

YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF COMMERCE

**THE INFLUENCE OF PRODUCT VARIETY ON
CUSTOMER PERCEPTION**

(A Case Study of Mobile Phones Used by People in Yangon)

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**THE INFLUENCE OF PRODUCT VARIETY ON
CUSTOMER PERCEPTION
(A Case Study of Mobile Phones Used by People in Yangon)**

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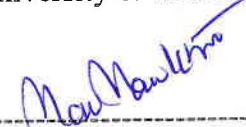
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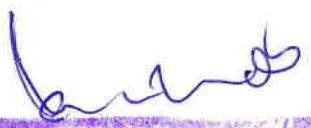
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ABSTRACT

The objective of the study is to explore the relationship between product variety and customer perception towards purchase intentions on mobile phones in Kamaryut Township, Yangon, in Myanmar. A quantitative research approach and a survey method were used. To collect data, a questionnaire is used as a research instrument consisting of a series of questions. Respondents' demographic items were involved in the questionnaire for purpose of this study. 210 respondents aged 20-60 years involved for analyses were from Kamaryut Township. Since the population in Kamaryut Township is not exactly known, the sample size is chosen by means of non-probability sampling method. In order to obtain the research objectives, both primary and secondary data were used in this study. For analysis the collected data, correlation and linear regression analysis were employed to generate a more precise analysis of behaviour of mobile phone users. The findings of this research study indicate that three factors namely as function, design, and connectivity have a relationship with the customer perception towards purchase intention of mobile phones. Out of these, function and design of mobile phone have a significant relationship to the customer perception towards purchase intention and design has the most significant influence. This study will be helpful to manufacturers and service providers not only to understand how and what influence customers towards mobile phone but also give an idea of what features might be needed to make better sale of mobile phones in Yangon.

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List of Abbreviation

OS	Operation System
IOS	Iphone operation system
SEA	South East Asia

CHAPTER 1

INTRODUCTION

This study has sought to investigate product variety of mobile phones, and explore the relationship between product variety and customers' perception of mobile phones in Kamaryut Township in Myanmar. This chapter provides rationale of the study, problem statement, and research objectives. This is followed by the research questions and method of study. This chapter concludes with the limitation

of the study, expected outcomes of the study, and a brief description of the structure of the thesis.

1.1 Rationale of the Study

In the world of dynamism and competition, companies are striving hard to find ways of profitability. Companies are finding ways to attract, retain and satisfy more and more customers. In this regard, product variety is seen as one of those tools used to satisfy customers and meet organizational goals. Product variety has long been used to increase firm performance. It is generally assumed that a firm can raise its overall market share by increasing its product selection and, thereby, appeal to a larger, more diverse set of customers (Ho & Tang, 1998). Creating product variety and product development can lead to companies to acquire sustainable competitive advantages, opportunities, more market share by increasing revenue and profit. However, according to Whang and Lee (1998), increasing product variety might have a strong impact on a firm's business operations such as increasing manufacturing costs and complexity. This means that increasing product variety raises the complexity of demand forecasting and matching supply with demand along the supply chain. Therefore, companies that increase variety in their product lines should understand the ramifications it may have on all relevant costs as well other functions performed by its manufacturing, marketing, purchasing, and engineering departments. One of the main reasons for increases in variety within a

product category is the consumer. Consumers represent a major demand source for variety with each individual having different quality valuations, tastes or budget constraints; hence firms strive to satisfy their customers by offering a wide range of products. Therefore,

the main purpose of this study is to explore the relationship between product variety and customer perception towards purchase intentions on mobile phones.

1.2 Problem Statement

In Myanmar, mobile phone markets have become more popular because Myanmar has become massive growth in internet penetration, mobile phone adoption and social media usage since the end of military rule in 2011. In other words, it has become a source of entertainment, a communication tool, a search engine and so much more. Mobile phone usage has jumped to about half of the population of 51 million (Tun, 2015).

However, there have been several challenges in the mobile phone marketing as the latest in technology development has brought several mobile phone industry life cycle issues to the fore. It makes more difficult for mobile phone companies to sell because they have to demonstrate that they have got something different or give reasons for people to buy a new phone. The brand and the marketers are far more tempting. Same device, similar features but each kind has its own operating system which leads to different experience. Some are opened and everyone can use, some are closed which means much higher privacy for users but not everybody can use it. The market is very competitive because it offers the same products and services, but has

different physical attributes to the phones and different costs, which buyers have choices to choose from. The marketers have to provide the best products and services to attract buyers by lowering cost and improving products, which makes the mobile phone industry very competitive. Thus, they are competing in an advance technology and communication sector in which success attracts customers to buy their products and services.

In order to cope with fast changing demand and hard competition, many companies have used product variety as a popular strategy to gain more market share and to be competitive in their targeted market. Consumers and buying decision are the major aspects of all businesses. When consumers typically use a product until an optimal level is reached after which, satiation sets in and the consumer looks for something different (Jeuland, 1978; Alister, 1982). Therefore, businesses create product variety to attract and retain customers. Larger assortments lead to stronger preferences because they offer more options, and allow consumers to maintain flexibility when making a purchase decision. Therefore, this is one of the problems to investigate customer perception on product variety when purchasing mobile phone because the success or failure of the product is directly related to the human psyche and their preferences. In addition, there are many studies on the impact of product variety on firm performance, e.g. sale performance, operational performance, inventory performance and so on. However, the

empirical link between product variety and consumers' perception is not clear so that this is an opportunity to investigate customers' perception on product variety, when purchasing mobile phones. The following section provides the purpose of this research and research questions.

1.3 Research Objectives

The objectives of the study are

1. To investigate customer preferences for product variety of mobile phone market in Kamaryut Township in Myanmar
2. To explore the relationship between product variety and customers' perception on mobile phones

1.4 Research Questions

- 1) What is the extent of customer preferences for product variety of mobile phones market in Kamaryut Township in Myanmar?
- 2) How does product variety relate to customer perception towards purchase intention of *mobile phones*?

1.5 Hypothesis of the Study

To reach the research objectives as mentioned above, three hypotheses that corresponding to the research question are tested in analysis of this study:

Hypothesis 1 Mobile phone function is positively related to customer perception.

Hypothesis 2 Mobile phone design is positively related to customer perception.

Hypothesis 3 Mobile phone connectivity is positively related to customer perception.

1.6 Method of Study

This study employed quantitative research methods, including descriptive statistics, and correlation and linear regression analysis. Both primary and secondary data were collected. In order to collect primary data, total 210 customers between the ages of 20 and 60 were surveyed by using structures questionnaires, including respondents' opinion about the products. To measure a respondent's opinion, a five-point scale anchored at 1=Strongly Disagree and 5=Strongly Agree are used. The main sources of secondary data used were books, articles, official reports, annual reports, and other material sources from Yangon University of Economics, the Library, Google Scholar, and other such academic journals.

1.7 Limitation of the Study

This study focused on the importance of customers' perception when buying mobile phones. In this study, the respondents were the customers between the ages of 20 and 60 who bought mobile phones in Yangon. Only 210 customers were selected and surveyed to collect data about product variety on customer perception because of the time and money constraints.

1.8 Structure of the Thesis

This study consists of five chapters. Chapter 1 introduces background of the study, customer perception and product variety, statement of the problem, research objectives, and research questions, significance of the study, scope and method of the study and structure of the thesis. In Chapter 2, theoretical background for product variety and customer perception are explored as well as the field of consumer behaviour, internal factors and external factors influence on customer perception are discussed. After that, product variety of mobile phones in Myanmar is presented in the Chapter 3. After that, Chapter 4 reports the descriptive analysis on the factors relating to and influencing consumer perception. Finally, Chapter 5 deals with conclusion together with finding, implications and the further directions of the study.

CHAPTER 2

THEORETICAL BACKGROUND

This chapter mainly focuses on the concept of customer perception and product variety undertaken in the field of business. This chapter begins with the importance of customer perception and product variety. In addition, it describes the definition and nature of the customer perception and product variety. Since the focus of the study is exploring the factors influencing customer perception, factors that influence the perception of consumers and affect their buying behaviour will be presented. This chapter ends with the review of relevant theoretical model and conceptual framework of the study.

2.1 Importance of Product Variety and Customer Perception

In the 21st century, marketing is part art and part science, and both sides place a crucial role in successful marketing. In fact, when developing a total marketing programme, including product, place, pricing, and promotion, the product is the most important element of the marketing plan (Kotler, Armstrong, & Cunningham, 2005). This is because product is the starting point of planning and no marketing programme will be prepared if there is no product. Thus, a product is anything that

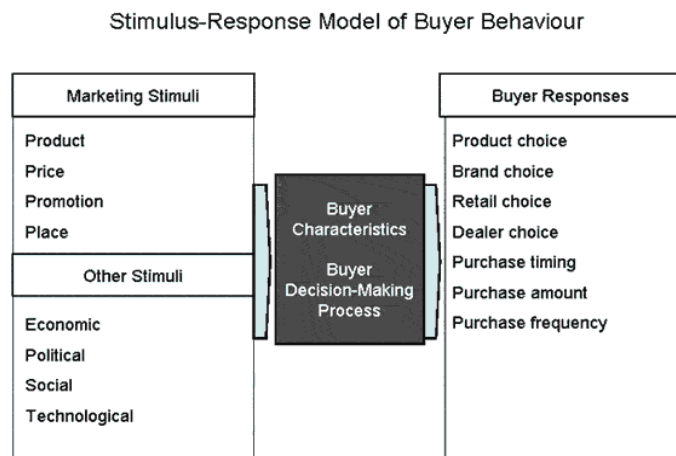
can be offered to a market for attention, acquisition, use or consumption that might satisfy a need or want (Kotler, 1988).

According to Kahn and Lehmann (1991), product variety has emerged as a crucial dimension of successful business practice because perceived variety is determined by the distinctiveness of options and the preferences of the consumers. In addition, consumers seek variety because they get bored with current selection and desire something new (Menon & Kahn, 1995; Kahn, 1998). Researchers have said that consumers seek variety because of their curiosity to learn about new things (Raju, 1980; Hirschman, 1980). Thus, consumers are the ultimate source of demand for product variety. Companies try to satisfy their customers by offering products, to satisfy customer needs, to increase their sales, market share, and profit. This can also give companies a competitive advantage by increasing customer value. Creative expression develops marketing campaigns that catch the eye and capture the imagination, but behind every marketing strategy are theories grounded solidly in

psychology, economics, and studies in human behaviour. The scientific insights help marketers design campaigns that speak to the fundamental concerns and desires of their audience, greatly deepening the impact of the marketing materials.

However, prior research shows that marketers should not overload consumers with too much variety, because it may lead to frustration. If product variety reduced, it would be negative effect on both shopping frequency and purchase quantity. As a result, firms should become more cognizant of customers' preferences and reduce information overload. Thus, to understand customers' product perception and preferences, the Stimulus-Organism-Response (S-O-R) model was proposed by Mehrabian and Russell (1974) in the early days of the environmental psychology field. Many studies have used it to interpret impulse buying behaviours. The S-O-R model includes three aspects: the environment or stimulus (S) that triggers consumer behaviours and responses, the organism (O) that responds, and the actual response (R). This model aims to integrate individual responses to explain people's perceptions and emotions regarding external stimuli, and the positive or negative behaviours that are generated subsequently. Adopting the S-O-R model in studying consumer behaviours helps differentiate environmental stimuli and consumers' internal and external behaviours (Chen & Yao, 2018). The model is shown in Figure (2.1).

Figure 2.1: Stimulus-Response Model of Buyer Behaviour (Mehrabian & Russell, 1974)



Therefore, companies aim to increase their sales by determining what drives their customers' purchase decisions. Consumer perception theory attempts to explain consumer behaviour by analysing motivations for buying or not buying for particular items. Consumer perception applies the concept of sensory perception to marketing and advertising. Blank (2004) wrote that just as sensory perception relates to how humans perceive and process sensory stimuli through their five senses, consumer perception pertains to how individuals form opinions about companies and the merchandise they offer through the purchases they make. Retailers apply consumers' perception theory to determine how and what their customers perceive about them. L.G (2004) acknowledged that knowing what the customer need, want and desire is the key factor to success in any type of business. The key to a business

survival, profitability, growth and future success in a highly competitive market place is its ability to identify and satisfy unfilled customer needs better and sooner than the competitors. *Consumers want good quality, but they also want to know they are getting good value. That value isn't just judged by the product or service they are purchasing but by the availability and usability of the customer service that supports it. It's just not enough anymore to have brand re-cognition, consumers want to feel good about a brand and company. They want to do business with civic-minded corporations with positive world views.*

As consumers, each of them has a vast number of perceptions on the attributes of a particular product or service. Individuals act and react on the basis of their perception to the stimuli which they are exposed, not on the basis of objective reality. For each individual, reality is a totally personal phenomenon which based on that person's needs, want, values and personal experiences. Thus, customer perceptions are much more important than the marketer's knowledge of the objective reality. Moreover, consumers express a desire for variety and are drawn to stores that offer wide product selection (Arnold, Oum & Tigert, 1983). Larger variety affords several benefits to consumers engaged in the process of choosing. Complexity associated with numerous products and the novelty associated with unique items provide stimulation that is inherently satisfying (Berlyne, 1960). Varieties of products are appealing their perceived freedom. Having a choice has been shown to increase motivation and perceived control and predictions of satisfaction. Besides, another

advantage is comprehensive set of products provide full information to assist in developing one's preferences. In addition, variety is an increase in the probability that a consumer will find a product matching their ideal point as the number of product increases. Therefore, mentioned as above, variety is the provision of a diverse array of products for consumers to satisfy their needs across multiple context and multiple users. Because of these reasons, product variety is an important strategy to attain competitive advantages and be more long survival for every business.

2.2 Definition and Nature of the Customer Perception

Customer perception is a marketing concept that encompasses a customer's impression, awareness and/or consciousness about a company or its offerings. Customer perception is typically affected by advertising, reviews, public relation, social media, personal experiences and other channels. According to Robbins and Coulter (2003), perception is as a process by which individuals organize and interpret their sensory impression in order to give meaning to their environment. The concept of customer perception has also been defined by various researchers as per the needs of the environment. Thus, human psyche is a very complex process because it involves not only the economic factors but also the emotional and social factors (Clark & Goldsmith, 2006). It is really very difficult to provide an adequate concept of consumer perception. Because the various researchers observed that the success or failure of the product or service is directly related to human psyche and customer

perception. They also use consumer perception theory to develop marketing and advertising strategies intended to retain current customers and attract new ones. Three areas of consumer perception theory relate to consumer perception theory: self- perception, price perception and perception of a benefit to quality of life.

1) Self- Perception

Self-perception theory attempts to explain how individuals develop an understanding of the motivations behind their own behaviour. Self-perception by customers relates to values and motivations that drive buying behaviour-which is also an important aspect of consumer perception theory. Blank (2004) concluded that consumers' self-perception theory was driving factor in whether or not they place priority on socially conscious purchase and consumption practices. Consumers who viewed themselves as socially conscious tended to place more weight on issues such as environmental impact when making buying decisions than consumers who did not hold similar views of themselves.

2) Price Perception

While mass merchandisers such as Wal-Mart emphasize low prices as an inherent virtue, upscale merchants attempt to emphasize quality and value for money to appeal to potential customers. The researchers concluded that price perception strongly influenced whether customers were satisfied with their purchases and whether they would make future purchases. Two factors that shaped price perception were the perceived quality of the merchandise or service in question and price comparisons with merchants offering similar merchandise or services (Blank, 2004).

3) Benefit Perception

According to Blank (2004), many consumers are familiar with this phrase frequently associated with food advertising. The researchers also theorized that consumers would demonstrate a trend toward applying more scrutiny to nutrition claims and would demand more specific information about the foods they purchase. Based on the phone product, consumer demand as the key factor in specific products as well as the basis of product design and benefit which are functional, and symbol benefits (Park et al., 2001). Functionality benefits mean the intrinsic advantages receiving by consumers while using the products or services. It is corresponding the product-related attributes that satisfy the customers' basic needs (Keller, 1993) such as physiological and safety needs. Symbol benefits are more on extrinsic advantages that bring to the consumer while owning the brand. They closely regarding to non-product related attributes and relate to fundamental needs for social acceptance and self-expression and outer directed self-esteem. For example, among the smartphone brands, Apple has a higher benefit with outstanding quality, trustworthy, prestige, stylishness and elegant. In fact, some of the Apple users might think that they have higher status than the customers who are using other phone brands (Choy, 2005).

The concept of customer perception has also been defined by various researchers as per the needs of the environment. Human psyche is a very complex process because it involves not only the economic factors but also the emotional and social factors (Clark & Goldsmith, 2006). Thus, it is really very difficult to provide an adequate concept of consumer perception. It has been observed by the various

researchers that the success or failure of the product or service is directly related to the human psyche and their preference (Kauffman, 1996). Hence, an understanding of the human psychology helps marketers to come up with the innovative product mixes (Peter & Donnelly, 2002). Consumers are the base of the business of the business organizations. All the consumers are not similar with each other according to their perception and behavior (Zhang & Neelankavil, 1997). In the words of Foxall (1998), consumer buying behavior is the study of intrinsic qualities of consumers, such as, motivators, perceptions, personalities and learning patterns. According to various theorists, it is the branch of knowledge, which studies behavior of an individual and its mental state (Hausman, 2000). Sheth and Parvatiyar (1995) have acknowledged that evaluation of various factors related to the consumer perception and behavior allows the business firms to strengthen the relationship between business and consumers. There are many factors which influence the perception of a human being and the buying process, which essentially begins from early childhood, remains through the teen years and adult life also (Lal et al, 1996). The evaluation of perception comprises many factors to understand the psychology of consumers. These factors belong to culture, values, family, society, feelings, thinking, attitude, personality, etc. These factors also vary from consumer to consumer and shape their buying behavior. Byron McCann (2011) mentioned that correlation between behavior, experience and perception of consumer can help an organization to understand in real time what customers really think, experience and do as well as stated that Behavior + Perception + Experience= the whole real picture.

2.3 Factors Influencing Customer Perception

There are sufficient evidences and empirical resources that explain about the various factors that influence the perception of consumers and affect their buying behaviour. Many factors are available in the environment that influences the behaviour of consumers. Internal factors comprise consumer's lifestyle, personality, attitude, knowledge, affordability, etc. These factors integrate culture, values and norms, family and friend circle, social status, family, reference groups, etc. (Sjo'berg & Elisabeth, 2005). Environment is the external condition, which affects the perception and the consumer behaviour. It consists of both physical and social factors. Physical factors, also known as macro factors, include demographic, economic, changes in technology, political elements and globalization (Mourali et al, 2005).

Economic Factors: Economy of a country impacts the perception of consumer in a great manner and also emphasizes his buying pattern. High economy means high income level, which ultimately influences the consumer to purchase expensive and luxury items (Clark & Goldsmith, 2006). Due to the continuous changes in the technology, the world has become a global village, which provides a large variety of products and services to the consumers. Often the environments are not in the hands of the manufacturers, so they have to modify the marketing strategy in order to influence internal factors, which in turn affect the perception and behaviour (Kotler,

2002). Thus, this factor and environment has a great impact on the customers' choice and is largely responsible in shaping his liking and preference for the product.

Social and Cultural Factors: A marketer should be able to produce a product that will capture the need and demands of the consumers. Following social and cultural factor affect the buying behaviour of consumers. In a society, the interaction of persons with the family, groups, and social classes is highly responsible for the influence on the perception of consumer's (Tanja & Piri-rajh, 2003). The term attitude, values and buying process are generally influences by social class. Social class can be defined as a group of people in which all members have the similar social status, which is generally overlooked by the people. The classification of target market falls into four groups, i.e. upper class, upper middle, middle class and lower class (Mourali, et al, 2005).

Components of culture are patterns of living, norms of behaviour, life style, communication tool, eating habit, political, economics, technological outlook and values (Zhang & Neelankavil, 1997). In the words of Hanse (2005), it is very important to interpret the customer's tastes, preferences and habits so as to manufacture the products according to their demands and desires as per their culture. Language and values play a very important role in marketing a product (Kaynak & Kara, 2001).

Customer perception is affected by several components like grades, education, age, psychological attributes, etc., so these factors should always be considered while manufacturing products. Brand name and product quality has also its own importance in the society (Sirgy, 1985) and players in the retail industry have

identified that according to the social and cultural development, people have become more concerned about the brand name and quality of the products. Brand name ultimately raises the living standard of the people in the society which helps in developing the perception of self-esteem.

Different Geographic Region: Different geographic region has different culture and values that lead to the perception of consumers in different manner. Diversity is the main concept in the different geographical areas and it is popular in every cultural and geographical area. In these geographical areas, the marketers always look at various aspects such as consumer's personal values, language, social behaviour, income level, etc. that are directly related to the external environment of geographic area (Clark & Goldsmith, 2006). In addition, it is necessary for the organization to understand the diversity regarding language and culture of a particular geographic region before expanding their business because the perception of the consumer highly depends on the elements of culture and diversity. In the era of globalization, culture is also moving towards change and personal values are also changing according to the geographic areas (Dubois, 1993).

2.4 Definition of the Product Variety

Product Variety is the different types of products that a business makes or a retailer offers for sale. Ulrich and Randall (2001) defined product variety as the number of different versions of a product offered by a firm at a single point in time. Companies have also made innovation of their products with creating wide varieties.

Product variety can be defined as the range of different models/types offered within a single product line or category. There are several other definitions of product variety available in the literature. Fisher et al. (1999) stated that product variety can be defined in two dimensions: the breadth of the products that a firm offers at a given time and the rate at which the firm replaces existing products with new products. Martin et al. (1996) defined two types of variety, spatial variety and generational variety, where spatial variety indicates the variety that a company offers the marketplace at a point in time, and generational variety means variety across future generations of products. For manufacturing firms, product variety is defined as the various products types or models offered within a product line.

To achieve market leadership, firms must offer products & services of superior quality that provide unsurpassed customer value. Moreover, to be branded, products must be differentiated. Well-differentiated products can create significant competitive advantages. Making differentiation of products can lead to variegation to fulfil the customers' preference and perceptions.

2.4.1 Means for Product Differentiation of Phones

Means for differentiation include form, features, performance quality, conformance quality, durability, reliability, and style. Design has become an increasingly important differentiator.

Form: Many products can be differentiated in form- the size, shape, or physical structure of a product.

Features: Most products can be offered with varying features that supplement their basic function. A company can identify and select appropriate new features by surveying and then calculating customer value versus company cost for each potential feature. Marketers should consider how many people want each feature, how long it would take to introduce it and whether competitors could easily copy it.

Performance Quality: Most products occupy one of four performance levels: low, average, high and superior. Performance quality is the level at which the product's primary characteristic operate. Quality is the growing increasingly important for differentiation as companies adopt a value model and provide higher quality for less money. Firms should design a performance level appropriate to the target market and competition.

Conformance Quality: Buyers expect a high conformance quality, the degree to which all produced units are identical and meet promised specifications. A product with low conformance quality will disappoint some buyers.

Durability: It is a measure of the producer's expected operating life natural or stressful conditions, is valuate, kitchen appliances, and other durable goods. The extra price for durability must not be excessive, however, and the product must not be subject to rapid technological obsolescence, as personal computers, television, and cell phones have something been.

Reliability: It is a measure of the probability that a product will not malfunction or fail within a specified time period. Maytag has an outstanding reputation for creating reliable home appliance. It's long running "Lonely Repairman" ad campaign was designed to highlight that attribute.

Style: It describes the product's look and feel to the buyer and creates distinctiveness that is hard to copy. Strong style does not always mean high performance. Based on the phones product, there are two differentiated to compete with other types of phone. Product is anything that can be offered to a market for attention, acquisition, use or consumption that might satisfy a want or need (Kotler, Armstrong, & Gary, 2007). Smartphone is an electronic product that providing ease of use with variety of function. Feature is an attribute of a product to meet the satisfaction level of consumers' needs and wants, through owning of the product, usage, and utilization of a product.

In this study, feature can be defined like touchscreen features, camera functionality, Wi Fi, High-resolution display, new design, waterproof and shockproof, LTE or 4G speed internet connection. Besides that, smartphones feature such as application installation, high gigabytes of storage, large-screen and powerful processor (Oulasivirta, 2011). On the other hand, the same researcher found that complex functionality of software like operation system, and high specification of camera megapixel are more attachment to it. Meirovich and Bahnam (2008) stated that new attractive product features will finally satisfy consumers as a foundation.

Therefore, a feature of smartphones will influence the young female consumers and based on the features consumers will differentiate which smartphone brands will be purchased. Product features can be divided into hardware and software. Hardware is the product that can be touch or use physically and it is visible. Software is the Operating System (OS). OS is the program to run the computer, smartphone or electronic device. Product feature is the factor that is concerned with smartphone users in order to study the new function and new innovation (also called variation) of functionality for hardware and software.

2.5 Purchase Intention

In order to exchange the consumers to purchase, the marketers must firstly try to trigger the consumers' purchase intention (Howard & Sheth ,1967). Babin and Boles (1999) have acknowledged that purchase is widely used as factory to study the consumers' final purchase decision. Other than that, Laroche and Sadokierski (1994) had defined purchase intention in simple word, which is after an evaluation in confident, an individual's intention to buy a product. Schiffman (2000) had stated that purchase intention got a positive relationship with the willingness to pay which meant that the higher the intention to purchase will cause the higher willingness of customer to pay for the particular product. Purchase intention can consider as the chance of a customer to purchase a product (Buton, Lichtenstien, Netemeyer & Garretson, 1998). On the other hand, Fishbein and Ajzen (1975) had clarified that a

consumers' purchase intention is triggered by the consumers' attitudes and evaluation of the external factors.

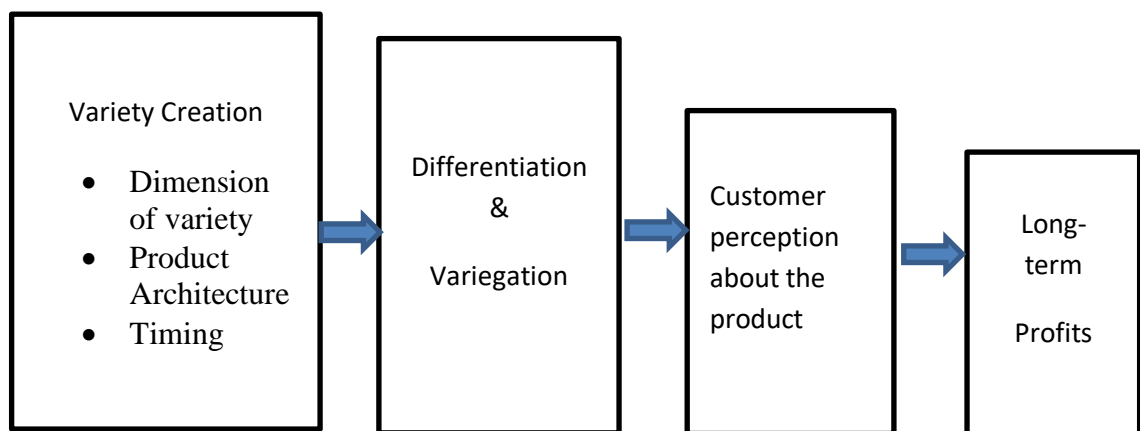
Consumers' purchase intention can be affected by the external factors easily when they are making their decision. Factors such as country of origin, product price, product features will influence the consumers' decision making in their purchase process (Sheu, 2010). Yang (2009) had also said that marketers can adapt the purchase intention of the consumers as an indicator in order to help them having a better understanding towards consumers' preference, way of searching information and also alternative evaluation.

2.6 Review of Relevant Theoretical Model

The theoretical framework of the current study lies on the framework developed by Ramdas (2003). The main reason for selecting this framework is that it is an appropriate framework for managerial decision about variety. In addition, it determines variety creation decision, including the amount, type and operations and timing of end product variety. Moreover, this model is organized variety-related decision into four key decision themes in variety creation: 1) dimension of variety, 2) product architecture, 3) degree of customization, and 4) timing. Furthermore, this framework shows that variety creation and implementation decisions impact revenues via two important criteria that mould customer perceptions about a firm's products: differentiation and variegation. Ramdas (2003) developed this framework in

order to understand the spectrum of variety decision making. Figure 2.2 illustrates the relationships among the variables in the framework proposed by Ramdas (2003).

Figure 2.2: Framework for a firm's variety relation decisions; linking variety, differentiation, customer perception, and long-term profits (Ramdas, 2003).



Shahzand & Sobia (2013) have done to investigate the factors that affecting youth brand choice for mobile phone purchase among private universities students of Peshawar. In this highly technology oriented society, the usage of mobile phones has increased worldwide especially among those young consumers. This group has

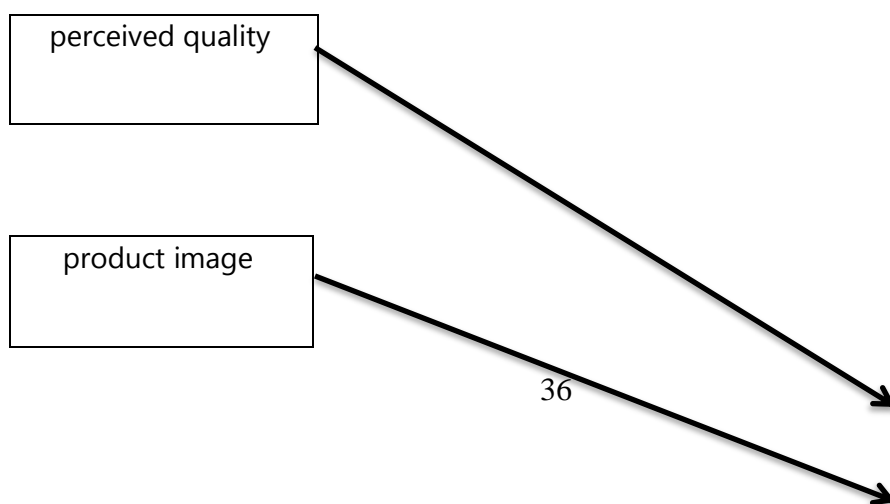
become a significant interest for marketers as young consumers are currently the most appealing and attractive markets for firms to earn huge amount of investments. According to Shahzad & Sobia (2013), brand choice defined as consumer preference towards a specific brand over its competitors' brand. On the other hand, based on the research studied by Karjaluoto (2005), the researchers had studied that although consumer choice in smartphone is based on individual feelings, opinions, and taste, however, there other factors such as technical problems, brand, innovative, basic features, price , reliability, product design and external influence that appear to have influence on mobile phone brand choices. There are two variable been discussed, which are independent and dependent variables (customer choice). Shahzad & Sobia (2013) has identified 11 independent factors that includes quality, features, friends and family, brand image, innovative features, effective promotion, celebrity endorsement, user-friendliness, stylish, appearance, post purchase services and price.

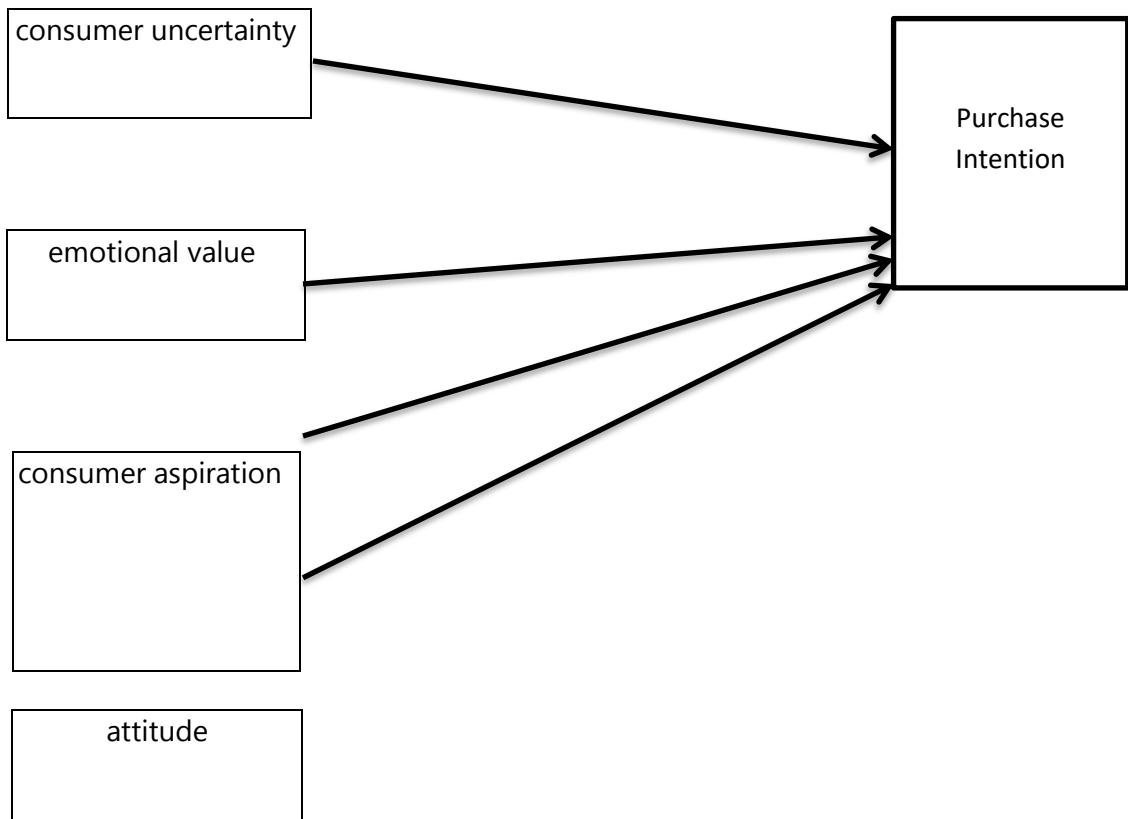
In addition, Naing and Chaipoopirutana (2014) have investigated the factors affecting purchase intention of a smartphone in Yangon, Myanmar. This study investigate the relationship between perceived quality, product image, consumer aspiration, emotional value, consumer uncertainty, attitude towards product and purchase intention of a smartphone. There are six independent variables; perceived quality, product image, consumer aspiration, emotional value, consumer uncertainty, attitude towards product and dependent variable is purchase intention.

Figure 2.3: Source: The factors affecting purchase intention of a smart phone (Naing & Chaipoopirutana, 2014).

Independent Variables

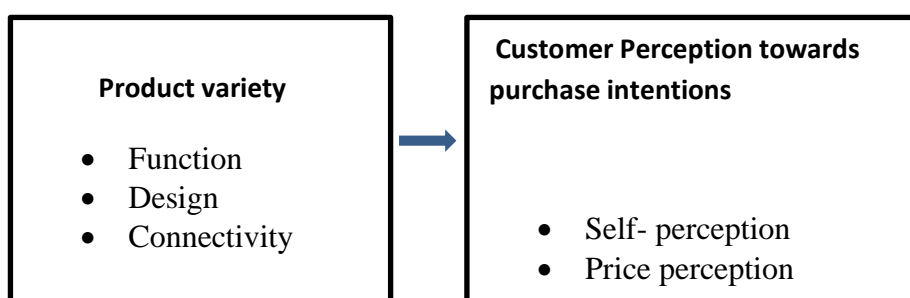
Dependent Variable





2.7 Conceptual Framework of the Study

Figure 2.4 The theoretical framework of the study (Source: Own Compilation)



Hypothesis 1 Mobile phone function is positively related to customer perception.

Hypothesis 2 Mobile phone design is positively related to customer perception.

Hypothesis 3 Mobile phone connectivity is positively related to customer perception

Although this study is based on the previous studies, some variables are different from the original framework. The theoretical framework of this study is presented in Figure 2.4 In this framework of the study, customer perception refers to self- perception, price perception and perception of a benefit to quality of life that is influenced by product variety. It is worth to note that product variety variables (function, design, and connectivity) are independent variables, whereas customers' perceptions towards purchase intentions such as self- perception, price perception and benefit-perception are dependent variables.

1. Function

The action for which a person or thing is specially fitted or used or for which a thing exists.

2. Design

The action for which to plan and make (something) for a specific use or purpose.

3. Connectivity

The action for which a person pleased using internet related things.

4. Customer Perception

The action for which a person pleased with the result of something useful according to self, price and benefit of using.

CHAPTER 3

PRODUCT VARIETY OF MOBILE PHONES IN MYANMAR

This chapter presents the history of the mobile phone, mobile operating systems, smartphone characteristics, history of the Myanmar telecommunication system, Myanmar mobile market, types of mobile phone in Myanmar and benefit of the mobile phone.

3.1 Mobile Phones History

A smart phone is a mobile phone (also known as cell phones) with an advanced mobile operating system which combines features of a personal computer operating system with other features useful for mobile or handled use. Smart phones, which are usually pocket-sized, typically combine the features of a mobile phone, such as the abilities to place and receive text messages, with those of other popular digital mobile devices like personal digit assistants (PDAs), such as an event calendar, media player, video, games, GPS navigation, digital camera, digital video camera.

Most smartphones can access the Internet and can run a variety of third party software components ("apps"). They typically have a color display with a graphical user interface that covers 70% or more of the front surface. The display is often a touch screen, which enables the user to use a virtual keyboard to type words and numbers and press onscreen icons to activate "app" features. In 1999, the Japanese firm-NTT DO CO MO released the first smartphone to achieve mass adoption within country. Smartphone became widespread in the late via 2000s. Most of those produced from 2012 onward have high-speed mobile broadband and 4G LTE, motion sensors and mobile payment feature. In the third quarter of 2012, one billion smartphones were in use worldwide. Global smartphone sales surpassed the sales figures for regular cell phones in early 2013. As of 2013, 65% of mobile consumers in the United States owned smartphone. By January 2016, smartphone held over 79% of the U.S. mobile market (Pothitos, 2016).

Hand phone and Internet are the two technologies that have major impact on politics, economy and social in the 21st century (O'Leary & O'Leary, 2005). The converging of hand phone and internet had given birth to smartphone (Baily et al,

2001). It has been just few years, and exactly from the introduction of the first iPhone (2007), since the smartphone became a mass consumption product, though smartphones have been around for many years. The first device able to combine voice, data and PIM applications was an IBM product known under the name of "IBM Simon". The IBM Simon was first presented in 1992 at the CONDEX, the computer industry trade show that takes place in Las Vegas, and was launched into the market the following year by a company called BellSouth (Schneidawind, 1992).

Myanmar mobile market is one of the fastest growing economies all over the world and a live example which depicts the development is the growth of the telecommunication industry in Myanmar, especially in the field of mobile communication. There is a continuous increase in disposable income; there has been a radical shift in the attitude and aspirations of the consumers. Mobile phone has become essential parts of personal and business life. The recent growth of mobile phone usage is an observable fact that crosses all age and gender boundaries. Due to fierce competition in the field of mobile communication, the need arises for the study to know how consumer behaves in the time of purchase (Aung, 2016).

3.2 Mobile Operating Systems

Android: Android is a mobile operating system developed by Google Inc., and backed by an industry consortium known as the Open Handset Alliance. It is an open source platform with optional proprietary components, including a suite of

flagship software for Google services, and the application and content storefront Google Play. Android was officially introduced via the release of its inaugural device, the HTC Dream (T-Mobile G1) on 20 October 2008. As an open source product, Android has also been the subject of third-party development. Development groups have used the Android source code to develop and distribute their own modified versions of the operating system, such as Cyanogen Mod, to add features to the OS and provide newer versions of Android to devices that no longer receive official updates from their vendor. Forked versions of Android have also been adopted by other vendors, such as Amazon.com, who used its "Fire OS" on a range of tablets and the Fire Phone. As it is a non-proprietary platform that has shipped on devices covering a wide range of market segments, Android has seen significant adoption. Gartner Research estimated that 325 million Android smartphones were sold during the fourth quarter of 2015, leading all other platforms. Samsung Electronics, who produces Android devices, was also the top smartphone vendor across all platforms in the same period of time (Adesina, 2016).

IOS: IOS (formerly IPHONE OS) is a proprietary mobile operating system developed by Apple INC primarily for its IPHONE product line. The IPHONE was first unveiled in January 2007. The device introduced numerous design concepts that have been adopted by modern smartphone platforms, such as the use of multi-touch gestures for navigation, eschewing physical controls such as physical keyboard in favour of those rendered by the operating system itself on its touch-screen (including the

keyboard) and the use of skeuomorphism making features and controls within the user interface resemble real-world object and concepts in order to improve their usability. In 2008, Apple introduced the App Store, a centralized storefront for purchasing new software for IPHONE devices (Adesina, 2014)

Window Phones: Windows Phone is a series of proprietary smart phone operating system developed by Microsoft its original release. Window Phones 7, was a revamped version of the previous. Window CE based Window Mobile platform. Window Phone's user interface was designed to contrast with its competitors utilizing a design language codenamed "Metro" which de-emphasized iconography and skeuomorphism in favor of flat, text-based designs. The platform also featured concepts such as "lives tiles" on its home screen that can display dynamic content, and "Hubs"-which aggregate content from various sources and services (such as a user's local contacts, in combination with connected social networking services) into unified displays (Adesina, 2014)

3.3 Smartphone Characteristic

Within the mobile phone category, there is a sub-class of phones known as smartphones. A smartphone is a mobile phone that integrates a feature phone and a mobile computing platform, and the models today even combine functions such as digital cameras, media players, high-speed data

access via Wi-Fi, GPS navigation, and other applications with option to download application through application market. Typically, smartphones also comprise web browsers and high-resolution touchscreens, which provide people better viewing and browsing experience. In its simplest form, a smartphone is a mobile phone with built-in, add-on applications and Internet (3G network) access. However, because of its capability to handle a great amount of applications and functions at the same time - the concept of a smartphone slowly transitioned into definitions of a handheld computer. The great differences between the available brands and models on the market today are the operating systems platform. The smartphone becomes more than a device for sending and receiving text messages and calls as it consists of various ways to interact with other users in a more personalized manner, compared to the traditional mobile phones. While an old-style feature phone includes some software such as an address book and games, a smartphone has the ability of further performance. One of the significant differences between a feature phone and a smartphone is that a smartphone can install third-party applications from applications store. Users are able to download and install application on their operating systems, such as time schedule, navigators, personal finance managers and games. Generally, a smartphone is based on a certain operating system that allows phone users to install applications on it. Systems include APPLE's IOS, GOOGLE's Android,

Microsoft's Windows Phone etc. The core applications of smartphones consist of cellular voice, data, and PIM (personal information management) applications such as calendars, contact managers, 31 tasks, notes, e-mail. These applications must work together seamlessly and with the features of the phone. For example, pictures taken with the camera can be linked to the address book so that users can see who is calling. Navigation software uses addresses stored in the address book in combination with GPS data to facilitate data entry. E-mail clients are integrated with address book.

3.4 History of Myanmar Telecommunication Service System

Myanmar post and telecommunication (MPT) was a major provider for Myanmar telecommunication service systems before 2014. It is a Government Agency, operating under Ministry of Communications, Posts and Telegraphs. It was founded in 1881, as a small Department of Posts and telegraphs and has grown into the present-day Myanmar post and telecommunication with approximately 13800 employees of which about 380 are managerial staffs. In the post war period, telecommunication services continue efforts to grow and MPT launched a project called Yangon Automation with 4 crossbar switches in Yangon in 1956 and was completed in 1962. In the year 1967 the number of telephone had grown to 21,444 and continued to grow ever since. In the year 1970, the total number of phones in Yangon was about 17,400 and nationwide

was about 22,000. At the end of 2005, Myanmar had 135,664 mobile phones (Mar, 2011)

Before 2013, MPT had a monopoly in the country. In 2013, the government started taking steps to open up the telecommunication market, issuing licenses to new service providers. In 2014, Qatar-based Ooredoo and Norwegian Telenor Group entered the market, resulting in the reduction of consumer prices and a rapid growth in the number of subscribers, as well as the expansion of the country's infrastructure. The consumer price dropped from 200,000 to 1,500 Kyats. In November 2015, Ericsson named Myanmar the world's fourth fastest-growing mobile market. As of June 2015, Myanmar has a mobile phone penetration rate of 54.6%, up from less than 10% in 2012.

As of June 2018, there begins fourth telecom operator in Myanmar. The fourth operator, Mytel, has begun service since the weekend, Myanmar News Agency reported Monday. Mytel, jointly conducted by Myanmar and Vietnam, represents the only public company among four telecom operators in the country. Provided with 2G and 4G systems, Mytel has installed 30,000Km fiber cables nationwide to enable provision of 50 % of the whole fiber optic infrastructure across Myanmar. Mytel is a joint venture of a local consortium comprising 11 private firms and Vitenam's Viettel. According to the Ministry of Transport and Communications, mobile phone usage rate increased to over 110.43% so far in Myanmar from 86.2% in 2016.

The number of mobile subscribers in the country reached over 56.8 million in fiscal year 2017-2018, increasing by over 500,000 subscribers while there were 56.3 million mobile subscribers in fiscal year 20167-2017. Of the prior three established telecom operators in the country, MPT topped the list with over 29 million subscribers including auto telephone subscribers, followed by Telenor with 19.5 million and OOREDOO with 8.3 million subscribers. The Myanmar government received over 2.2 billion US dollars' spectrum usage fees from mobile operators as of April 2018 (Kumudra, 2016)

3.5 The Best Brand of Mobile Phones in Myanmar

Five years ago, Myanmar remained one of the last underdeveloped telecommunication markets in Asia, however, this gap is being bridged quickly with a focus on mobile and mobile broadband services and exploding growth in that sector. By 2018 Myanmar was four years into a telecom boom that has dramatically changed the physical and technological landscape of the country, since the sector was opened to foreign competition in 2014. Over the next five years to 2023, the market is expected to grow very strongly but overall market penetration will remain extremely low compared to other nations. Myanmar's mobile market has experienced very rapid growth from 2013 to 2017. By 2018 the mobile market was approaching saturation and was seeing increased

competition over data prices. Average revenue per user dropped further with the entry of a fourth operator Mytel, in 2018. The more the telecom is cheaper, the more mobile handset buys.

The consumer market in Myanmar has essentially by passed the development stages seen in other economics and moved straight to digital and mobile, making the country a potentially interested test bed for internet-enabled businesses. The mobile phone penetration rate in Myanmar, which barely touched double digits in 2013, has now reached around 50% of its estimated 54 million of population last year. Smart phones are the first handsets owned by 80% of Myanmar mobile users according to the two main operators. A boom in sales of low-cost Android smartphones from China quickly followed.

According to the survey, 42.2% of mobile phone users own Huawei devices while Samsung, iPhone and Sony followed with 25.6% and 6.7% respectively. The presence of mid-priced mobile device brands such as Oppo, Xiaomi, Meizu and Lenovo was found to have increased its share remarkably. Intensive market competition prevails in the mid-priced category (2.5L Kyats) while premium market changes quite significantly. Huawei, Samsung, Oppo and Vivo as well as Asus and other Chinese brands competing in the mid-priced category while iPhone, Samsung and Huawei as well as other brands such as Sony competing in the premium tier. Notably, user preferences and

reason to purchase the incumbent phones have shown significant differences compared to the previous year's survey. Brand name dominates the key reason in purchase with 34.1% (18% in 2015), followed by quality & features 29.5% (44% in 2016), design 20.5% (14% in 2015) and price 19.3% (24% in 2016). These findings indicate that Myanmar mobile users' perceptions shifted from price consciousness to brand.

The brand name of smartphones are found to significantly affect mobile phone users' purchasing behaviors 37.5% (8.8% in 2015) while price 25.0% (19.9% in 2015), quality & features 21.6% (51.5%) and design 18.2% (10.5%) also affect substantially. Mobile phone users are also found to obtain information predominantly from the internet 71.6% (32.7% in 2015), media 13.6% (29.8%) as well as friends 12.5 (23.4%). Only 10.2% of mobile phone users gain information from shop salesman (18.1% in 2015). From the findings, Myanmar mobile users showed that they are heavily rely on internet for mobile phone information search. This result reflects wide proliferation of mobile internet among the mobile phone users in Myanmar due to the improved internet speed and mobile internet coverage (Aung, 2016). In last few years, Chinese brand smartphone manufacturers have strived to position them as global brands. Recently, Chinese made smartphone proliferating in the globe. World's 7 out 10 smartphones are made in China. According to recent Bloomberg news, the proliferation of Chinese smartphone in the world

is not Chinese consumers' loyalties. Chinese manufacturers changed their strategies from the Me-Too products manufacturers to high quality and premium competition strategies. Particularly, Huawei is making competitive smartphone which compete with the market leaders such as Apple and Samsung. In addition, these Chinese manufacturers already took more than 40% market share in the USD 500 plus premium smartphone segments. In 2017, more Chinese smartphone manufacturers will pursue globalization. Huawei input intensively its resources in design sector. Huawei plans to open design center in America to develop design and UX for American mobile users. Currently, Huawei has design teams in China, Korea, Japan, and UK. Nevertheless, the American market is still hard to crack to Chinese smartphones. Most of smartphones which American consumers use is ZTE, Lenovo, or TCL – low cost prepaid phones. Alternatively, Chinese smartphone manufacturers rushed to Indian market. Under these circumstances, proliferation of Chinese smartphone in the globe market will keep continue. SEA (Southeastern Asia) will also affected by these trends.

Unlike other countries, SEA consumers are not affordable to purchase premium products yet. Thus, price is one of the key variables determine their purchase so far. Affordability is the key factor in purchase, thus, satisfactory quality with affordable Chinese brand smartphone is the right products for these consumers yet.

In the future, the Myanmar mobile market will be stabilized and saturated because it assumes that the phone product life cycle is one of the key factors in Myanmar due to vernacular environments. Recently many advanced countries' smartphone life cycle extended. In the long-term overview, Myanmar's smartphone product life cycle will follow that of other countries'. However, with the short telco liberalization history, massive growth in a short time and endemic situation (hot weather and Monsoon), the influx of mobile device replacement with consuming power of Myanmar people will happen continuously in Myanmar. This is one of positive overview for mobile market in the next couple of years. However, this endemic trend will change shortly and follow other countries trend soon (Kumudra, 2016).

Line phones only satisfy the communication needs of people, but latest mobile handsets are equipped with the advance technology which satisfies entertainment needs too. Cell phone companies work really hard to increase the market share and revenue. Due to high competitive market, it is not easy to attract consumers towards the products. In order to draw the attention of maximum consumers, companies keep offering different mobile offers. All leading brands are manufacturing best handsets in terms of look, quality, performance, design, etc., it has become difficult to choose a brand because every product is very much similar with other products in terms of features, designs, quality. Therefore, consumers are buying to the mobile phone based

on their decision-making process. The quest for the best mobile phones is endless in Myanmar as consumers are now offered the vast selection of products to choose from as well as better mobile phone services.

In the country where the gross domestic product is among the lowest in the world, at below US\$60 billion in 2012, consumers here share the thirst for an iPhone. According to a recent survey by Mileage Communications Myanmar, IPHONE, SAMSUNG, SONY and VIVO are the most popular brands among consumers in Yangon. Meanwhile, the presence of mid-priced Chinese mobile device brands such as HUAWEI, OPPO, VIVO and KENBO have significantly increased. Mobile phone users primarily considered purchasing Apple iPhone (12.9 per cent), followed by Samsung (11.7 per cent), Sony (8.8 per cent) and Vivo (7 per cent). Based on the findings, Myanmar's mobile phone users prefer leading global brands, and Apple iPhone leads the brand preference in this year's survey (Aung, 2016)

3.5.1 APPLE IPHONE

Apple was founded by Steve Jobs, Steve Wozniak, and Ronald Wayne in April 1976 to develop and sell Wozniak's Apple I personal computer. It was incorporated as **Apple Computer, Inc.** in January 1977, and sales of its computers, including the Apple II, saw significant momentum and revenue growth for the company. **Apple Inc.** is an American multinational technology company headquartered in Cupertino, California, that designs, develops, and

sells consumer electronics, computer software, and online services. The company's hardware products include the iPhone smartphone, the iPad tablet computer, the Mac personal computer, the iPod portable media player, the Apple Watch smart watch, the Apple TV digital media player, and the Home Pod smart speaker. Apple's software includes the macOS and iOS operating systems, the iTunes media player, the Safari web browser, and the iLife and iWork creativity and productivity suites, as well as professional applications like Final Cut Pro, Logic Pro, and Xcode. Its online services include the iTunes Store, the iOS App Store and Mac App Store, Apple Music, and iCloud.

3.5.2 SAMSUNG

Samsung was founded by Lee Byung-chul in 1938 as a trading company. Samsung is a South Korean multinational conglomerate headquartered in Samsung Town, Seoul. It comprises numerous affiliated businesses, most of them united under the Samsung brand, and is the largest South Korean chaebol (business conglomerate). Following Lee's death in 1987, Samsung was separated into four business groups – Samsung Group, Shinsegae Group, CJ Group and Hansol Group. Since 1990, Samsung has increasingly globalised its activities and electronics; in particular, its mobile phones and semiconductors have become its most important source of income. As of 2017, Samsung has the 6th highest global brand value.

3.5.3 XIAOMI

XIAOMI Corporation is a Chinese electronics company headquartered in Beijing. XIAOMI makes and invests in smartphones, mobile apps, laptops, and related consumer electronics. XIAOMI released its first smartphone in August 2011 and has rapidly gained market share in China to become China's largest smartphone company in 2014. As of the start of Q2 of 2018, XIAOMI is the world's 4th largest smartphone manufacturer. XIAOMI has expanded into developing a wider range of consumer electronics, including a smart home device eco-system. The company has established its own ecosystem by increasingly offering a wide range of products. Its varying lines of smartphones include: MI Series, MI Note Series, MI Max Series, MI Mix Series and the REDMI Series. The company's focuses on India, the world's second-largest smartphone market.

3.5.4 HUAWEI

HUAWEI Technologies Co., Ltd. is a Chinese multinational networking, telecommunications equipment, and service company headquartered in Shenzhen Guangdong. It is the largest telecommunications equipment manufacturer in the world, having overtaken Ericsson in 2012. Huawei is the second largest smartphone manufacturer in the world. Huawei was founded in

1987 by Ren Zhengfei. At the time of its establishment, Huawei focused on manufacturing phone switches, but has since expanded its business to include building telecommunications networks, providing operational and consulting services and equipment to enterprises inside and outside of China, and manufacturing communications devices for the consumer market.

3.5.5 SONY

SONY Corporation is a Japanese multinational conglomerate corporation headquartered in Kōnan, Minato, Tokyo. Its diversified business includes consumer and professional electronics, gaming, entertainment and financial services. The company owns the largest music entertainment business in the world, and is one of the leading manufacturers of electronic products for the consumer and professional markets, and a leading player in the film and television industry. Sony was ranked 97th on the 2018 Fortune Global 500 list. Sony Corporation is the electronics business unit and the parent company of the Sony group which is engaged in business through its four operating components: electronics, motion pictures (movies and TV shows), music (record labels and music publishing) and financial services (banking and insurance). These make Sony one of the most comprehensive entertainment companies in the world. The group consists of Sony Corporation, Sony Pictures, Sony Pictures Entertainment Japan, Sony Mobile,

Sony Interactive Entertainment, Sony Music, Sony Music Entertainment Japan, Sony Financial Holdings, and others.

3.5.6 VIVO and OPPO

VIVO Communication Technology Co (commonly referred to simply as Vivo, named after the Esperanto word for "life") is a Chinese technology company owned by BBK Electronics that makes smartphones, smartphone accessories, software, and online services. It was founded in 2009 in Dongguan, China. The company develops software for their phones such as the Vivo App Store, IMANAGER included in their proprietary Android-based operating system called FUNTOUCH OS. Vivo has made numerous phones including several concept phones. Out of them Vivo "V" series are the flagship models of the company. **OPPO** Electronics Corporation, commonly referred to as **OPPO**, is a Chinese consumer electronics and mobile communication company, known for its smartphones, Blu-ray players and other electronic devices. A leading manufacturer of smartphones, OPPO was the top smartphone brand in China in 2016 and was ranked No. 4 worldwide. They produce phones in their A series, Find series, F Series, N series and R series. OPPO also produces headphones and Blu-ray players under its OPPO Digital brand. COLOR OS is an operating system created by OPPO Electronics. It is a fork of Google's operating system Android.

3.6 Benefits of Mobile Phones

Many people used mobile phones. Mobile phones are today providing a direct line of communication to farmers, doctors, patients, and youth, etc. The most obvious benefits of mobile handset are that they provide access to communicate where what the problem you have. Families in remote areas, and farmers and businesses that could not afford or even obtain fixed lines, are now able to talk with love ones, receive orders, schedule delivers, and make appointments. Mobile phones communication devices can offer freedom and independence and are excellent way for young people to communicate with friends. Mobile handset is a long-range, portable electronic device used for communication.

When people get into the accident or are in trouble, people can use their phones to call 199 or 191 or 500005. Moreover, people may also use camera function. Moreover, people may also use camera function to take pictures, which can deter stalker or can save their favorite persons or actors or actresses. Mobile handsets are important because they allow storing data and carrying to everywhere you go. Mobile phones nowadays are not luxury items but necessities. Because of the various benefits and advantages the mobile phone offer, they become a very important part of society. Mobile phones are now inexpensive, easy to use and comfortable and equipped with almost every latest feature people desire. Thus, mobile phones give the benefits to the people all over the world in many ways.

In Myanmar, most of the people have a mobile phone because of improving technology and they can solve the things which have a problem within the short time. Mobile phones are today providing a direct line of communication to farmers, doctors, patients, and youth, etc. Nowadays, Myanmar mobile market is growing and the most fast-growing industry in Asia. And then, phones are becoming important products for everyone all over the world. In the next chapter, the analysis about the phones will be described.

CHAPTER 4

RESEARCH METHODOLOGY

This chapter explains the research design and research method to justify the research objectives. This is followed by a discussion of the population and sample and how the data were collected. Moreover, a detailed description of the data analysis process will be presented.

4.1 Research Design

Research design is defined as plan for conducting a research study (Collis & Hussey, 2003). A research design is the clear objective derived from the research questions, determination and statement of the general research approach or strategy adopted for the particular project. This study was designed based on quantitative approach. Quantitative research is numerical data that collecting from questionnaire and using numerical form such as graph or statistic. The qualitative data on product variety and customer perception are collected and measured by using the five-point Likert-scales. Therefore, this research method used is called quantitative research method. A quantitative research approach is generally used to test the existing theories by investigating the relationships among the variables which are assessed using specific research instruments such as questionnaire.

4.2 Research Method

In this study, there are two types of information data collection which are primary and secondary data. Primary data is the information obtained directly from the first hand sources which means survey, experimentation and observation. Secondary data is collect published information for the purpose of support the research study as a reference such as book, journal, magazines articles and newspaper. In this study, questionnaire survey method is conducted to collect the primary data as the main sources of information. Primary data were collected through questionnaire to explore the relationship between product variety and customer perception on mobil phones. Secondary data is collected through internet online such as Online Journal, Google Scholar, etc.

4.3 Population and Sample

Target population is the group of individual that carries almost the same characteristics. The mobile phone users between ages 20 -60 were the target population for this research as the respondents. The sample size of the study is 210 respondents in Kamaryut Township. For this study, 210 respondents were selected based on non-probability sampling techniques, and surveyed by using structured questionnaires to obtain quantitative data. Non-probability sampling method is the probability if each case being selected from the population is not known. The sampling frame for this research study focuses on both male and female who purchase and use mobile phone in their daily life. Location is around Kamaryut Township area. In this research, non-probability method is preferred because it is convenience and sample could be chosen from many ways.

4.4 Instrumentation of Research Questionnaire

In this study, the well-being questionnaires are used as instruments. The questionnaire used in this study was designed to determine what factors influence on customer perception of mobile phone users. Questionnaire was structured into three sections: (A) personal and professional background information, (B) product variety of mobile phone which is divided into two parts: operation system and hardware system and (C) customer perception of mobile phone users including 3 parts: self-perception, price-perception and benefit perception. In this study, for personal and professional background information, demographic questions were provided to collect demographic items including gender, age, education, income, education, income and the information about the phone they held. The items in section 2 and 3 were designed in the format of five-point likert scales anchored at 1=Strongly Disagree and 5=Strongly Agree (See Appendix I). According to the Cavana (2001), there are 4 types of constructs measurement. There are interval scale, nominal scale, ordinal scale and ratio. This research has used interval, nominal, and ordinal scale to measure. In section A, researchers used nominal and ordinal scales while in Section B and C, researchers used interval scale.

Section	Variable Names	No. of items
1	Personal and Professional data	13
2	Product Variety	12
3	Customer Perception	13

4.5 Data Analysis

For the data analysis, the Statistical package for the Social Science 22 (SPSS 22) is used which is the most common method in educational research (Punch & Oancea, 2014, p.331). In this study, for the demographic background of the respondents who were participated in this research, the descriptive analysis was applied to investigate customer preferences for product variety of mobile phone market. In addition, Pearson's correlation coefficient was used to examine the direction and strength of the relationship among the variables. Moreover, multiple linear regression was employed in this research to model the impact of the three variables (*function, design and connectivity*) on dependent variable (*customer perception towards purchase intentions*) to analyse the relationship between product variety and customers' perception on mobile phones.

4.5.1 Descriptive analysis for personal and professional background information

4.5.1.1 Gender

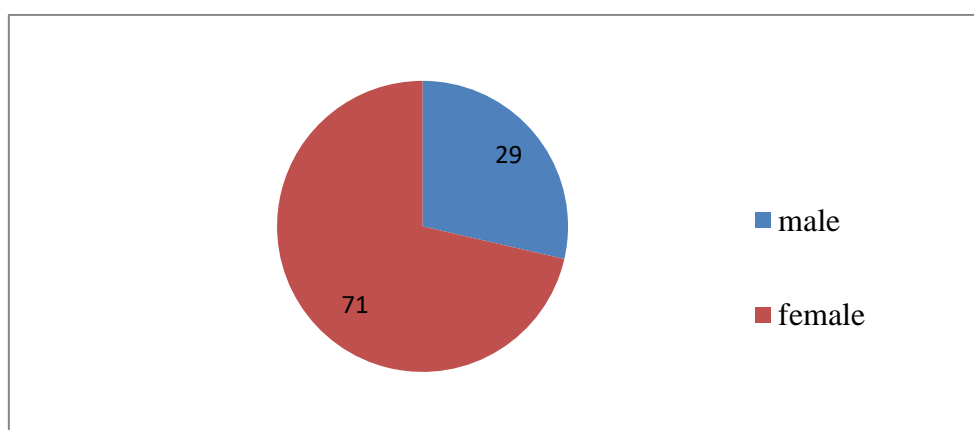
The sample from the survey has been taken from 210 respondents who were between the ages of 18 and 60. Table 4.1 and Figure 4.1 show the frequencies and percentages of different categories gender of the respondents. Out of 210 respondents, approximately 60 (29%) respondents were male and 150 (71 %) of the total were female. The percentages of these different gender groups were wide. This suggests that there is large proportions of female than that of males.

Table 4.1 Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
male	60	28.6	28.6	28.6
female	150	71.4	71.4	100.0
Total	210	100.0	100.0	

Source: Survey Data (2018)

Figure 4.1 Pie Chart of Gender Categories



4.5.1.2 Age Categories

Table 4.2 and Figure 4.2 summarize the percentages of the categories of the respondents' ages. 155 of the 210 respondents were the ages of below 30 years whose percentage is 74%. Moreover, 55(26%) of the total respondents are the age of above 30

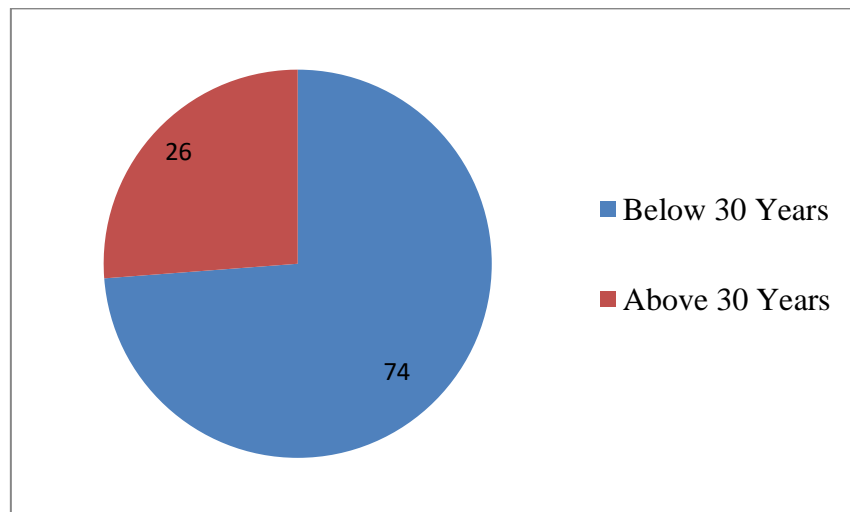
years. The percentages of these different groups were quite wide. This means that the proportion of young respondents is higher than that of people who is above 30 years.

Table 4.2 Age

	Frequency	Percent	Valid Percent	Cumulative Percent
below 30 years	155	73.8	73.8	73.8
above 30 years	55	26.2	26.2	100.0
Total	210	100.0	100.0	

Source: Survey Data (2018)

Figure 4.2 Pie Chart of Age Categories



4.5.1.3 Education Level

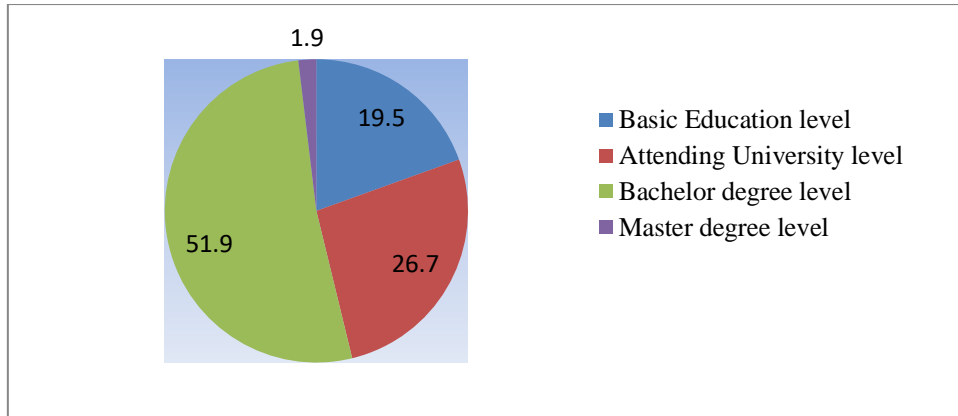
In this research, respondents' education level is divided into four parts: Basic Education, attending university, bachelor degree and master degree levels. Table 4.3 and Figure 4.3 show the different categories education level of the 210 respondents. 109 people (52%) of the total respondents were bachelor degree and this plays the largest part in this pie chart. Only 4 people (2%) got master degree level. 41 persons' (20%) education were basic education level. Therefore, half of the total respondents got the degree and the remaining was finished basic education level.

Table 4.3 Education Level

	Frequency	Percent	Valid Percent	Cumulative Percent
Basic Education Level	41	19.5	19.5	19.5
Attending University	56	26.7	26.7	46.2
Bachelor's Degree	109	51.9	51.9	98.1
Master's Degree	4	1.9	1.9	100.0
Total	210	100.0	100.0	

Source: Survey Data (2018)

Figure 4.3 Pie Chart of Education Level



4.5.1.4 Monthly Income

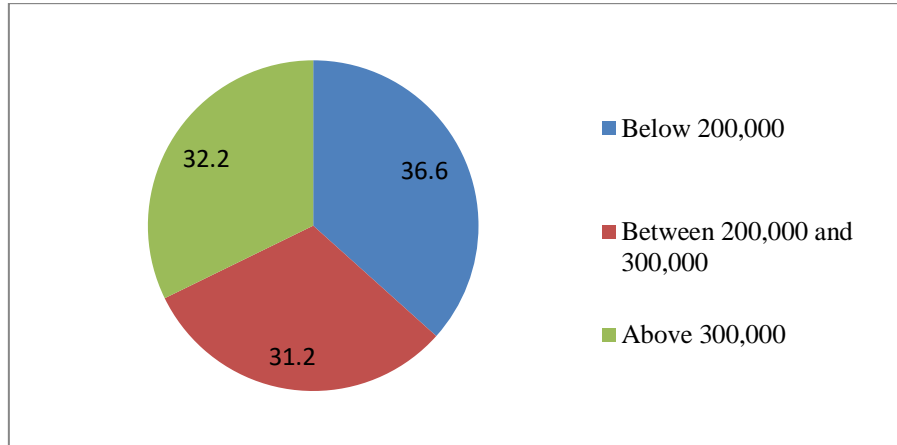
Table 4.4 and Figure 4.4 present the level of the income of the respondents by dividing into 3 parts, which namely the range of under 200,000 kyats, between 200,000 kyats and 300,000 kyats and above 300,000 kyats. This chart includes 183 respondents from the total 210 respondents because 27 respondents were university students who do not get income. Therefore, the result is only based on 183 respondents. Most of people get the income under 200,000 kyats whose percentage is 36.6%. This is the largest part in this pie chart. The respondents who get the income within the range of 200,000 kyats and 300,000 kyats are 31.2%. The percentages of different groups were not quite wide.

Table 4.4 Monthly Income

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 200,000 Kyats	67	31.9	36.6	36.6
Between 200,000 and 300,000 Kyats	57	27.1	31.1	67.8
Above 300,000Kyat	59	28.1	32.2	100

Source: Survey Data (2018)

Figure 4.4 Pie Chart for Monthly Income



4.5.1.5 Having mobile phone

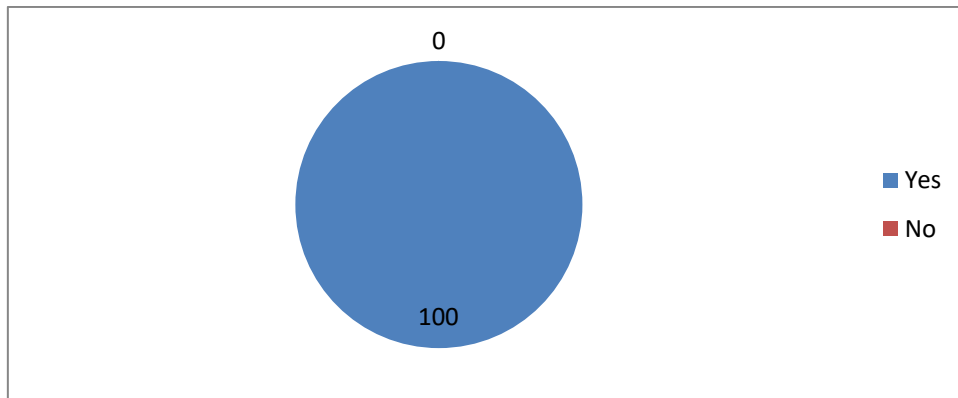
Table 4.5 and Figure 4.5 show the data about having mobile phone for 210 respondents between the ages of 18 and 60 years. 100% of the respondents have the mobile phone. There is no respondent who does not have mobile phone in this research.

Table 4.5 Do you have mobile phone?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	210	100	100	100

Source: Survey Data (2018)

Figure 4.5 - Pie Chart for having mobile phone



4.5.1.6 Types of phones

The types of phones which the respondents hold are observed in the following table 4.6 and figure 4.6. According to the research, 27% of the respondents hold the Samsung phone and this rate stands the largest percentages of the result. Xiaomi with 20% stands a second largest type of phone. The third highest type of phone is Huawei with 19%. Only 2% is Sony that 5 respondents held. The percentages of Huawei and Xiaomi were almost same. The percentages of Vivo and Oppo were not quite wide, too.

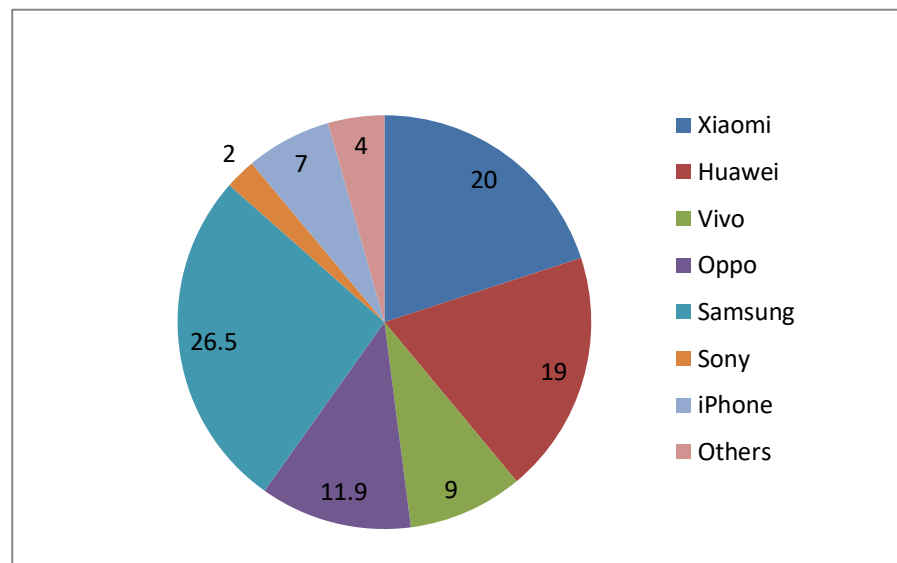
Table 4.6 Types of mobile phones

	Frequency	Percent	Valid percent	Cumulative Percent
XIAOMI	42	20	20	20
HUAWEI	40	19	19	39
VIVO	19	9	9	48
OPPO	25	11.9	11.9	60
SAMSUNG	56	26.7	26.7	86.7
SONY	5	2.4	2.4	89.0

IPHONE	14	6.7	6.7	95.7
Others	9	4.3	4.3	100
Total	210	100	100	

Source: Survey Data (2018)

Figure 4.6- Pie Chart of types of Mobile Phones



4.5.1.7 The cost of mobile phones

Table 4.7 and Figure 4.7 show the percentages of the categories of the phone's buying costs. According to the following chart, 78 respondents of the total were bought their phones within the range of 200,000 and 300,000 Kyats. Percentage is 37.1%. This is the

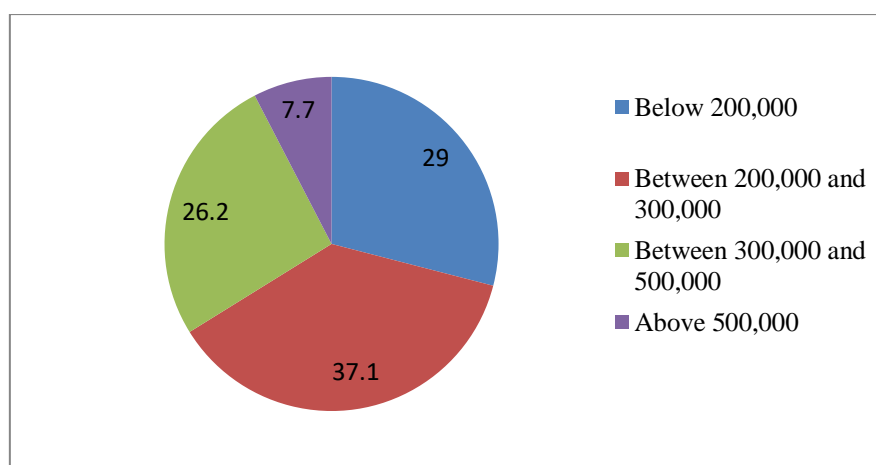
largest range in the research. The least is the range of above 500,000 Kyats (7.7%). The percentages of different groups were wide.

Table 4.6 The cost of mobile phones

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 2 lakhs	61	29	29	29
Between 2& 3 Lakhs	78	37.1	37.1	66.2
Between 3 & 5 Lakhs	55	26.2	26.2	92.4
Above 5 Lakhs	16	7.6	7.6	100
Total	210	100	100	

Source: Survey Data (2018)

Figure 4.7- Pie Chart of buying cost for phones



4.5.1.8 Expected time to change current phone

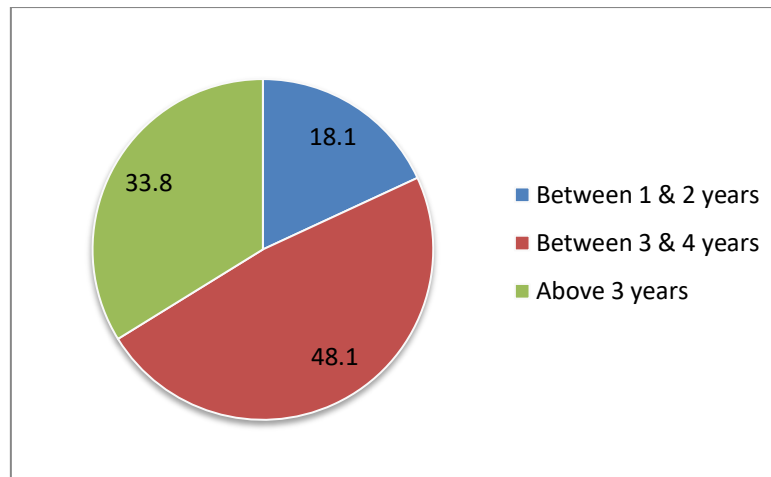
Table 4.8 and Figure 4.8 represent the percentages of the different categories about the expected time to change current phone. In this result, 101 respondents will hope to change their phones between 2 years and 3 years. This is the largest percentages (48.1%) in the chart. Only 38 persons (18.1%) want to change their phone after holding over 1 year.

Table 4.8 Expected time to change current phone

	Frequency	Percent	Valid Percent	Cumulative Percent
Between 1 & 2 years	38	18.1	18.1	18.1
Between 2 & 3 years	101	48.1	48.1	66.2
Above 3 years	71	33.8	33.8	100
Total	210	100	100	

Source: Survey Data (2018)

Figure 4.8 Pie Chart of Expected time to change current phones



4.5.1.9 Seeking Variety

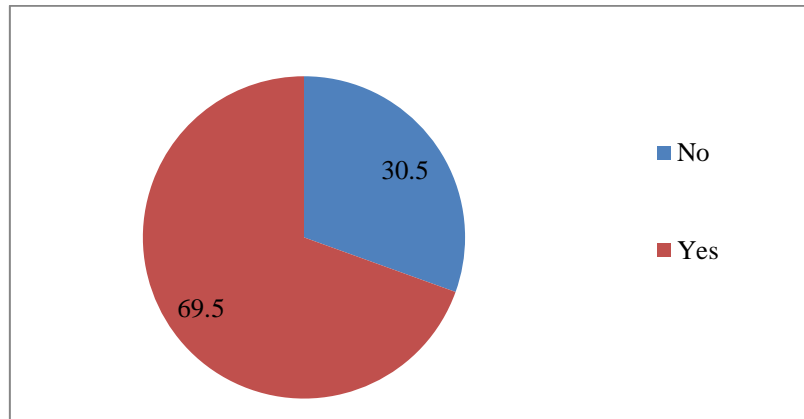
Table 4.9 and Figure 4.9 show the percentages of seeking variety of the 210 respondents who are the ages of between 18 years and 60 years. Out of 210 respondents, 146 respondents (70%) like to seek variety if they purchase phones. The others (30%) do not like to seek variety. This result suggests that over half of the participants like to seek variety.

Table 4.9 Seeking Variety

	Frequency	Percent	Valid Percent	Cumulative Percent
NO	64	31	31	31
Yes	146	69	69	100
Total	210	100	100	

Source: Survey Data (2018)

Figure 4.9- Pie Chart for seeking variety



5.5.1.10 The reason to seek variety

Table 4.10 and Figure 4.10 show the percentage of the different categories of the reasons for seeking variety. The reason for seeking variety is divided into 4 parts: boring, learning newness, choosing variety of phone, and the last, receiving new environment. The people who does not like to seek variety does not need to answer in this part. Therefore, this following chart is based on the 150 respondents who like to seek variety. According to this chart, 54.4% of the 150 respondents would like to seek variety because they want to learn newness. This rate stands the highest scores in this chart. Only 8% seek variety because they felt boring with their current phones. This is the lowest score in this research.

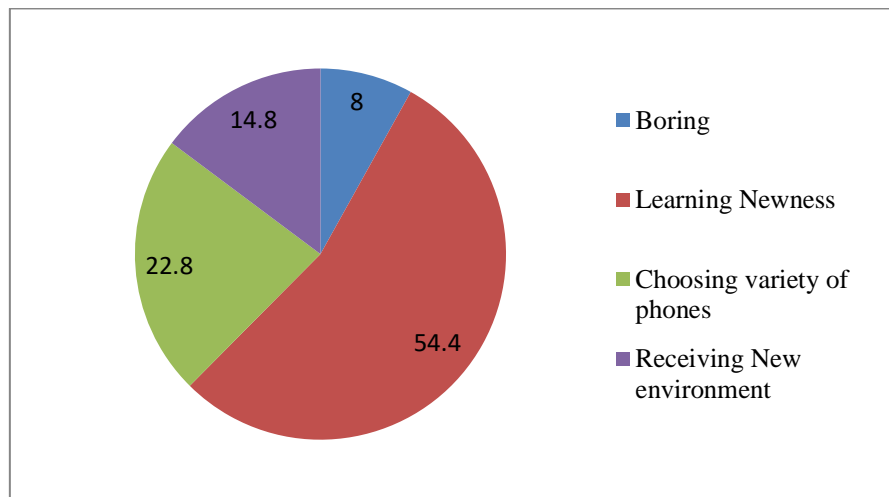
Table 4.10 The reason to seek variety

	Frequency	Percent	Valid Percent	Cumulative Percent
Boring	12	5.7	8.1	8.1
Learning newness	81	38.6	54.4	62.4

Choosing variety	34	16.2	22.8	85.2
Receiving new environment	22	10.5	14.8	100
Total	149	71	100	

Source: Survey Data (2018)

Figure 4.10 –Pie Chart of the reason to seek variety

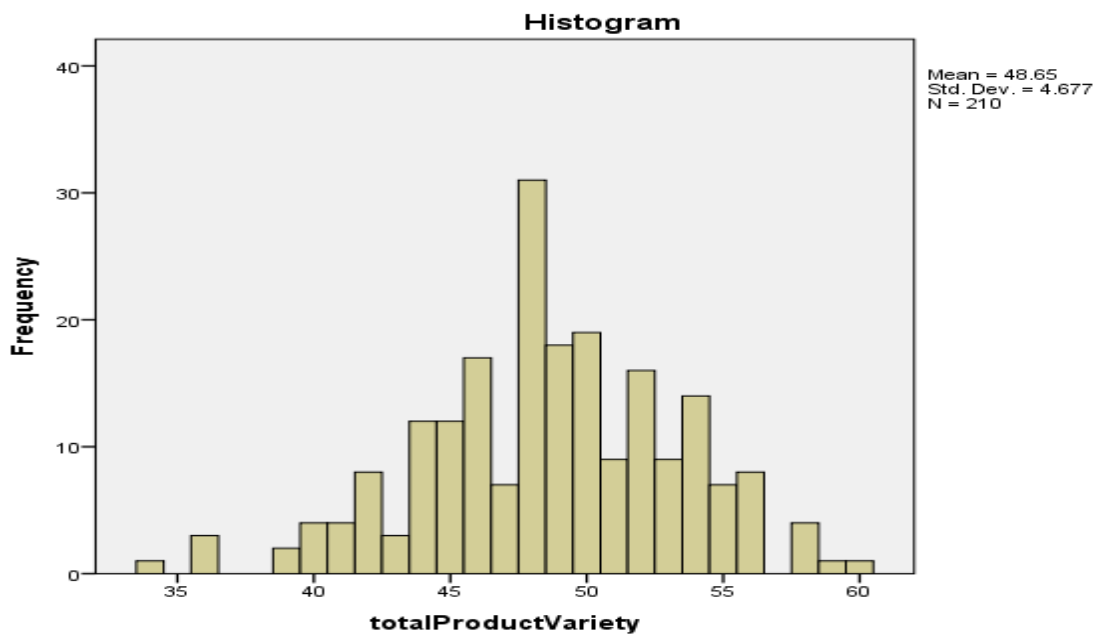


4.5.2 Descriptive analysis for Product Variety of Mobile Phone

In the table, we are given the results of the Kolmogorov-Smirnov statistic. This assesses the normality of the distribution of scores. A non-significant result (Sig. value of more than 0.05) indicates normality. In this case, the Sig. value is 0.000, suggesting violation of the assumption of the normality. This is quite common in larger samples. Figure shows that the normality of the product variety which are included in questionnaire.

Tests of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	Df	Sig.	Statistics	Df	Sig.
Total product variety	.097	210	.000	.987	210	.054



4.5.2.1 Function of mobile phone

Table 4.11 shows that the percentages of customer opinions on the function of mobile phones. Customer opinions are expressed into the format of five point likert scales anchored at 1= strongly disagree to 5= strongly agree. There were no responses to No.1 and No.2 about the function of mobile phone. The functions of mobile phone used in this study are touch-screen, functionality of camera, water resistance, ease of use, gigabyte of storage, screen size and resolution of mobile phone. According to the result, Mobile phone users like

the most function with many gigabytes of storage among the others. Larger screen size is the least score in all the scores.

Table 4.11 Function

	N	Minimum	Maximum	Mean	SD
Touch screen	210	1	5	4.20	.585
Camera	210	1	5	3.94	.895
Water resist	210	1	5	4.25	.768
Ease of use	210	2	5	4.18	.672
Gigabytes	210	2	5	4.33	.778
Screen size	210	1	5	3.61	.933
Resolution	210	1	5	3.90	.750

Source: Survey Data (2018)

4.5.2.2 Design of mobile phone

Table 4.12 shows that the customer opinions on the design of mobile phones. Customer opinions are expressed into the format of five point likert scales anchored at 1= strongly disagree to 5= strongly agree. There were no responses to No.1 and No.2 about the design of mobile phone. Designs of mobile phone used in this study are colors, versions, sensors, and body and battery life mode. All the respondents like all the design of mobile phone. However, among these designs, phone users like the most one which has produced with types of battery life & phone's body made by metal, aluminium, glass). The least is the one with many types of versions.

Table 4.12 Design

	N	Minimum	Maximum	Mean	SD
Colors and sizes	210	1	5	3.9	.776

Versions	210	1	5	3.84	.753
Sensor	210	1	5	4.09	.790
Battery life and cover	210	1	5	4.13	.750

Source: Survey Data (2018)

4.5.2.3 Connectivity of mobile phone

Table 4.13 shows that the opinions of mobile phone users about the connectivity of mobile phones. Customer opinions are expressed into the format of five point likert scales anchored at 1= strongly disagree to 5= strongly agree. Connectivity used in this study is measured by internet connection. According to the result, mobile phone users like the phone with more connectivity when they were using.

Table 4.13 Connectivity

	N	Minimum	Maximum	Mean	SD
Connection	210	3	5	4.30	.633

Source: Survey Data (2018)

4.5.3 Correlation Analysis

Pearson product-moment was conducted to evaluate whether there was a significantly relationship between variety and perception of mobile phone. Table 4.14 shows that the result of Pearson correlation between the independent variables: function, design and connectivity influence dependent variable customer perception of mobile phone in Kamaryut Township. According to the result, all independent variable were significantly correlated with the perception. There was a medium, positive correlation between function

and customer perception, $r=.396, n=210, p<0.001$ and there was also a medium, positive correlation between design and customer perception, $r=.358, n=210, p<0.001$. However, there was a small, positive correlation between connectivity and customer perception, $r=.227, n=210, p<0.001$. These results mean that the more the phone is produced with variety such as function, design and connectivity of mobile phone, the more the customers' perception increase.

Table 4.14 Correlation between Product Variety and Customer Perception

	N	Customer Perception
Function	210	.396**
Design	210	.358**
Connectivity	210	.227**

Source: Survey Data (2018)

** Correlation is significant at the 0.001 level (2-tailed).

4.5.4 Multiple Linear Regressions

4.15 Model Summary^b

Model	R	R Square	Adjusted R square	SD Error
1	.437 ^a	.191	.179	5.161

a. Predictors: (Constant), I would prefer internet connection, Totalmeandesign, Totalmeanfunction

b. Dependent Variable: totalperception

According to the table 4.15 shows that the R-squared of .191 implies that the two predicted variables explain about 19% of the variance in the customer perception. This also

indicates that the relationship between dependent variable and independent variables are weak. This result can conclude that even relation is weak but function, design and connectivity will still affect customer perception on mobile phones.

Table 4.16 ANOVA^a

Model	SS	df	MS	<i>F</i>	<i>P</i>
Regression	1294.594	3	431.531	16.198	.000 ^b
Residual	5487.887	206	26.640		
Total	6782.481	209			

a. Dependent Variable: total perception

b. Predictors: (Constant), I would prefer internet connection, Total mean design, Total mean function

The table 4.16 above presented the significant value is at 0.000($p < .05$). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted. The 2 of 3 independent variables are significantly contributes to mobile phone users' perception.

A standard multiple regression method was used in order to determine the predictive values of three variables on customer perception. The proposed equation for multiple linear regression is as follow:

$$Y = b_0 + b_1(X_1) + b_2(X_2) + e$$

Where:

Y = Customer Perception

b_0 = Constant (Intercept)

b_{1-2} = Estimates (Regression coefficients)

X_1 = Function of mobile phone

X_2 = Design of mobile phone

e = Error

According to the results, only two of three variables which namely function and design were found to be significant in explaining customer perception. This indicates that these two variables have significant contributions to the variation of dependent variable (customer perception).

As shown in the coefficient table (see Table 4.17), the estimates of the model coefficient for b_0 is 21.802, b_1 is .485, and b_2 is .560. Therefore, the estimated model is below:

$$Y = 21.802 + .485 (X_1) + .560 (X_2) + e$$

Where:

Y = Customer Perception

b_0 = Constant (Intercept)

$b_{1,2}$ = Estimates (Regression coefficients)

X_1 = Function of mobile phone

X_2 = Design of mobile phone

e = Error

The R-squared of .191 implies that the two predicted variables explain about 19% of the variance in the customer perception. The ANOVA result revealed that F-statistics (3,206) is 16.198 and the corresponding p-value is highly significant (0.000). This implies that the slope of the estimated linear regression model line is not equal to zero indicating that there was a linear relationship between customer perception and two variables. As shown in Table 4.17, the largest B coefficient is .560 which is design of mobile phone in customer perception. This means that mobile phone's designs make the strongest contribution to the explaining of their perception on mobile phones when the variance is explained by other predictors in the model are controlled for. The lowest value is function of mobile phone (.485), indicating the least contribution.

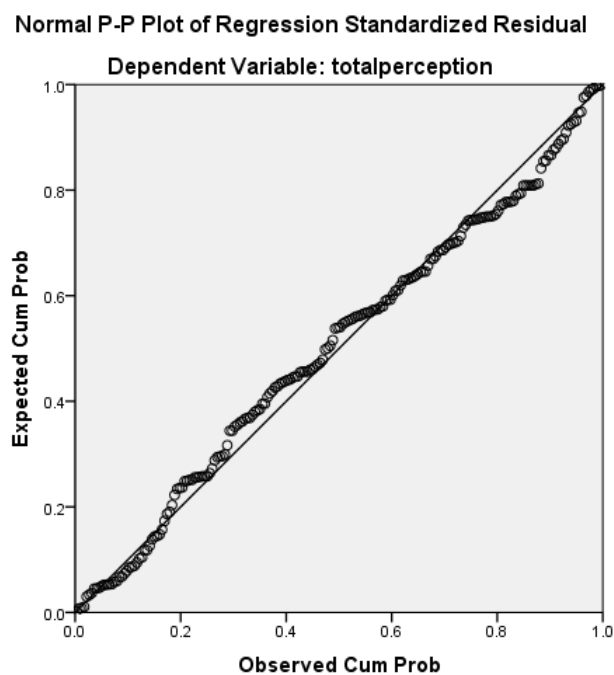
The normal P-P plot of regression standardized residuals of Figure 4.11 shown all observed values were roughly along the straight line implying that the residuals are from normally distributed population. It is reasonable to interpret that the estimated multiple regression model that explained students' mathematics achievement is stable since there is not multicollinearity problem, and all the assumptions for multiple regression are all met.

Table 4.17 Regression Analysis Summary for the Variables Predicting Customer Perception

Variables	B	SE B	Beta	<i>t</i>	<i>p</i>
(Constant)	21.802	3.810		5.722	.000
Function	.485	.156	.250	3.109	.002
Design	.560	.210	.201	2.670	.008
Connectivity	.785	.615	.087	1.277	.203

a. Dependent Variable: Customer Perception

Figure 4.11. The Normal P-P plot of the Regression Standardized Residual



4.5.4 Test of significant

Hypotheses 1

H₀: Mobile phone's function has no relationship towards customer perception of mobile phone.

H₁: Mobile phone's function has a positively relationship towards mobile phone users' perception.

Based on Table, the function of mobile phone ($p= 0.002$) p-value is lower than significant level of 0.05. Therefore, since p-value is lower than .05, H₀ is rejected and H₁ is accepted. In this study, function of mobile phone has a significant relationship towards mobile phone users' perception.

Hypotheses 2

H₀: Mobile phone's design has no relationship towards customer perception of mobile phone.

H₁: Mobile phone's design has a positively relationship towards mobile phone users' perception.

Based on Table, the design of mobile phone ($p=0.008$) p-value is lower than significant level of 0.05. Therefore, since p-value is lower than .05, H₀ is rejected and H₁ is accepted. In this study, design of mobile phone has a significant relationship towards mobile phone users' perception.

Hypotheses 3

H₀: Mobile phone's connectivity has no relationship towards customer perception of mobile phone.

H₁: Mobile phone's connectivity has a positively relationship towards mobile phone users' perception.

Based on Table, the connectivity of mobile phone ($p=0.203$) p-value is higher than significant level of 0.05. Therefore, since p-value is higher than .05, H₀ is accepted and H₁ is rejected. In this study, connectivity of mobile phone has no a significant relationship towards mobile phone users' perception.

CHAPTER 5

DISCUSSION AND CONCLUSION

This chapter describes a discussion of findings related to the research questions described in Chapter 1. The results of statistical analysis presented in this study are compared and discussed with the findings from previous studies described in Chapter 2. The chapter also includes suggestions, recommendations, and the implications of the study. It concludes with the limitations of the study and recommendations for future study.

5.1 Discussion of Findings Relative to the Research Questions

The main purpose of this research is to investigate whether there is a significant relationship between product variety and customer perception. The variables used in this study were demographic factors: gender, age, educational level and income level, product variety-operating system and Hardware system, and customer perception-self-perception, price-perception and benefit perception. The data and information of demographic factors were collected and summarized in order to analyze by using a descriptive statistic. It was found that nearly one-third of the respondents were female, and the most of respondents were under 30 years. More than half of the total respondents were gained bachelor degree, and the others

were students including 20% were in basic education, 27% were under graduates and 2% was post graduate.

According to the data analysis of income level, of 210 respondents, 27 respondents who were attending university reported that they had no income. Among the remaining 183 respondents in this study, 36.6% of respondents said that their income levels are less than 200,000 Kyats whereas the other respondents had monthly income over 200,000 Kyats. According to the descriptive statistical analysis, all respondents possessed mobile phones. Based on the results of data analysis, SAMSUNG, XIAOMI, HUAWEI, VIVO, OPPO, IPHONE and SONY are popular branded mobile phones in Myanmar. The majority of respondents, 26.5% of the

respondents, was using SAMSUNG brand. On the other hand, very few people (2.4%) were interested in SONY brand mobile phones. This is because these phones are more expensive than other brands even though they are superior in design, hardware, software and other features (Sathar, 2016). According to the study, most of the respondents, 78% of respondents, were willing to spend their money between 200,000 Kyats and 300,000 Kyats for their mobile phones. Only one-tenth of all respondents wanted to spend more than 500,000 Kyats for their mobile. Moreover, 50% of respondents wanted to change their phone within 2 years or 3 years. One-third of the respondents tried to know the information about the variety of mobile phones before they buy. They would like to know the latest model and application of the brand which they liked. It was also found that most of the people have no desire to change their mobile phones whenever they felt boring on it.

For responding the research question 1, product variety is studied into three parts; function, design and connectivity. Firstly, function of mobile phone is analysed by dividing seven factors which are touch-screen, functional of camera, water resistance, ease of use, gigabyte of storage, screen size and resolution of mobile phone. According to the results of the factors having in the function, customers like the variety of function about the mobile phone because the result scores are all near 4. These all function of mobile phone are satisfied by all the respondents. In the other word, the mobile phone users like these function about mobile phone they held. Among the factors, customers are very likely to buy more about storage space and memory capacity of mobile phones. Moreover, water-resistance mobile phones are preferable with a second largest score in this research. And then, customers quite like the phone with larger screen size. The other all factors are liked by all the mobile phone users.

Secondly, design of mobile phone is analysed as a second part of product variety. The factors which are used in this research include colours, versions, sensors, and body and battery life mode. According to the result of analysis, all factors of design are satisfied by all mobile phone users. Therefore, it is found that the production of mobile phone with variety of designs increases the customers' preference on mobile phones. The mobile phone users are the most preferred to the types of battery life and body cover made with metal, aluminium and glass. However, the mobile phone users do not quite like the phone's design with many types of versions.

The last independent variable in this research is connectivity. The result of connectivity is over 4. Therefore, it said that all mobile phone users like the connectivity of mobile phone. Finally, as a conclusion, it is found that all mobile phone users give preferences on the variety of mobile phone. These all result are corroborated by Kotler (2016) who wrote that making differentiation of products can lead to variegation to fulfil customers' preferences and perceptions.

In order to the research question 2, the relationship between variety of mobile phone; function, design and connectivity and customer perception towards purchase intention are analysed. According to the correlational analyses, there were found that the all factors which are function, design and connectivity positively related to the customer perception of mobile phone. This means that the customer preferences are more fulfilled by producing mobile phone with variety of features.

Consequently, to know the relationship of function and customer perception towards purchase intention of mobile phone, first hypothesis is investigated. From the result obtained and through statistical analysis, it shows that there is a significant relationship between function and customer perception towards purchase intention of mobile phones. However, although there have positive relation between variables, their inter-correlation is weak. Moreover, it is also found that out of 3 variables, only two variables which namely function and design have significant effect on the customer perception towards purchase intention of

mobile phones. This result is consistent with Sujata et al (2016) who investigate factors affecting smartphone purchase among Indian youth. They found that hardware features which are screen size, more storage, camera quality have a significant effect on choice of youth towards smartphone.

For second hypothesis, it is investigated that the relationship between design and customer perception towards purchase intention of mobile phones. According to the result, it also shows that there also has a significant effect on customer perception towards purchase intention of mobile phones. This result is also consistent with Sujata et al (2016). They found that battery life has a significant effect on choice of youth towards smartphones.

For last hypothesis, it is found that connectivity did not have a significant effect on customer perception towards purchase intention because of $p \text{ value} > 0.05$. This result is consistent with Sujata et al (2016) who found that connectivity is not significant effect on choice of youth towards smartphones. In a summary, these results are consistent with Karen Lim Lay-Yee (2013). According to Yee (2013), product feature has a significant relationship with customer purchase decision on smartphones.

5.2 Suggestions and Recommendations

5.2.1 Suggestions

The study found that there is a significant relationship between variety and customers' perception of a mobile phone. However, the following suggestions and recommendations may be useful and more effective. Due to increasing information

technology, mobile phones are being used widely nowadays. And then the customers' wants and needs are ever changing in time, so the companies are updating their phones to the needs and wants of customers. The customers' choices are complex based on the product variation of mobile phone and that fact became challenges for marketers to sell their products. Most of the customers like to seek variety before buying their phones because they want to learn newness. Therefore, manufacturers have introduced many types of phone by producing differentiation with function, design and connectivity. However, customers did not strongly response to the part of making differentiation in screen size, resolution of phones and camera in this research. And then, in section of design, customer did not like quite the colorful and types of versions. Moreover, there has a weak point on the point of connectivity from the result of analysis.

5.2.2 Recommendation

Customers do not know about the phones they used in details, especially hardware factors. Most customers only look for mobile phones' features like camera, sound, screen-size before they buy products. They don't know about the phone versions, such as Andriod version rate, Baseband version, hardware version, etc. And there are a few face-book pages where explain every kind of phones with respect to hardware system like TBH. Moreover, this study provides players involved in the smartphone industry such as smartphone manufacturers, application developers also network providers, etc with the following recommendations.

- i. They must ensure that connectivity must be ensured and processing speed should be good.
- ii. They must ensure that features such as camera, screen size, resolution, easy to use are provided for in the smartphones.
- iii. They should describe the information about the strength and weakness on theirs phones.
- iv. They should produce the phone with the color which must be the most popular in customers' mind.

5.3 Implications of the Study

After finding out a significant impact of product variety on customer perception on mobile phones, these findings can help marketers to come up with the innovative product mixes. This study will be helpful to manufacturers and service providers not only to understand how and what influence customers towards mobile phone but also give an idea of what features might be needed to make better sale of mobile phone in Kamaryut Township. It can be beneficial for consumers since it provides for a best match possibility between the consumer's preferences and the products' offerings. Moreover, the findings of this research can help us contribute to a better understanding about the current consumers' perception of purchasing mobile phones in Myanmar. Practically, the results of the study can provide and help the retailers to know more information related to the consumers' perception that influence on the intentions of purchasing mobile phones.

5.4 Limitations of the Study and Recommendations for Future Study

Although this study can make great contribution to more investigate the relationship between product variety and customers' perception, there are also many limitations. The first limitation is that it involves only 210 respondents in Yangon Division. This sample size is not too big to represent and generalize all people in Myanmar. Moreover, although there are many factors influencing customers' perceptions of product variety, three perceptions: self, price and benefit are only considered in this study. In addition, for product variation factors of phones, operation system and hardware system are considered as product features. Besides, this study is based on the product, regarding after sale-services on customers' perceptions.

Based on the limitations mentioned above, some recommendations are provided for future research. Future research should be conducted, including additional influential factors which were not currently considered. Additionally, future researcher should involve more participants in order to generalize results to all Yangon population, providing with more influencing factors relating to product variety and customers' perceptions.

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APPENDIX

THE INFLUENCE OF PRODUCT VARIETY

ON CUSTOMER PERCEPTION

(A Case Study of Mobile Phones Used by People in Yangon)

This survey questionnaire is to use only for the research paper "Product Variety and Customers' Perceptions of Mobile Phones in Myanmar" to submit as a partial fulfilment towards the degree of Master of Commerce (M. Com) in the department of Commerce, Yangon University of Economics.

Firstly, thank you for doing business with us.

Part A. Customers' Demographic Information

1. Name

2. Age

3. Education

4. Occupation

5. Monthly Income

6. Do you have a mobile phone?

1. No 2. Yes

7. If you have, please the type of phone you have?

- | | |
|-----------|---------------------------------------|
| 1. XIAOMI | 5. SAMSUNG |
| 2. HUAWEI | 6. SONY |
| 3. VIVO | 7. IPHONE |
| 4. OPPO | 8. Others (pls name your phone.....) |

8. Who bought your phone?

1. Your Parents
2. Relatives (eg, brothers, sisters, aunty, etc)
3. Yourself
4. Work
5. Others (receiving from friends as a present, etc)

9. How much did it cost?

1. Below 2 lakhs
2. Between 2 lakhs and 3 lakhs
3. Between 3 lakhs and 5 lakhs
4. Above 5 lakhs

10. Do you like to seek variety when you will buy phone?

1. No 2. Yes

11. If you answer "Yes", please answer why do you like?

1. I am bored to use the current phone
2. I want to learn newness
3. I like to choose from variety of phones
4. I want to change new environment

12. How long had you held your current phone?

1. One year
2. Between 1 and 2 years
3. Between 2 and 3 years
4. Above 3 years

13. How long will you change new phones?

1. Between 1 and 2 years
2. Between 2 and 3 years
3. Above 3 years

Part B Product Variety

This part is only to ask your opinion on the product variety about phones. Questions are arranged by the five point scales. Please answer with circle.

1= Strongly disagree

2= Disagree

3= Neutral

4= Agree

5= Strongly agree

	Operation System	SD	D	N	A	SA
14	I would prefer phones with touch screen.	1	2	3	4	5
15	I would prefer phones with many functionality of camera.	1	2	3	4	5
16	I would prefer phones with upgrading connectivity.(Eg, internet connection, WiFi, etc)	1	2	3	4	5
17	I would prefer phones with water resistance.	1	2	3	4	5
18	I would prefer phones with ease of use. (Eg, installation applications)	1	2	3	4	5
19	I would prefer phones with more storage.	1	2	3	4	5
20	I would prefer phones with large screen size.	1	2	3	4	5
21	I would prefer phones with more upgrading resolutions.	1	2	3	4	5

	Hardware System	SD	D	N	A	SA
22	I would prefer phones with more colorful and sizable to choose.	1	2	3	4	5

23	I would prefer phones with more update many kind of versions.	1	2	3	4	5
24	I would prefer phones with having sensor which install to use easily.(Finger print, Face unlock)	1	2	3	4	5
25	I would prefer phones with more durable battery life and metal of body.(Eg, metal, Aluminium, and Glass)	1	2	3	4	5

Part C- Customers' Perceptions about Mobile Phones

This part is only to ask your perceptions on the product variety about phones. Questions are arranged by the five point scales. Please answer with circle.

1= Strongly disagree

2= Disagree

3= Neutral

4= Agree

5= Strongly agree

	Self-Perception	SD	D	N	A	SA
26.	I satisfy on phones which I held.	1	2	3	4	5
27	The expectation on your phone conforms with reality .	1	2	3	4	5
28	My phone is useful in my workplace.	1	2	3	4	5
29	I believe on features of my phone.(Eg, trust on camera function)	1	2	3	4	5

	Price-Perception	SD	D	N	A	SA
30	Price is important for me.	1	2	3	4	5
31	The price of my phone conforms with the price I give.	1	2	3	4	5
32	I satisfy on the price when I bought my phone.	1	2	3	4	5
33	If the two phones are the same of quality but lower price, I choose the ones with lower price.	1	2	3	4	5

	Benefit Perception	SD	D	N	A	SA
34	I feel that my phone is more status than the people with other phones.	1	2	3	4	5
35	I feel that my phone is more quality and stylish than the other phones.	1	2	3	4	5
36	I feel that my phone is both more colorful and more match color with body of phones.	1	2	3	4	5
37	I feel that my phone is more unique than the others phones.	1	2	3	4	5
38.	I feel that my phone is more unique with respect to phones' body than the other phones.	1	2	3	4	5

Thank you for your co-operation.

