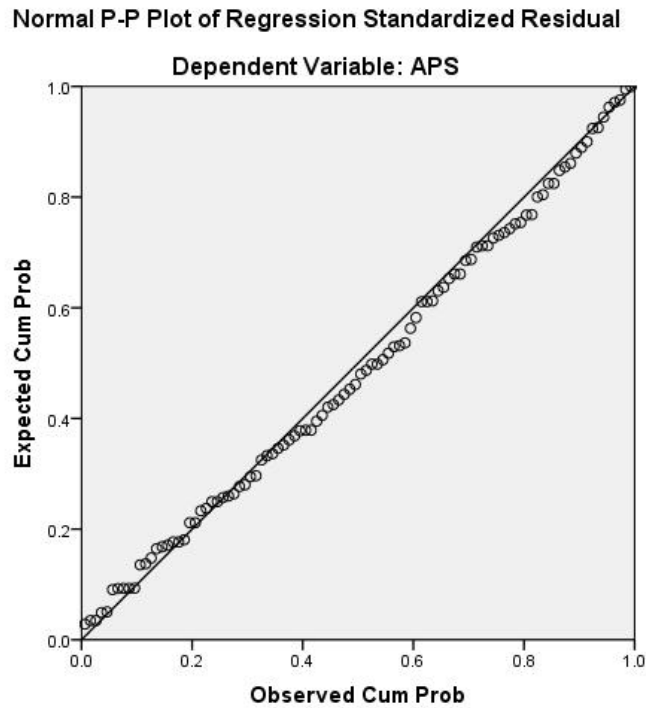


Figure 4.2 Normal P - P Plot of Regression Standardized Residual

Source: Constructed in SPSS 20.0 (2018)

Normal P-P plot of regression normalized residual based on Figure 4.2. The results show that in the normal distribution, the data spread diagonally and diagonally, and the regression model satisfies the regularization hypothesis.

4.3.2 Multicollinearity Test

Multiple collinearity occurs when at least two highly relevant predictors are evaluated in the regression model. When evaluating at least two highly relevant predictors in a regression model, they produce multiple linearity. Multiple linear predictors may obscure common predictors of causal variables of key independent effects calculated and identified because of their common interpretation of common regression coefficients for overlapping information predictors. This may lead to misleading conclusions for each co-linear predictor in the regression model (Kelisidinuo, Minjae & Muhanmode, 2016). Since multivariate collinearity increases to 0, there is no multiple linearity and low standard error. It is divided

into tolerances and VIF, and the tolerance standard spacing is $0.01 < X < 1$ and the VIF standard spacing is $0.1 < X < 10$. It is separated from the result.

Model	Coefficients	
	B	Std. Error
(Constant)	-.805	.140
1 APQ	.317	.042
APP	.412	.043
ABB	.325	.035
ACE	.092	.037

The product quality (APQ) is 0.568, the product price (APP) is 0.543, the brand benefits (ABB) is 0.630, and the customer evaluation(ACE) is 0.721 according to the coefficient a within the tolerance range shown in Table 4.5. The result of these independent variables is that $0.1 < X < 1$ standard interval does not have multiple collinear problems.

Based on the coefficient a of the VIF region in Table 4.5, the product quality (APQ) was 1.760, the product price (APP) was 1.842, the brand benefits (ABB) was 1.587 and the customer evaluation (ACE) was 1.386. The result of these independent variables was $0.1 < X < 10$ standard intervals without multiple collinear problems.

4.3.3 Heteroscedasticity Test

In quantitative population data testing, heterogeneous testing is used to perform data analysis to arrive at results to test for randomness and value. Errors can increase with increasing IV, or a similar shape as IV values become extreme in any direction (Williams, 2015).

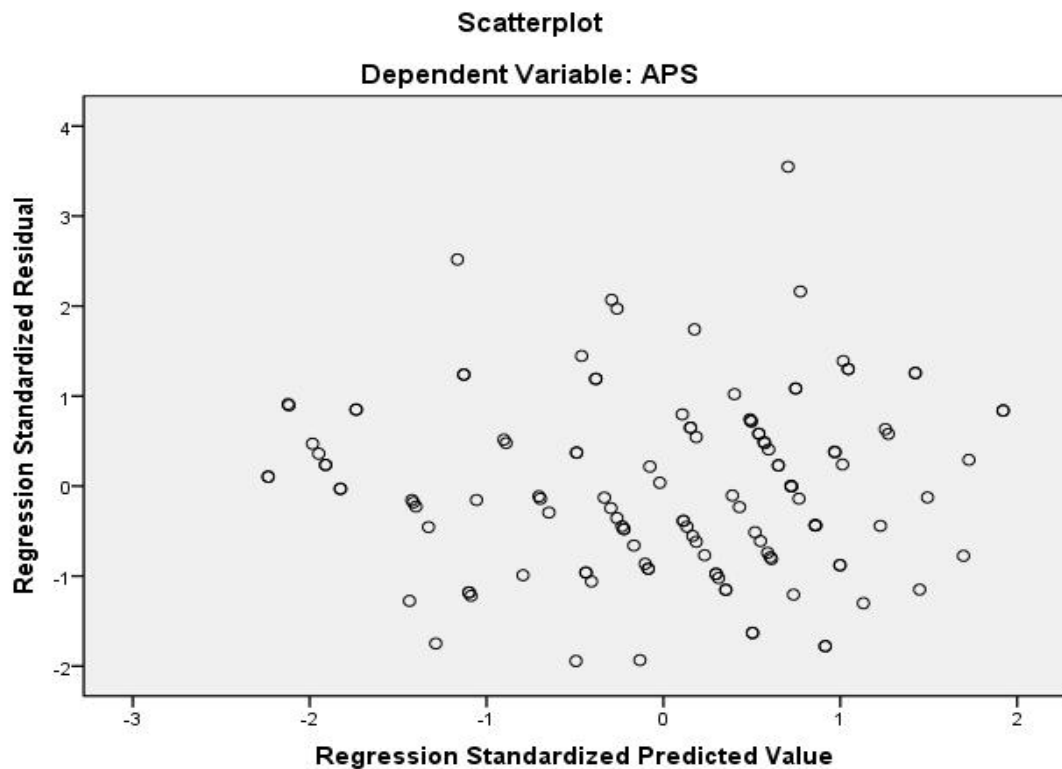


Figure 4.3 Scatter plot of Heteroskedasticity

Source: Constructed in SPSS 20.0 (2018)

Scatter plot of heteroscedasticity output from SPSS 20 based on Figure. 4.3. In the normal distribution of the graph, the data is distributed randomly and is not patterned. The result shows no heteroscedasticity.

4.3.4 Autocorrelation Test

When there is autocorrelation, a significant error of the statistical significance test can be done based on a hypothetical regression model. Therefore, it is important to be able to detect autocorrelations and take corrective action. Durbin and Watson developed a table that can be used to determine when test statistics indicate autocorrelation (Thomas, 2016). Durbin-Watson's standard range is $2 < X < 2$. It passed the autocorrelation test when the result fell within the Durbin-Watson's standard range.

4.4 Multiple Linear Regressions

The dependent variable is a predictor variable. One or more variables that can be used to predict the value of a dependent variable are called independent variables. The regression contains two or more independent variables. Multiple regression analysis is commonly used to describe equations and errors related to y and X (Thomas, 2016).

In regression analysis, when there are two or more independent variables, this situation is often related to a number of factors. The joint prediction or estimation of multiple independent variables uses independent variables to predict or estimate the optimal combination of variables. This equation is more efficient and realistic:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = dependent variable (consumer purchasing decisions)

β_0 = Y intercept

$\beta_1 - \beta_4$ = regression coefficient

X_1 = independent variable (product value)

X_1 = independent variable (product evaluation)

X_1 = independent variable (price)

X_1 = independent variable (brand positioning)

ε = random error

In this study, the researchers chose the value as the coefficient of the multiple regression equation. For multiple regression analysis and testing, multiple regression lines are based on independent variables because all variables are the same. The confidence level was 95% and the maximum error was 5% (0.05).

When the result is less than or equal to 0.05, the result will be significant. According to the results in Table 4.5, the product quality(X_1) is 0.317, the product price (X_2) is 0.412, the brand benefits (X_3) is 0.325, and the customer evaluation(X_4) is 0.092. The X_1 , X_2 , X_3 and X_4 are less than 0.05, so X_1 , X_2 , X_3 and X_4 are important. The multiple regression linear model is as follows:

$$Y=0.317X_1+0.412X_2+0.325X_3+0.092X_4+ \epsilon$$

According to the linear regression equation, the effect of X_1 is 0.313. If other factors remain unchanged, the X_1 increases or decreases by 1, and Y increases or decreases by 0.317.

According to the linear regression equation, the effect of X_2 is 0.408. If other factors remain unchanged, the X_2 increases or decreases by 1, and Y increases or decreases by 0.412.

According to the linear regression equation, the effect of X_3 is 0.360. If other factors remain unchanged, the X_3 increases or decreases by 1, and Y increases or decreases by 0.325.

According to the linear regression equation, the effect of X_4 is 0.090. If other factors remain unchanged, the X_4 increases or decreases by 1, and Y increases or decreases by 0.092.

4.5 Hypothesis Test

4.5.1 T-Test

The standard error units are used to represent the size of T (which may be positive or negative) and there is more evidence for the null hypothesis that there is no significant difference. T close to zero is unlikely to produce significant differences. Due to the random sampling error (Patelike, 2016), random sampling data is repeated in the same group with slightly different T values for each sample. The

important confidence interval is <0.05 .

In the analysis results, the results of the four independent variables given in Table 4.5 are as follows:

The product quality(X_1): result of t is $0.000 < 0.05$, the product quality has a influence on product sales of OPPO mobile phone users.

The product price(X_2): result of t is $0.000 < 0.05$, the product price has a influence on product sales of OPPO mobile phone users.

The brand benefits(X_3): result of t is $0.000 < 0.05$, the brand benefit has a influence on product sales of OPPO mobile phone users.

The customer evaluation(X_4): result of t is $0.015 < 0.05$, the customer evaluation has a influence on product sales of OPPO mobile phone users.

4.5.2 F-Test

The F statistic is based on an even ratio. Calculate the DOF (DF) estimate of the overall variance estimate. The F test evaluates the equivalence of variance. By varying the ratio of variance, the F-test becomes very flexible. The integration of regression models can be tested by F-statistics and F-tests, comparing the matching of different models, and the specific regression tests and test averages (Jimu, 2016).

Note that & It; 0.05 when the result is affected by the argument.

Table 4.7 ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.877	4	10.969	236.423	.000 ^b
	Residual	4.408	95	.046		
	Total	48.285	99			

a. Dependent Variable: APS

b. Predictors: (Constant), ACE, APQ, ABB, APP

Source: Constructed in SPSS 20.0 (2018)

The result of this F-test shows the F value = 236.423 with a significance level of 0.000. The F table value is found on the F table with $df_1 = 4$ and $df_2 = 95$, thus the F table value is 2.5. And $F \text{ value} > F \text{ table}$ ($236.423 > 2.467$) significance level of 0.000 means that there is a simultaneous of product quality, product price, brand benefites, customer evaluation toward product sales have a positive and important relationship.

4.6 Coefficient of Determination (R^2)

Measure the ability of the model. This dependent variable then uses the coefficient of determination the efficiency between the R^2 variables 0 and 1. The ability to be an independent variable is very limited, since a small value R^2 close to the value means that the independent variable provides almost all the information needed to predict Change of variables.

Adjusted R^2 square can shows how well the samples fit the regression line, and it adjusts for the amount of samples in a model. When the useless variables is more, the adjusted r-squared will decrease, when the useful variables is less, the adjusted r-squared will increase (Frank, 2014).

The coefficient of determination (R^2) mainly measures the ability of the model to interpret variable dependent variables. Determine the coefficient between 0 and 1.

The measurement coefficient is shown in Table 4.8 below:

Table 4.8 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.953 ^a	.909	.905	.21540	1.798

a. Predictors: (Constant), ACE, APQ, ABB, APP

b. Dependent Variable: APS

Based on the Table 4.8. The results showed that the R value was 0.953, RSquare was 0.909, and the adjusted R-squared was 0.905 because the number of independent variables was greater than 2, indicating that the adjusted R² value was 0.905 or 90.5%. This shows that product sales can be explained by product quality, product price, brand effect and customer evaluation. On the other hand, the remaining 9.5% of product sales were affected by other factors not tested in this study.

4.7 Interpretation of Result and Discussions

H1: Hypothesis 1: The product quality has a significant influence on product sales of OPPO mobile phone users.

Based on the table 4.5 T-test, the results show that product quality has a significant impact on the sales of OPPO mobile phone users. As a result, the P value was 0.000 and the result was less than 0.05. Therefore, H1 was accepted.

In previous studies, quality is the life of an enterprise and the soul of an enterprise. If any enterprise wants to survive and develop, it must do everything possible to improve the quality of its products, innovate and surpass, and pursue higher goals (Fuxiang, 2014).

H2: Hypothesis 2: The product price has a significant influence on product sales of OPPO mobile phone users.

Based on the table 4.5 T-test, the results show that product price has a significant impact on the sales of OPPO mobile phone users. As a result, the P value was 0.000 and the result was less than 0.05. Therefore, H1 was accepted.

In previous studies , the company's pricing policies to show their value to the customer. Pricing systems differ from sellers and sellers in terms of the type of sales organization, the type of product the customer deals with, the company's competitors and the overall economic environment (John, 2012).

H3: Hypothesis 3: The brand benefits has a significant influence on product sales of OPPO mobile phone users.

Based on the table 4.5 T-test, the results show that brand benefits has a significant impact on the sales of OPPO mobile phone users. As a result, the P value was 0.000 and the result was less than 0.05. Therefore, H1 was accepted.

In previous studies, the brand is the product of a certain class of economic development, the original brand is used to make the product easy to identify, the brand has developed rapidly, is produced in the modern commodity economy is highly developed under the condition of its rapid development is to use the brand to commodity producers has brought enormous economic benefits and social benefits(Bai.2014).

H4: Hypothesis 4: The customer evaluation has a significant influence on product sales of OPPO mobile phone users.

Based on the table 4.5 T-test, the results show that customer evaluation has a significant impact on the sales of OPPO mobile phone users. As a result, the P value was 0.015 and the result was less than 0.05. Therefore, H1 was accepted.

Some companies have some trial period products available to the customer experience, so that the tiger's customers to product evaluation, and then further improve the product, so that it can improve product sales(Thaler, 2013).

H5: Hypothesis 5: The product quality, product price, brand benefits and customer evaluation have significant influence on product sales of OPPO mobile phone usersr.

According to the results of Model Summaryb in Table 4.5, R Square is 0.909. The results show that there are four independent variables (X) due to the influence of the dependent variable (Y). Then, the standard value is 0.05 and the result is less than 0, which means that all X have an effect on Y.

Sales efficiency measures the business units that each sales representative produces in normal quantities. This is more helpful in combining and processing support parameters for business execution. The efficiency of trading volume must be deliberately adjusted because of its poor quality. There are many factors that affect the volume of transactions, such as the quality of product prices and customer satisfaction, as well as brand awareness and other factors that affect their sales(Mohamad, 2017).

For the final result of this study, product quality, product price, brand benefits and customer evaluation have an impact on product sales.

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Through the analysis of the results and explanations of the previous chapters, the paper summarizes the impact of the dependent variables, which are product quality, product price, brand benefits and customer evaluation toward the product sales of OPPO mobile phone users in the Taman Anggrek Jakarta.

1. Product quality:

Based on result of t test ,the results showed that the product quality influence the sales of the product, indicating that the customer valued the quality of the product.

2.Product price:

Based on result of t test ,the results show that the produc price influence the sales of the product, indicating that the customer is very concerned about the price of the high ground.

3. Brand benefits:

Based on result of t test ,the results show that the brand benefits influence product sales, indicating that the customer is a well-known brand.

4. Customer evaluation:

Based on result of t test ,the results show that customer evaluation influence product sales, indicating that sales of customer feedback products are very important and

5.Product sales:

Based on result of t test,the results show that product quality, product price, brand benefits, customer evaluation influences product sales, indicating that good product quality, product price, brand benefits, customer evaluation will have good sales

5.2 Recommendation

a. For OPPO company:

1.The results of the survey show that the quality, price, brand effect and customer evaluation of the product have an influences on the sales of the products. such as some discounts, or bundled sales. This can make the product have a better sale.

2. The survey results show that the product quality, price, brand effect and customer evaluation all have an impact on the product sales. Some people suggest that OPPO mobile phones can have some incentives after customer evaluation. For example, when customers evaluate, they can send a good gift (mobile phone case, headphones, etc.), which can increase the visibility of the product so that the product can be better sold.

b. For future researcher:

1.This study adopted the four directions of variable to enable OPPO mobile phone users to investigate. Future research needs further research, using multiple factors to make research more detailed and targeted.

2.This study adopted the four directions of pvariable to enable OPPO mobile phone users to investigate. Future research can expand the scope of the study and the research population, which will make the data and results more accurate.

REFERENCES

Books

- Blan C, B. & Emma E, D. & Clbert J. (2012). *Business research methods*. Canadian Books and Archives cataloging and publishing.
- Creswell.D,L. (2003). *Research Design: Qualitative, Quantitative And Mixed Methods Approaches (2nd ed.)*. Thousand Oaks, CA: SAGE Publication.
- Dougie, L. (2013). *Research business: skill construction method, Eighth Edition*. University of Illinois.

Journals

- Ajzen, I.C. (2012). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Al-Gahtani, S. S. (2012). The applicability of TAM outside North America: An empirical test in the United Kingdom. *Information Resources Management Journal*, 14(3), 37-46.
- Aditwa, Q.W.(2013). Indonesia's famous digital product localization analysis. *International Journal of Science and Research*.Volume.4(5). 274-279.
- Ashok & Devendra (2013). Factors Affecting The product sales Behaviour: A Study With Reference To BhilaiDurg. *International Journal of Advanced Research in Management and Social Sciences*, 2 (5), Pg. 171-172

- Blankson, C., Kalafatis (2014). Internationalization and multicultural service brand positioning strategy. *Service Marketing Magazine*. Volume.21 (6). 435-450.
- Bougie (2013). *Business Research Methods: Skills Training Methods*. Leadership and organizational development journals. Volume.34(7). 630-636.
- Chayapa Katawetawaraks (2013). *Online Shopper Behavior: Influences of Online Shopping Decision*
- Edmonds, W.A. (2012) *Basic Research Design Education and Social Behavior Science*. Reference Guide Kennedy Domestic Violence Magazine. Volume.25 (5). 509-520.
- Khuong MN, HTM Duyen, KMN, Ngoc, NT (2016). Personal purchase determines the men's skin care product - a study in Hu Zhiming, Vietnam. *International trade, economic and financial journals*. Volume.7 (2). 44-50.
- Nadiya, N. (2014). A study on the purchase decision of the notebook computer based on the change of the iPhone from the consumer attitude to the consumer attitude. *Abhinav Journal of the international monthly management and technology research*. Volume.3 (11). 44-50.
- Qiao, L.C. (2015). Ethical thinking on the development of science and technology. *International Social Science Conference*. Volume.3(2). 84-387.
- Ribeiro, JC, Rui, C., Natercia, S., Jose, R., Antonio, P. (2013). A retrospective analysis of 91 cases of tympanoplasty in children. *Auris Nasus Larynx*. Volume.38 (1). 21-5.

Sajjad, A.A, Haroon & Irum (2012). How product sales Is Affecting Consumers Buying Behavior in Pakistan? IJCSI International Journal of Computer Science Issues, 9(3) (1), Pg. 494

Stoenescu, R. D. G. (2014). Based on the origin of consumer product evaluation stereotypes. The practical application of marine science. Volume.11(5). 623-630.

Thompson, N. A. (2013). Reliability and effectiveness. Language teaching and research. Volume.3 (3). 30-32.

Taweerat, Settapong, Navneet & JesadaSivaraks (2014). The Impact of Customer Satisfaction on Online Purchasing: A Case Study Analysis in Thailand. Journal of Economics, Business and Management, 2(1).

Williams, R. (2015). Heteroscedasticity. Journal of European physics. Volume.51 (5). 1-16.

Websites

Geoff Riley (2013) Mobile phones the impact on the economy, society and our personallives.<https://translate.google.co.id/translate?hl=zh-CN&sl=en&u=https://www.tutor2u.net/economics/blog/mobile-phones-the-impact-on-the-economy-society-and-our-personal-lives&prev=search>

Maria Callow (2016) Brand ambassadors what are they and how can they benefit business?<https://www.linkedin.com/pulse/brand-ambassadors-what-how-can-benefit-your-business-maria>

Scott Cendrowski (2017) How China's Smartphone 'Big Four' Are Fighting for Customers.<https://id.techinasia.com/idc-oppo-dan-vivo-raih-pertumbuhan-penjualan-tertinggi-di-q1-2017>

Thu & Nguyen (2014) Factors that influence consumer purchasing decisions of
priva, telabel, foot, products.. <http://www.diva-portal.org/smash/get/diva2:705384/fulltext01>

Zhao Lili (2013) enhances brand awareness and customer service center of OPPO
Indonesia. http://wwwen.zte.com.cn/endata/magazine/mobileworld/2008year/no1/articles/200806/t20080606_162196.html

APPENDIX 1-RESEARCH QUESTIONNAIRE

My name is Han Shipeng, and I am president of the university management and learning program. I am conducting a study as the theme of the paper, namely "the impact of product quality, product price, brand benefit and customer assessment on the sales of OPPO mobile phone users in the Taman Anggrek of Jakarta". If you fill in the questionnaire, I will be very grateful to complete the research process. The information obtained from the questionnaire will be used for academic purposes only.

Thank you!

Nama saya Han Shipeng, saya adalah mahasiswa Program Manajemen Manajemen Universitas Kepresidenan. Saya melakukan penelitian sebagai tema makalah, yaitu "Dampak kualitas produk, harga produk, efektivitas merek dan evaluasi pelanggan terhadap penjualan produk ponsel pengguna OPPO di Taman Anggrek, Jakarta". Jika Anda mengisi kuesioner, saya akan sangat menghargai untuk menyelesaikan proses penelitian. Informasi yang diperoleh dari kuesioner hanya akan digunakan untuk tujuan akademis.

Terima kasih!

Please select "✓" in the question from the following answers.

Silakan pilih "✓" dalam pertanyaan dari jawaban berikut.

- - Have you heard OPPO smartphone?
Apakah kamu pernah mendengar tentang Smartphone OPPO

YES	Ya	<input type="checkbox"/>
NO	Tidak	<input type="checkbox"/>
- Are you smartphone user?

Apakah Anda merupakan pengguna smartphone?

YES Ya
NO Tidak

The complaine's profile:

Profil Responden

1. Gender: Male () Female ()

Jenis Kelamin: Laki-laki () Perempuan ()

2. Pekerjaan: Students (Mahasiswa) ()

Pegawai ()

Entrepreneur (Pengusaha) ()

Civil Service (PNS) ()

Others (Lainnya) ()

Questionnaire

Kuisioner

Please check "√" the questionnaire based on the instruction below :

Tolong beri tanda centang berdasarkan instruksi di bawah ini:

1 = Strongly Disagree (Sangat tidak setuju)

2 = Disagree (Tidak Setuju)

3 = Neutral (Netral)

4 = Agree (Setuju)

5 = Strongly Agree (Sangat Setuju)

*** Product quality**

Kualitas Produk

No	Statement	Scale				
		1	2	3	4	5
1	OPPO smartphone has high quality. Smartphone OPPO memiliki kualitas tinggi.					
2	I think the OPPO phone charges quickly. Saya pikir biaya telepon OPPO dengan cepat.					
3	I think OPPO phone has a long standby time. Saya pikir ponsel OPPO memiliki waktu siaga yang lama.					
4	I think OPPO smartphone have a fully function. Saya pikir smartphone OPPO memiliki fungsi penuh.					

***Product Price**

Harga Produk

No	Statement	Scale				
		1	2	3	4	5
1	The price of OPPO smartphone is cheap and affordable. Harga smartphone OPPO murah dan terjangkau.					
2	OPPO smart phone promotion in the mall will attract me to buy it.					

	Promosi ponsel pintar OPPO di mal akan menarik saya untuk membelinya.					
3	I think recharge a lot of calls to send OPPO smart phones. Saya pikir mengisi ulang banyak panggilan untuk mengirim ponsel pintar OPPO.					
4	If OPPO reduce the product price, i will buy it and recommend it for others. Jika OPPO mengurangi harga produk, saya akan membeli dan merekomendasikan ke teman-teman saya yang lain.					

***Brand Benefit**

Manfaat Merek

No	Statement	Scale				
		1	2	3	4	5
1	If the OPPO smartphone is the leading position in the mobile phone market, I will choose to buy. Jika smartphone OPPO adalah posisi terdepan di pasar ponsel, saya akan memilih untuk membeli.					
2	If there is my favorite celebrity endorsement OPPO phone, I will choose to buy. Jika ada ponsel OPPO dukungan selebriti favorit saya, saya akan memilih untuk membeli.					

3	<p>If there is an OPPO smartphone promotion on the city's billboards, I will choose to purchase.</p> <p>Jika ada promosi smartphone OPPO di papan iklan kota, saya akan memilih untuk membeli.</p>					
4	<p>If there is a new IPO smartphone interview on the Internet, I will choose to purchase.</p> <p>Jika ada wawancara smartphone IPO baru di Internet, saya akan memilih untuk membeli.</p>					

*Customer Evaluation

Evaluasi Pelanggan

No	Statement	Scale				
		1	2	3	4	5
1	<p>I think good customer reviews will make me want to buy OPPO smart phones more.</p> <p>Saya pikir ulasan pelanggan yang baik akan membuat saya ingin membeli ponsel pintar OPPO lagi.</p>					
2	<p>If you listen to a friend tell me OPPO phone is very good, I will buy.</p> <p>Jika Anda mendengarkan seorang teman memberitahu saya ponsel OPPO sangat bagus, saya akan membeli.</p>					
3	<p>If the OPPO mobile phone evaluation on the Internet is very good, I will also consider buying.</p> <p>Jika evaluasi ponsel OPPO di Internet sangat bagus, saya juga akan mempertimbangkan untuk</p>					

	membeli.					
4	If I see a good comment on the OPPO smartphone in the magazine, I' ll choose. Jika saya melihat komentar yang bagus di smartphone OPPO di majalah, saya akan memilih.					

***Product Sales**

Penjualan Produk

No	Statement	Scale				
		1	2	3	4	5
1	The quality of OPPO smartphones will affect sales. Kualitas smartphone OPPO akan mempengaruhi penjualan.					
2	The price of OPPO smart phones will affect sales. Harga ponsel pintar OPPO akan mempengaruhi penjualan.					
3	The brand benefits of OPPO smartphones will affect sales. Manfaat merek smartphone OPPO akan					

	mempengaruhi penjualan.					
4	Customer evaluation of OPPO smartphones will affect sales. Evaluasi pelanggan terhadap smartphone OPPO akan mempengaruhi penjualan.					

**APPENDIX 2 - CRITICAL VALUE OF PEARSON
CORRELATION**

Values of r for the .05 and .01 Levels of Significance

$df(N - 2)$.05	.01	$df(N - 2)$.05	.01
1	.997	1.000	31	.344	.442
2	.950	.990	32	.339	.436
3	.878	.959	33	.334	.430
4	.812	.917	34	.329	.424
5	.755	.875	35	.325	.418
6	.707	.834	36	.320	.413
7	.666	.798	37	.316	.408
8	.632	.765	38	.312	.403
9	.602	.735	39	.308	.398
10	.576	.708	40	.304	.393
11	.553	.684	41	.301	.389
12	.533	.661	42	.297	.384
13	.514	.641	43	.294	.380
14	.497	.623	44	.291	.376
15	.482	.606	45	.288	.372
16	.468	.590	46	.285	.368
17	.456	.575	47	.282	.365
18	.444	.562	48	.279	.361
19	.433	.549	49	.276	.358
20	.423	.537	50	.273	.354
21	.413	.526	60	.250	.325
22	.404	.515	70	.232	.302
23	.396	.505	80	.217	.283
24	.388	.496	90	.205	.267
25	.381	.487	100	.195	.254
26	.374	.479	200	.138	.181
27	.367	.471	300	.113	.148
28	.361	.463	400	.098	.128
29	.355	.456	500	.088	.115
30	.349	.449	1000	.062	.081

APPENDIX 3 - CRITICAL VALUE OF T- TABLE

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001

df												
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62	
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599	
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924	
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610	
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869	
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959	
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408	
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041	
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781	
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587	
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437	
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318	
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221	
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140	
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073	
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015	
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965	
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922	
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883	
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850	
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819	
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792	
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768	
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745	
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725	
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707	
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690	
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674	
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659	
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646	
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551	
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460	
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416	
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390	
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300	
Z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291	
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%	

APPENDIX 4 - CRITICAL VALUES OF THE F-DISTRIBUTION, ALPHA=.05.

Denominator	Numerator DF
-------------	-----------------

DF	1	2	3	4	5	6	7	8	9	10
1	161.448	199.500	215.707	224.583	230.162	233.986	236.768	238.883	240.543	241.882
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385	19.396
3	10.128	9.552	9.277	9.117	9.013	8.941	8.887	8.845	8.812	8.786
4	7.709	6.944	6.591	6.388	6.256	6.163	6.094	6.041	5.999	5.964
5	6.608	5.786	5.409	5.192	5.050	4.950	4.876	4.818	4.772	4.735
6	5.987	5.143	4.757	4.534	4.387	4.284	4.207	4.147	4.099	4.060
7	5.591	4.737	4.347	4.120	3.972	3.866	3.787	3.726	3.677	3.637
8	5.318	4.459	4.066	3.838	3.687	3.581	3.500	3.438	3.388	3.347
9	5.117	4.256	3.863	3.633	3.482	3.374	3.293	3.230	3.179	3.137
10	4.965	4.103	3.708	3.478	3.326	3.217	3.135	3.072	3.020	2.978
11	4.844	3.982	3.587	3.357	3.204	3.095	3.012	2.948	2.896	2.854
12	4.747	3.885	3.490	3.259	3.106	2.996	2.913	2.849	2.796	2.753
13	4.667	3.806	3.411	3.179	3.025	2.915	2.832	2.767	2.714	2.671
14	4.600	3.739	3.344	3.112	2.958	2.848	2.764	2.699	2.646	2.602
15	4.543	3.682	3.287	3.056	2.901	2.790	2.707	2.641	2.588	2.544
16	4.494	3.634	3.239	3.007	2.852	2.741	2.657	2.591	2.538	2.494
17	4.451	3.592	3.197	2.965	2.810	2.699	2.614	2.548	2.494	2.450
18	4.414	3.555	3.160	2.928	2.773	2.661	2.577	2.510	2.456	2.412
19	4.381	3.522	3.127	2.895	2.740	2.628	2.544	2.477	2.423	2.378
20	4.351	3.493	3.098	2.866	2.711	2.599	2.514	2.447	2.393	2.348
21	4.325	3.467	3.072	2.840	2.685	2.573	2.488	2.420	2.366	2.321
22	4.301	3.443	3.049	2.817	2.661	2.549	2.464	2.397	2.342	2.297
23	4.279	3.422	3.028	2.796	2.640	2.528	2.442	2.375	2.320	2.275
24	4.260	3.403	3.009	2.776	2.621	2.508	2.423	2.355	2.300	2.255
25	4.242	3.385	2.991	2.759	2.603	2.490	2.405	2.337	2.282	2.236
26	4.225	3.369	2.975	2.743	2.587	2.474	2.388	2.321	2.265	2.220
27	4.210	3.354	2.960	2.728	2.572	2.459	2.373	2.305	2.250	2.204
28	4.196	3.340	2.947	2.714	2.558	2.445	2.359	2.291	2.236	2.190
29	4.183	3.328	2.934	2.701	2.545	2.432	2.346	2.278	2.223	2.177
30	4.171	3.316	2.922	2.690	2.534	2.421	2.334	2.266	2.211	2.165
31	4.160	3.305	2.911	2.679	2.523	2.409	2.323	2.255	2.199	2.153
32	4.149	3.295	2.901	2.668	2.512	2.399	2.313	2.244	2.189	2.142
33	4.139	3.285	2.892	2.659	2.503	2.389	2.303	2.235	2.179	2.133
34	4.130	3.276	2.883	2.650	2.494	2.380	2.294	2.225	2.170	2.123
35	4.121	3.267	2.874	2.641	2.485	2.372	2.285	2.217	2.161	2.114
36	4.113	3.259	2.866	2.634	2.477	2.364	2.277	2.209	2.153	2.106
37	4.105	3.252	2.859	2.626	2.470	2.356	2.270	2.201	2.145	2.098
38	4.098	3.245	2.852	2.619	2.463	2.349	2.262	2.194	2.138	2.091
39	4.091	3.238	2.845	2.612	2.456	2.342	2.255	2.187	2.131	2.084
40	4.085	3.232	2.839	2.606	2.449	2.336	2.249	2.180	2.124	2.077
41	4.079	3.226	2.833	2.600	2.443	2.330	2.243	2.174	2.118	2.071
42	4.073	3.220	2.827	2.594	2.438	2.324	2.237	2.168	2.112	2.065
43	4.067	3.214	2.822	2.589	2.432	2.318	2.232	2.163	2.106	2.059
44	4.062	3.209	2.816	2.584	2.427	2.313	2.226	2.157	2.101	2.054
45	4.057	3.204	2.812	2.579	2.422	2.308	2.221	2.152	2.096	2.049
46	4.052	3.200	2.807	2.574	2.417	2.304	2.216	2.147	2.091	2.044

47	4.047	3.195	2.802	2.570	2.413	2.299	2.212	2.143	2.086	2.039
48	4.043	3.191	2.798	2.565	2.409	2.295	2.207	2.138	2.082	2.035
49	4.038	3.187	2.794	2.561	2.404	2.290	2.203	2.134	2.077	2.030
50	4.034	3.183	2.790	2.557	2.400	2.286	2.199	2.130	2.073	2.026
51	4.030	3.179	2.786	2.553	2.397	2.283	2.195	2.126	2.069	2.022
52	4.027	3.175	2.783	2.550	2.393	2.279	2.192	2.122	2.066	2.018
53	4.023	3.172	2.779	2.546	2.389	2.275	2.188	2.119	2.062	2.015
54	4.020	3.168	2.776	2.543	2.386	2.272	2.185	2.115	2.059	2.011
55	4.016	3.165	2.773	2.540	2.383	2.269	2.181	2.112	2.055	2.008
56	4.013	3.162	2.769	2.537	2.380	2.266	2.178	2.109	2.052	2.005
57	4.010	3.159	2.766	2.534	2.377	2.263	2.175	2.106	2.049	2.001
58	4.007	3.156	2.764	2.531	2.374	2.260	2.172	2.103	2.046	1.998
59	4.004	3.153	2.761	2.528	2.371	2.257	2.169	2.100	2.043	1.995
60	4.001	3.150	2.758	2.525	2.368	2.254	2.167	2.097	2.040	1.993
61	3.998	3.148	2.755	2.523	2.366	2.251	2.164	2.094	2.037	1.990
62	3.996	3.145	2.753	2.520	2.363	2.249	2.161	2.092	2.035	1.987
63	3.993	3.143	2.751	2.518	2.361	2.246	2.159	2.089	2.032	1.985
64	3.991	3.140	2.748	2.515	2.358	2.244	2.156	2.087	2.030	1.982
65	3.989	3.138	2.746	2.513	2.356	2.242	2.154	2.084	2.027	1.980
66	3.986	3.136	2.744	2.511	2.354	2.239	2.152	2.082	2.025	1.977
67	3.984	3.134	2.742	2.509	2.352	2.237	2.150	2.080	2.023	1.975
68	3.982	3.132	2.740	2.507	2.350	2.235	2.148	2.078	2.021	1.973
69	3.980	3.130	2.737	2.505	2.348	2.233	2.145	2.076	2.019	1.971
70	3.978	3.128	2.736	2.503	2.346	2.231	2.143	2.074	2.017	1.969
71	3.976	3.126	2.734	2.501	2.344	2.229	2.142	2.072	2.015	1.967
72	3.974	3.124	2.732	2.499	2.342	2.227	2.140	2.070	2.013	1.965
73	3.972	3.122	2.730	2.497	2.340	2.226	2.138	2.068	2.011	1.963
74	3.970	3.120	2.728	2.495	2.338	2.224	2.136	2.066	2.009	1.961
75	3.968	3.119	2.727	2.494	2.337	2.222	2.134	2.064	2.007	1.959
76	3.967	3.117	2.725	2.492	2.335	2.220	2.133	2.063	2.006	1.958
77	3.965	3.115	2.723	2.490	2.333	2.219	2.131	2.061	2.004	1.956
78	3.963	3.114	2.722	2.489	2.332	2.217	2.129	2.059	2.002	1.954
79	3.962	3.112	2.720	2.487	2.330	2.216	2.128	2.058	2.001	1.953
80	3.960	3.111	2.719	2.486	2.329	2.214	2.126	2.056	1.999	1.951
81	3.959	3.109	2.717	2.484	2.327	2.213	2.125	2.055	1.998	1.950
82	3.957	3.108	2.716	2.483	2.326	2.211	2.123	2.053	1.996	1.948
83	3.956	3.107	2.715	2.482	2.324	2.210	2.122	2.052	1.995	1.947
84	3.955	3.105	2.713	2.480	2.323	2.209	2.121	2.051	1.993	1.945
85	3.953	3.104	2.712	2.479	2.322	2.207	2.119	2.049	1.992	1.944
86	3.952	3.103	2.711	2.478	2.321	2.206	2.118	2.048	1.991	1.943
87	3.951	3.101	2.709	2.476	2.319	2.205	2.117	2.047	1.989	1.941
88	3.949	3.100	2.708	2.475	2.318	2.203	2.115	2.045	1.988	1.940
89	3.948	3.099	2.707	2.474	2.317	2.202	2.114	2.044	1.987	1.939
90	3.947	3.098	2.706	2.473	2.316	2.201	2.113	2.043	1.986	1.938
91	3.946	3.097	2.705	2.472	2.315	2.200	2.112	2.042	1.984	1.936
92	3.945	3.095	2.704	2.471	2.313	2.199	2.111	2.041	1.983	1.935
93	3.943	3.094	2.703	2.470	2.312	2.198	2.110	2.040	1.982	1.934
94	3.942	3.093	2.701	2.469	2.311	2.197	2.109	2.038	1.981	1.933

95	3.941	3.092	2.700	2.467	2.310	2.196	2.108	2.037	1.980	1.932
96	3.940	3.091	2.699	2.466	2.309	2.195	2.106	2.036	1.979	1.931
97	3.939	3.090	2.698	2.465	2.308	2.194	2.105	2.035	1.978	1.930
98	3.938	3.089	2.697	2.465	2.307	2.193	2.104	2.034	1.977	1.929
99	3.937	3.088	2.696	2.464	2.306	2.192	2.103	2.033	1.976	1.928
100	3.936	3.087	2.696	2.463	2.305	2.191	2.103	2.032	1.975	1.927
Σ	3.841	2.996	2.605	2.372	2.214	2.099	2.010	1.938	1.880	1.910

APPENDIX 5 - SPSS OUTPUT

RELIABILITY

/VARIABLES=PQ1 PQ2 PQ3 PQ4 APQ

```

/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE
/SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		17-APR-2018 22:48:09
Comments		
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
Input	Split File	<none>
	N of Rows in Working Data	30
	File	
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY /VARIABLES=PQ1 PQ2 PQ3 PQ4 APQ /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTI VE /SUMMARY=TOTAL.
Syntax		
	Processor Time	00:00:00.00
Resources	Elapsed Time	00:00:00.02

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0

Total	30	100.0
-------	----	-------

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.800	5

Item Statistics

	Mean	Std. Deviation	N
PQ1	3.7333	1.08066	30
PQ2	3.8667	.86037	30
PQ3	3.7000	1.05536	30
PQ4	3.8667	.86037	30
APQ	3.7917	.68570	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PQ1	15.2250	6.601	.718	.714
PQ2	15.0917	7.955	.630	.748
PQ3	15.2583	8.256	.393	.830
PQ4	15.0917	9.162	.356	.825
APQ	15.1667	7.523	1.000	.667

RELIABILITY

```

/VARIABLES=PP1 PP2 PP3 PP4 APP
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE
/SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		17-APR-2018 22:48:58
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Syntax	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY /VARIABLES=PP1 PP2 PP3 PP4 APP /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIV E /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.02

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.891	5

Item Statistics

	Mean	Std. Deviation	N
PP1	3.7333	.86834	30
PP2	3.5333	1.00801	30
PP3	3.5333	.93710	30
PP4	2.8333	.94989	30
APP	3.4083	.75852	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PP1	13.3083	10.391	.579	.901
PP2	13.5083	8.601	.806	.851
PP3	13.5083	9.670	.658	.886
PP4	14.2083	9.410	.699	.877
APP	13.6333	9.206	1.000	.819

RELIABILITY

```

/VARIABLES=BB1 BB2 BB3 BB4 ABB
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE
/SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		17-APR-2018 22:49:22
Comments		
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
Input	Split File	<none>
	N of Rows in Working Data	30
	File	
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY
		/VARIABLES=BB1 BB2
		BB3 BB4 ABB
		/SCALE('ALL
Syntax		VARIABLES') ALL
		/MODEL=ALPHA
		/STATISTICS=DESCRIPTI
		VE
		/SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.899	5

Item Statistics

	Mean	Std. Deviation	N
BB1	3.9000	1.09387	30
BB2	3.3667	.92786	30
BB3	3.8000	.96132	30
BB4	3.2667	1.04826	30
ABB	3.5833	.82351	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
BB1	14.0167	10.478	.745	.880
BB2	14.5500	11.838	.666	.894
BB3	14.1167	11.154	.759	.875
BB4	14.6500	11.300	.646	.902
ABB	14.3333	10.851	1.000	.832

RELIABILITY

/VARIABLES=CE1 CE2 CE3 CE4 ACE

/SCALE('ALL VARIABLES') ALL

```

/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE
/SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		17-APR-2018 22:49:40
Comments		
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
Input	Split File	<none>
	N of Rows in Working Data	30
	File	
	Matrix Input	
	Definition of Missing	User-defined missing values are treated as missing.
Missing Value Handling	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
		RELIABILITY
		/VARIABLES=CE1 CE2
		CE3 CE4 ACE
		/SCALE('ALL
Syntax		VARIABLES') ALL
		/MODEL=ALPHA
		/STATISTICS=DESCRIPTI
		VE
		/SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.05

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.833	5

Item Statistics

	Mean	Std. Deviation	N
CE1	3.7000	.98786	30
CE2	2.7000	.95231	30
CE3	3.6333	1.03335	30
CE4	3.5667	1.07265	30
ACE	3.4000	.74741	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CE1	13.3000	10.079	.464	.846
CE2	14.3000	9.924	.522	.829
CE3	13.3667	8.602	.709	.777
CE4	13.4333	9.013	.590	.814
ACE	13.6000	8.938	1.000	.722

RELIABILITY

```

/VARIABLES=PS1 PS2 PS3 PS4 APS
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE
/SUMMARY=TOTAL.

```

Reliability

Notes

Output Created		17-APR-2018 22:49:57
Comments		
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
Input	Split File	<none>
	N of Rows in Working Data File	30
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=PS1 PS2 PS3 PS4 APS /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /STATISTICS=DESCRIPTIVE VE /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded ^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.929	5

Item Statistics

	Mean	Std. Deviation	N
PS1	3.6000	.89443	30
PS2	3.2000	.96132	30
PS3	3.4000	1.00344	30
PS4	3.0333	.88992	30
APS	3.3083	.80591	30

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PS1	12.9417	11.193	.709	.932
PS2	13.3417	10.386	.795	.916
PS3	13.1417	9.899	.844	.907
PS4	13.5083	11.015	.750	.924
APS	13.2333	10.392	1.000	.881

CORRELATIONS

```

/VARIABLES=PQ1 PQ2 PQ3 PQ4 APQ
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE.

```

Correlations

Notes

Output Created		17-APR-2018 22:50:23
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=PQ1 PQ2 PQ3 PQ4 APQ /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.01

Correlations

		PQ1	PQ2	PQ3	PQ4	APQ
PQ1	Pearson Correlation	1	.480**	.441*	.443*	.853**
	Sig. (2-tailed)		.007	.015	.014	.000
	N	30	30	30	30	30
PQ2	Pearson Correlation	.480**	1	.372*	.394*	.770**
	Sig. (2-tailed)	.007		.043	.031	.000
	N	30	30	30	30	30
PQ3	Pearson Correlation	.441*	.372*	1	-.122	.637**
	Sig. (2-tailed)	.015	.043		.522	.000
	N	30	30	30	30	30
PQ4	Pearson Correlation	.443*	.394*	-.122	1	.565**
	Sig. (2-tailed)	.014	.031	.522		.001
	N	30	30	30	30	30
APQ	Pearson Correlation	.853**	.770**	.637**	.565**	1
	Sig. (2-tailed)	.000	.000	.000	.001	
	N	30	30	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CORRELATIONS

/VARIABLES=PP1 PP2 PP3 PP4 APP

/PRINT=TWOTAIL NOSIG

/MISSING=PAIRWISE.

Correlations

Notes

Output Created		17-APR-2018 22:50:40
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=PP1 PP2 PP3 PP4 APP /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.04

Correlations

		PP1	PP2	PP3	PP4	APP
PP1	Pearson Correlation	1	.601**	.350	.404*	.721**
	Sig. (2-tailed)		.000	.058	.027	.000
	N	30	30	30	30	30
PP2	Pearson Correlation	.601**	1	.601**	.636**	.889**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	30	30	30	30	30
PP3	Pearson Correlation	.350	.601**	1	.568**	.787**
	Sig. (2-tailed)	.058	.000		.001	.000
	N	30	30	30	30	30
PP4	Pearson Correlation	.404*	.636**	.568**	1	.816**
	Sig. (2-tailed)	.027	.000	.001		.000
	N	30	30	30	30	30
APP	Pearson Correlation	.721**	.889**	.787**	.816**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	30	30	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CORRELATIONS

/VARIABLES=BB1 BB2 BB3 BB4 ABB

/PRINT=TWOTAIL NOSIG

/MISSING=PAIRWIS

Correlations

Notes

Output Created		17-APR-2018 22:51:06
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	30
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=BB1 BB2 BB3 BB4 ABB /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.05

Correlations

		BB1	BB2	BB3	BB4	ABB
BB1	Pearson Correlation	1	.479**	.702**	.565**	.852**
	Sig. (2-tailed)		.007	.000	.001	.000
	N	30	30	30	30	30
BB2	Pearson Correlation	.479**	1	.626**	.499**	.782**
	Sig. (2-tailed)	.007		.000	.005	.000
	N	30	30	30	30	30
BB3	Pearson Correlation	.702**	.626**	1	.465**	.849**
	Sig. (2-tailed)	.000	.000		.010	.000
	N	30	30	30	30	30
BB4	Pearson Correlation	.565**	.499**	.465**	1	.782**
	Sig. (2-tailed)	.001	.005	.010		.000
	N	30	30	30	30	30
ABB	Pearson Correlation	.852**	.782**	.849**	.782**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	30	30	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

CORRELATIONS

/VARIABLES=CE1 CE2 CE3 CE4 ACE

/PRINT=TWOTAIL NOSIG

/MISSING=PAIRWISE.

Correlations

Notes

Output Created		17-APR-2018 22:51:23
Comments		
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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=CE1 CE2 CE3 CE4 ACE /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

Correlations

		CE1	CE2	CE3	CE4	ACE
CE1	Pearson Correlation	1	.378*	.260	.329	.659**
	Sig. (2-tailed)		.040	.165	.076	.000
	N	30	30	30	30	30
CE2	Pearson Correlation	.378*	1	.515**	.206	.695**
	Sig. (2-tailed)	.040		.004	.275	.000
	N	30	30	30	30	30
CE3	Pearson Correlation	.260	.515**	1	.661**	.833**
	Sig. (2-tailed)	.165	.004		.000	.000
	N	30	30	30	30	30
CE4	Pearson Correlation	.329	.206	.661**	1	.761**
	Sig. (2-tailed)	.076	.275	.000		.000
	N	30	30	30	30	30
ACE	Pearson Correlation	.659**	.695**	.833**	.761**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	30	30	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

CORRELATIONS

/VARIABLES=PS1 PS2 PS3 PS4 APS

/PRINT=TWOTAIL NOSIG

/MISSING=PAIRWISE.

Correlations

Notes

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Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=PS1 PS2 PS3 PS4 APS /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Correlations

		PS1	PS2	PS3	PS4	APS
PS1	Pearson Correlation	1	.618**	.645**	.537**	.811**
	Sig. (2-tailed)		.000	.000	.002	.000
	N	30	30	30	30	30
PS2	Pearson Correlation	.618**	1	.736**	.637**	.875**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	30	30	30	30	30
PS3	Pearson Correlation	.645**	.736**	1	.718**	.908**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	30	30	30	30	30
PS4	Pearson Correlation	.537**	.637**	.718**	1	.839**
	Sig. (2-tailed)	.002	.000	.000		.000
	N	30	30	30	30	30
APS	Pearson Correlation	.811**	.875**	.908**	.839**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	30	30	30	30	30

** . Correlation is significant at the 0.01 level (2-tailed).

SAVE OUTFILE='C:\Users\ripples\Desktop\韩士鹏论文数据\Untitled1new.sav'
/COMPRESSED.

REGRESSION

```

/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT APS
/METHOD=ENTER APQ APP ABB ACE
/SCATTERPLOT=(*ZRESID ,*ZPRED)
/RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
/CASEWISE PLOT(ZRESID) OUTLIERS(3)
/SAVE PRED ZPRED MAHAL.

```

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	ACE, APQ, ABB, APP ^b	.	Enter

a. Dependent Variable: APS

b. All requested variables entered.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.953 ^a	.909	.905	.21540	1.798

a. Predictors: (Constant), ACE, APQ, ABB, APP

b. Dependent Variable: APS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.877	4	10.969	236.423	.000 ^b
	Residual	4.408	95	.046		
	Total	48.285	99			

a. Dependent Variable: APS

b. Predictors: (Constant), ACE, APQ, ABB, APP

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-.805	.140		-5.736	.000		
APQ	.317	.042	.313	7.606	.000	.568	1.760
APP	.412	.043	.408	9.694	.000	.543	1.842
ABB	.325	.035	.360	9.228	.000	.630	1.587
ACE	.092	.037	.090	2.475	.015	.721	1.386

a. Dependent Variable: APS

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	APQ	APP	ABB	ACE
1	1	4.921	1.000	.00	.00	.00	.00	.00
	2	.025	14.024	.00	.10	.17	.00	.78
1	3	.022	14.828	.28	.04	.00	.83	.00
	4	.019	16.175	.55	.01	.35	.16	.20
	5	.013	19.531	.16	.86	.48	.00	.01

a. Dependent Variable: APS

Casewise Diagnostics^a

Case Number	Std. Residual	APS	Predicted Value	Residual
60	3.652	4.50	3.7134	.78662

a. Dependent Variable: APS

Residuals Statistics^a

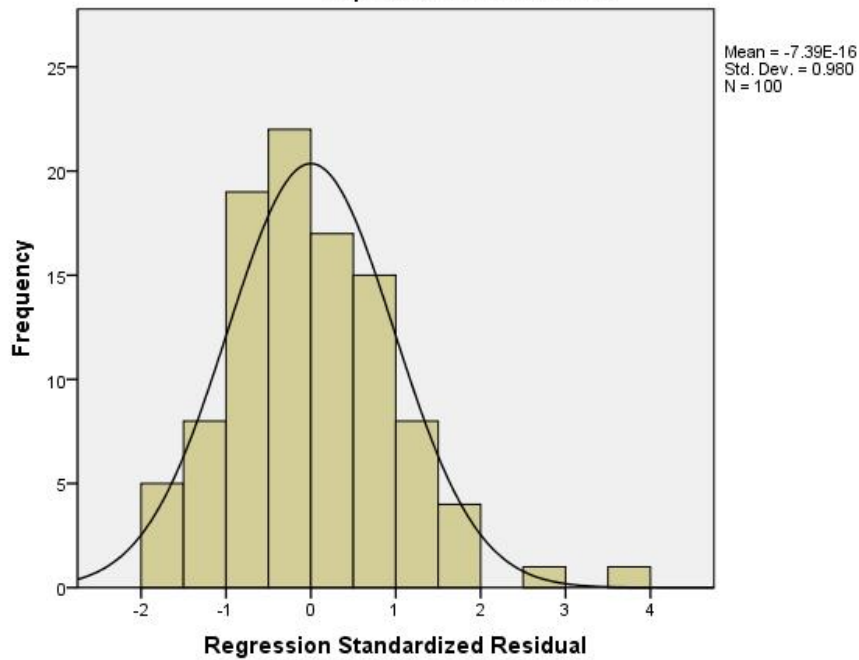
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7607	4.5490	3.2800	.66574	100
Std. Predicted Value	-2.282	1.906	.000	1.000	100
Standard Error of Predicted Value	.025	.090	.046	.013	100
Adjusted Predicted Value	1.7619	4.5387	3.2805	.66544	100
Residual	-.41024	.78662	.00000	.21100	100
Std. Residual	-1.905	3.652	.000	.980	100
Stud. Residual	-1.946	3.701	-.001	1.002	100
Deleted Residual	-.42833	.80796	-.00053	.22109	100
Stud. Deleted Residual	-1.976	3.980	.002	1.020	100
Mahal. Distance	.323	16.317	3.960	2.992	100
Cook's Distance	.000	.090	.010	.015	100
Centered Leverage Value	.003	.165	.040	.030	100

a. Dependent Variable: APS

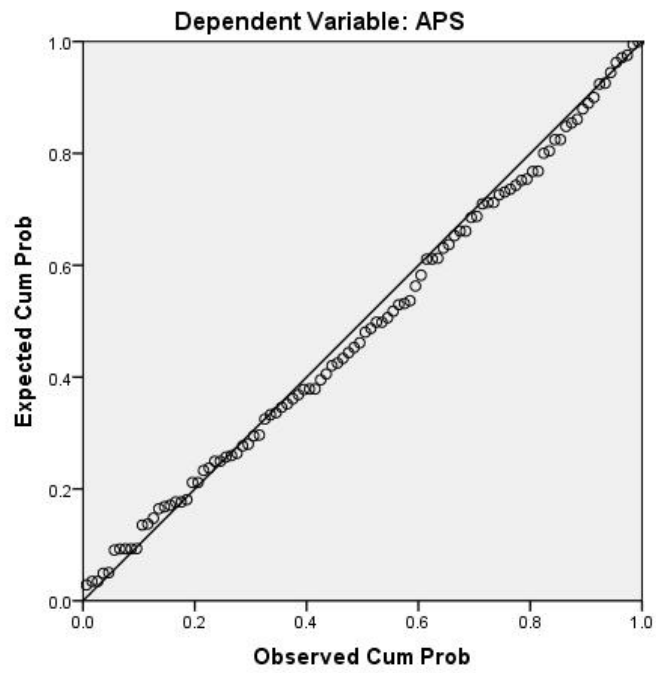
Charts

Histogram

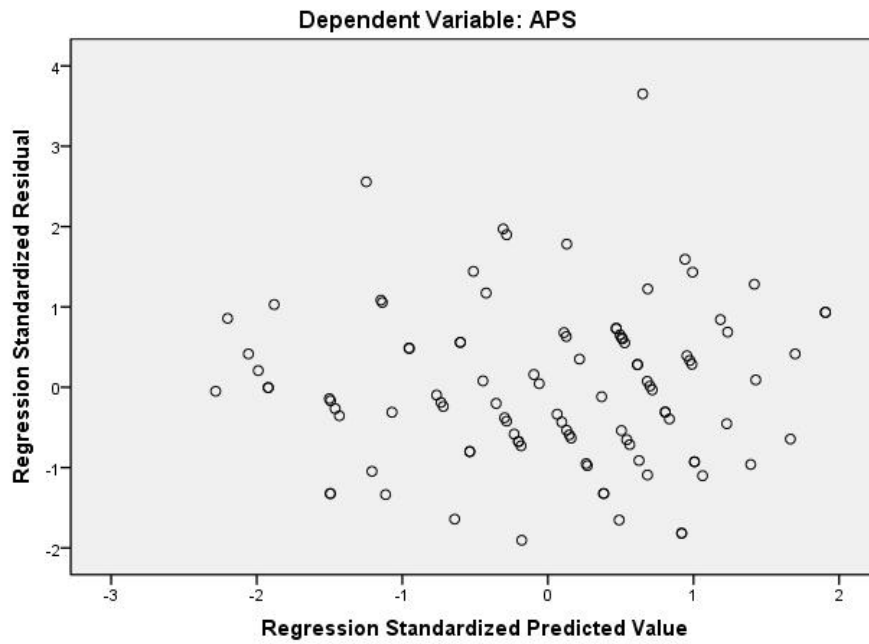
Dependent Variable: APS



Normal P-P Plot of Regression Standardized Residual



Scatterplot



APPENDIX OF RAW DATA

P	P	P	P	A	P	P	P	P	A	B	B	B	B	A	C	C	C	C	A	P	P	P	P	A
Q	Q	Q	Q	P	P	P	P	P	P	B	B	B	B	B	E	E	E	E	C	S	S	S	S	P
1	2	3	4	Q	1	2	3	4	P	1	2	3	4	B	1	2	3	4	E	1	2	3	4	S
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				.7					.7															.7
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				.7					.7										.7					
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				.2										.2					.2					
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				.7					.7										.2					.7
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									7					7					.					
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				.					7					.					.				.	2
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				.																				
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				7					7					2					.				7	5
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