

**EXPLORING PRE- & POST-FACTORS OF CUSTOMER SATISFACTION ON  
SMARTPHONE**

**By**

**Arum Kim**

**THESIS**

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

**MASTER OF PUBLIC POLICY**

2012

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Committee in charge:

Professor Yoon Cheong CHO, Supervisor



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## **ABSTRACT**

### **EXPLORING PRE- & POST-FACTORS OF CUSTOMER SATISFACTION ON SMARTPHONE**

**By**

**ARUM KIM**

Users of smartphone spent most of their time being awake as with the fact that it became the most innovative electronic device since its appearance. As the time spent on the smartphone increases, the user's dependence on smartphone also increases. Therefore the meaning of smartphone to users is more than a telecommunication device. Many of smartphone users are living with smartphone and by smartphone. In this context, exploring causes of customers' purchasing behavior of smartphone is important consideration. As a customer, smartphone user's satisfaction gives firms a substantial clue to find a right direction to step forward in terms of marketing strategy.

Based on the consideration above, this paper examines the factors of smartphone affecting user's satisfaction and the factors being affected by smartphone user's satisfaction. Simply saying, the pre and post factors of smartphone user's satisfaction were investigated through the measure of satisfaction. As the pre factors of smartphone user's satisfaction, product quality, design, price, technology, country-of-origin, corporate image and brand image were tested, and as the post factors the change of loyalty, brand image, corporate image and country image were used. With the smartphone user's satisfaction as a center, the

pre factors and post factors of customer satisfaction are examined by the survey questions.

The 2000 survey questionnaires were distributed through email, and the 314 answers were collected. With this data, the hypothesis was tested by using the regression analysis. As a result, this study proved the correlation between the pre and post factors and smartphone user's satisfaction. The pre factors suggested by this paper were influencing the smartphone user's satisfaction and the smartphone user's satisfaction also causes the change of perception on the post factors.

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**Dedicated to my mother, Sun-Ki HONG**

**Deuteronomy 15:4-5**

**“However, there should be no poor among you, for in the land the LORD your God is giving you to possess as your inheritance, he will richly bless you, if only you fully obey the LORD your God and are careful to follow all these commands I am giving you today”**

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## **I.INTRODUCTION**

The world is getting smarter and people can hardly survive from their routine life without the smart devices. As the telecommunication has been developed, the device for telecommunication has been also upgraded by adopting the cutting edge technology to meet the people's expectation. Since the Bell's invention of telephone, the telecommunication device is still the most important and popular product for both consumer and seller.

From telephone to smartphone era, the customer has perceived such movement or development as a convenient product for communication. The internet convergence technology has been emerged into the mobile phone, furthermore it gives a birth of innovative electronic device which is called 'smartphone' showing what ubiquitous really means.

The sensational device, smartphone has been changed the social norm in its short history. Smartphone users always carry their smartphone in everywhere, and some are seemingly addicted to it. The smartphone providing with internet based services is rapidly and widely accepted by consumers, and it becomes the most sensational convergence of technology that dramatically transforms people's lifestyle.

As the smartphone market is growing, the smartphone users also significantly increased in a short period. Not only the number of smartphone users, but also the smartphone user's behavior affects social norm. Smartphone users always carry their smartphone during their time staying awake, so the smart phone is the most user-attached product. Moreover, smartphone users as customers are very important due to their contribution to the revenue of smartphone companies. Because the price level of smartphone is similar to an expensive electronic product like computer.

The current Smartphone market situation and its growth rate give the remarkable impression to the smartphone company's marketers. The smartphone users' affection toward smart phone is becoming the most substantial topic to research. This is because the user's satisfaction influences directly on the market share of company. Therefore it is worth to research on the smartphone user's satisfaction, and the pre-factors and post-factors that are related in the smartphone user's satisfaction.

### **1.1. Objective of the study**

As a global issue the smartphone is on the top of the customer's list. Considering the smartphone market's growing, it is worth to study on the smartphone user's satisfaction. To understand the current market situation and to predict the smartphone user's behavior, it is necessary to study those smartphone users.

The purpose of this study is to investigate the smartphone user's perception on the several factors of smartphone that affect the user's satisfaction, to measure their satisfaction, and to investigate the smartphone user's perception change after the evaluation of satisfaction. In other words, this research is to examine what aspects of smartphone is important to customer when they are purchasing, how much the customer is satisfied after the purchasing behavior, how the customer loyalty is influenced by the satisfaction, and how much the product related images are differed by the customer satisfaction and loyalty.

Knowing the smartphone user is able for the smartphone company to set the future marketing strategy. Therefore this study can contribute to understand the smartphone user's satisfaction from their perception of smartphone and the influence of the smartphone user's satisfaction on loyalty and other product related images. This research can contribute to analysis what factors of product affect the user's satisfaction and how the customers' perception of the product related images improved based on their own experience.

## **1.2. Development of Research Questions**

This study is to figure out the following research question 1) what factors of smart phone influences on the customer's satisfaction and 2) how the customer satisfaction affects customer's loyalty, brand image, corporate image and country image. The main purpose of this study is to find out the impact of pre-factors and post-factors of customer satisfaction on smartphones. That is, with the customer satisfaction as a center to investigate what factors are significantly influencing on the satisfaction and influenced by the satisfaction. Furthermore this study also examines whether the customer satisfaction also contributes to the improvement of the images, such as brand, corporate and country image as the post factors.

The procedures from product purchase to assessment are occurred by customer's perception and their own interests. Therefore the customer behavior is decided according to their own experiences based on their expectation level of product. The customer satisfaction and loyalty are subjective assessment on the product, so that it may influence the product related images, such as brand, corporate and country image. For this reason, this study is to figure out the relationship between the customer satisfaction and loyalty, and the product related images; brand image, corporate image and country image. The correlation between the customer satisfaction and customer loyalty was proved by many previous researches, so that this research is based on the previous theory and develops that idea to explain the product related images.

## **II. Background of Study and Literature Review**

### **2.1 Background of Study**

In terms of mobile phone market, the appearance of smartphone made a huge impact to the mobile phone producers such as MOTOROLA, SAMSUNG, NOKIA and so on. Those

mobile phone companies were not very prepared to respond the attacks of new device ‘Smartphone.’ Though the RIM introduced ‘Blackberry’ to the mobile phone market as the first smartphone frontier providing the internet connection service, it has also undergone a hard time due to the smartphone’s appearance.

In this context, the mobile phone’s market is exploded due to the new enterer “apple.” The apple’s expansion into the mobile phone market by launching the ‘i-phone’ series has caused sensational wave to the market and the market is overheated by the existing mobile phone companies’ catching up movement. The non-traditional mobile phone maker ‘Apple’ seemed to win its race, however the traditional mobile makers, such as Samsung, LG, Motorola, RIM, have tried intensely to defend their market share and to catch the apple.

Smartphone market has been rapidly growing despite the global economic recession. The smartphone users accounting for 10.5% in 2007 increased globally by 21.1% in 2010, it is expected to grow by 38.5% for several years. (KCC, 2010) Therefore the global smartphone market will continuously grow until the market is mature. Also, the smartphone market is growing along the new smartphone’s launching. Especially, the Korean smartphone market was boomed by the new enterer ‘i-phone 3GS’ in 2009. (KCC, 2010) Moreover, Samsung launched its smartphone ‘Galaxy’ in 2010 and the Galaxy has been significantly contributing to the growth of Korean smartphone market. (KCC, 2010) The Korean Smartphone market was formed in 2009 by the appearance of i-phone, and before the i-phone, the smartphone market share accounted only less than 1%. Since 2009, Samsung ‘Galaxy’ caught up the Apple’s I-phone in a short term, so that the Galaxy and i-phone are recently dividing the Korean smartphone market. (KCC, 2010)<sup>1</sup>

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<sup>1</sup> Kroea Communication Commision, (2010) “An Analysis and ex-port regulation on User's Smartphone from the Consumers Perspective”

Furthermore, the global smartphone market is continuously growing and this growth rate will continue on for some years. The i-phone and Galaxy is fiercely competing in the global smartphone market. The i-phone has maintained the top position in 2011, but Samsung took over the first place as of 2012, according to Gartner's report.

Table.1 Worldwide Mobile Device Sales to End users by Vender in 2Q, 2012

(Thousands of Units)				
Company	2Q, 2012 Units	2Q, 2012 Market Share (%)	2Q,2011 Units	2Q, 2011 Market Share (%)
Samsung	90,432.1	21.6	69,827.6	16.3
Nokia	83,420.1	19.9	97,869.3	22.8
Apple	28,935.0	6.9	19,628.8	4.6
ZTE	17,936.4	4.3	13,070.2	3.0
LG Electronics	14,345.4	3.4	24,420.8	5.7
Huawei Device	10,894.2	2.6	9,026.1	2.1
TCL Communications	9,355.7	2.2	7,938.9	1.9
HTC	9,301.2	2.2	11,016.1	2.6
Motorola	9,163.2	2.2	10,221.4	2.4
RIM	7,991.2	1.9	12,652.3	3.0
Others	137,233.4	32.8	152,989.70	35.7
Total	419,007.90	100.0	428,661.15	100.0

Source: Gartner (Market Share Analysis: Mobile Devices, Worldwide, 2Q12, August 2012)

## 2.2. Literature Review

### 2.2.1. Antecedents of Customer Satisfaction on Smartphone

Customer Satisfaction has played a pivotal role in a theory of customer behavior in terms of marketing. By 1990's, it was a time for the customer satisfaction that was widespread studied and adopted by many marketing researchers. According to Oliver's paper (1999), Wylie (1993) stated "post-purchase research including customer satisfaction accounts for one third of revenues received by the largest U.S. research firms" and Higgins (1997) reported that the satisfaction studies increase by 19% and 25% in the US and Europe, respectively in 1996. (Oliver, 1997; Wylie, 1993; Higgins, 1997)

Yi (1989) claimed that "customers compare their perceptions of product performance with a set of standards." A large number of marketing researchers have suggested fulfilling the customers' satisfaction by passing over the customers' expectation. And to secure

customers retention from the market competing, companies have been using the marketing strategy to keep the customers satisfaction over a certain level at which the customers tend to choose the identical company's product.

Since the primary researches on satisfaction, the feeling of satisfaction was elaborated at an emotional and psychological perspective. The concept of satisfaction was arisen in the field of psychology by Festinger (1957). According to the Oliver's paper (1981), the cognitive dissonance theory which is suggested by Festinger (1957) was the first try of customer satisfaction study and it provided with an adequate framework for understanding the post-purchase responses. The Festinger's satisfaction concept was developed by many other researchers and Westbrook (1980) defined the satisfaction as a cognitive phenomenon, in which the customer feels subjectively good (satisfaction) or bad (dissatisfaction). And Sherif and Hovland (1961) suggested 'assimilation and contrast model' based on the psychological framework, but it was very controversial to be adopted due to the conflicted empirical test results. (Cardozo 1965; Olshavsky and Miller 1972; Woodside 1972; Anderson 1973)

Day (1977) have viewed that customer satisfaction is an outcome of consumers evaluation of product they experienced. According to Day (1977), the researches in 1970 were more focusing on the customer satisfaction as a continuum of gap between confirmation and disconfirmation of expectation of product performance. The early studies did not distinguish the satisfaction as unique criterion, so the satisfaction was defined as a result of the evaluation of product experience and customer's expectation on it.

Many previous scholars accepted the confirmation and disconfirmation paradigm based on the comparison of product performance and customer's standard to define satisfaction as a result of customer's buying behavior. (Yi, 1989) These researches on customer satisfaction had increased in 1970 and the dominant conceptual paradigm was "a

cognitive consistency model, in which customers compare pre-purchase beliefs in a product to post-purchase beliefs formed during consumption of the product.” (Westbrook and Michael, 1983) Westbrook and Michael (1983) have viewed that “customer satisfaction is the pleasurable emotional state resulting from the appraisal of a product.” Westbrook and Michael (1983) presented the value-percept disparity model against the disconfirmation of expectation theory in their research.

The customer satisfaction has been defined in two different perspectives. The first perspective defines the customer satisfaction as an ‘outcome’, whereas the second perspective defines it as a ‘process’. (Yi, 1989)

As the ‘outcome’ point of view, Howard and Sheth (1969, p.145) stated that “satisfaction is defined as the buyer’s cognitive state of being adequately or inadequately rewarded in a buying situation for the sacrifice he has undergone.” And Westbrook and Reilly (1983, p.256) supported the definition as an outcome by claiming that “an emotional response to the experiences provided by, associated with particular products or services purchased, retail outlets, or even molar patterns of behavior such as shopping and buyer behavior, as well as the overall marketplace.” Furthermore, Oliver (1980) claimed that the satisfaction is the expectancy disconfirmation of product performance and it plays an important role in satisfaction decision. In addition to it, Oliver (1981) suggested that the satisfaction is “the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer’s prior feelings about the consumption experience.” (Oliver, 1981) And many researchers adopted the concept of customer satisfaction as a result from a subjective comparison of the product expectation and its evaluation (Andreasen, 1977; Day, 1977; Oliver, 1977; Engel, Blackwell and Kollat, 1978).

As the 'process' definition, according to Westbrook and Michael's paper (1983), Hunt (1977, p.459) suggested that the satisfaction is "an evaluation rendered that the (product ownership and usage) experience was at least as good as it was supposed to be." In other words, customer satisfaction is "evaluation of emotion." Engel and Blackwell (1982, p.501) defined the customer satisfaction as "an evaluation that the chosen alternative is consistent with prior beliefs with respect to that alternative." Tse and Wilton (1988) also defined it as "the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance of the product as perceived after its consumption." According to Yi (1989), the satisfaction view of process approaches more closely to the customer's unique measurement of satisfaction in a perceptual, evaluative and psychological way. And many researchers have been adopted this approach. (Day, 1984; Oliver, 1980)

The expectation is the one of the important baseline to measure the customer satisfaction. In Sheth's research (1973), based on the customer satisfaction as a customer's perceived status in which the reward to purchase was paid, stated that each customer has a different expectation due to their previous experience. Kotler (1991) stated that expectation and result is the two determinant of satisfaction, and if the expectation is met, consequently the satisfaction is high. Engel, Blackwell & Miniard (1993) claimed that customers purchase a product with an expectation and the satisfaction can be defined as an evaluation of post-purchase. Hunt (1991) stated that the satisfaction is resulted from the confirmation of customer's expectation's level and product experience. Oliver (1980) structured the satisfaction elements by drawing a line between high and low expectation.

Yi (1989) classified the different definition of customer satisfaction according to the specificity such as product, consumption experience, purchase decision experience, salesperson, store, attribute, pre-purchase experience and product performance.

Many researchers have been focused on the customer satisfaction effects on the customer retention. In terms of business organization, the customer retention is the most important goal, because the customer retention is directly linked to the revenue of the business organization. It is defined that the rate of customer retention increases as the customer satisfaction is high. (Anderson and Sullivan, 1993; Fornell, 1992) Day et al. (1988) and Kotler (1994) indicated that the customer satisfaction is the key determinant of customer retention.

It has been definitively proved that there exists the relationship between customer satisfaction and customer retention. Nonetheless the exact connection between them is still in discussion. In some cases, the high level of customer satisfaction translated not always into the customer retention. (Heskett et al., 1994; Schneider and Bowen, 1999)

### **2.2.2 Pre-satisfaction effects**

As a pre-satisfaction factors, this study suggested seven factors; Product Quality, Design, Technology, Price, Country-of-origin, Brand Image and Country Image. These factors are information of the smartphone for customers' consideration in order to make a decision of purchasing product. In other perspective, the reason why the customers purchase a certain product is able to explore the customer's satisfaction.

#### **Product Quality**

Product Quality is one of the most important factors for both customers and business organizations. Product quality is used as crucial information for customers to purchase products and it is also used as a significant weapon for business organization to capture the customers. Therefore almost all business organization makes every effort to improve their product's quality while customers are searching for quality to meet their expectation. This

circular relation causes a change of market along the improvement of product quality (Peter, Mitra and Moorman, 2012). Quality is the key factor to “delighted customers, firm profitability, and the economic growth of nations” (Peter, Mitra and Moorman, 2012; Deming, 1982; Kennedy, 1987; Rust, Zahorik, and Keiningham, 1995)

According to Golder, Mitra and Moorman (2012), “the quality evaluation process occurs when customers compare an offering’s perceived attributes with their expectations to form summary judgments of quality and then satisfaction.” Oliver (1980) inferred that the customer satisfaction increases as the product quality is improved, and the customer satisfaction influences the customer loyalty again. This process comes to an end with the company’s profit increase. The importance of customer’s perception on quality was accepted by many researchers. (Buzzell and Gale, 1987; Parasuraman, Berry and Zeithaml, 1991)

## **Design**

The design of product is one of the most important factors for customer to decide their attitude toward products. At the mass production era, the design was not very much considered for both customers and producers. As the market is full of mass produced products, the value of design is weighted and it became the most important factor to attract customers.

ICSID<sup>2</sup> defines the term design which is that “Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange.” According to the book ‘Design Management’ (2006), it is mentioned that “Design can add value to a product beyond the manufacturing process, and so can affect gross margin, performance and profitability.”

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<sup>2</sup> ICSID is the International Council of Societies of Industrial Design. (<http://www.icsid.org/>)

## **Technology**

Technology is a driving force of product evolution. Every time the new technology is introduced, the companies accept a new product based on the new technology and customers purchase the new product. This circle has led the market evolution. In this reason, the acceptance of technology is more focused in these days. According to Cho and Ha (2004), Davis (1989)'s technology acceptance model is widely accepted to explain the procedure of user' acceptance of technology in terms of the perceived usefulness and perceived ease of use.

## **Price**

Price is also the most important factor for both customer and seller. Price decides market's direction reflecting the customer's response to the product. This is because the price is the initial information for customer to makes a decision whether they will buy or not. However the price is also important for customers to perceive their satisfaction. According to Anderson (1996), it is possibly expected that the customer has a high level of price tolerance when the product gives greater satisfaction back to the customer. In Anderson's paper (1996), Marshall (1920) claimed that "the excess of the price which a man would be willing to pay rather than go without having a thing over what he actually does pay is the economic measure of his satisfaction surplus." Therefore the price as a threshold of the purchasing behavior substantially affects on the customer's satisfaction.

## **Country-of-Origin**

The research on Country-of-Origin has been developed since Dichter's "The World Customer" in 1962. Dichter (1962) provided a starting point of the country-of-origin research by examining the differential role of national pride which is affecting the product in terms of

international marketing. In Dichter's research, Dichter mentioned that "Nationalism obviously plays a major role in determining consumer acceptance of non-domestically made products." Dichter (1962) saw the country-of-origin as a symbol of the producing country to the product and resulted that the "made-in" make a tremendous influence on the acceptance and success of product.

Schooler (1965) firstly conducted the empirical test on the product with "made in" label and he proved the significant influence of country-of-origin. Since his research, many researchers explored the effect of country-of-origin in a way to distinguish the products according to the producing country. And Narayana (1981) also conducted the test on consumer attitude toward the US and Japanese product. It concluded that the US and Japanese consumer perceived that the US country image is superior comparing to Japan.

However, Bilkey and Nes (1982) questioned on the perspective seeing the country image as one single cue for consumer to qualify the product, and after Bilkey and Nes (1982) researchers began to use the multi-cue to measure the effect of country image.

As the researchers were more focused on the country image as a producing country, it is needed to be clarified the definition of 'Country-of-origin'. (Narayana, 1970) Because the number of company is continuously increasing, whose factory does not located in domestic any more due to the production cost. Therefore many researchers started to use the term 'Country-of-origin' as a synonym for the "Made In".

Chao (1993) pointed out the misuse of the term 'Country-of-origin' in the context of the company's strategy for dispersing factory into other country. He suggested that the separation of the term 'Country-of-origin' into 'made-in', 'designed-in' or 'engineered-in'. According to recent researches, the country of origin is important information for consumer to perceive a product's quality and to decide the preference for the product. (Jaffe and Nebenzahl, 2006; Pharr, 2005; Phau and Chao, 2008; Wilcox, 2005)

### **2.2.3 Post-satisfaction effects: Loyalty**

Bowen and Chen (2001) mentioned that having the satisfied customers is not enough, and the extremely satisfied customers are needed. However it is true that the high level of customer satisfaction itself is meaningful, it should contribute to capture the customer's interests as long as possible. In other words, it is not enough to have high level of customer satisfaction which does not make any increase of customer purchase. Therefore the importance of customer loyalty arose in the marketing field and some researchers started to pay attention to the customer loyalty. Sivadas and Baker-Prewitt (2000) stated there is an increase of recognition of customer loyalty that should be a measurement for the customer satisfaction.

Customer Loyalty has been generally known for a factor being directly influenced by customer satisfaction. (Mittal and Lassar, 1998; Oliver, 1997) The concept of Customer loyalty appeared in 1990's, in order to maintain the weakness of the customer satisfaction theories in terms of marketing strategy. At the perspective of business organization, it is worthy only when the customer's satisfaction links to the repurchasing or spread of positive word-of-mouth. According to Oliver (1999), Reichheld (1996; Reichheld and Sasser, 1990) reported the outcome of customer retention exploring the net present value increase in profit. The Reichheld's data showed the 5% of customer retention caused the net present value increase in profit in a range from 25% to 95% over 14 industries.

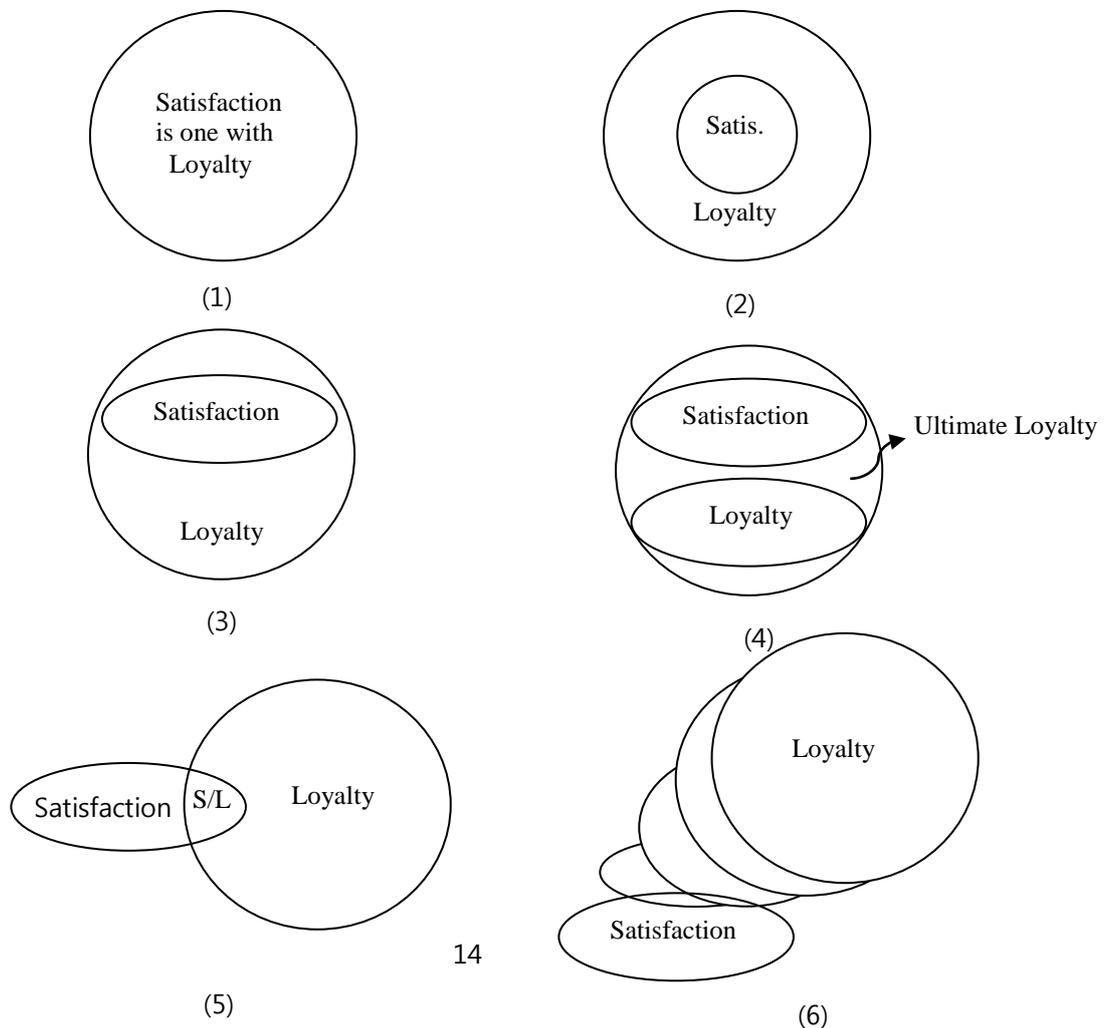
In addition, it was reported that the cost of customer retention is a lot less than the cost of new customer acquisition. (Fornell and Wernerfelt, 1987) Buchanan and Gillies (1990) supports this statement by claiming that acquiring new customers costs a lot higher than serving the existing customers. In addition to it, Reichheld and Schefter (2000) claimed that new customers cost from 20% to 40% more than old customers. Therefore the

researchers started to seek a new concept of satisfaction which is reinforced its meaning by adding the concept of customer retention.

Since the concept of customer loyalty appeared in the marketing field, many researchers have expanded their study on the positive relationship between customer satisfaction and loyalty. The customer satisfaction and loyalty can be defined as an inextricable relation, even though the exact interrelation between those two is still in question.

Oliver (1999) depicted the relationship between satisfaction and loyalty as six diagrams form. The six diagrams showed 6 logical structures of correlations but at the same time diagrams showed the ambiguousness of the structure of correlation between satisfaction and loyalty. The first diagram means the satisfaction is identically loyalty and the second diagram shows the satisfaction is core concept that is included in Loyalty.

Figure.1 Oliver's six representations of Satisfaction and Loyalty



The third diagram means the satisfaction is a component of loyalty, the fourth shows the satisfaction and loyalty are components of the ultimate loyalty. The fifth showed the intersection of the satisfaction and loyalty and the last means the transitioning process from satisfaction to loyalty.

There are two main views to define the satisfaction-loyalty relationship disregarding the relation structure. The first view is the positive relationship which is the leading theory of customer loyalty theory. It is that the customer satisfaction influences customers' future choice and customer loyalty. Dick and Basu (1994) mentioned that the customer satisfaction is the key determinant of the customer loyalty. Heskett et al. (1994) stated that when the customer satisfaction rises over a certain threshold, the customer loyalty increases rapidly. In addition, David Aaker (2006) claimed that the measurement of customer satisfaction must be previously done in order to measure the customer loyalty based on the correlation between satisfaction and loyalty.

On the other hand, the second view of the satisfaction-loyalty relationship pointed out the lack of influence on the customer retention. According to Oliver's paper (1999), Deming (1986) firstly stated the customer loyalty by expressing that "It will not suffice to have customers that are merely satisfied." And Jones and Sasser (1995) mentioned that "merely satisfying customers that have the freedom to make choices is not enough to keep them loyal." In addition, Stewart (1997) suggested the assumption that "satisfactions and loyalty move in tandem" and he proved it is incorrect. (Oliver, 1999; Deming, 1986; Jones and Sasser, 1995; Stewart, 1997) These studies claimed that the positive relationship between satisfaction and loyalty exists not always, and questioned why the repurchase does not always occur even though the customer satisfaction is highly met. This perspective led

new researches on the customer loyalty with a new perspective. Reichheld (1994) claimed that the highly satisfied customers may still not become loyal. On the other hand, some other researchers claimed that the loyal customers are not necessarily the satisfied ones although satisfied customers do tend to be loyal. (Fornell, 1992; Gommans et al., 2001; Oliver, 1999)

Nonetheless, the correlation between satisfaction and loyalty is accepted as a starting point to analysis the customer behavior by many researchers. (Fornell, 1992; Oliver, 1999) Tellis (1988) defined the customer loyalty as a repeat purchasing frequency or relative volume of same-brand purchasing. Oliver (1999) restated that the customer loyalty is the behavior of future repurchase or strong commitment.

The customer loyalty is considered as an important state in the customer's post behavior, because the loyalty influences the customer's re-purchase. (Oliver, 1999) Therefore it is used to measure the frequency of re-purchase, the purchase of a certain brand in the long term, and the brand switching behavior in order to measure the customer's loyalty. (Newman and Werbel, 1973) These methods are measuring the loyalty in the perspective of customer behavior. However, there is another way to measure the loyalty at the attitude point of view. (Anderson and Sullivan, 1993) The attitude measurement of loyalty is the word of mouth and the intention of re-purchasing. (Yi,1989)

### **Re-purchase**

Many researchers agree that Customer loyalty affects repurchase behavior. (Kumar, 2002; Mittal and Kamakura, 2001) Moreover Cronin and Taylor (1992) and Patterson et al. (1997) claimed that the customer satisfaction significantly influences on the repurchase intention. Repurchase behavior proves the customer's satisfaction and loyalty therefore this repurchase frequency is used as a measurement of customer's attitude toward a product. Newman and Werbel (1973) stated that "the loyalty to brands usually has been measured

entirely by purchase behavior. For durables, purchase of the same brand twice in succession typically has been used as evidence of loyalty.” Newman and Werbel (1973) pointed out that the satisfied customers have more probability to repurchase than unsatisfied customers.

### **Word of mouth**

Voss (1984) claimed that the more than 80% of purchasing occurred by the word of mouth in spite of the mass communication and advertisement. The word of mouth is more powerful to customer as the information channel. Richins (1983) researched on the ‘word of mouth’ effect of the unsatisfied customers to figure out the difference comparing to the other post customer behavior. Richins (1987) indicated that the customers received the positive word of mouth showed the buying intention more than three times than the customers were not exposed the word of mouth. As the reason of the credibility of word of mouth, Richins (1987) suggested four reasons. 1) The customers tend to believe the word of mouth and considered it as a reliable source of information, 2) regarded the personal communication as socially supported method, and 3) the customers are forced to purchase the product by the word of mouth, and 4) the customers prefer to non commercial communication. And Richins’ research resulted that the negative word of mouth causes serious leave of customers. In addition, Curren and Folkes (1987) developed Richins’s research and explored the effect of positive and negative word of mouth over product quality.

Anderson (1994) researched the role of ‘word of mouth’ in terms of customer satisfaction and found that the word of mouth increases in both satisfaction and dissatisfaction situation. And Guo, Xiao and Tang (2009) restated that as customer satisfaction increased, the word of mouth also increases. (Guo et al. 2009).

## 2.2.4 Other Post-Factors

### Image

The word “Image” is originated from the Latin word “imago” which is related to “imitate” and its definition of oxford dictionary is that “the impression that a person, an organization or a product, and so on gives to the public.” In other words, image is a reflecting shape of the real objective in person’s mind.

Many researches on image have been carried out in many specific fields, such as mass communication, psychology, international marketing and business. Psychologists started studying the concept of image however it became a popular topic in various research fields including public communication, mass media, management, brand and marketing.

The concept of image was firstly inferred by Lippmann (1922) in his book “Public opinion” in the perspective of mass communications. According to Lippmann, the image is the pictures inside the heads of human beings; the stored images sometimes mislead men in their dealings with the world outside because of the preconceptions or prejudices. The real outside world is too big and complex for people to perceive, therefore they are making their own pseudo-environment which is a fiction. (Lippmann, 1922) And Boulding (1956) said that image is the objective knowledge which is categorized and manipulated into the useful unit of perception based on the received information. D.J Boorstin (1962) imposed the new notion “pseudo-event” to point out the negative aspects of image. The planned and manipulated image at the pseudo-event such as press interview is reflecting sole aspect of real event, so the image is pseudo ideals. (Boorstin, 1962)

According to Lamelas’ paper, Scott (1966) defined that an image is comprised of individual’s understanding of the object. That is the cognitive component, the affective assessment of the object and finally, the responses to the object as the behavioral component. (Lamelas, 2011) Moffitt (1994) said that images are produced by organizational, social, and

personal relations; texts; and personal experiences. Images result from a complex process that may yield multiple, intended and unintended, positive and negative, and strong and weak meanings. (Moffitt, 1994) Lee Roy Beach (1993) introduced that people make a decision according to the image of object which is including some core information of the object, when the information of object is not sufficient.

#### **2.2.4.1 Brand Image**

The word 'Brand' is broadly used to distinguish a certain product from many other similar products for a long time, so most of customers are familiar with the concept. The origin of 'brand' is from the word 'brandr' meaning 'burning', and that was the method for ancient people to distinguish their stocks by using the branding iron. (Wiley, 1992) The meaning of brand started from the ownership and it has been extended to the product. The brand could be a certain logo, name, graphic and so on. But the brand image is the customer's total representing idea of an existing product and it is also reflecting the real product.

There are two different perspectives to approach the brand image. The company perspective, according to Lamelas (2011), brand image is defined that "A name, term, sign, symbol or design or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors." While the receiver's perspective, the Brand image is the key to build blocks in customer related brand equity frameworks. (Aaker, 2006; Keller 1993)

Regarding brand image, Kotler (1991) inferred that image is the set of beliefs, ideas, and impressions that a person holds regarding an object. Regarding brand familiarity, Howard and Sheth (1969) defined it as the understanding of brand, the knowledge of product and the ability to decide the standard for product evaluation.

### 2.2.4.2 Corporate Image

Corporate image influences customers to choose a certain company's product as a product related image. As the market is full of new competitors, the corporate image building has been considered as the long term marketing strategy. Therefore companies have tried to build a good corporate image to be distinguished themselves from many other competitors and to give unique impression to customers.

The concept of corporate image started from the meaning of the company employees perceptions of their company, and Dutton and Dukerich (1991) defined that the corporate image is "the way they believe others see the organization." Moffitt (1994) state that the corporate image as corporate identity which is not from a company's logo, name, or other graphic elements, but from a company's overall definition, direction, and distinctiveness as perceived by its various customers.

Zimmer and Golden (1998) claimed in their study of retail store image that "the global image perceptions span positive and negative, as well as vernacular expressions. These types of comments summarize the consumer's gestalt impression." (Zimmer and Golden, 1998) This study approached the image in a psychology point of view.

Table.2 Review of Conceptualizations of Corporate Image (Lopez, 2011)

Discipline	Definition	Author(s)
Organizational behaviour	Organizational image refers to the way that an individual or group see their organization	Bromley (1993); Hatch and Schultz (1997, 2000)
Psychology	Symbolic associations between organizations and stakeholders	Grunig (1993)
Sociology	The inner picture (sense image) and fabrication (communicated image)	Alvesson (1990)
Strategy Marketing	External creation of corporate image	Gray and Smeltzer (1985)
	Importance of the organization in the creation of corporate image	Dichter (1985); Gray (1986); Olins (1989); Dowling (1994)
	Perceptions, (mental) pictures or impressions of an organization that reside in the public's mind	Winick (1960), Spector (1961); Carlson (1963); Britt (1971); Margulies (1977); Gronroos

		(1984); Johnson and Zinkhan (1990); Balmer (1995); Balmer and Stotvig (1997); Gray and Balmer (1998); Balmer and Gray (2000); Gotsi and Wilson (2001); Balmer and Greyser (2002)
	Beliefs about an organization	Dowling (2004)
	Cognitive and affective components constitute the corporate image construct	Cohen (1963); Bernstein (1984); Dowling (1986); Barich and Kotler (1991); Markwick and Fill (1997); Dowling (2001); Melewar (2003)

### 2.2.4.3 Country Image

Many researchers have tried to figure out how the country image affects on the customer's choice of product. The researches on country image can be classified into three categories. First category is the 'country image' meaning the image of country by Martin and Eroglu (1993), and Kotler (2003), and second category is 'product-country image' indicating the producing country image by Roth and Romeo (1992). And the third category is the 'product image' including the country image as the country-of-origin by Nagashima (1970), Roth & Diamantopoulos (2009).

The first research of country image was taken by Schooler (1965), and he did test the customer choice of products according to the country label in the Central American market. Schooler's research concluded that "the country image is a factor in existing preconceptions regarding the products of that country." Schooler (1965) defined the country image as a product bias. Since Schooler' research, the country image has been studied in many areas such as international marketing, international management and customer attitude.

Nagashima (1970) researched the country image at the perspective of international marketing, and he defined the country image as ideas, emotional background, and connotation associated with a concept. Thus, the country image is the picture, the reputation, the stereotype that businessmen and consumers attach to products of a specific country.

Nagashima (1970) imposed the 'made in' concept. The country image is created by such variables as representative products, national characteristics, economic and political background, history, and traditions. It has a strong influence on consumer behavior in the international market, as it is associated with mass communication, personal experience, and views of national opinion leaders. (Nagashima, 1970)

Anderson and Cunningham (1972) considered the country image as a stereotype or preconception which influences customer attitude toward a foreign product. And Roth and Romeo (1992) stated the definition as the overall consumers' perception formed by products from a particular country, based on their prior perceptions of the country's production and marketing strengths and weaknesses.

Narayana (1981) defined that the country image is a consumer perceptions at the aggregate level and Narayana tested the country image between USA and Japan customer's perception on the foreign sourced product. The aggregate image for any particular country's product refers to the entire connotative field associated with that country's product offering, as perceived by consumers. (Narayana, 1981)

According to Reigrotski and Anderson (1986), the country image is national stereotypes like a mark that is put on persons or things. Different marks or labels may be used to characterize groups of persons or things. (Reigrotski and Anderson, 1986)

From a marketing perspective, Bilkey and Nes (1982) explained that the country image is the general perceptions based on an information cue question. Products may be conceived as consisting of an array of information cues, both intrinsic (taste, design, fit) and extrinsic (price, brand name, warranties), and each cue provides customers with a basis for evaluating the product. (Bilkey and Nes, 1982) And the country image is the informational cue as the country-of origin-of product influences on the quality perceptions of a product. (Bilkey and Nes, 1982)

According to Han's paper, Erickson, Johansson, and Chao (1984), and Johansson, Douglas, and Nonaka (1985) found that country image affects consumers' evaluation of product attributes, but not their overall evaluation of products. (Erickson, Johansson, and Chao, 1984; Johansson, Douglas, and Nonaka, 1985)

Han (1989) agreed with them that those findings support the role of country image as a halo in product evaluation and he adopted the Bilkey and Nes' (1982) definition of country image as consumers' general perceptions of quality for products made in a given country. (Han, 1989)

Martin & Eroglu (1993) defined country image as "the total of all descriptive, inferential, and informational beliefs about a particular country." Scott (1966) explained that the country image is comprised individual's understanding of country as an object. Some scholars were seeing the country image as a national identity, and Rusciano (2003) said that the national identity formed not only by the internal information, but also by reference to the external image from outside of country.

Many researchers employed the definition of country image in terms of marketing to prove the customer's different attitude toward the foreign product. Therefore the country image was used as one of the variables influencing the customer's behavior. That is, the customer perceived the country image to decide the product quality.

Researchers define the country image as one of the independent variable for a choice of product, based on the assumption that the country image is a prejudice, preconception and stereotype idea. The relationship between the country image and product image was becoming a popular topic since the first marketing research of Nagashima (1970) employing the concept of "made in." Hence, the researches on country image have developed the concept of "made in" to the "country-of-origin."

In the marketing perspective, the country image was studied to prove the existence of influences on the product image. In other words, the country image can change customer's attitude toward the product according to the country of origin. There are many reports proving that the consumers are more favorable toward the products 'made-in' certain country.

### **Formation of the country image**

Many experts and scholars have also researched the formation route of country image. According to Nagashima, image is created by such variables as representative products, national characteristics, economic and political background, history, and traditions. It has a strong influence on consumer behavior in the international market, as it is associated with mass communication, personal experience, and views of national opinion leaders. (Nagashima, 1970)

Ericson, Johansson and Chao (1984) considered the influence of image variables on the formation of beliefs and attitudes. A country image is defined as some aspect of the product that is distinct from its physical characteristics but that is nevertheless identified with the product. The country image can be formed by descriptive, inferential and informational beliefs. (Ericson, Johansson and Chao, 1984) According to Kotler (2000), the country image is a set of beliefs and perceptions that people have about a given country. Further, country image is constituted of history, geography, art, music, citizens, and attributes." (Kotler, 2000)

Roth and Romeo (1992) researched the country image as one of the factors for consumer to assess the products. Therefore country's manufacturing ability, flair for style and design, and technological innovativeness, is much more congruent with product perception formation. (Roth and Romeo, 1992) Moffitt (1994) defined that the image formation route as relations, text and personal experience. This concept is applicable for the country image, as well. The relations including public and private communication influences the country image,

and the text means publication including news article and books. The personal experience such as travel also influences the country image (Moffitt, 1994).

The constituent factors of country image are defined differently by the researchers, as their point of view is different. Among them, most researches are seeing the country image at the marketing perspective, so that the subject of the recognition is considered as consumer. There are, however, many factors influencing the country image such as geographical condition, economic growth, industry, product, celebrity, and international event. The country image can be created in many dimensions in terms of product perspective.

Table.3 Dimension of Country Image

Nagashima (1970,1977)	Price and value, service and engineering, advertising and reputation, design and style, and consumer' profile
White (1979)	Expensive, price, technicality, quality, workmanship, inventiveness, selection, serviceability, advertising, durability, reliability, brand recognition
Narayana (1981)	Quality, recognition, prestige, production form, expensiveness, popularity, functionality
Cattin, Jolibert and Lohnes (1982)	Pricing, reliability, workmanship, technicality, and performance
Jaffe and Nebenzahl (2006)	Product-technology, marketing and price
Johansson and Nebenzahl (1986)	Economy and status
Han and Terpstra (1988)	Technical advancements, prestige, workmanship, economy and serviceability

Source: Auruskeviciene, Pundziene, Skudiene, Gripsrud, Nes and Olsson (2010)

This table shows that how the researchers measure the country image in terms of product-country image. These researches indicate that the country image is strongly correlated with the product image, and the consumers are also considering the country image as one of the product information.

The Papadopoulous and Heslop (1986)'s research was taken based on the personal experience of a certain country and it concluded that the correlation between the personal experience and the country image. Papadopoulos and Heslop (2002, p.308) indicated that “a

country is a ‘corporation’ that produces many products, not a unitary ‘product’” (Papadopoulos and Heslop, 2002)

In terms of marketing, the country image is related with the product, and it provides customers with information for evaluation. The country image also gives a certain impression to customer through the product or corporate image. Papadoplous and Heslop (1986) stated that a personal experience of the destination country influences the country image. And many other researchers also have viewed the relationship between a product and a country image.

### **III. Theoretical Background Formation**

#### **3.1 Theoretical Foundation**

##### **3.1.1 Customer satisfaction Theory**

###### **Contrast Theory**

The contrast theory is that when the product performance does not meet the customer’s expectations, the difference between the expectation and the outcome affects customer to exaggerate the disparity. (Engel and Blackwell, 1982; Howard and Sheth, 1969) Yi (1989) explained that “individuals may shift their evaluations away from expectations if their expectations are inconsistent with reality.”

According to the contrast theory, if the disparity is occurred by customers’ perception between the expectation and the real product performance, the customers tend to evaluate the product away from the expectation. In other words, the disparity from high expectation with the poor product performance causes the understatement on the product, whereas the disparity from low expectation with the good product performance causes the overstatement on the product. The perception of product performance are enforced by the positive disconfirmation, and lowered by negative disconfirmation. (Yi, 1989)

### **Assimilation-Contrast Theory**

The Assimilation-Contrast theory is comprising the assimilation theory and contrast theory. When the customers perceived the small disparity which is for customer to endured, between the expectation and the real product performance, the customers tend to evaluate the product as similar with their expectation. While the huge disparity makes customers to evaluate the product as far as from their expectation. Yi (1989) summarized that “the high expectations about product quality lead to more favorable ratings, whereas low expectations lead to less favorable ratings.” Many researchers have supported this theory including Anderson (1973).

### **Dissonance Theory**

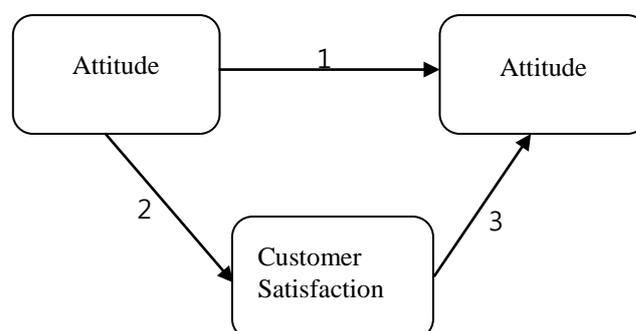
Festinger (1957) claimed that the disconfirmed expectations cause the dissonance state or psychological discomfort based on the psychological perspective. When a person received two dissonance ideas, there is a tendency to make the dissonance ideas to become more consonant, in order to solve the discomfort from the dissonance.

According to Yi (1989), the disparity between expectation and product performance forces customers to ease the psychological tension which is caused by the disparity. There are several studies supporting the dissonance theory. (Cardozo, 1965; Olshavsky and Miller, 1972; Olson and Dover, 1979)

#### **3.1.2 Customer Satisfaction as a mediator**

Yi (1989) stated that the customer satisfaction plays a central role to influence the customer’s attitude change.

Figure.2 Customer Satisfaction as a Mediator of Attitude Change (Yi, 1989)



As consumers interact with a product toward which they have set an attitude, they are subject to two ways of forces. (Yi, 1989) First one is attitude affecting attitude, and second one is attitude influenced by customer satisfaction. (Yi, 1989) Therefore the customer satisfaction is the key to change the customer's attitude. (Yi, 1989)

In other words, consumers have their pre-set attitude toward a product and the pre-set attitude can affect to the other/final attitude. But the customer's attitude can be changed through the evaluation of satisfaction. That is, the customer's attitude toward a product can be changed according to their satisfaction level.

Based on this theory, this paper suggested that the post-factors of satisfaction are possible to change according to the satisfaction level. And the satisfaction related post-factors are the images related with the product; brand, company and country image. The customer's perception change can be interpreted as the customer's belief change. Therefore this paper developed the theory of customer satisfaction as a mediator to prove the post-factors effect.

### **3.2 Models that are related to the Study**

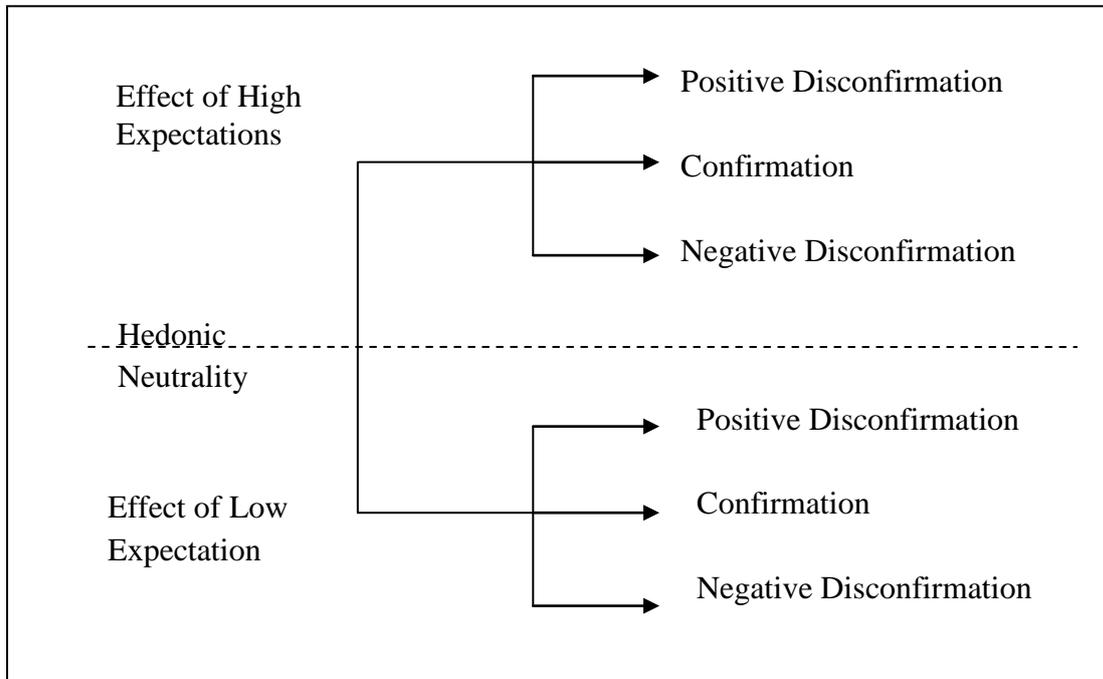
#### **Satisfaction Model**

This Model is accepted by most of researchers. This is because, many researchers have viewed that the expectation and satisfaction is considered as one pair of concept. The satisfaction is needed a certain baseline, so that the expectation is interpreted as baseline.

This study is based on the Oliver's expectation and disconfirmation model. The model below (Figure 3) is showing the structure of customer's satisfaction evaluation. The threshold of satisfaction decides the customer's attitude by measuring the difference from the threshold. If the difference is located higher than the threshold, the customers experience the positive disconfirmation, and otherwise the customers experience the negative

disconfirmation.

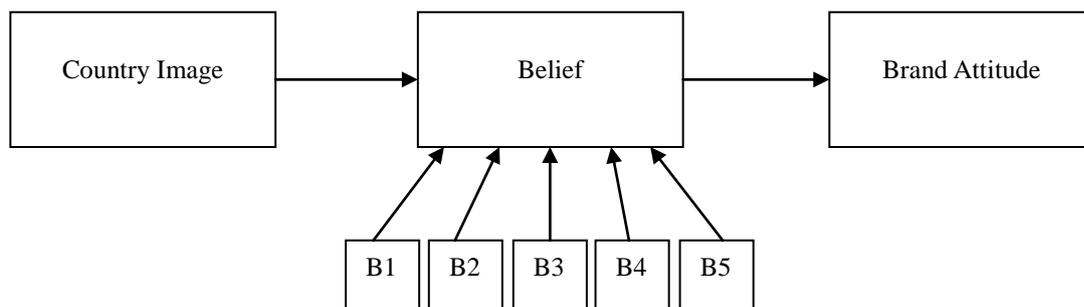
Figure.3 Expectation and Disconfirmation Effects on Satisfaction Consistent with Adaptation-Level Theory (Oliver, 1981)



### Country Image models

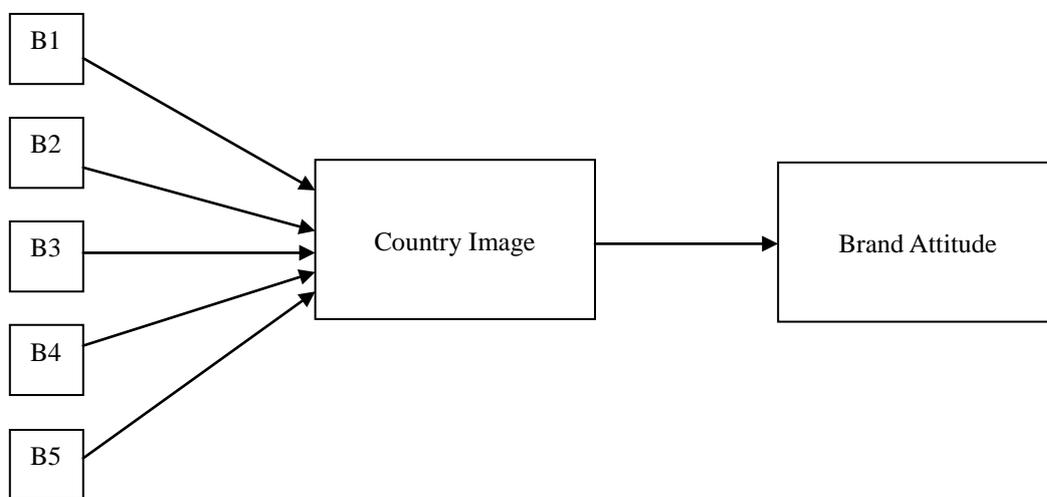
Han (1989) figured out the correlation between the country image and the consumer's attitude by creating the Halo model. According to Han (1989), the country image influences the customer's brand attitude through the customer's belief. The country image is influencing the consumer's belief when they are examining the product by checking the features, then the belief is influencing the consumer's attitude toward the brand of product. (Han, 1989)

Figure.4 Halo Model (Han, 1989)



The Halo model explains the influence of country image on the consumer's belief in which the brand attitude is decided. But this model is applicable only when the consumer can hardly have enough information of product to assess the quality of it. That is, the country image could be one clue to influence on the consumer attitude. Therefore, in this Halo Model, the country image is playing an important role as basic information for the product.

Figure.5 Summary of Construct Model (Han, 1989)



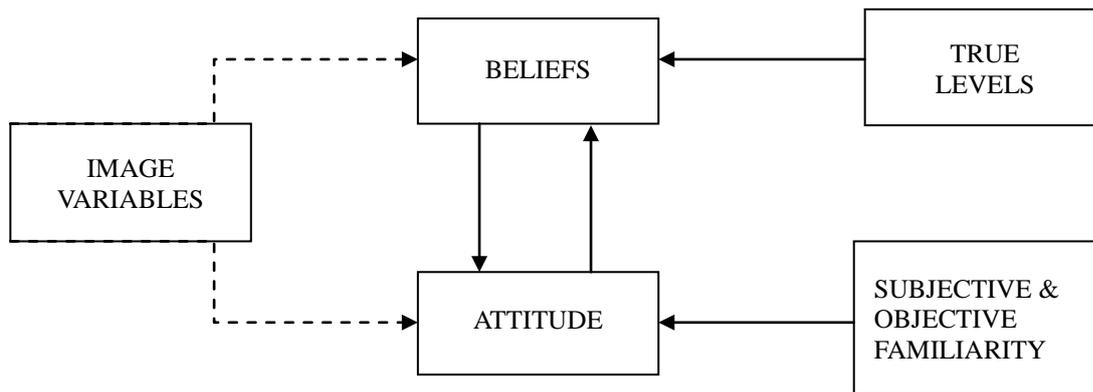
The products features are forming the country image as a chunk and the consumers decide their attitude toward the product by assessing the country image. In this context, Han (1989) created the product-country image structure.

### **Belief and Attitude Model**

Previously, many researchers have studied in this relation between belief and attitude, and Fishbein and Ajzen (1975) set the model that the belief affects attitude. Zajonc (1980) was against Fishbein and Ajzen's idea by claiming that the cognition has no relation with the contents. But Erickson, Johansson and Chao (1984) cited Fishbein and Ajzen (1975)'s model and ideas to enhance the claim of two-way influence between attitudes and beliefs. The

image can affect attitude and belief both way, and the belief and attitude are explanatory variables in each equation. Erickson, Johansson and Chao (1984)'s model is explaining more about the structure of image influencing, and Erickson, Johansson and Chao (1984) concluded that the country image directly effected on the belief and not on the attitude.

Figure.6 Belief-Attitude Model with Image Effects (Erickson, Johansson and Chao, 1984)

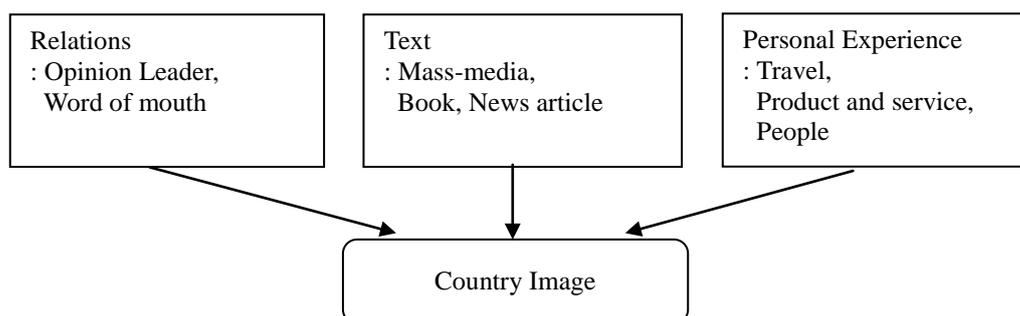


This model was proofed by testing the car and its producing country that the country image is strongly influencing people's belief, but not much their attitude. Likewise, the country image has various ways to be formed. The model implied that the country image can affect the belief or attitude or both

### Moffitt's Model

Moffitt (1994) classified that the route of the country image formation into three criteria according to the way of access to the country information. This is useful to understand the information access of country image.

Figure.7 Summarized Model of "A cultural studies perspective toward understanding corporate images" (Moffitt, 1994)



The information of a country is delivered by one of these routes to the receivers. It is divided into two main routes, direct experience – ‘personal experience’ and indirect experience – ‘Relations’ and ‘Text’. The indirect experience can be specified as ‘Relation’ including the word of mouth by public and private communication and ‘Text’ including the written information. The personal experience includes the experience from the product use, so that the county image can be influenced by the product experience. This paper accepted the Moffitt’s model (1944) to explain the customer’s perception change after the satisfaction evaluation.

#### **IV. Hypothesis Development**

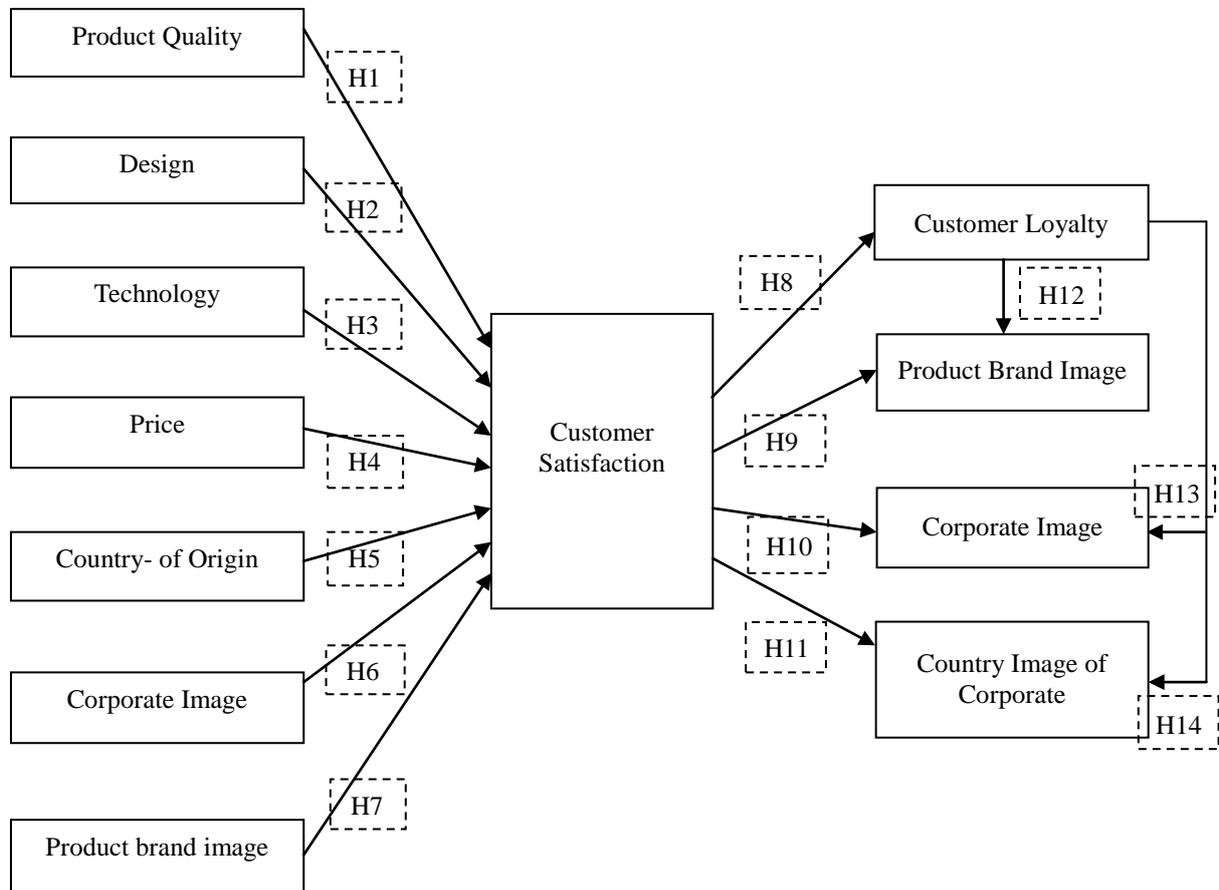
##### **4.1 Research Model**

This paper researches on the customer satisfaction’s pre-factors and post-factors. As pre-factors of customer satisfaction, this model is including seven variables; 1) quality, 2) design, 3) price, 4) technology, 5) brand image, 6) country-of-origin, 7) corporate image. And as post-factors, this model suggests 4 variables; 1) loyalty, 2) brand image, 3) corporate image, 4) country image.

These pre-factors are representing the smartphone’s general performance, features and images, so that the customers use those factors as information cue to choose a certain product among the various smartphones. Therefore this research asked smartphone users about how importantly they perceived of these factors when they chose it and how satisfied with these factors after they purchased. From these questions, the customer expectation and evaluation of the smartphone can be described. Based on the evaluation of those seven pre-factors, the overall customer satisfaction is asked. In this model, it is possible to know what

factors are the most satisfied one among the seven factors. The most satisfied factors will strongly influence the customer satisfaction.

Figure.8 Research Model



After the evaluation of the smartphone user’s satisfaction, this model suggests post-factors which are influenced by the customer satisfaction. The loyalty, brand image, corporate image and country image are also affected by customer satisfaction when customer evaluates their smartphone. This model suggests the customer’s evaluation ranges widely including the loyalty, Product Brand Image, Corporate Image and Country Image.

In addition to it, this research model suggested that the customer loyalty influences the product brand image, corporate image and country image of corporate. Adapting Oliver (1997)’s claim of the correlation between satisfaction and loyalty, it is assumed that the

loyalty is formed by the customer satisfaction and afterwards, the loyalty can also affect the post factors; Product Brand Image, Corporate Image and Country Image.

### **Satisfaction**

The customer satisfaction is located in the center of this research model. The satisfaction is measured by pre- and post-factors. Among the elements of smartphone, this paper suggests seven specific elements as the post factors that might affect the satisfaction of smartphone.

This research model also suggested that the satisfaction influences four post-factors by altering the customers' perception of the post-factors. To investigate the change of customer's belief in product, the satisfaction is also important in this model. This model viewed the customer's belief is influenced by the evaluated customer satisfaction.

### **Loyalty**

The loyalty, as a result of customer satisfaction, can also influence the post factors. Therefore this research model hypothesized the loyalty's effects on the post factors as the last part of the research. The relationship between

### **Independent and Dependent Variable**

From this model, the independent variables are quality, design, technology, price, country-of-origin, corporate image and brand image. This model assumed that these seven factors are influencing on the customers' satisfaction as independent variables. And the customer satisfaction is dependent variable for the first part, and the test of correlation between the smartphone's seven factors and the customer satisfaction is carried out.

As the second part, the customer satisfaction changes to independent variable. With the customer satisfaction as an independent variable, it tests the relationship with customer loyalty and the change of the perception of customer loyalty, brand image, corporate image and country image as dependent variables.

#### **4.2. Effects of Product Quality to Smartphone Satisfaction**

Zeithaml (1988) claimed that the perceived quality is customer's overall evaluation on the product's superiority or excellence. Therefore the perceived quality by customer is very subjective and abstract, and it is different from the product's real quality. Nonetheless the perceived quality by customer directly affects customer's attitude toward the product. (Aaker and Keller, 1990) As the most substantial factor, the quality of Smartphone plays important role for customers to perceive and evaluate the smartphone's satisfaction. Based on the Aaker and Keller (1990), this paper questions the relationship between the quality of smartphone and satisfaction.

H1: The smartphone's quality evaluation influences on the satisfaction.

#### **4.3 Effects of Design to Smartphone Satisfaction**

Design is one of the product features which attract customer's interest. The customer considers design as an important factor when they choose the smartphone. Bilkey and Nes (1982) have seen a design as one of the information cue of product, especially intrinsic cue, and the customers are using the cue for the product evaluation. One of the good examples is the design of I-phone. I-phone has distinguished design which is uniquely perceived by customers, so that customers can easily differentiate i-phone from other smartphone. And its unique design became the most significant factor for customer to choose it. Therefore the design also influences customer satisfaction.

H2: The smartphone's design evaluation influences on the satisfaction.

#### **4.4 Effects of Technology to Smartphone Satisfaction**

The smartphone is essence of new technology, and customers are expecting the smartphone's evolution by accepting new technology. Davis (1989) claimed that the user accepts the new technology when they perceived its usefulness and/or ease of use. The smartphone has been showed off new technologies and the customers have been accepting those technologies. Therefore the technology is also important for customer's satisfaction.

H3: The smartphone's technology evaluation influences on the satisfaction.

#### **4.5 Effects of Price to Smartphone Satisfaction**

Price is one of the most important factors for customer and company. The customer's purchasing behavior is decided by the price. When the customers evaluate the purchased smartphone, the price determines the expectation level of the smartphone. According to Anderson (1996), the customer's price tolerance is higher as the customer satisfaction is high. Therefore price is highly linked to the customer's satisfaction. In this reason, this paper suggested the price as one of variables affecting customer's satisfaction.

H4: The smartphone's price evaluation influences on the satisfaction.

#### **4.6 Effects of Country-of-origin to Smartphone Satisfaction**

Obermiller and Spangenberg (1989) claimed that the perception of Country-of-origin affects directly the brand evaluations or customer's attitudes. The Country-of-origin provides information to customers when they have less information to evaluate a product. Nagashima (1970) proved that there is a certain difference when the customer perceived a foreign product comparing to domestic product. Therefore the smartphone customers also perceive the country-of-origin, and the customers' perception is related to the country image that

produced the smartphone. This factor can also influence the customer satisfaction.

H5: The smartphone's country-of-origin evaluation influences on the satisfaction.

#### **4.7 Effects of Corporate Image to Smartphone Satisfaction**

Corporate Image influences customer's decision to buy the smartphone behind the product. The corporate image and its influence are hard to define, but customers consider the corporate image in a way to evaluate the smartphone. According to Boulding (1956), the strong and favorable corporate image generally influences customer's attitude and behavior towards the company. Therefore the corporate image can influence the satisfaction as one of the pre factors of smartphone satisfaction. This study hypothesized if the customers evaluate positively the corporate image, then it influences on the satisfaction positively.

H6: The smartphone's corporate image evaluation influences on the satisfaction.

#### **4.8 Effects of Product Brand Image to Smartphone Satisfaction**

People's attitudes and actions toward an object are highly conditioned by that object's image. (Kotler, 1988) And the brand image is used as one of information cue for customers. Therefore the smartphone brand image can be regarded one of variables that are affecting customer's satisfaction. If the customers satisfied with brand image, the brand image also influences on the customers satisfaction.

H7: The smartphone's brand image evaluation influences on the satisfaction.

#### **4.9 Satisfaction Effects on Loyalty to Smartphone**

The customer loyalty is following step of customer satisfaction. The relationship between satisfaction and loyalty has been generally accepted in the analysis of customer attitude. The hypothesis about loyalty is to prove the existence of correlation between two

factors. Customer loyalty is regarded as proxy of customer satisfaction. The relationship between satisfaction and loyalty has to be supported by those two factors' contribution. (Bhote, 1996)

H8: The customer satisfaction evaluation influences the customer loyalty.

#### **4.10 Satisfaction Effects on Product Brand Image to Smartphone**

Biel (1993) stated that the brand image is considered as a common tool in order to sell the single brand in the various cultures. The brand image gives a certain impression of a product which belongs to the brand. After customers evaluate their satisfaction, the customers can evaluate the brand image again according to their satisfaction level. Therefore the perceived brand image can be changed according to the satisfaction.

H9: The customer satisfaction influences on the improvement of brand image.

#### **4.11 Satisfaction Effects on Corporate Image**

According to Fill (1999), the corporate image is perceived by different audiences and it is resulted from the audience's interpretation of the information by the organization. After the customers evaluate their satisfaction with smartphone, they can realize the change of corporate image in their mind. Therefore this paper hypothesized if the customers satisfied with the smartphone, then they will adjust the corporate image according to their satisfaction.

H10: The customer satisfaction influences on the improvement of corporate image.

The customer's satisfaction influences the customer's perception change of the corporate image.

#### **4.12 Satisfaction Effects on Country Image to Smartphone**

Shapiro (1982) claimed that the consumers use country image in product evaluation because they often are unable to detect the true quality of a country's products before

purchase. The country image is used as an information cue at the level of evaluation of pre factors. But this paper developed the idea into the post level of customer perception. If the customer has satisfied with the product they purchased, then the customer's satisfaction also affects the perception of the pre-factors. Therefore the measured satisfaction can influence the improvement of the perception change of the country image.

H11: The customer satisfaction influences on the improvement of country image.

#### **4.13 Loyalty Effects on Product Brand Image to Smartphone**

This paper suggested the loyalty can affects to the other post factors as the independent variable. This view was accepted the Oliver (1999)'s theory of satisfaction and loyalty. According to him, the satisfaction and loyalty has a close relationship. Therefore the loyalty can be classified as the similar level of customer's assessment following the customer satisfaction. The hypothesis on loyalty is that the customer loyalty influences on the change of the brand image perception.

H12: The customer loyalty influences on the improvement of product brand image.

#### **4.14 Loyalty Effects on Corporate Image to Smartphone**

The loyalty also affects to the customer's perception change of corporate image. This hypothesis is to verify the relationship between the loyalty and the customer's perception change of corporate image.

H13: The customer loyalty influences on the improvement of corporate image.

#### **4.15 Loyalty Effects on Country Image of Corporate to Smartphone**

This hypothesis is assumed that the customer loyalty influences on the customer's perception change of country image. As a further step of satisfaction, the loyalty also affects

to the customer's perception change. The loyalty means a firm relationship with certain product, so it can alter positively the customer's perception.

H14: The customer loyalty influences on the improvement of country image.

## **V. Methodology**

### **5.1 Data Collection**

The survey for smartphone users was conducted to test hypothesizes from 3<sup>rd</sup> to 23<sup>rd</sup> of September, 2012. The survey was distributed to mainly KDI school fellows and Korean smartphone users by email. This survey is subject to all smartphone users and most of Korean smartphone users, so that the survey sample lean toward Korean. In this reason, the survey designed in two languages, Korean and English. For 20days, total 369 responses were gathered, among them 52 people having no smartphone and 51 people replied incomplete surveys were discarded, so that the only 266 responses are appropriate.

### **5.2 Development of Research Questionnaire**

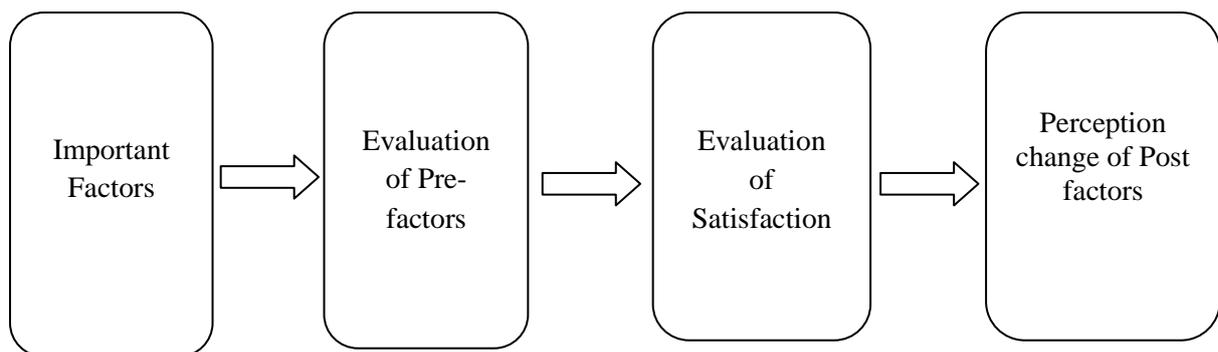
The questionnaire was structured based on the research model, and it has seven parts to ask about the customer's evaluation according to perception process. For the beginning, some general questions are asked, such as "do you currently use a smartphone?", "what company of smartphone do you use?" and so on. These questions are to check the information of customers' currently using smartphone.

To measure the customers' perception in their mind, the survey questions are designed to answer by checking in 5 Likert scale. As a first step, the question is asking to answer how importantly they think the smartphone factors are when they are choosing the smartphone. This question is to check the customers' expectation of the smartphone, and knowing the customers' expectation can be a clue for estimation of customers' satisfaction.

Moreover, it does mean that, for example, if customers think the quality is the most important factor, and they evaluate the quality as good, then the customer's satisfaction will be more influenced by the quality than any other factors.

The evaluation of important factors is second step of survey and each of 7 factors has several subordinate elements which are representing the factors. For the Likert scales 1 means very bad, while 5 means very good. Among these 29 elements, some are strongly affecting the customer satisfaction whereas the others are not. Based on this evaluation of smartphone's 29 specific elements, the customers have to evaluate their satisfaction with the smartphone's 7 factors.

Figure.9 Structure of Survey Questionnaire



Then, the customers' overall satisfaction is asked as a third step. At this step, the Likert scales 1 is very disagree and '5' is 'very agree'. And the next questions are, based on the satisfaction, about the image changes of brand, corporate and country after they evaluate their smartphone and satisfaction level. These questions are also using the Likert scales 1 to 5 by asking whether the customers agree with the sentences or not. From this forth step, the correlation between the satisfaction of smartphone and the change of perception of brand image, corporate image and country image.

### **5.3 Data Analysis Tool**

For the data analysis, the SPSS 11 program was used and the Excel program was also used to sort data. To test hypothesis, this research used the regression analysis and factor analysis. The factor analysis was used to identify the most influential factors to the customer satisfaction. And the defined the factors are tested by using regression analysis to ascertain the correlation with satisfaction. Above all, the reliability tests previously carried out as well.

## **VI. Data Analysis**

### **6.1 Response rate and Data Validity**

For this research, the survey questionnaire was distributed to 2000 people and the response rate is 6% as 369 respondents replied questionnaires. The total 369 data was gathered, and among them 317 respondents use smartphone, while 52 respondents do not use smartphone. Accordingly the 52 data answered that they are having no smartphone is excluded from the data analysis. In addition, the 51 incompletely answered questionnaires are also excluded. Consequently, the 266 appropriate data was used for the data analysis.

### **6.2 Demography**

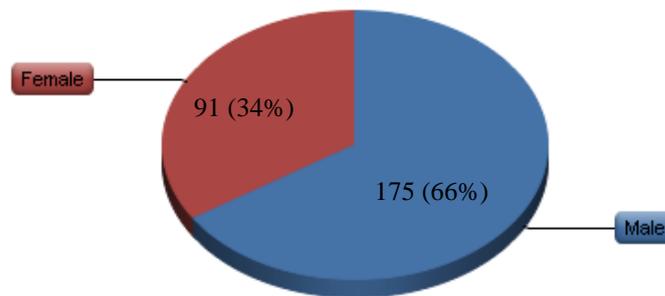
#### **Nationality**

The appropriate data for analysis is total 266. Among the 266 respondents, 84% are Asian. The rest of respondents are 16% from Africa (6%), Europe (2%), North America (5%), South America (2%), and Australia (1%). The question on the nationality of respondent was asked as an open-scale, and the question asking the continent of respondent was added in case of hesitating to answer. As a result of comparing those two answers, it was revealed that the most of 84% respondents are Korean.

## Gender

The gender ratio is that the male is 175 accounting for 66% whereas female is 91 accounting for 34%. As shown the pie chart below, the one third is woman and the two third is men.

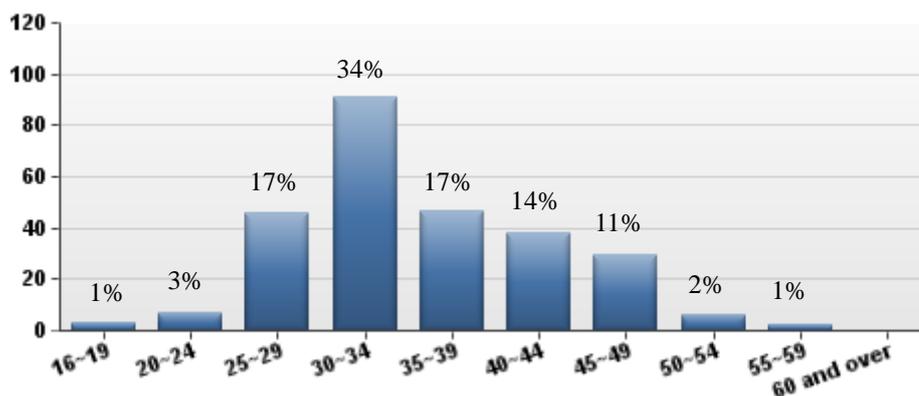
Figure.10 Descriptive Statistics: Gender



## Age Group

The age groups are divided into 9 groups according to 5 year-old difference except the first group '16~19' and the last group '60 and over'. The largest age group is '30~34' accounting 34% and the second largest age group is '25~29' and '35~39' accounting 17% respectively. In other words, the 68% of respondents are falling in the 25~39 age group. As the graph shows, the most respondents are falling in the age 25 to 49 and it accounts for 93%. The age under 24 and over 50 are slight portion less than 10%.

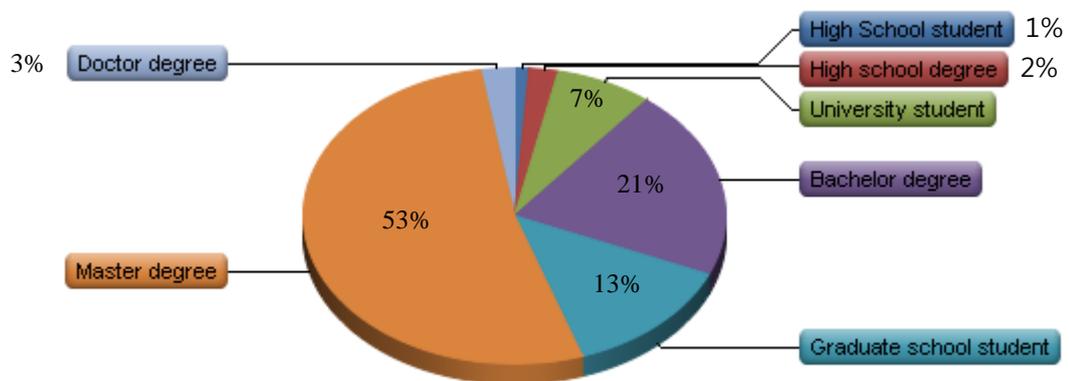
Figure.11 Descriptive Statistics: Age Groups



## Education

With regards to the level of current education of respondents, the 53% of respondents hold a master degree, and the 34% of respondents completed bachelor degree. The university students accounted for only 7%, and the others are 6%. This is because the survey questionnaire was distributed to all KDI school fellows and et cetera. Therefore 87% of respondents are holding a bachelor degree.

Figure.12 Descriptive Statistics: Education



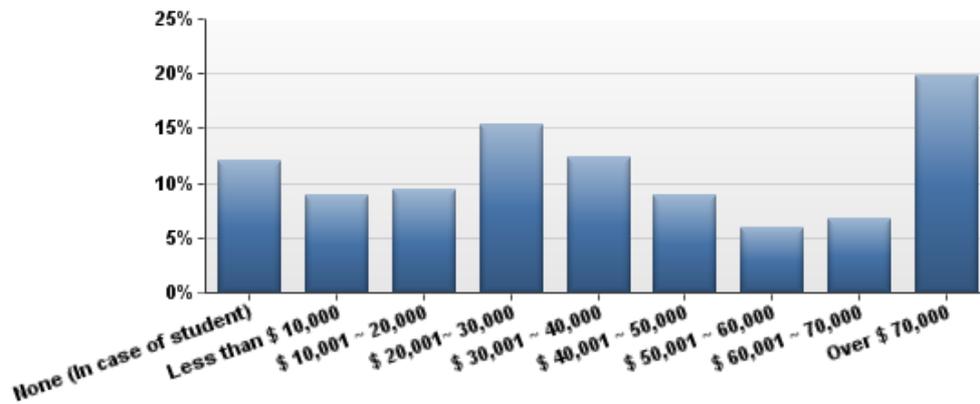
## Occupation

Moreover the 47% are an office worker, and the 18% has a specialized job. There is no farmer, fisher and lumber which are classified as a primary industry.

## Income

Regarding annual income, the respondents are distributed uniformly from 'none' to 'over \$70,000.' The 20% of respondents have over \$70,000 income which accounts for the large portion.

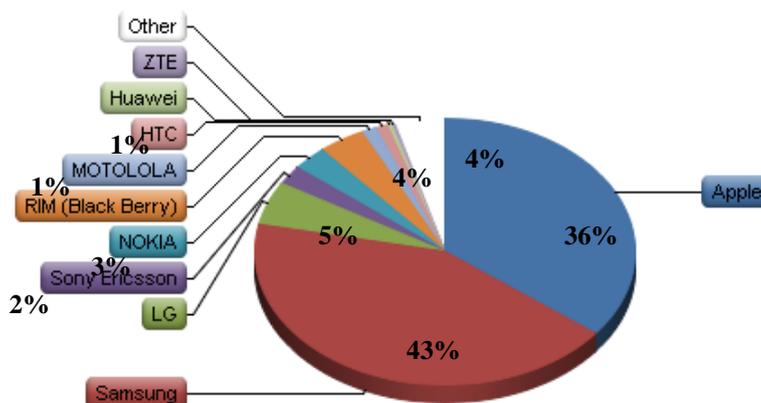
Figure.13 Descriptive Statistics: Income



### Smartphone Company

The respondents are divided into three large groups according to the smartphone company. The largest group of company is Samsung accounting 43% and the second largest group is Apple accounting 36%. The third group is the others including each of 6 companies; LG(5%), Sony Ericsson(2%), NOKIA(3%), RIM(4%), MOTOLOLA(1%) and HTC(1%) accounts for less than 5%, and answered “other” accounts for only 4%. Nonetheless no respondents use the Chinese smartphone ZTE and Huawei.

Figure.14 Descriptive Statistics: Smartphone companies



## 6.3 Hypothesis Testing Results

### 6.3.1 Reliability Test

As a first step for data analysis, the reliability test was carried out to examine how well the subordinate questions are representing the topics. This survey asked more than three questions over the each topic, so that this reliability test was carried out 13 times to examine the credibility of the survey questions.

#### Product Quality

The questions on the smartphone quality satisfaction were tested and it resulted in the  $\alpha$ -coefficient '0.8393' which is over 0.6, so that the survey questions about product quality satisfaction are reliable.

Table.4 Reliability Coefficients – Product Quality

Cronbach's Alpha	N of Cases	N of Items
.8393	259	8

#### Design

The questions on the design satisfactions are also well representing the topic 'design' with the  $\alpha$ -coefficient '0.7562'.

Table.5 Reliability Coefficients – Design

Cronbach's Alpha	N of Cases	N of Items
.7562	261	4

#### Technology

The questions on the Technology satisfactions are also well representing the topic 'Technology' with the  $\alpha$ -coefficient '0.7925'.

Table.6 Reliability Coefficients – Technology

Cronbach's Alpha	N of Cases	N of Items
.7925	259	3

### Price

The questions on the Price satisfactions are reliable to represent the topic 'Price' with the  $\alpha$ -coefficient '0.7266'.

Table.7 Reliability Coefficients – Price

Cronbach's Alpha	N of Cases	N of Items
.7266	259	3

### Country-of-Origin

The questions on the Country-of-Origin satisfactions are also well representing the topic 'Country-of-Origin' with the  $\alpha$ -coefficient '0.8408'.

Table.8 Reliability Coefficients – Country-of-Origin

Cronbach's Alpha	N of Cases	N of Items
.8408	261	3

### Corporate Image

The questions on the Corporate Image satisfactions are credible to represent the topic 'Corporate Image' with the  $\alpha$ -coefficient '0.8053'.

Table.9 Reliability Coefficients – Corporate Image

Cronbach's Alpha	N of Cases	N of Items
.8053	259	4

### Brand Image

The questions on the Brand Image satisfactions are also well representing the topic 'Brand

Image' with the  $\alpha$ -coefficient '0.9092'.

Table.10 Reliability Coefficients –Brand Image

Cronbach's Alpha	N of Cases	N of Items
.9092	256	4

### Seven Factors Satisfaction

The questions on the Factors satisfactions are also reliable to represent the topic 'Satisfaction' with the  $\alpha$ -coefficient '0.8308'.

Table.11 Reliability Coefficients –Seven Factors Satisfaction

Cronbach's Alpha	N of Cases	N of Items
.8308	258	7

### Satisfaction

The questions on the general Satisfactions are also credible to represent the topic 'Satisfaction' with the  $\alpha$ -coefficient '0.9049'.

Table.12 Reliability Coefficients –Satisfaction

Cronbach's Alpha	N of Cases	N of Items
.9049	262	3

### Loyalty

The questions on the Loyalty are also well representing the topic 'Loyalty' with the  $\alpha$ -coefficient '0.9441'.

Table.13 Reliability Coefficients –Loyalty

Cronbach's Alpha	N of Cases	N of Items
.9441	257	6

### **Brand Image (Post factor)**

The questions on the Brand Image are different with the previous questions. These questions are asking about the customer's perception change after using the smartphone. And these questions are also well representing the topic 'Brand Image' with the  $\alpha$ -coefficient '0.9557'.

Table.14 Reliability Coefficients –Brand Image (post factor)

Cronbach's Alpha	N of Cases	N of Items
. 9557	256	5

### **Corporate Image (Post factor)**

The questions on the Corporate Image are also reliable to represent the topic 'Corporate Image' with the  $\alpha$ -coefficient '0.9599'.

Table.15 Reliability Coefficients –Corporate Image (post factor)

Cronbach's Alpha	N of Cases	N of Items
. 9599	259	5

### **Country Image**

The questions on the Country Image are also well representing the topic 'Country Image' with the  $\alpha$ -coefficient '0.8756'.

Table.16 Reliability Coefficients –Country Image (post factor)

Cronbach's Alpha	N of Cases	N of Items
. 8756	258	4

### **Overall Result of Reliability Coefficients Test**

To verify the questions reliability, the reliability test was conducted. Consequently, the total survey questions are very reliable to ask its topic with the  $\alpha$ -coefficient value over 0.7.

### 6.3.2 Factor Analysis

The second step of analysis is to validate the pre-factors and post-factors of customer satisfaction. This research used a confirmatory factor analysis to identify those factors. Each seven factors of smartphone have several specified and subordinate factors as the pre-factors of customer satisfaction.

Therefore, using principal components analyses as the extraction method and Varimax rotation methods with Kaiser Normalization, the most relevant data emerged among those specified factors. These analyses showed distinct reduced factors, with Eigen values over 1.00. As a result of this factor analysis, the subordinated factors were reduced by one which represents the relevant factors under the upper factors. As a result, the reduced factors are well emerged as one factor with the high relevance.

#### Product Quality

As pre-factors of customer satisfaction, the subordinated factor of product quality was well emerged based on the result of factor analysis. In the case of product quality factor, this study found that two components are merged. This study considered the 1<sup>st</sup> component that represents the product quality factor and factor scores for the 1<sup>st</sup> component is used for the regression analysis.

Table.17 Factor score of Product Quality

#### Rotated Component Matrix<sup>a</sup>

	Component	
	1	2
Picture quality	.827	.198
Sound quality	.809	.210
Camera function	.786	.188
Call quality	.752	.183
No Malfunction	.145	.855

Durability	.193	.808
Specification	.257	.721

Extraction Method: Principal Component Analysis.  
 Rotation Method: Varimax with Kaiser Normalization.

<sup>a</sup>. Rotation converged in 3 iterations.

## Design

As pre-factors of customer satisfaction, the subordinated factors of design were well emerged based on the result of factor analysis.

Table.18 Factor score of Design

### Component Matrix <sup>a</sup>

	Component
	1
Weight	.816
Color	.792
Size	.781
User Interface	.654

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Technology

The subordinated factors of technology were well emerged based on the result of factor analysis.

Table.19 Factor score of Technology

### Component Matrix

	Component
	1
Installed basic technology	.869
Data management technology (data up/down load)	.832
Voice recognition technology	.825

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Price

The result of factor analysis shows that the subordinated factors of price were well emerged.

Table.20 Factor score of Price

### Component Matrix<sup>a</sup>

	Component 1
Product price	.847
Price comparison with product performance	.839
Optional product price (Ear-phone, battery charger etc.)	.731

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Country-of-origin

As pre-factors of customer satisfaction, the subordinated factors of Country-of-origin were well emerged based on the result of factor analysis.

Table.21 Factor score of Country-of-origin

### Component Matrix<sup>a</sup>

	Component 1
International reputation of Country-of-origin	.905
Level of economic development of Country-of-origin	.863
Technical skill of Country-of-origin	.844

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Corporate Image

Based on the result of factor analysis, the subordinated factor of corporate image was well integrated.

Table.22 Factor score of Corporate Image

### Component Matrix<sup>a</sup>

	Component
	1
Corporate international reputation	.875
Corporate financial stability	.818
Corporate management policy/style	.786
CEO Image	.714

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Brand Image

As pre-factors of customer satisfaction, the subordinated factors of brand image were well emerged based on the result of factor analysis.

Table.23 Factor score of Brand Image

### Component Matrix<sup>a</sup>

	Component
	1
Brand Preference	.915
Brand Credibility	.892
Brand Familiarity	.875
Brand Awareness	.864

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Satisfaction (Overall)

As pre-factors of customer satisfaction, the subordinated factors of satisfaction were well emerged based on the result of factor analysis.

Table.24 Factor score of Satisfaction

**Component Matrix<sup>a</sup>**

	Component
	1
I will recommend my smart phone to my friends	.934
Overall, I am satisfied with my smart phone	.918
I will keep using my smart phone	.914

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Loyalty

As post-factors of customer satisfaction, the subordinated factors of loyalty were well emerged based on the result of factor analysis.

Table.25 Factor score of Loyalty

**Component Matrix<sup>a</sup>**

	Component
	1
I am loyal to my smart phone	.927
I am loyal to my smart phone brand	.916
I have attachments to my smart phone brand	.904
I will consistently purchase smart phone from the same brand	.869
I will repurchase my smart phone	.854
I have attachments to my smart phone	.837

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Brand Image change

As post-factors of customer satisfaction, the subordinated factors of brand image were well emerged based on the result of factor analysis.

Table.26 Factor score of Brand Image Change

### Component Matrix<sup>a</sup>

	Component 1
I trust more my smart phone company	.947
I have more preference to my smart phone company	.941
Overall the company image of my smart phone is positively improved	.927
I am more loyal to my smart phone company	.917
I have more familiarity to my smart phone company	.910

Extraction Method: Principal Component Analysis.

<sup>a</sup>. 1 components extracted.

## Corporate Image Change

As post-factors of customer satisfaction, the subordinated factor of corporate image was well integrated based on the result of factor analysis.

Table.27 Factor score of Corporate Image Change

### Component Matrix<sup>a</sup>

	Component 1
I trust more my smart phone company	.947
I have more preference to my smart phone company	.941

Overall the company image of my smart phone is positively improved	.927
I am more loyal to my smart phone company	.917
I have more familiarity to my smart phone company	.910

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

### Country Image Change

As post-factor of customer satisfaction, the subordinated factor of country image was well emerged based on the result of factor analysis.

Table.28 Factor score of Country Image Change

#### Component Matrix<sup>a</sup>

	Component
	1
The country has a good international reputation	.909
The country is very advanced in terms of economy	.888
The country has many globalized technologies	.886
Overall the country image of my smart phone company is positively improved	.739

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

## **Overall Result of Factor Analysis**

The results of Factor Analysis shows that all the subordinated factors are well emerged and the factor scores were used for the regression analysis. The quality was 2 components extracted, and the first component was used for the regression analysis.

### **6.3.3 Regression Analysis**

This research examined the 14 hypothesis by using the regression analysis based on the factor score.

#### **6.3.3.1 Multiple Regression: 7 Pre-factors with Satisfaction**

To verify the respective influence power of 7 Pre-factors, the multiple regression was carried out after the simple regression test. The multiple regression was used to define how the seven factors influence the customers overall satisfaction, in other words, the correlation between the seven factors satisfaction and the customer's overall satisfaction.

As shown in the table, the *R*-square is 0.443 and Adjusted *R*-square is 0.426. The hypothesis of 7 factors explains more than 40% of entire data. And the *F*-value is 26.553. As a result, the five variables; quality, design, technology, price and brand image affect the customer satisfaction as the *p*-value is less than 0.1, whereas the other two variables; country-of-origin and corporate image have no relationship with customer satisfaction as the *p*-value is over than 0.1. The result shows that the corporate image even influences negatively on the customer satisfaction according to the negative coefficient.

The equation of regression can be derived from this coefficients result by excluding the two inappropriate variables  $X_5$ (Country-of-origin) and  $X_6$ (Corporate Image) that have no relationship with satisfaction. The defined equation is as below.

$$Y=0.140X_1+0.132X_2+0.175X_3+0.186X_4+0.416X_7$$

Table.29 Multi Regression analysis – 7 factors and satisfaction

Coefficients <sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.006	.048		.122	.903
	Quality	.137	.053	.140	2.585	.010
	Design	.131	.060	.132	2.174	.031
	Technology	.175	.065	.175	2.689	.008
	Price	.185	.059	.186	3.161	.002
	Country-of-origin	.006	.061	.006	.094	.925
	Corporate Image	-.105	.075	-.103	-1.405	.161
	Brand Image	.429	.070	.416	6.153	.000

a. Dependent Variable: satisfaction

This equation means, the most influential factor is the X<sub>7</sub> (Brand Image) with the largest number of coefficient, where as the least influential factor is X<sub>2</sub>(Design).

### Rejected variable: Corporate Image

The variable X<sub>6</sub> (Corporate Image) is influencing negatively on the satisfaction according to the coefficient result. This seems because the customers perceived the corporate image without regard to the smartphone itself. The survey questions on the corporate image are also asking the CEO image and management style, but these questions have a little distance from customers' perception of smartphone as the information cue. This could be the one reason of the result that the corporate image has negative correlation with satisfaction.

### **Rejected variable: Country-of-origin**

And regarding  $X_5$  (Country-of-origin) variable, the country-of-origin has no relation with the customer satisfaction. As like the simple regression result of country-of-origin, it is proved that the country-of-origin was not much concerned by customers when they are assessing the satisfaction. The previous researches on the country-of-origin stated that the country-of-origin is used as information cue for the customer when they perceived a certain product. (Bilkey and Nes, 1982; Narayana, 1970) However as the technology is progressed, the country-of-origin's power as the information cue is getting ambiguous. The Apple and Samsung have factories to manufacture the smartphone in the outside of its born-country. Nonetheless customers are continuously purchasing the companies' smartphones.

According to Maheswaran (1994), the experts positively evaluate the product in disregard of the country-of-origin when the product attribute information is pervasively revealed. This claim supports that the customers are already having enough information for the customer's purchase behavior, so that the country-of-origin is not so important to assess the smartphone. That is, in other words, the smartphone users are having enough information on the smartphone as like an expert in these days. Therefore the country-of-origin is less used as the information cue. In this reason, the regression result shows that the country-of-origin is not related to the customer satisfaction.

### **6.3.3.2 Simple Regression: Satisfaction with 4 Post-Factors**

#### **Satisfaction-Loyalty**

From this hypothesis, the customer satisfaction became an independent variable in

order to investigate the post-factors. As the post-factor of satisfaction, the loyalty was examined to define the correlation between the satisfaction and the loyalty by using the simple regression.

H8: The customer satisfaction evaluation influences on the customer loyalty.

As a result of regression, the hypothesis that the customer satisfaction influences on the customer loyalty, is accepted with the *p*-value as 0.000. The *R*-square is 0.520 and ANOVA *F*-value is 276,193. With this, the satisfaction influences on the loyalty has a meaningful power to explain the 52% of data.

Table.30 Regression analysis – Satisfaction and Loyalty

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2,05E-03	,043		-,047	,962
	Satisfaction → Loyalty	,716	,043	,721	16,619	,000

### Satisfaction-Brand Image Change

H9: The customer satisfaction influences on the improvement of brand image.

The hypothesis is also accepted with the *p*-value 0.000. The *R*-square is 0.490 and ANOVA *F*-value is 244,491. Therefore, this hypothesis is persuasive by exploring the 49% of data. Therefore it is verified that the customer satisfaction affects the improvement of customer's perception of brand image.

Table.31 Regression analysis – Satisfaction and Product Brand Image

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-3,57E-03	,045		-,080	,936
Satisfaction → Brand Image	,705	,045	,700	15,636	,000

### Satisfaction-Corporate Image

H10: The customer satisfaction influences on the improvement of corporate image.

The regression result shows that the customer satisfaction influences the improvement of customer perception of corporate image. The hypothesis is also accepted with the *p*-value 0.000 and the *R*-square 0.394. The ANOVA *F*-value is 167,282. Therefore the customer's satisfaction contributes to change the corporate image in a positive way and this hypothesis can explain 39.4% of data.

Table.32 Regression analysis – Satisfaction and Corporate Image

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-8,20E-03	,048		-,169	,866
Satisfaction → Corporate Image	,635	,049	,628	12,934	,000

### Satisfaction-Country Image

H11: The customer satisfaction influences on the improvement of country image.

The hypothesis is also accepted with the *p*-value 0.000. The *R*-square is 0.083 and ANOVA *F*-value is 23,214. This hypothesis is accepted but its power of explanation is weak due to the *R*-square. Only about 8% of data explained based on this hypothesis. The *R*-square is relatively low comparing to the other Post-factors; Loyalty, Product Brand Image and

Corporate Image. This is because the country image does not always connect with the product. The country image plays a role as one of the product information cue, but the country image as information of smartphone does not always come out in the product evaluation. Therefore, the customer satisfaction affects a little to the improvement of country image.

Table.33 Regression analysis – Satisfaction and Country Image

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,326E-03	,060		,072	,942
	Satisfaction → Country Image	,289	,060	,288	4,818	,000

### Summary of Simple Regression Results: Correlation with Satisfaction and Post-Factors

The post-factors including loyalty, brand image, corporate image and country image, are influenced by the customer satisfaction. The Satisfaction is strongly related with the other post-factors having a power to explain data, except the country image. But the country image has a very less persuasive power. As an independent variable, the customer satisfaction has a positive relationship with those four post-factors. That is, the loyalty is influenced by satisfaction and the other post-factors perceived by the customer are changed.

### 6.3.3.3 Simple Regression: Loyalty with the other 3 Post-Factors

Loyalty, as the post factor of satisfaction in this research, also affects the other post factors. To prove the power of loyalty's influence, lastly the simple regression test carried out.

### Loyalty-Brand Image Change

H12: The customer loyalty influences on the improvement of product brand image

The hypothesis on loyalty and brand image change is accepted with the p-value 0.000, R-square 0.758 and ANOVA F-value 783.026. It is very powerful explanation covering 75.8% data. In other word, 75.8% data proves this hypothesis.

Table.34 Regression analysis – Loyalty and Product Brand Image

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-2.28E-03	.031		-.073	.942
	Loyalty → Brand Image Change	.880	.031	.871	27.983	.000

### Loyalty-Corporate Image Change

The correlation between loyalty and corporate image change is proved by this regression result. Based on the result regression, the hypothesis is accepted. The p-value is 0.000, R-square is 0.641 and ANOVA F-value is 452.378. That is, the loyalty affects positively on the customer’s perception change of corporate image.

H13: The customer loyalty influences on the improvement of corporate image

Table.35 Regression analysis – Loyalty and Corporate Image

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-2.97E-03	.038		-.079	.937
	Loyalty → Corporate Image	.810	.038	.801	21.269	.000

## Loyalty-Country Image

The hypothesis that the loyalty and the customer's perception change of country image is accepted as a result of regression. The regression test resulted in the  $p$ -value 0.000,  $R$ -square 0.170 and ANOVA  $F$ -value 51.391. The hypothesis is proved but its power to explain the data is weaker than the other post factors such as brand image and corporate image. This seems because the customers perceived separately the country image of the smartphone.

H14: The customer loyalty influences on the improvement of country image

Table.36 Regression analysis – Loyalty and Country Image

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.641E-03	.058		.167	.867
Loyalty → Country Image Change	.417	.058	.412	7.169	.000

## Summary of Regression Result: Loyalty and the other Post-Factors

In this simple regression results, it is found that the loyalty affects to the satisfaction's post factors such as brand image change and corporate image change, except the country image change. The two post factors have powerful explanation on the data with  $R$ -square over 0.6, nonetheless the country image has relatively small  $R$ -square as 0.170. This means that the customer's loyalty does less influence on the country image change. This result gives the insight of customer's perception of country image of smartphone.

## 6.4 Findings from this research

This study suggested 14 hypotheses, and among them, the 12 hypotheses are accepted, whereas the 2 hypotheses are rejected according to the regression result.

Based on the multiple regression result, the five pre-factors; Product Quality, Design, Technology, Brand Image are affecting to the satisfaction. Among those accepted 5 pre-factors, the brand image is strongly affecting to the customer satisfaction, while the Design has a feeble relation with the satisfaction. However, the two pre-factors, the country-of-origin and corporate image, were rejected.

The satisfaction is also influencing the 4 post-factors including loyalty, brand image change, corporate image change and country image change. The result of simple regression revealed that the all the post-factors were influenced by the customer satisfaction, but the correlation between the satisfaction and the country image change is feeble as the *R*-square 0.083. That is, the customer's perception change of country image is less influenced by the satisfaction. As one of the post-factors, the loyalty is the most powerful factor in the relationship with customer satisfaction, based on the *R*-square. That is interpreted that the satisfaction significantly affects the loyalty. The brand image and corporate image have also a substantial power to explain.

The loyalty, as one of the post-factors, has correlation with the other post-factors; brand image change, corporate image change and country image change. The simple regression results are showing that the loyalty as an independent variable affects to the perception change of brand image, corporate image and country image. However the loyalty has a feeble relationship with the country image change based on the *R*-square 0.170.

The pre- and post- factors were tested based on the satisfaction and loyalty by using the regression analysis. As a result, the suggested research model proved the correlation between pre- and post- factors and satisfaction. In addition to it, it is confirmed that the satisfaction is pivotal role for customer belief and attitude.

Based on the regression results, this research found that the image of country and country-of-origin has a weak relationship with satisfaction as a pre- and post- factor. This

seems because the country image is not directly linked to the customers' perception of smartphone. On the other hand, the brand image is the strongest factor related with the satisfaction in this research model. The brand image as the pre-factor has the highest *R*-square 0.416 and that means the brand image strongly influence on the satisfaction. Furthermore as the post-factor, the brand image changed according to the customer satisfaction and loyalty with the highest *R*-square 0.520 and 0.758 at the respective test.

And the strong correlation between satisfaction and loyalty also approved in this study. The loyalty as a post-factor of satisfaction also affects the other post-factors. The *R*-square of loyalty and the other post-factors regression is higher than the *R*-square from the regression result of satisfaction and the post-factors. This shows that the loyalty has more power to influence on the post-factors and the loyalty exists on top of the satisfaction.

In sum, among the pre- and post- factors the brand image is the most powerful correlation with the satisfaction and loyalty, whereas the country-of-origin and country image has the least powerful relationship with satisfaction and loyalty.

## **VII. Conclusion**

The study proved hypotheses about the effects of pre-factors to customer satisfaction on smartphone. Pre-factors proposed in this study to satisfaction included the product quality, design, technology, price, country-of-origin, brand image and corporate image. Further, this study also proved effects of satisfaction to post-factors such as loyalty, brand image, corporate image, and country image. The findings of the study provide positive relationships of pre- and post- factors of satisfaction based on statistical analyses including factor, ANOVA, and regression analyses.

The regression analysis revealed that the seven pre-factors influence the customer satisfaction, and the four post-factors are influenced by the satisfaction. That is, the

customer's evaluation of the pre-factors affects the satisfaction, and the customer satisfaction affects the perception change of post-factors. Therefore this study proved the importance of customer satisfaction and its power to the post-factors.

Based on the results, this study provides implication both theoretically and managerially. First, theoretically, this study extends the relationships of satisfaction of smartphone by examining pre- and post-factors. In particular, this study examined the effects of satisfaction to the post-factors that are less investigated by prior studies, such as country-of-origin and corporate images. In addition, this study also examined relationships of satisfaction to the loyalty and brand image by applying to the case of smartphone.

With managerial implication, this study examined what factors affect customer satisfaction and how satisfaction affects to the post-factors when customers are encountered the purchase decision. Proposed factors that affect satisfaction and satisfaction to the post-purchase decision provide managerial implication to the purchase decision of a product and implications to the Customer Relationship Management (CRM).

This study has limitations. This study didn't apply statistical program such as Lisrel that proves cause-and effect relationships. The results of the study could be applied by increasing sample size to generalize. Further studies could be applied by considering other environment for generalization.

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## Questionnaire

### - Smartphone user's Satisfaction-

[General Information]

1. Do you currently use smartphone?

- 1) Yes                      2) No

➤ If your answer is '2) No', then please stop here. Thank you.

2. Do you consider your smartphone's country-of-origin, when you purchase it?

- 1) Yes                      2) No

3. What company of smartphone do you currently use?

- 1)Apple                  2)Samsung              3)LG                      4)Sony Ericson      5)NOKIA  
 6)RIM (Black Berry)                  7)MOTOLOLA      8)HTC                      9)Huawei  
 10)ZTE                  11)other

4. What is the country of your smartphone company?

- 1) US      2) South Korea              3) Finland              4) Japan              5) Canada  
 6) Taiwan              7) China              8) Other

[Importance of Smartphone Factor]

5. How important do you think the following aspects are when you purchase a smart phone?

	very unimportant	unimportant	Neither Important nor Unimportant	Somewhat Important	Very important
Product Quality	①	②	③	④	⑤
Design	①	②	③	④	⑤
Technology	①	②	③	④	⑤
Price	①	②	③	④	⑤
Country-of-origin	①	②	③	④	⑤
Corporate Image	①	②	③	④	⑤
Product Brand Image	①	②	③	④	⑤

[Evaluation of Factor]

6. Please evaluate your smartphone according to the below factors.

		Very bad	Bad	Neither Good nor Bad	Good	Very good
Product Quality	Call quality	①	②	③	④	⑤
	Picture quality	①	②	③	④	⑤
	Camera function	①	②	③	④	⑤
	Sound quality	①	②	③	④	⑤
	Touch pad quality	①	②	③	④	⑤
	Durability	①	②	③	④	⑤
	No Malfunction	①	②	③	④	⑤
	Specification	①	②	③	④	⑤
Design	Size	①	②	③	④	⑤
	Color	①	②	③	④	⑤
	Weight	①	②	③	④	⑤
	User Interface	①	②	③	④	⑤
Technology	Voice recognition technology	①	②	③	④	⑤
	Installed basic technology	①	②	③	④	⑤
	Data management technology (data upload/download)	①	②	③	④	⑤
Price	Product price	①	②	③	④	⑤
	Price comparison with product performance	①	②	③	④	⑤
	Optional product price – Ear-phone, battery charger etc.	①	②	③	④	⑤
Country-of-origin	Level of economic development of Country-of-origin	①	②	③	④	⑤
	International reputation of Country-of-origin	①	②	③	④	⑤
	Technical skill of Country-of-origin	①	②	③	④	⑤
Corporate Image	Corporate management policy/style	①	②	③	④	⑤
	Corporate international reputation	①	②	③	④	⑤
	Corporate financial stability	①	②	③	④	⑤
	CEO Image	①	②	③	④	⑤
Product Brand Image	Brand Credibility	①	②	③	④	⑤
	Brand Awareness	①	②	③	④	⑤
	Brand Preference	①	②	③	④	⑤
	Brand Familiarity	①	②	③	④	⑤

[Factor Satisfaction]

7. How satisfied are you with the following aspects of your smart phone?

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Product Quality	①	②	③	④	⑤
Design	①	②	③	④	⑤
Technology	①	②	③	④	⑤
Price	①	②	③	④	⑤
Country-of-origin	①	②	③	④	⑤
Corporate Image	①	②	③	④	⑤
Product Brand Image	①	②	③	④	⑤

[Satisfaction]

8. These questions are to rate your satisfaction of smartphone. Please mark your answer.

	Very Disagree	Disagree	Neither Agree nor Disagree	Agree	Very Agree
Overall, I am satisfied with my smartphone.	①	②	③	④	⑤
I will recommend my smartphone to my friends.	①	②	③	④	⑤
I will keep using my smartphone.	①	②	③	④	⑤

[Loyalty]

9. These questions are to rate your loyalty to smartphone. Please mark your answer.

	Very Disagree	Disagree	Neither Agree nor Disagree	Agree	Very Agree
I have attachments to my smartphone.	①	②	③	④	⑤
I will repurchase my smartphone.	①	②	③	④	⑤
I am loyal to my smartphone.	①	②	③	④	⑤
I have attachments to my smartphone brand.	①	②	③	④	⑤
I will consistently purchase smartphone from the same brand.	①	②	③	④	⑤
I am loyal to my smartphone brand.	①	②	③	④	⑤

[Brand Image]

10. Based on your own experience, how much has the brand image of your smart phone changed after using your smart phone?

	Very Disagree	Disagree	Neither Agree nor Disagree	Agree	Very Agree
I have more preference to my smartphone brand	①	②	③	④	⑤
I have more attachment to my smartphone brand.	①	②	③	④	⑤
I trust more my smartphone brand.	①	②	③	④	⑤
I am more loyal to my smartphone brand.	①	②	③	④	⑤
Overall the smartphone brand image is positively improved.	①	②	③	④	⑤

[Corporate Image]

11. Based on your own experience, how much has the company image of your smartphone changed after using your smartphone?

	Very Disagree	Disagree	Neither Agree nor Disagree	Agree	Very Agree
I have more preference to my smart phone company	①	②	③	④	⑤
I trust more my smart phone company	①	②	③	④	⑤
I have more familiarity to my smart phone company	①	②	③	④	⑤
I am more loyal to my smart phone company	①	②	③	④	⑤
Overall the company image of my smart phone is positively improved	①	②	③	④	⑤

[Country image]

13. Based on your own experience, how much has the country image of your smart phone company changed after using your smart phone?

	Very Disagree	Disagree	Neither Agree nor Disagree	Agree	Very Agree
The country is very advanced in terms of economy.	①	②	③	④	⑤
The country has a good international reputation.	①	②	③	④	⑤
The country has many globalized technologies.	①	②	③	④	⑤
Overall the country image of my smart phone company is positively improved	①	②	③	④	⑤

[Demographical information]

1. What is your gender?

- 1) Male                    2) Female

2. What is your age?

- 1) 16~19            2) 20~24            3) 25~29            5) 30~34            6) 35~39  
7) 40~44            8) 45~49            5) 50~54            6) 55~59            7) Over 60

3. What continent is your country located on?

- 1) Asia   2) Africa            3) Europe            4) North America  
5) South America            6) Australia

4. What is your nationality?

(            )

5. What is the highest level of education you have?

- 1) High School student  
2) High school degree  
3) University student  
4) Bachelor degree  
5) Graduate school student  
6) Master degree  
7) Doctor degree

5. What is your current primary occupation?

- 1) Student (under university)                    2) University student  
3) Office worker                                    4) Business  
5) Sales man                                        6) Technician  
7) House wife                                       8) Specialized Job  
9) Farmer, Fisher, Lumber                       10) other

6. What is your annual income?

- 1) None (In case of student)  
2) Less than \$ 10,000  
3) \$ 10,001 ~ 20,000  
4) \$ 20,001~ 30,000  
5) \$ 30,001~ 40,000  
6) \$ 40,001~ 50,000  
7) \$ 50,001 ~60,000  
8) \$ 60,001 ~ 70,000  
9) Over \$ 70,001