SERVICE QUALITY AND CUSTOMER SATISFACTION AMONG MOBILE TELEPHONY SUBSCRIBERS IN NAIROBI

BY

SAMUEL OBAMBO OMONGE

REG: D61/63518/2010

SUPERVISOR: Onserio Nyamwange

A Management Research Project Presented to the School of Business in Partial fulfillment of the Requirements for the Award of the Degree of Master of Business Administration of the University of Nairobi

October 2013

DECLARATION

I declare that this research project is my original work and has never been submitted for the award of a degree in any other University.

Signed:………………………………… Date:………………………………

Samuel Obambo Omonge

D61/63518/2010

This research project has been submitted for presentation with my approval as the student supervisor

Supervisor

Signed:………………………………… Date:………………………………

Onserio Nyamwange

Lecturer, Department of Management Science

DEDICATION

This is dedicated to my dear family; my wife Phoebe and my daughter Marvel, who were patient with me during my absence. They provided me with a cool and peaceful environment to complete my project.

ACKNOWLEDGEMENTS

I feel indebted to the team of people who contributed immensely in one way or the other to the successful completion of this project. First and foremost to my supervisor Onserio Nyamwange and my moderator Dr. Okwiri for their counsel, good guidance, support and patience they displayed from the inception up to the conclusion of this project.

My gratitude is also to my family for bearing with the throughout the period of the study and assisting me with psychological support to complete my work.

Equally, I feel to my professional colleagues for the vital information they provided to me.

Above all, I thank the Almighty Lord for the strength and knowledge He gave me to carry out the academic work.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBEVIATIONS

ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
df	Degree of freedom
FA	Factor Analysis
GPO	General Post Office
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.
MMS	Multimedia Messages
MNO	Mobile Network Operators
P-E	Performance - Expectation
SERVPERF	Service Performance
SERVQUAL	Service Quality
Sig.	Level of significance/ p value
SMS	Short Messages
SQ	Service Quality

ABSTRACT

The purpose of the study was to investigate the relationship between service quality and customer satisfaction with a view of identifying the strategic dimensions of service quality which impact positively on customers. This study explores the level of service quality and its relationship with customer satisfaction in the mobile telephony industry among the subscribers and sought to determine the extent to which the service quality dimension affects the level of customer satisfaction.

Data was collected using structured questionnaire from mobile telephony subscribers from three mobile network operators (Safaricom, Airtel and Orange) within Nairobi, Kenya. The reliability test done on the variable collected confirmed the adequacy and suitability of the survey instrument. Data analysis was done by the use of ANOVA test, regression analysis and Factor analysis.

It was found that reliability dimension of service quality was the most important factor to invest on followed by responsiveness, technical quality and assurance. Responsiveness was highly correlated to empathy and reliability and was thus eliminated as a measure of service quality. In general, it was found that customer's perception of service quality offered by MNO did not meet their expectations since all gaps scores have negative values. Orange subscribers were the most satisfied (gap score of -0.5610) followed by Airtel customers (-0.7332) and lastly Safaricom customers (-0.8858). The different in satisfaction was significant across the MNO. Tangibility and assurance dimension did not differ significantly across the MNO. Analysis across the personal profile indicated that Technical quality was the most affected by personal profile, followed by reliability, responsiveness while the least affected by personal profile was image and tangibility dimensions. MNO should therefore customize their services based on personal profile of the customers. In conclusion, there was strong relationship between the quality service dimensions and customer satisfaction. The MNO should therefore prioritize their quality service dimensions since they impact differently on customer satisfaction and that they are currently at different investment levels. Reliability and technical quality should be given more importance and that there is no need to invest on responsiveness since it is less effective. Future survey should adopt the six dimensions derived through the factor analysis in telephony industry. The tool derived is more reliable and consist of 25 strong items.

CHAPTER ONE: INTRODUCTION

1.1   Background

Customer-focused strategy has become a means of competitive advantage and survival for organizations (Taylor & Baker, 1994). In the era of global competition, many organizations have shifted the paradigm from service quality to customer perspective (Parasuraman et al, 1985). There has been a paradigm shift from the traditional way of measuring performance through inspection to quality assurance to strategic quality management and recently to customer satisfaction (Sureshchandar et al., 2002). According to Reid (2005), competitive strategies often led to tradeoffs between quality and cost and some strategies are willing to sacrifice quality in order to develop a low cost advantage. Improving quality relates to high cost and this reduces the value that the customers derive from the services. From a customer's perspective, the value of a product/service is strongly linked to quality. Customers feel they are getting a good value when the benefits outweigh the sacrifices (i.e. costs). Value is therefore the ultimately the reason consumers buy anything.

There is need for service firms to improve only quality dimensions, which translate to high customer value and this can be achieved by identifying the factors which translates to higher value when improved. The purpose of the study is to investigate the relationship between service quality and customer satisfaction with a view of identifying the strategic dimensions of service quality which impact positively on customers. This study explores the level of service quality and its relationship with customer satisfaction in the mobile telephony industry and sought to determine the extent to which the service quality dimension affects the level of customer satisfaction.

1.1.1   Service Quality

According to Lewis and Booms (1983), service quality involves a comparison of expectations with performance and is a measure of how well a delivered service matches the customer's expectation. Nikecki et al. (2000) defined service quality in terms of "meeting or exceeding customer expectations, or as the difference between customer perceptions and expectations of service". Many scholars such as Parasuraman et al. (1988), Juwaheer and Rose (2003) and Walker et al. (2006) highlights that reliability, responsiveness, assurance and empathy are the most important service quality dimensions. According to Grönroos (1984), service quality is

conceptualized as a three-dimension construct, namely: technical quality; functional quality; and image. Extant research in this area shows that properly implemented service quality dimensions have a significant impact on customer satisfaction (Gronroos, 1984; Walker et al, 2006).

1.1.2 Customer Satisfaction

Kotler (1996) defined customer satisfaction as "the level of a person's felt state resulting from comparing a product's perceived performance or outcome in violation to his/her own expectations". The study defines customer satisfaction as the degree of perceived quality that meets customers' expectation. In quality management context, customer satisfaction is often defined as result of comparison between what one customer expects about services provided by a service provider and what one customer receives actual services by a service provider (Caruana et al., 2000). If the services provided by an organization meet a customer's needs, this may lead to higher customer satisfaction (Foster, 2004, Walker et al., 2006). Sureshchandar et al. (2002) found that service quality and customer satisfaction were highly related. Organizations that consistently satisfy customers enjoy higher retention level and greater profitability due to increased customers' loyalty (Wicks & Roethlein, 2009)

1.1.3 Mobile Telephony in Kenya

The telecommunication sector, especially the mobile phone sector in Kenya is one of the fastest growing business segments of the country, which provide a lot of value addition to the society with its service and creation of employment opportunities. About 75.4%% of Kenyan population is accessible through mobile communication with about 29.7 million network subscriptions across the country (CCK, 2013). This study seeks to evaluate the level of customer satisfaction by relating the service quality dimension in the mobile telephony industry in Kenya. The study will target subscribers of Safaricom, Airtel and Orange mobile service providers; since they are the first and leading service providers with 64%, 16.5% and 10.5% market share respectively. The respondents will be targeted from the major service points in Nairobi due to its heterogeneity in population characteristics.

Despite complaints on the high costs of services, Safaricom is the most popular mobile network operator in Kenya, largely because of M-PESA and the value of its huge network of users. Safaricom boasts of strong and consistent national network coverage, making it stand out from the other networks. According to Research Solution Africa (2012) on mobile phone usage in Kenya, Subscribers preferred particular networks due to varied number of reasons.

These includes; cheaper services providers, good customer care, good network service provision/connectivity, options availability, range of network tariff, national coverage and friends networks, customer loyalty offers, money transfer services, period in the network, free sms /talk time among others. Mobile network operators therefore compete on these areas.

1.2   Research Problem

Related studies have shown that service quality is highly rated to customer satisfaction and that properly implemented service quality dimensions have a significant impact on customer satisfaction. Parasuraman et al. (1985) studied four different types of services, including banking industry, credit card companies, motor repair shops, and long-distance telecommunication companies, and the results showed that service quality had dimensions as tangibility, reliability, responsiveness, assurance, and empathy. According to Grönroos (1984), service quality is conceptualized as a three-dimension construct, namely: technical quality; functional quality; and image.

A study of mobile phone industry in Madurai, India looked at the service quality dimensions across the customers' profile. The finding showed a positive relationship between the functional quality (Reliability, Empathy, Assurance, Tangibility and responsiveness) and customer satisfaction. Nimako, et al. (2012), studied service quality dimension in Ghana's mobile industry. The findings indicate that Technical Quality is the most important service quality dimension to the customers, followed by Empathy, Reliability, Economy, Responsiveness, Image, and Assurance. The study also found that customer priority regarding service quality dimensions is significantly similar across mobile telephony network. Moreover, it was found that age, occupation and income significantly influence customer priority.

A study was conducted by Otemba (2012) to determine the factors affecting service quality in the Kenyan telecommunications vendors market and the relationship between service quality dimensions and customer satisfaction. The findings revealed that even though the five service quality dimensions can lead to customer satisfaction, some of them were regarded to be of higher priority. Reliability dimension was considered to be having the highest impact on service quality while tangibility dimension was considered to have the least impact on service quality in the Kenyan telecommunication vendors market. A related local study conducted by Tirimba et al. (2013) on Service Quality and Customer Satisfaction at Kenya Airways Ltd concluded that for airline to remain competitive the airline need to focus on its operational

strategies so as to reduce cost but at the same time increase service quality. Both of the local studies not consider image and technical quality as some of the dimensions of service quality. No comprehensive study has been done in Kenya that has considered the three dimensions of quality especially in the mobile industry as the one carried out in Ghana. Moreover, the customers preferences always differ depending on cultural background and profile and the study may not be fully adopted for use by mobile telephony networks in Kenya.

The Government of Kenya introduced customer satisfaction survey in 2004 as one of the indicators used by the ministries and agencies in gauging and ranking the performance level. Private Organizations have also adopted the same approach of focusing on customers by improving its customer service function. Most of the recommendation provided by researchers usually involves improving quality dimensions. Improving quality relates to high cost and this reduces the value that the customers derive from the services. It is therefore important to improve only quality dimensions, which translate to high customer value and this can be achieved by identifying the factors, which translates to higher value when invested upon.

The research therefore sought to investigate the relationships of customer satisfaction with service quality in Kenyan context with a view of prioritizing service quality dimension in addressing customers concerns without affecting much on cost of service. In this study, mobile telephony industry was selected since it affects all Kenyan population with the current 75.4% level of mobile phone service penetration and 29.7 million subscribers across the country. The study could therefore be replicated to other sectors which derive its services from the same population. Moreover, no study had tested the three dimensions of service quality directly to find out if it is related to customer satisfaction in mobile telephony industry in Kenya.

The following research questions were used to guide the study with a view of addressing the purpose of the study:

1. Is there any significant positive effect of service quality dimensions on customer satisfaction in mobile telephony industry in Kenya?
2. Is there any significant difference of degree of importance on every service dimension /attribute among customers of different mobile network?

3. Is any significant difference of degree of importance on every service dimension/attribute among different customer categories (gender, age, education background, social status etc.)?

1.3   Research Objectives

The overall objective of the study was to investigate the relationship between service quality and customer satisfaction with a view of identifying the strategic dimensions of service quality which impact positively on customers. The specific objectives of this study were as follows:

1. To determine the relationship between service quality and customer satisfaction among customers of mobile telephone service providers.

2. To compare the importance on every service attributes based on different customer categories/characteristics and type of service delivered

3. To determine the gap between perceived quality and expected quality among mobile telephone subscribers

1.4   Value of the Study

The finding of this study will be useful for managers in public and private institutions in developing strategies that deliver more value to customers. It will assist the manager in making focused investment decisions geared towards improving the quality of customer service without reducing the value of services since improving quality ordinarily translates into higher cost of service.

The focus on demographic characteristics will assist organizations in market segmentation and targeting in Kenya's mobile telephony industry and related sectors so that the needs of customers are fully personalized to enhance customer retention and loyalty.

The study is also expected to contribute to the body of knowledge in customer service in this region since it will embrace all the dimensions of service quality. Moreover, the study can be replicated in other service sectors in regions with the similar demographic and cultural characteristics.

CHAPTER TWO: LITERATURE REVIEW

2.1   Service Quality

Quality is the key word for the survival of organizations in the global economy. Organizations are undergoing a shift from a production-led philosophy to a customer-focused approach. Firms with high service quality pose a challenge to other firms given that service quality is considered an important tool for a firm's struggle to differentiate itself from its competitors (Landari, 2008). According to Lewis and Booms (1983) service quality is a measure of how well a delivered service matches the customer expectation.

Parasuraman et al. (1985) defined service quality as "the global evaluation or attitude of overall excellence of services". Therefore, service quality is the difference between customers' expectation and perceptions of services delivered by service firms. Nitecki et al. (2000) defined service quality in terms of "meeting or exceeding customers' expectations" or as "the difference between customers perception and expectations of service".

In this study, service quality can be defined as the difference between customers' expectation for service performance prior to the service encounter and their perception of the service received. Customers' expectation serves as a foundation for evaluating service quality because, quality is high when performance exceeds expectation and quality is low when performance does not meet their expectation (Asubounterng et al., 1996).

2.2   Quality Models

In this section, the quality models adopted for the development of the study conceptual framework are discussed.

2.2.1   Gap model (Parasuraman et al, 1985)

Parasuraman et al (1985) developed a service quality gap model, where he defined service quality as a function of the difference between the expectation and performance along quality dimensions. The various gap visualized in the model are:

Gap 1: Consumer expectation – management perception gap. The difference between customer's expectation and management perception of those expectations. Ie not knowing what consumers expect.

Gap 2: Management perception – service quality specification gap. Difference between management perception of consumers' expectations and service quality specifications ie improver service quality standards.

Gap 3: Service quality specifications – service delivery gap. Difference between service quality specifications and service actually delivered ie the service performance gap

Figure 2.1   Parasuraman Gap analysis model
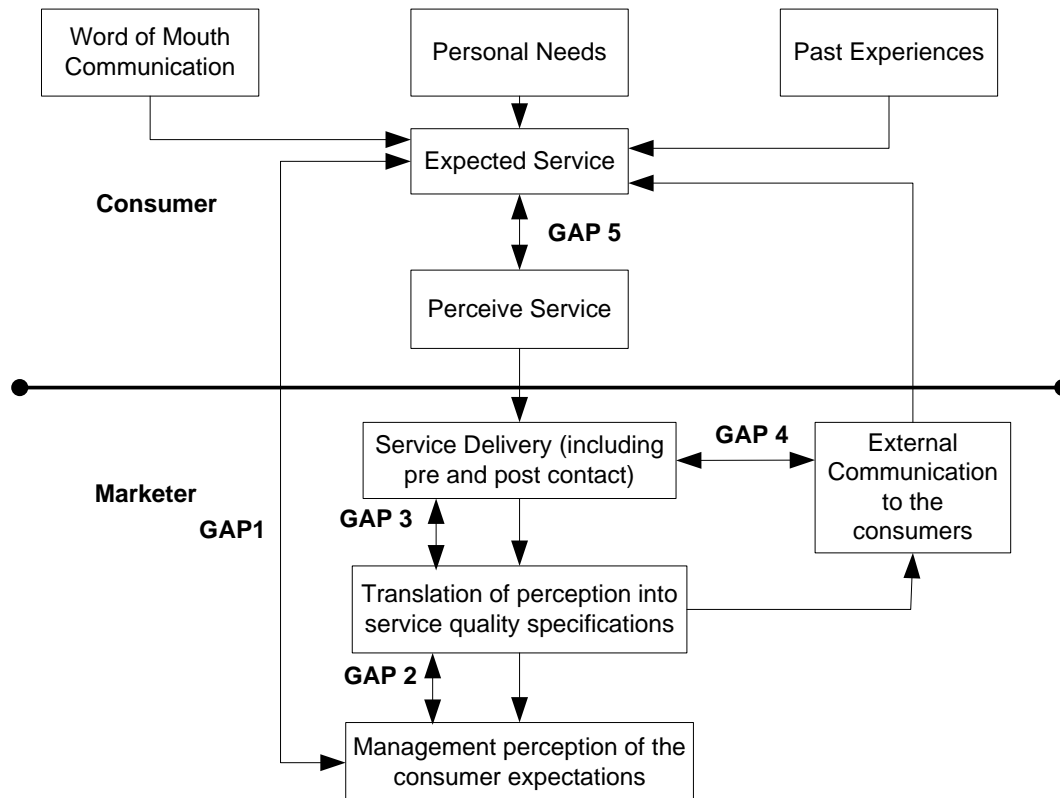
Gap 4: Service Delivery – External communication Gap. Difference between service delivery and communications to consumers about service delivery ie whether promises match delivery.

Gap 5: Expected Service – Perceived Service Gap. Difference between consumer's expectation and perceived service. This gap depends on size and direction of the four gaps associated with the delivery of the service quality on the marketer's side

2.2.2 Technical and Functional Quality Model

According to Grönroos (1984), service quality is conceptualized as a three-dimension construct, namely: technical quality; functional quality; and image (see Figure 2.2). He believes that the customer evaluations of perceived performance of service against his/her perceived service quality result in a measure of service quality. He explains Technical Quality as the quality of what consumer actually receives as a result of his/her interaction with the service firm and is important to him/her and to his/her evaluation of the quality of service. Functional quality is how consumers get the technical outcome. This is important to the consumer and to his views of service he has received. Image, which could be referred to as reputational quality, is very important to service firms and this can be expected to build up mainly by technical and functional quality of service including factors such as tradition, ideology, word of mouth, pricing and public relations. Continuous deterioration of functional and technical quality lowers the image.

Figure 2.2   Grönroos Model of Service Quality
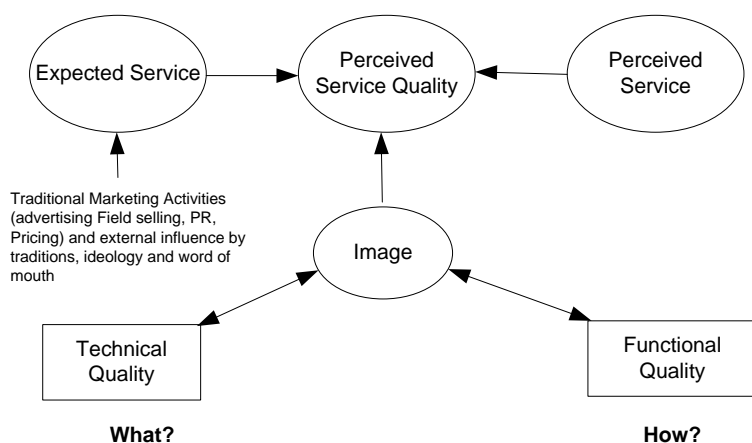
Source: *Nimako et al, (2012) "Confirmatory factor analysis of service quality dimensions within mobile telephony industry in Ghana" The Electronic Journal Information Systems Evaluation , Vol.15 N0. 2 pp 201*

Although, this model has not been widely adopted and applied in many research contexts as compared to the SERVQUAL of Parasuraman *et al.* (1988), few authors like Bozorgi (2007) and Gi-Du and James (2004) who applied it recommended for different settings

2.2.3   Ideal value model of service quality

In majority of the studies on service quality "expectation is treated as belief about having desired attributes as the standard for evaluation". However, this issue needs to be examined in the light of other standards such as experience based, ideal, minimum tolerable and desirable. The model argues for value approach to service quality, modeling it as an outcome of satisfaction process. The value based model of service quality suggests the use of a perceived ideal standard against which experience is compared. Figure 2.4 shows that implicit negative disconfirmation on a pre-conscious value level, is then hypothesized to determine satisfaction on a higher attitude level. This negative disconfirmation is the major determinant of consumer satisfaction, more attention should be given to cognitive processes by which consumer's service concepts are formed and changed. Recently also Hume & Mort (2008) contend that 'value' is a significant dimension of service quality that significantly affects customer satisfaction. Value is considered what the consumer gives in exchange for what he gets. "Value" could be described as the value for money or how economical services are to customers.

Figure 2.3   Value and attitude in negative disconfirmation
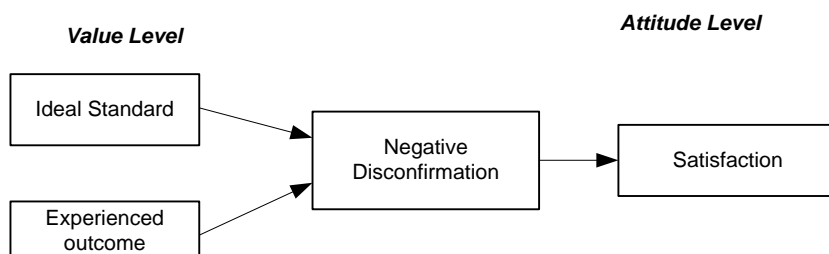
Source: *Nitin, S., Deshmukh, S.G. and Prem, V. (2005), "Service Quality Model: a review, "International Journal of Quality & Reliability Management, Vol. 22 No. 9, pp. 922*

Albert et al. (2000) studied the moderating role of value in service quality and satisfaction suggested that the effect of quality on satisfaction is not just a direct but moderated by value. They concluded that value does not appear to have a strong independent effect on satisfaction. They further indicated that although customers may believe that the service firm provides high levels of service quality, it does not necessarily follows that satisfaction will be high. Albert et al only explored one particular audit firm and they results were considered not authentic and therefore needs further research. This study will not consider value as one of

the dimensions of service quality and considered it as a mediating variable between quality and customer satisfaction, which is not within the scope of this research.

2.3   Customer Satisfaction

Kotler (1996) defined customer satisfaction as "the level of a person's felt state resulting from comparing a product's perceived performance or outcome in violation to his/her own expectations". The study defines customer satisfaction as the degree of perceived quality that meets customers' expectation. Extant research in this area shows that properly implemented service quality dimensions have a significant impact on customer satisfaction (Gronroos, 1984; Walker et al, 2006). In quality management context, customer satisfaction is often defined as result of comparison between what one customer expects about services provided by a service provider and what one customer receives actual services by a service provider (Caruana et al., 2000).

Matzler et al. (2002), classified factors that affect customers satisfaction into three structures as follows: The first factor is basic factors, which are the minimum requirements that are required in a product to prevent the customer from being dissatisfied. They do not necessarily cause satisfaction but lead to dissatisfaction if absent. These factors lead to fulfillment of the basic requirement for which the product or service consumption. These constitute the basic attribute of the product or service. They have a low impact on satisfaction even though they are a prerequisite for satisfaction. They include competence and accessibility. The second factor are called Performance factors: These are factors that lead to satisfaction if fulfilled and can lead to dissatisfaction if not fulfilled. They include reliability and friendliness. The third factor is refers to as Excitement factors: These are factors that increase customer's satisfaction if fulfilled but does not cause dissatisfaction if not fulfilled

2.4   Measures of Service Quality and Customer Satisfaction in Mobile Telephony Context

Sureshchandar et al. (2002) found that service quality and customer satisfaction were highly related and this study seeks to identify the specific service quality dimension that impacts greatly on customer satisfaction. Parasuraman et al. (1985) studied four different types of services, including banking industry, credit card companies, motor repair shops, and long-distance telecommunication companies, and the results showed that service quality had dimensions as reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibility. Later in 1988,

these ten dimensions were cut down to five ones: tangibility, reliability, responsiveness, assurance, and empathy.

Tangibles is the physical evidence of the service: appearance of physical facilities, tools and equipment used to provide the services, appearance of personnel and communication materials. Reliability is the ability to perform the promised service dependably and accurately. It involves consistency of performance and dependability, service is performed right at the first time, the company keeps its promises in accuracy in billing and keeping records correctly, performing the services at the designated time. Responsiveness is the willingness and/ or readiness of employees to help customers and to provide prompt service, timeliness of service: mailing a transaction slip immediately, setting up appointments quickly. Assurances are the knowledge and courtesy of employees and their ability to convey trust and confidence. It entails competence (possession of the required skills and knowledge to perform the service), courtesy (consideration for the customer's property, clean and neat appearance of public contact personnel), and trustworthiness, security (safety and confidentiality). Finally, Empathy is the provision of caring, individualized attention to customers. It entails informing the customers in a language they can understand, understanding customer's specific needs, providing individualized attention).

2.5   Mobile Service in Kenya

The growth of the mobile market has continued to be on an upward trend. As at 30th March 2013, there were 29.7 million mobile telephony subscriptions and annual growth of 17.5 percent, (CCK 2013). During the period under review, Safaricom Ltd market share by subscription increased marginally from 64.1 percent recorded the previous to 65.1 percent. Similarly, Telkom's (Orange) recorded a decline of 1% percentage points to record 7.1 percent market share at the end of the quarter. Airtel maintain a constant market share of 16.9% while Essar increased from 10.5% to 10.9%. The population that has access to mobile telephony continued to grow with the quarter under review recording a mobile telephony penetration of 75.4 per 100 inhabitants up from 74.0 per 100 inhabitants recorded during the previous quarter. This represents a quarterly mobile penetration increase of 1.4 percent and an annual increase of 11.2 percent.

Despite complaints on the high costs of services, Safaricom is the most popular mobile network operator in Kenya, largely because of M-PESA and the value of its huge network of users. Nevertheless, Safaricom subscription base is slowly decreasing over time. As other

network operators steadily gain market shares, it will be interesting to follow how Safaricom will attempt to keep its hold of the market (Crandal et al., 2012). Safaricom boasts of strong and consistent national network coverage, making it stand out from the other networks. According to Research Solution Africa (2012) on mobile phone usage in Kenya, Subscribers preferred particular networks due to varied number of reasons. These includes; cheaper services providers, good customer care, good network service provision/connectivity, options availability, range of network tariff, national coverage and friends networks, customer loyalty offers, money transfer services, period in the network, free sms /talk time among others. Mobile network operators therefore compete on these areas.

Most of the services obtained through mobile phone which are provided by the service providers includes; making and receiving calls, sending and receiving text messages, browsing the internet, buying and transfer of airtime, banking services,, money transfer (MPESA, PESA MKONONI), payments of bills, "please call me" services, credit borrowing services etc.

This study will investigate the level of service delivery in the three major mobile telephony networks (Safaricom, Airtel and Orange) and perform a comparison along the three service quality dimensions.

2.6   Choice of service quality model for the Study

After reviewing many service quality models, Grönroos' (1984) model of service quality was selected in understanding service quality dimensions that may be relevant to the mobile telephony industry. The Model was deemed most appropriate for the study for three reasons. First it is comprehensive given that it includes not only functional quality as portrayed by Parasuraman et al. (1988) but also technical quality as well as image, which is more realistic of today's dynamic global marketplace than what functional-quality-only models portray. Gi-Du and James (2004) applied the model in a similar mobile telecom setting and concluded that, "The results from a cell phone service sample revealed that Grönroos' model is a more appropriate representation of service quality than the American perspective (SERVQUAL model) with its limited concentration on the dimension of functional quality."

Second, the model is more suitable for mobile telecommunication context. Nitin, et al (2005) noted, "the service quality outcome and measurement is dependent on type of service, setting, situation, time need, etc. factors." The mobile telecom market is a type of service industry in which customers place much importance not only on how they are served (functional

quality), but also and more importantly, on outcome or nature of services they receive and experience which constitute technical quality variables like network quality (Wang & Lo 2002; Gi-Du and James 2004). Third, the model is empirically validated by Gi-Du and James (2004) and has been applied by Bozorgi (2007) who recommends it for different mobile telecom context.

For the above reasons, service quality is conceptualised to include all three dimensions of Gronroos' SERVQUAL model, namely: functional quality, technical quality and image or reputational quality. Rust & Oliver (1994). Therefore, the conceptual framework for this study has three dimensions of service quality, namely: Functional, Technical and Image service quality dimensions (Figure 2.4).

Figure 2.4   **Service Quality and Customer Satisfaction Conceptual Framework**
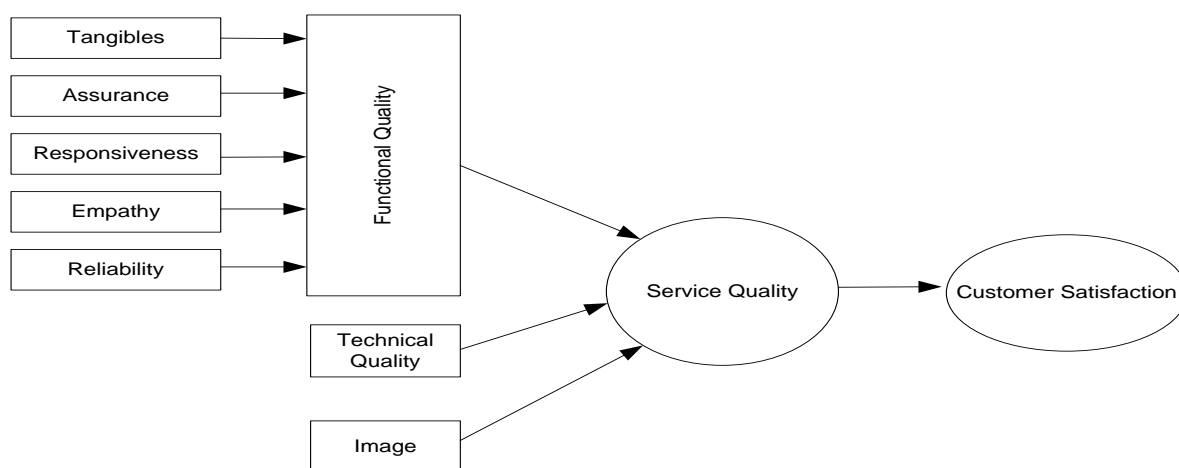
Source: Author (2013)

According to the study conducted by Nek et al. (2009) on the relationship between the quality dimensions, perceived value and customer satisfaction, he found that value plays a mediating role between service quality and satisfaction level. The study further suggested that perceive value should be seen as a crucial aspect on service quality where perceive value about quality may strongly induce positive subsequent individual attitudes and behaviors (eg. Satisfaction, retention and thus loyalty).

This study will not directly include value as one of the dimension of service quality but will consider any variability of customer satisfaction as differentiated by the perceived value created by the service firm. A factor analysis approach was applied to determine relevant

dimensions in mobile telephone context. This can be replicated in any service industry with the view of determining the accurate variables of measure.

Parasuraman et al. (1985; 1988) proposed the SERVQUAL, and Weighted SERVPERF, among which SERVPERF was considered the best for determining the priority factors for improvement. Furthermore, the Importance-Performance Analysis, proposed by Martilla et al. (1977) is another technique for measuring service quality. The importance-performance grid is normally used to determine which items needed urgent improvement or which resources are allocated improperly. For this study, the importance-performance analysis was to categorize the quality dimension s into four quadrants to identify which dimensions the mobile network operators should invest more on.

Figure 2.5   Importance -Performance Analysis
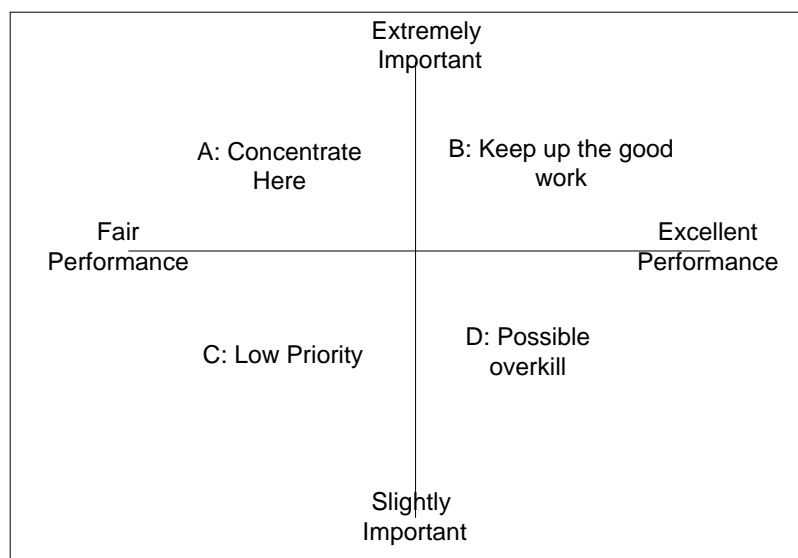
Source: *Wang I.M and Shieh C.J. (2006), "The relationship between Service Quality and Customer Satisfaction: the example of CJCU Library", Journal of Information & Optimization Sciences, Vol. 27 No.1, pp. 195*

2.7   Gap Analysis

Both expectation and perception are measured using a 5-point scale to rate their level of importance or satisfaction (1 – Very Dissatisfied /Not important and 5 – Very satisfied/ Very important), on which the higher number indicate higher level of expectation or perceptions. Perception are based on the actual customer receive in the network while expectations are based on past experiences and information received about the network. Service quality scores are the difference between the perception and expectation (P-E) with a possible range of values from -4 to +4 (-4 stands for very dissatisfied and +4 means very satisfied).

The quality scores measures the service gap or the degree to which expectation exceeds perceptions. The more positive the P-E score, the higher the level of service quality leading to a higher level of customer satisfaction. Satisfaction and service quality are both treated together as functions of a customer's perceptions and expectations. In most cases, when expectation and perception are equal, service quality is satisfactory. Exceeding customer expectation results into a customer delight and it takes any value when Perception is greater that Expectation (P>E). This state is often not realized by most of the organization.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1   Research Design

The quantitative research strategy was used to collect data. The researcher used correlational research design for this study. Correlation design was used to compare two or more characteristics from the same group and to explain how characteristics very together and predict one from the other. The researcher sought to find out any relationship between the mobile subscribers characteristics/profile and the service quality and customer satisfaction. The research singled out each quality dimension of service quality and related it with customer satisfaction through regression analysis, correlational analysis and factor analysis.

3.2   Population

This study was conducted in Nairobi Kenya and targeted mobile telephony subscribers of Safaricom, Airtel and Orange. These were the major subscribers and constituted 90% of mobile telephone subscribers in Kenya. Safaricom, Airtel and Orange Subscribers are 64%, 16.5% and 10.5% respectively of the Kenyan mobile subscribers approximated to be 29.7 million in total.

Nairobi is a metropolitan city and constitutes respondents from all the social background, which generated heterogeneous sample required for this nature of the survey. From the population, all the desired population characteristics for the analysis were obtained. Safaricom, Airtel and Orange have their headquarters and major service points in Nairobi and this generated a desired population mix for the survey. The target population was therefore intercepted from the major service point from which the respondents were sampled for interrogation after receiving the service. Owing to the nature of the survey and the type of data required for analysis, only subscribers who have visited the mobile subscribers' service point and interacted with their staff were sampled for the interview.

3.3   Sample Design

The sample size was determined using computer based Fisher et al (1998) Model for determination of appropriate sample sizes for populations more than 10,000. In this study, the survey population was more than 10,000 subscribers and the following formula was adopted.

Fishers Model: Equation:

$$n = \frac{z^2 pqD}{e^2}$$

Where-:

z -: is the   corresponding standard score with the probability of error at 0.05   and a confidence level of 95%, which is 1.96

p-: is the occurrence level of the phenomenon under study and is equal to 0.5 where the occurrence level is not known

q -: is the absence of the phenomenon under consideration and is equal to 0.5 where the value is not known.

D -: is the design effect and is equal to the number of groups to be compared in this case

e -; is the selected probability of error of the study corresponding with 95% confidence level in this case 0.05

The alpha level used in determining sample size in most educational research studies is either .05 or .01 (Ary, Jacobs, & Razavieh, 1996). The general rule relative to acceptable margins of error in educational and social research is as follows: For categorical data, 5% margin of error is acceptable, and, for continuous data, 3% margin of error is acceptable (Krejcie & Morgan, 1970). In this study, the data will be categorical and therefore, the margin of error will be 5%

Substituting for the values:

$$n = \frac{1.96^2 * (0.5) * (0.5) * 1}{0.05^2} = 384$$

In order to collect data of high quality that reflects customers' opinion, a survey was conducted from the three mobile telephony networks in Kenya. The sample consisted of Safaricom, Airtel and Orange Subscribers in Nairobi. The sample sizes of 402 subscribers were targeted from the three networks in anticipation of 96% response rate.

The research used probability techniques (multistage and simple random sampling) to select telephone subscribers to for the interview. Using multistage sampling techniques, the sub-groups in the population was identified and their proportions in each sub-group proportionately selected. In this study, three groups were identified based on the type of

network and from each group; an equal number of respondents were selected based on the service point and gender. In line with this method, the researcher targeted 134 respondents from each network. These numbers were adequate since a minimum of sample of 30 is considered a large size for statistical analysis (Cooper and Scchindler, 2006). The mobile subscribers were intercepted from the outlets (Money transfer agents, sales outlets and customer service points) of the three network providers and were randomly selected based on gender. For quality control measures aimed at improving quality of data, the subscribers interviewed must have visited the major customer service point operated by the three networks. The research avoided intercepting customer where there were long queues due to tendency of dissatisfaction influenced by the perceived waiting time, which could have influenced the responses.

3.4   Data Collection

The main data type for this study was primary data since there were hypotheses to be either qualified or disqualified by the research. In order for the research to produce a realistic outcome, the collation of data was distributed over a larger population. Thus, the survey questionnaire were designed to apply to a heterogeneous population, where targeted respondents come from the general open public(from difference gender, age groups, marital status, education background, income level, expenditure level, network). Owing to the fact that different levels of the society have different expectations and needs, therefore, the idea of choosing respondents from different backgrounds was intended to generate a more reliable outcome toward service quality by mobile telephony subscribers.

The questionnaires were used since the study was concerned mainly with variables that cannot be directly observed such as views, opinions, perceptions and feelings of the respondents. Such information is best collected through questionnaire (Touliatos & Compton, 1988).

3.4.1   Questionnaire Design

A self-administered, structured questionnaire was used to collect data from respondents as recommended for a large survey (Saunders 2000; Cooper and Schindler 2006; Malhotra & Birks 2007).

The questionnaire was pretested to a sample of 14 subscribers purposively selected. This small size is guided by the suggestion by Fink (2003 in Saunders, Lewis, Thornhill 2007) that

the minimum of ten (10) members for pre-testing is adequate. The adjustment was finally made to get more effective instruments based on the reliability test on the instruments. Cronbach alpha reliability test (SPSS analysis module) was used to eliminate variables that does not add any value in the survey before the main data collection was launched.

3.4.2 Questionnaire Administration

The researcher used stratified and random sampling technique to pick the sampling elements of the survey. Four hundred and two (402) questionnaires were administered to the subscribers of Safaricom, Airtel and Orange. Targets of 134 questionnaires were administered to each network. Three service points per network were visited within a period of six days of data collection with an average of 40 respondents per service point. Three-research assistant were trained by the researcher on data collection and administration skills and were issued with an introduction letter approved by the University. At each service point, the subscriber who has received the service was approached randomly for his/her consent to participate in the survey. The purpose of the survey was explained and depending with the respondents' knowledge of the service and literacy level was allowed to fill the questionnaire either alone or with the aid of the research assistant.

3.4.3 Coding

The seven dimensions were the main variables used in this study and these dimensions were coded in order to ease the analysis data collected. The information regarding the respondents profile were also coded. Below is the coding of the variables for analysis:

REL	**Reliability**
REL1	The mobile network should be truthful (keeping to promises)
REL2	The network should be dependable and consistent in solving customers' complaints/problems
REL3	The network should perform services right the first time
REL4	The network should be timely in the delivery of SMS, MMS, Money transfer and other network services
REL5	The network should insist on error-free records i.e. airtime and money balances, and personal information
RES	**Responsiveness**
RES1	The network ability to give prompt customer services and attend to customers' needs/problems

RES2	The employees should be approachable, easy to contact and respond to customers request
RES3	The staff should be able to communicate clearly to customers
RES4	The employees should be willing to help customers in an emergency situations
ASS	**Assurance**
ASS1	The ability of employees to use the required skills and knowledge to answer customers' questions
ASS2	The employees should be courteous/polite to customers
ASS3	The behavior of employees in instilling confidence in customers
ASS4	The customer should feel safe in transaction with the network. i.e. keeping and transfer of money and airtime
TAN	**Tangibility**
TAN1	The network should have modern equipment
TAN2	Provision of visually attractive offices, equipment and materials like starter packs and reload cards
TAN3	The employees should be well dressed and appear neat
TAN4	The general physical environment of the service points should be clean and comfortable to stay in.
EMP	**Empathy**
EMP1	The employees should give customers individual attention
EMP2	Dealing with customers in a caring fashion. I.e. having convenient terms, free airtime, promotions
EMP3	Having the customers' best interest at heart
EMP4	The network should have operating hours convenient to all customers
EMP5	The network should always put more effort to understand the specific customers' needs
TEC	**Technical Quality/Products**
TEC1	The network should have a variety of products/services
TEC2	The products/services offered by the network should be of high quality
TEC3	The employees should have adequate technological knowledge and skills in solving customers problems
TEC4	Services should be completed successfully. I.e. calls not aborted, SMS and MMS delivered promptly, line activation, credit reloading, borrowing for

	credits, sending of airtime and money
TEC5	Network innovativeness- ability to use current technology to improve services
IMA	**Image**
IMA1	How successful the network has been in the last years
IMA2	The brand image being used by the network in provision of its services
IMA3	The network reputation in provision of its services
IMA4	The involvement of the mobile network in corporate and social responsibility i.e. sponsoring sports, providing scholarships, development initiatives
IMA5	The tendency of the customer to be associated with the mobile network

3.5   Data Analysis

Data analysis was done using SPSS version 20 and Excel. A codebook was created in SPSS platform to facilitate data entry and cleaning procedures.

The analysis of the study was done in two steps, preliminary analysis and the main analysis. The preliminary analysis involved mainly descriptive statistics to summarize data especially the demographic characteristics the respondents in order to simplify the understanding of the sample data.

Reliability and validity of the seven dimension of service quality were done using the Cronbach's alpha. The Cronbach's alpha ranges between 0 (denoting no internal reliability) and 1 (denoting perfect internal reliability).

The survey responses were analyzed and reported using descriptive statistics (use of frequency, means and standard deviation) and inferential statistics (Correlation analysis, Regression analysis, Factor analysis and ANOVA test)

Inferential Analysis was used to draw conclusions concerning the relationships and differences found in research results. In this study, inferential analysis was best suited to draw conclusion and to answer the research questions for this study.

In this survey, the researcher used factor analysis to determine the most relevant dimensions of service delivery in mobile telephony industry and to derive the main factors affecting service quality. Factor analysis also uses correlation analysis procedures to determine the relationships between the variables affecting service quality. ANOVA test was also used to determine any significant different of service quality with customers characteristics.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATIONS OF RESULTS

4.1 Response Rate

According to the sample size, the study targeted at least 384 respondents. The data collection was a success and the final valid questionnaires after data cleaning were 402 giving a 100% response rate. The sample elements were well distributed since at least 128 respondents were required for each mobile network. The high response rate improved the error margin from initial value of 5% to 4.89% at 95% confidence level.

4.2 Demographics Characteristics of the Respondents

The demographic profiles of the respondents are presented in Table 4.1. In terms of gender, 54% of the respondents were male while female were 46% slightly lower than female.

Table 4.1   Personal profile of Respondents

Characteristics	Elements	Frequency	Percent
Gender	Male	217	54.0
	Female	185	46.0
Age	Less than 18 years	11	2.7
	18-29 years	156	38.8
	30-39 years	113	28.1
	40-49 years	58	14.4
	50-59 years	42	10.4
	60-69 years	22	5.5
Education level	Primary Level (KCPE)	5	1.2
	Secondary Level (O/A level)	88	21.9
	College (Certificate)	70	17.4
	College (Diploma/HND)	90	22.4
	University (Bachelors)	111	27.6
	University (Masters/PhD)	38	9.5
Occupation/ employment status	Employed (formal)	152	37.8
	Employed (informal/casual worker)	34	8.5
	Self-employed (technician)	35	8.7
	Self-employed (business operator)	74	18.4
	Farmer	20	5.0
	Student	87	21.6
Monthly Income	None	74	18.4
	Kshs 10,000 and above	36	9.0
	Kshs 10,001-20,000	37	9.2
	Kshs 20,001-30,000	64	15.9
	Kshs 30,001-40,000	51	12.7
	Kshs 40,001-50,000	51	12.7
	Kshs 50,001-100,000	60	14.9
	Kshs 100,001-150,000	17	4.2
	Above Kshs 150,000	12	3.0

Source: Field data, 2013

Majority of the respondents (38.8%) were within the ages of 18-29 years, followed by 30-39 years at 28.1%, implying that majority were in the economically active population.

In terms of education background, all respondents were literate with majority (27.6%) having a bachelor's degree, 22.4% having a diploma and 21.9% having an O/A level education. Occupation-wise, most of the respondents (37.8%) were in formal employment, followed by 21.6% who were students and 18.4% in business related self-employment. In terms of income, 18.4% did not have any form of monthly income since most of them were students. Most of the respondents (15.9%) earned income between Ksh 20,000-30,000, followed by 14.9% of respondents with income between Kshs. 50,000 to 100,000.

The characteristics of respondents were also sought in term of mobile network subscription and usage.

Table 4.2   Mobile subscription profile

Characteristics	Elements	Frequency	Percent
Tariff	Postpaid	80	19.9
	Prepaid	322	80.1
Main Network	Safaricom	148	36.8
	Orange	126	31.3
	Airtel	128	31.8
Daily Expenditure	Kshs 20 and below	37	9.2
	Kshs 21-50	83	20.6
	Kshs 51 -100	105	26.1
	Kshs 101-150	46	11.4
	Kshs 151-200	52	12.9
	Kshs 200-250	40	10.0
	Above Kshs 250	39	9.7
No. of mobile network subscribing to	One	133	33.1
	Two	196	48.8
	Three	60	14.9
	Four	13	3.2
Customer Service Points in Nairobi	GPO	68	16.9
	Haileselasie	40	10.0
	I&M	85	21.1
	Kenya cinema-Airtel	20	5.0
	Kenya cinema-Safaricom	29	7.2
	Koinange	79	19.7
	Moi Avenue-Airtel	29	7.2
	Moi Avenue-Orange	18	4.5
	Nation center	34	8.5

Source: Field data, 2013

Table 4.2 indicates that 80.1% of the respondents were on Prepaid tariff while 19.9% were on postpaid tariff. Most of the respondents (36.8%) were from Safaricom mobile network,

followed by Airtel (31.8%) and Orange (31.3%). In terms of daily expenditure on mobile communication and related services, it was revealed that 26.1% of the respondents spend an average of between Kshs 51 to 100, followed by 20.6% with an expenditure of Kshs. 20-50. It was revealed that 66.9% of the mobile users subscribes to more than one mobile network operators while 48.8% were subscribing to two network operators and 14.9% were subscribing to three mobile operators. Nine (9) main service centers of Safaricom, Airtel and Orange networks were visited. Most of the respondents (21.1%) were from I&M- Safaricom centre, followed by 19.7% from Koinange Airtel centre and 16.9% from GPO Orange centre.

4.3   Reliability of Instrument

Cronbach's alpha (Cronbach, 1951) is a measure of reliability and was used to test the suitability of the data collection instrument for the study. More specifically, alpha is a lower bound for the true reliability of the survey. Mathematically, reliability is defined as the proportion of the variability in the responses to the survey that is the result of differences in the respondents. That is, answers to a reliable survey will differ because respondents have different opinions, not because the survey is confusing or has multiple interpretations. The internal consistency for the items was assessed by calculating the reliability scale using the items under perception scores. The total reliability scale was 0.942, indicating a reliability factor almost the same as Parasuraman et al (1998) study, which was 0.92. The reliability value for the study is substantial considering the fact that the highest reliability that can be obtained is 1 and this is an indication that the seven dimensions of service quality are acceptable for analysis. A Cronbach value of 0.7 or greater is considered reliable (Straub et al, 2004).

Table 4.3 shows the reliability scale for the seven dimensions and the reliability of each dimension calculated when each item is deleted from the dimension in order to see if the deleted item is genuine or not. In case Cronbach's alpha for a dimension increases when an item is deleted, the item is considered genuine in that dimension. From the table, it can be realized that all the items showed a lower value of reliability when deleted except for TEC5 (network innovativeness), which had a higher values showing it is not true measure under that dimension. This item was therefore eliminated since it did not meet the reliability test.

The reliability scales of all the dimensions are 0.7 and above and these are considered good for analysis. Higher values of reliability were recorded on reliability SQ dimension with a

reliability scale of 0.859, followed by empathy with a scale of 0.855 and responsiveness with a scale of 0.852. The least reliability was on assurance with a reliability scale of 0.796

Table 4.3   Reliability Statistics (Cronbach's alphas)

Dimension	Number of Items	Cronbach alpha for dimension	Cronbach alpha if item deleted	Items
Reliability	5	0.859	0.835	REL1
			0.816	REL2
			0.835	REL3
			0.826	REL4
			0.839	REL5
Responsiveness	4	0.852	0.824	RES1
			0.777	RES2
			0.813	RES3
			0.831	RES4
Assurance	4	0.796	0.779	ASS1
			0.753	ASS2
			0.713	ASS3
			0.727	ASS4
Tangibility	4	0.807	0.779	TAN1
			0.765	TAN2
			0.750	TAN3
			0.742	TAN4
Empathy	5	0.855	0.833	EMP1
			0.806	EMP2
			0.843	EMP3
			0.831	EMP4
			0.812	EMP5
Technical Quality/products	5	0.758	0.688	TEC1
			0.687	TEC2
			0.668	TEC3
			0.713	TEC4
			0.802	**TEC5**
Image	5	0.815	0.770	IMA1
			0.783	IMA2
			0.766	IMA3
			0.811	IMA4
			0.764	IMA5

Source: Field data, 2013

4.4   Mobile Network Services

The study sought to know the reasons why customers subscribe to a particular mobile service provider. As shown in Table 4.4, service cost plays an important role in attracting subscribers to a network. A part from Safaricom, the key determinant for choosing to subscribe to a particular Mobile Network Operator (MNO) is how cheap the services are. 61.1% of those subscribed to Orange noted cheap services as the main reasons followed by 60.9% of Airtel subscribers. The main reasons why customers choose Safaricom were good customer service (48.6%), good network service connectivity (48.0%), Money transfer services (47%) and friends within the network (44.6%). Customers are hooked to Airtel mainly due to good customer service (64.1%), followed by cheaper services (60.9%), good network service connectivity (39.1%) and national network coverage (28.9%). The key satisfiers of Orange mobile network were noted to be cheaper services (61.1%) followed by good customer care (60.3%), good network service connectivity (42.9%), money transfer services (35.7%), friends in the network (30.2%) and offer for free talk time (23.8%)

Table 4.4   Reasons given for choosing a particular mobile network operator service

Main reasons for subscribing to Mobile Network	Safaricom			Orange			Airtel		
	Responses		Percent of Cases	Responses		Percent of Cases	Responses		Percent of Cases
	N	Perc ent		N	Percen t		N	Percen t	
Cheaper services provider	35	7.9%	23.6%	77	20.4%	61.1%	78	20.3%	60.9%
Good customer care	72	16.2 %	48.6%	76	20.1%	60.3%	82	21.4%	64.1%
Good network service connectivity (strong and stable connection)	71	16.0 %	48.0%	54	14.3%	42.9%	50	13.0%	39.1%
Has wide range of network tariff to pick from	29	6.5%	19.6%	17	4.5%	13.5%	31	8.1%	24.2%
Has national network coverage	65	14.6 %	43.9%	20	5.3%	15.9%	37	9.6%	28.9%
Most of my friends are in the same network	66	14.9 %	44.6%	38	10.1%	30.2%	28	7.3%	21.9%
Money transfer services	70	15.8 %	47.3%	45	11.9%	35.7%	32	8.3%	25.0%
Customer loyalty offers (bonga points and credit borrowing)	6	1.4%	4.1%	5	1.3%	4.0%	5	1.3%	3.9%
Has used for a long time	21	4.7%	14.2%	16	4.2%	12.7%	21	5.5%	16.4%
Free talk time/SMS	9	2.0%	6.1%	30	7.9%	23.8%	20	5.2%	15.6%
Total	**444**	**100.0 %**	**300.0%**	**37 8**	**100.0 %**	**300.0%**	**38 4**	**100.0 %**	**300.0%**

Source: Field data, 2013

Table 4.5 indicates the frequency of usage of the MNO services and the overall ranking of the usage. The mean column indicate the frequency of use which was captured in a scale of 1-10

with one (1) being least frequent and ten (10) most frequent. Making and receiving calls is the predominant services followed by sending and receiving SMS, Data/internet services, money transfer services and purchase of airtime respectively.

Table 4.5   Frequency of usage of Mobile network services across MNO

Services	Safaricom			Orange			Airtel			Overall		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std Dev.
Make/receive calls	144	9.28	1.860	123	9.63	1.314	127	9.60	1.317	394	9.49	1.515
Send/receive SMS	144	8.74	2.365	126	8.67	2.409	127	8.83	2.219	397	8.75	2.332
Data/internet services	141	9.07	8.252	125	8.02	2.830	127	7.54	3.124	393	8.24	4.870
Send/receive money	143	8.33	2.632	125	7.71	3.583	127	8.14	3.116	395	8.07	3.088
Purchase airtime	142	7.27	3.149	125	6.82	3.367	127	7.32	3.287	394	7.14	3.263
Credit Borrowing	138	5.49	3.502	126	5.81	3.674	127	5.50	3.709	391	5.60	3.625
Banking services	139	5.09	3.449	126	5.94	3.764	123	5.17	3.659	388	5.39	3.618
Payment of bills	139	5.20	3.429	124	5.37	3.875	127	4.64	3.817	390	5.07	3.697
Airtime/bonga points transfer	141	4.31	3.353	123	5.22	3.784	124	3.78	3.465	388	4.43	3.526
Please call me service	139	4.05	3.594	126	5.39	3.843	127	3.69	3.431	392	4.36	3.621
Call back tunes/sikiza tunes	140	3.76	3.273	126	4.44	4.106	121	4.07	3.447	387	4.08	3.598
Back up of contacts	141	3.24	3.033	123	4.74	4.083	125	3.49	3.514	389	3.79	3.520
Voice mail services	141	3.16	2.864	123	4.68	4.072	125	3.41	3.396	389	3.72	3.417
Sale of mobile and related products	140	3.36	3.324	123	4.45	4.157	127	3.41	3.440	390	3.72	3.625
News and Information	141	4.30	3.909	126	3.44	3.636	125	2.97	3.213	392	3.60	3.599
Quotes	140	2.83	2.816	126	3.80	3.880	124	2.81	2.712	390	3.14	3.127

Source: Field data, 2013

The least service sought across network was quotes, news, information, and sale of mobile and related products.

4.5   Perception and Expectation (Gap Analysis)

Expectation and perception of services offered by the three MNO were measured using the 5-point likert scale where the higher numbers indicate higher level of expectation or perception. Table 4.6 present the summary of findings on perception, expectation and gap scores for the all the item of SQ and related dimensions. In general, the subscribers' expectation exceeded the perceived level of service delivery. This resulted in a negative gap scores (P-E)

Table 4.6   **Summary of mean of Mobile subscriber's expectation and gap scores**

Dimension	Statements	Expectation Scores		Perception Scores		Gap score (P-E)	
Reliability	Keeping to promise	4.8408		3.8259		-1.0149	
	Dependability and consistency	4.7662		3.7537		-1.0124	
	Right service the first time	4.5149	4.7562	3.7388	3.8313	-0.7761	-0.9249
	Timely services	4.8781		3.9900		-0.8881	
	Accuracy in records	4.7811		3.8483		-0.9328	
Responsiveness	Prompt Service	4.7438		3.8433		-0.9005	
	Readiness to respond	4.7811		3.7786		-1.0025	
	Ease in obtaining information	4.7587	4.7425	3.9726	3.8358	-0.7861	-0.9067
	Willingness to help	4.6866		3.7488		-0.9378	
Assurance	Knowledgeable employees	4.7438		3.9677		-0.7761	
	Consistently courteous	4.6990		4.0224		-0.6766	
	Instilling confidence in customers	4.5448	4.6828	3.9428	4.1455	-0.6020	-0.5373
	Making customers feel safe in their transactions	4.7438		4.0473		-0.6965	
Tangibility	Modern Equipment	4.6766		4.0547		-0.6219	
	Visually appealing facilities	4.5124		3.9801		-0.5323	
	Looking neat, professional appearance	4.5622	4.6070	4.1294	4.0665	-0.4328	-0.5404
	Visually appealing materials associated with the service	4.6766		4.1020		-0.5746	
Empathy	Giving Customers individual attention	4.7015		3.9328		-0.7687	
	Dealing in a caring fashion	4.5547		3.8383		-0.7164	
	Having customer's best interest at heart	4.3731	4.5841	3.9154	3.8900	-0.4577	-0.6940
	Convenient business/operating hours	4.6095		3.9428		-0.6667	
	Understands the needs of the customers	4.6816		3.8209		-0.8607	
Technical Quality/products	Range of products available	4.7214		4.1070		-0.6144	
	Products are of high quality	4.7164		3.9876		-0.7289	
	Level of technological knowledge and skills in solving problem	4.6642	4.6990	3.9577	3.9900	-0.7065	-0.7090
	Successfulness in completion of services	4.6891		3.7687		-0.9204	
	Degree of innovation and use of current technology	4.7040		4.1294		-0.5746	
Image	How successful the service firm is	4.5124		3.8507		-0.6617	
	The brand image of the services	4.5473		3.8085		-0.7388	
	Reputation of the service provider	4.6891	4.5413	3.6045	3.7502	-1.0846	-0.7910
	How service provider is socially responsible	4.4652		3.7861		-0.6791	
	Tendencies of customers to be associated with the service provider	4.4925		3.7015		-0.7910	
Overall SQ		4.6573		3.9031			-0.7542

Source: Field data, 2013

28

According to Parasuraman et al.,(1988) it is however common for customers' expectations to exceed the actual service perceived and this signifies that there is always a gap in service delivery. The gap score analysis is a tool used in finding out how the mobile subscribers perceive service quality in MNO and attempt to identify the extent of satisfaction with each SQ dimensions and items.

The higher (more positive) the perception(P) minus expectation(E) score, the higher the perceived service quality and thereby leading to a higher level of customer satisfaction. In general it was found that customer's perception of service quality offered by MNO did not meet their expectations since all gaps scores had negative values.

Dimension which recorded a larger gap scores were reliability (-0.9249), responsiveness (-0.9249), image (-0.7910) and technical quality (-0.7090) which dimension which recorded a smaller gap were assurance (-0.5373), tangibility (-0.5404) and empathy (-0.6940). Higher expectation was recorded on reliability dimension (4.7562) followed by responsiveness (4.7425) while the least expectation was obtained from the image dimension (4.5413).

Likewise the item that had high expectation was REL4 (the network should be timely in delivery of network services) with a mean score of 4.8781, followed by REL1 (the mobile network should be truthful) with a mean score of 4.8408. However, the least expectation was on item MP3 (having customers' best interest at heart) with a score of 4.3731.

4.6   Important-Performance Analysis

Importance-Performance Analysis, proposed by Martilla et al. (1977) is another technique for measuring service quality. The importance-performance grid is normally used to determine which items needed urgent improvement or which resources are allocated improperly. For this study, the importance-performance analysis was to categorize the quality dimensions into four quadrants to identify which dimensions the mobile network operators should invest more on.

In this study expectation denotes the level of importance while perception is denotes the level of performance. The scatter plot in Figure 4.1 clearly indicates the important dimensions and their performance level. Dimensions in quadrant A were regarded as very important yet have scored low and this is where the MNO should concentrate on. These dimensions were reliability and responsiveness. According to Matzler et al. (2002), these factors can be classified, as performance factors since their withdrawal will results into dissatisfaction.

Dimensions in quadrant B were regarded as very important by the subscribers and also performed high (high perception value). They included Technical quality and Assurance. MNO should keep the same level of investment under technical quality and assurance. Tangibility dimension scored high in terms of performance yet was not regarded as very important (quadrant D). It was likelihood that MNO in Kenya had overinvested in Tangibility dimension relative to other six SQ dimensions. However, gap analysis still indicates some level of dissatisfaction. Quadrant C have low priority dimensions such as Empathy and Image since the expectation were lower and the performance also low.

Figure 4.1   Important-Performance Scatter for Mobile Telephony services in Kenya
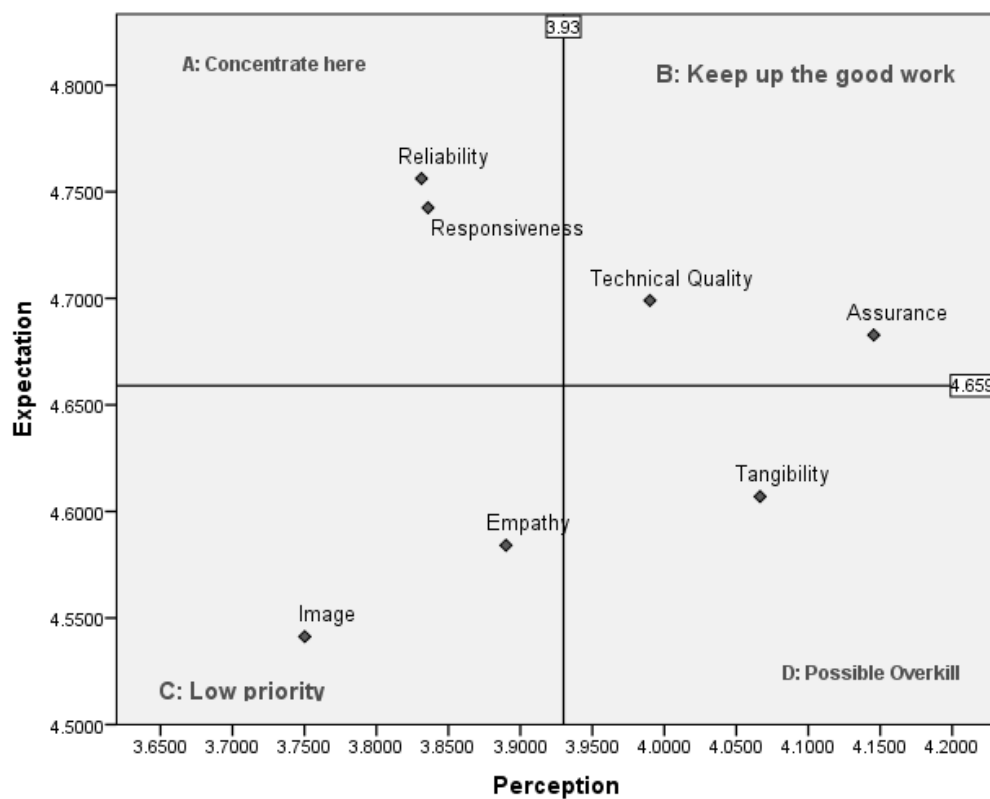
Source: SPSS output, 2013

4.7   Overall Perceived Service Quality

Overall service quality is measured by obtaining an average gap score of all the dimensions. For the mobile telephony subscribers study, seven dimensions were considered in line with Gronroos (1982) who proposed three main dimensions of SQ; functional quality (reliability, responsiveness, empathy, assurance and tangibility), technical quality and image.

Table 4.7 represent the descriptive statistics of the overall and seven dimension of the gap scores. The overall results indicate that mobile subscribers expect more than what the MNO in Kenya could offer. This is revealed by the negative mean of -0.7354 showing that the expectation exceeded perception in MNO.

From the descriptive statistics, the median gap calculated was -0.6406 and the highest number of subscribers (mode) had a gap of -0.03 indicating that most subscribers where satisfied with services being offered by the MNO. Perceived quality indicating satisfaction with the seven dimensions are also summarized in Table 4.7. It is revealed that on average, most of customers were satisfied with reliability, responsiveness, assurance and image given that they scored a mode of 0.00 signifying no gap in service delivery.

Table 4.7   **Descriptive statistics for the seven dimensions**

	Overall Service Quality Gap	Reliability gap	Responsiveness gap	Assurance gap	Tangibility gap	Empathy gap	Technical quality gap	Image gap
N	402	402	402	402	402	402	402	402
Mean	-0.7354	-0.9249	-0.9067	-0.5373	-0.5404	-0.6940	-0.7090	-0.7910
Std. Error of Mean	0.0347	0.0469	0.0496	0.0302	0.0454	0.0549	0.0390	0.0498
Median	-0.6406	-0.8000	-0.7500	-0.5000	-0.2500	-0.6000	-0.6000	-0.8000
Mode	-0.03	0.00	0.00	-0.50	0.00	-1.00	-0.20	0.00
Std. Deviation	0.69508	0.93959	0.99359	0.60457	0.91080	1.10163	0.78271	0.99911
Skewness	-0.639	-0.467	-0.647	-0.874	-0.694	-0.476	-0.804	-0.389
Std. Error of Skewness	0.122	0.122	0.122	0.122	0.122	0.122	0.122	0.122
Kurtosis	0.249	-0.130	0.352	1.816	0.732	0.290	1.044	-0.112
Std. Error of Kurtosis	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243

Source: Field data, 2013

4.8 Relationship between Service Quality dimensions and Customer Satisfaction among customers of different Mobile network

The data was captured from three MNO and the study sought to know if there was significant different in the way customers of various mobile networks scored on the quality dimensions and customer satisfaction levels. The gap scores were used for satisfaction levels while the perception scores were used for quality dimension comparison.

Table 4.8a   Comparison of Service Quality dimensions and Customer satisfaction

		N	Mean	Std. Deviation	Std. Error
Customer Satisfaction(Overall Gap)	Safaricom	148	-.8858	.63175	.05193
	Orange/Telcom wireless	126	-.5610	.70572	.06287
	Airtel	128	-.7332	.71890	.06354
	Total	402	-.7354	.69508	.03467
Reliability	Safaricom	148	3.5054	.92242	.07582
	Orange/Telcom wireless	126	4.1984	.86292	.07688
	Airtel	128	3.8469	.92028	.08134
	Total	402	3.8313	.94545	.04715
Responsiveness	Safaricom	148	3.5794	.91009	.07481
	Orange/Telcom wireless	126	4.1548	.95124	.08474
	Airtel	128	3.8184	.97847	.08649
	Total	402	3.8358	.97223	.04849
Assurance	Safaricom	148	4.0625	.70643	.05807
	Orange/Telcom wireless	126	4.3036	.64390	.05736
	Airtel	128	4.0859	.65766	.05813
	Total	402	4.1455	.67874	.03385
Tangibility	Safaricom	148	3.9679	.79554	.06539
	Orange/Telcom wireless	126	4.2698	.82377	.07339
	Airtel	128	3.9805	.93416	.08257
	Total	402	4.0665	.85957	.04287
Empathy	Safaricom	148	3.6500	.91959	.07559
	Orange/Telcom wireless	126	4.2159	.87218	.07770
	Airtel	128	3.8469	1.02672	.09075
	Total	402	3.8900	.96758	.04826
Technical Quality/ Products	Safaricom	148	3.8905	.76036	.06250
	Orange/Telcom wireless	126	4.1317	.74411	.06629
	Airtel	128	3.9656	.78051	.06899
	Total	402	3.9900	.76657	.03823
Image	Safaricom	148	3.7243	.82657	.06794
	Orange/Telcom wireless	126	3.9619	.87223	.07770
	Airtel	128	3.5719	.89010	.07867
	Total	402	3.7502	.87350	.04357

Source: SPSS output, 2013

From Table 4.8a, it is clear that Orange subscribers were more satisfied (gap score of -0.5610) followed by Airtel customers (-.7332) and lastly Safaricom customers (-0.8858). The perception values across all the 7 dimensions were also different across the three networks.

Table 4.8b   ANOVA values across MNO

<div align="center">ANOVA</div>

		Sum of Squares	df	Mean Square	F	Sig.
Overall Gap	Between Groups	7.179	2	3.589	7.677	.001
	Within Groups	186.561	399	.468		
	Total	193.740	401			
Reliability	Between Groups	32.731	2	16.365	20.048	.000
	Within Groups	325.714	399	.816		
	Total	358.445	401			
Responsiveness	Between Groups	22.588	2	11.294	12.642	.000
	Within Groups	356.451	399	.893		
	Total	379.039	401			
Assurance	Between Groups	4.622	2	2.311	5.119	.006
	Within Groups	180.115	399	.451		
	Total	184.737	401			
Tangibility	Between Groups	7.596	2	3.798	5.249	.006
	Within Groups	288.687	399	.724		
	Total	296.282	401			
Empathy	Between Groups	22.143	2	11.072	12.505	.000
	Within Groups	353.277	399	.885		
	Total	375.420	401			
Technical Quality/ Products	Between Groups	4.072	2	2.036	3.508	.031
	Within Groups	231.569	399	.580		
	Total	235.640	401			
Image	Between Groups	9.817	2	4.908	6.613	.001
	Within Groups	296.148	399	.742		
	Total	305.965	401			

Source: SPSS output, 2013

ANOVA test was carried out to determine whether the different in values of customer satisfaction and perceptions on SQ dimensions were significant across the network at 95% confident level. The results presented in Table 4.8b indicate that there was significant different of the subscribers satisfaction across the MNO (p value=0.001). Significant difference were also noted on reliability, responsiveness, empathy, technical quality and image (p values $\leq$ 0.05) across the MNO while there was no significant different on Assurance and Tangibility (p values $\geq$ 0.05). It can therefore be concluded that customer satisfaction in Kenya is dependent on the MNO and that assurance and tangibility dimensions does not differ significant across the MNO.

4.9 Relationship between Service Quality dimensions and Customer Satisfaction

The study sought to determine the impact of service quality dimensions on customer satisfaction. This was done by the use of linear regression analysis with gap scores denoting the satisfaction (dependent variables) and perception scores for the seven SQ dimensions representing the independent variables. The outputs of analysis are presented in Table 4.9a and Table 4.9b. Positive effect was reported on Reliability, Responsiveness, Tangibility, Empathy, Technical Quality/ Products and Image while negative effect was noted on assurance.

Table 4.9a   Regression Coefficients on Service Quality dimensions and Customer Satisfaction

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
(Constant)	-3.521	.115		-30.497	.000			
Reliability	.188	.030	.256	6.348	.000	.710	.305	.157
Responsiveness	.090	.031	.125	2.856	.005	.731	.142	.070
Assurance	-.154	.036	-.151	-4.233	.000	.536	-.209	-.104
Tangibility	.028	.030	.035	.961	.337	.621	.048	.024
Empathy	.285	.030	.397	9.412	.000	.791	.428	.232
Technical Quality/ Products	.155	.035	.171	4.430	.000	.704	.218	.109
Image	.138	.026	.173	5.247	.000	.646	.256	.129

Table 4.9b   Regression Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.872[a]	.760	.756	.34323	.760	178.646	7	394	.000

Regression analysis revealed a positive relationship (R =0.872). The study also revealed that a combination of Reliability, Responsiveness, Tangibility, Empathy, Technical Quality/ Products and Image together contributed to 76% of customer satisfaction. The F value (178.646) changes are significant with implies that the model is fit and robust. From the Tables, it can be concluded that Reliability, Responsiveness, Empathy, Technical Quality/

Products and Image have significant effect on customer satisfaction (p-values ≤0.05) while tangibility had no significant effect on customer satisfaction (p-value > 0.05). This shows that subscribers does not regard tangibility dimension as very important and MNO should not over invest in this dimension.

4.10   Service Quality Dimension across Customer Profile

Study capture subscribers profile exhaustively and the study sought to find out whether there was any significant different in customer satisfaction across the demographic characteristics.

Table 4.10   Association between the profile of customers and their perception on SQ

S N	Profile of Respondents	F-statistics						
		Reliability	Responsive ness	Assurance	Tangibility	Empathy	Technical Quality	Image
1	Gender	0.828	6.511*	0.617	1.777	1.851	0.201	4.099*
2	Age	6.335*	5.193*	3.598*	1.328	5.505*	3.696*	1.483
3	Level of Education	3.303*	.958	1.179	1.196	1.169	1.014	1.884
4	Occupation	2.954*	4.165*	1.912	5.058*	2.730	3.024*	1.871
5	Income level	1.746	1.571	2.500*	.520	2.354	2.141*	1.528
6	Expenditure	7.044*	4.993*	2.408*	1.436	2.927	3.821*	4.379*
7	Number of lines	.857	2.077	2.603	3.490*	1.690	3.386*	5.180*
8	Type of Tariff	6.739*	13.21*	4.836*	30.765*	8.524*	4.530*	1.977

* Significant at 5% level (p-values ≤0.05)

The demographics characteristics captured were gender, age, income, expenditure on mobile phone, Mobile network operator, number of lines, occupation, and tariff and education level. The significant different across demographic characteristics were sought through the use of ANOVA test.

Table 4.10 reveal the existing significant differences on customer perception across the profile with the significant F-values marked with stars (*). In terms of gender, the different exist in responsiveness and Image. The age revealed differences in all the SQ dimensions except for the Tangibility and Image. In terms of education background, the difference in scores was realized in reliability while other dimensions did not have any effect on education. Occupations influence all the dimensions except assurance and image. The income level had an effect on assurance and Technical quality. The level of expenditure affected all the dimensions except Tangibility while the type of tariff had an effect on all the dimensions except image.

Reliability was dependent on age, level of education, occupation, expenditure and type of tariff. Responsiveness was dependent on gender, age, occupation, expenditure and type of

tariff. Assurance was dependent on age, income level, expenditure and types of tariff. Tangibility was affected by income level, number of mobile lines and type of tariff. Empathy was affected by age, occupation and expenditure. Technical quality was affected by age, occupation, income level, expenditure, number of mobile lines and type of tariff. Gender, expenditure and number of mobile lines affect image dimension. Technical quality was the most affected by personal profile, followed by reliability, responsiveness while the least affected by personal profile was image and tangibility dimensions. MNO should therefore customize their services based on personal profile of the network subscribers.

4.11   Factor Analysis

4.11.1 Component Factor analysis

Factor analysis (FA) is a data reduction technique that uses correlations between data variables. It assumes that some underlying factors exist that explains the correlations or inter-relationship among the observed variables (Chatfield and Collins 1992). The dimensional structure of the quality service based on 31 matched-pair items and their difference between expectation and perception scores (gap scores) was examined using a principal component factor analysis with varimax rotation. Table 4.11 shows the output of SPSS on FA with communalities of the 31 SQ variables.

Extraction communalities are estimates of the variance in each variable accounted for by the factors in the factor solution. The higher the value the more influential is the variable in determination of the factor. Small values indicate variables that do not fit well with the factor solution, and should possibly be dropped from the analysis. All the variables scored above 0.5 indicating that they all contributed and influenced the resultant factor detection structure.

The most influential variable was TEC2 (high quality of products/services by MNO) with a value of 0.795, followed by IMA3 (network reputation on provision of services) with a value of 0.721.

Other variables contributing much to structures are EMP2 (dealing with customers in a caring fashion), RES2 (ease of approach, contact and employee and response to customers' needs). Variables with contributed least were ASS2 (employee should be courteous/polite to customer) with a value of 0.544, followed by EMP4 (having customers best interest at heart). Analysis by dimension indicates that technical quality dimension contributed the most with a value of 0.679, followed by Image (0.653) while the least was assurance (0.611).

Table 4.11   Communalities of QS Variables

Dimensions	Items	Initial	Extraction (Items)	Mean Extraction (dimensions)
Reliability	Keeping to promise	1.000	0.579	0.632
	Dependability and consistency	1.000	0.672	
	Right service the first time	1.000	0.619	
	Timely services	1.000	0.667	
	Accuracy in records	1.000	0.624	
Responsiveness	Prompt Service	1.000	0.648	0.636
	Readiness to respond	1.000	0.680	
	Ease in obtaining information	1.000	0.625	
	Willingness to help	1.000	0.591	
Assurance	Knowledgeable employees	1.000	0.640	0.611
	Consistently courteous	1.000	0.544	
	Instilling confidence in customers	1.000	0.633	
	Making customers feel safe in their transactions	1.000	0.625	
Tangibility	Modern Equipment	1.000	0.605	0.636
	Visually appealing facilities	1.000	0.622	
	Looking neat, professional appearance	1.000	0.661	
	Visually appealing materials associated with the service	1.000	0.657	
Empathy	Giving Customers individual attention	1.000	0.589	0.617
	Dealing in a caring fashion	1.000	0.680	
	Having customer's best interest at heart	1.000	0.612	
	Convenient business/operating hours	1.000	0.565	
	Understands the needs of the customers	1.000	0.637	
Technical Quality/products	Range of products available	1.000	0.673	0.679
	Products are of high quality	1.000	0.795	
	Level of technological knowledge and skills in solving problem	1.000	0.636	
	Successfulness in completion of services	1.000	0.613	
Image	How successful the service firm is	1.000	0.668	0.653
	The brand image of the services	1.000	0.633	
	Reputation of the service provider	1.000	0.721	
	How service provider is socially responsible	1.000	0.614	
	Tendencies of customers to be associated with the service provider	1.000	0.630	

Extraction Method: Principal Component Analysis.

Source: SPSS Output, 2013

Traditional convention of including factors with eigenvalues of 1 or higher led to the identification of five factors with a cumulative explained variance of 60.5%.

A scree plot test indicated that a six-factor solution may be justified because the sixth factor had an eigenvalue of 0.999 compared to 1.235 for the fifth factor. Inclusion of the sixth factor

improved the cumulative explained variance to 63.7. The six-factor solution better aids interpretation and comparison to earlier research findings. The Total column gives the eigenvalue, or amount of variance in the original variables accounted for by each component. The second section of the table shows the extracted components

Table 4.12a   Principal Component Analysis and Extraction of 6 factors

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative e %	Total	% of Variance	Cumulative e %
1	11.345	36.598	36.598	11.345	36.598	36.598	4.709	15.191	15.191
2	2.490	8.034	44.632	2.490	8.034	44.632	3.765	12.144	27.335
3	2.006	6.470	51.102	2.006	6.470	51.102	3.358	10.833	38.168
4	1.682	5.427	56.529	1.682	5.427	56.529	3.122	10.072	48.240
5	1.235	3.985	60.514	1.235	3.985	60.514	2.849	9.190	57.431
6	.999	3.223	63.737	.999	3.223	63.737	1.955	6.306	63.737
7	.920	2.967	66.704						
8	.848	2.735	69.439						
9	.807	2.603	72.043						
10	.715	2.308	74.351						
11	.647	2.089	76.439						
12	.623	2.009	78.448						
13	.600	1.936	80.384						
14	.540	1.743	82.127						
15	.516	1.664	83.791						
16	.469	1.512	85.303						
17	.448	1.446	86.748						
18	.442	1.426	88.174						
19	.414	1.335	89.509						
20	.390	1.257	90.766						
21	.375	1.209	91.975						
22	.360	1.161	93.136						
23	.340	1.096	94.232						
24	.295	.952	95.185						
25	.263	.849	96.033						
26	.250	.805	96.839						
27	.230	.742	97.581						
28	.213	.689	98.269						
29	.196	.634	98.903						
30	.182	.587	99.490						
31	.158	.510	100.000						

Extraction Method: Principal Component Analysis.

Source: SPPS output, 2013

They explain nearly 64% of the variability in the original 31 variables, so you can considerably reduce the complexity of the data set by using these components, with a 36% loss of information. The rotation maintains the cumulative percentage of variation explained by the extracted components, but that variation is now spread more evenly over the components. The large changes in the individual totals suggest that the rotated component matrix will be easier to interpret than the un-rotated matrix.

Table 4.12b shows two tests that indicate the suitability of the data for structure detection. The results of the FA reveal a high value of 0.906 for the Kaiser-Meyer-Olkin Measure (KMO) and indicate the suitability of the research data for structure detection, i.e. the proportion of variance in the items that might be caused by underlying factors. Thus, generally the data is useful for factor analysis. This is confirmed by the significance of the Bartlett's test of sphericity tests (X^2: 7072.894, df: 465, sig.: 0.000) indicating that the variables are not unrelated and therefore suitable for structure detection

Table 4.12b   KMO and Barlett's Test for Structure detection

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.906
	Approx. Chi-Square	7072.894
Bartlett's Test of Sphericity	df	465
	Sig.	0.000

Source: SPSS output, 2013

4.11.2 Grouping of Items

The output from Principal component analysis was rotated using varimax method to make clear distinction between the factors identified. Six factors were identified to have an influence on Customer Satisfaction among the mobile telephony subscribers in Nairobi, Kenya. Table 4.12c shows the variables and the corresponding factor loading value for each corresponding factor above 0.3. Factor loading gives the relationship between the variable/item under measure and the extracted factors and it is measured in term of correlation coefficient.

On criteria for selecting factor loading, generally factor loading above 0.6 is considered high while factor loading greater than or equal to 0.3 is considered moderately (Klien 2005). Therefore, the cut-off for analyzing the loading was 0.5±0.03. Next, no item (row) should

have multiple factors greater or equal to 0.5±0.03. Lastly, no factor should have only one high loading item.

Table 4.12c   Principal Factor Analysis for Rotated Component Matrix

Rotated Component Matrix

Item	Component/Factors					
	F1	F2	F3	F4	F5	F6
Accuracy in records	**0.741**					
Dependability and consistency	**0.736**					
Timely services	**0.725**					
Right service the first time	**0.724**					
Keeping to promise	**0.695**					
~~Ease in obtaining information~~	~~0.612~~	~~0.468~~				
~~Readiness to respond~~	~~0.609~~	~~0.531~~				
~~Prompt Service~~	~~0.563~~	~~0.561~~				
~~Willingness to help~~	~~0.515~~	~~0.479~~				
Having customer's best interest at heart		**0.677**				
Dealing in a caring fashion		**0.655**	0.339			
Understands the needs of the customers		**0.596**			0.318	
Giving Customers individual attention		**0.560**	0.457			
~~Convenient business/operating hours~~		~~0.431~~	~~0.416~~			
Visually appealing facilities			**0.720**			
Modern Equipment			**0.718**			
Looking neat, professional appearance			**0.707**			
Visually appealing materials associated with the service			**0.690**			
Reputation of the service provider				**0.780**		
How successful the service firm is				**0.765**		
Tendencies of customers to be associated with the service provider				**0.708**		
The brand image of the services				**0.700**		
How service provider is socially responsible				**0.590**		
Products are of high quality					**0.870**	
Successfulness in completion of services					**0.702**	
Level of technological knowledge and skills in solving problem					**0.678**	
Range of products available			0.365		**0.644**	
Knowledgeable employees	0.367					**0.630**
Making customers feel safe in their transactions		0.330	0.333			**0.579**
Instilling confidence in customers		0.391				**0.527**
~~Consistently courteous~~		~~0.456~~				~~0.467~~

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Source: SPSS output, 2013

Other factor loadings that do not satisfy the above criteria are considered meaningless and can be safely removed while the high loading factors are critical factors and should therefore be retained. Table 4.12c indicates that six factors emerged meeting the above criteria. Four dimensions of SQ (Reliability, Tangibles, Image, and Technical Quality) were not affected at all. All variables under Responsiveness (RES1, RES2, RES3, RES4) were eliminated since the variables showed high correlation to more than one factor (reliability and empathy).

Table 4.12d   Emerged Dimensions and Reliability of derived instrument

Emerged Component	Emerged SQ Dimensions	Items	No. Items	Cronbach Alpha
1	Reliability	Accuracy in records; Dependability and consistency; Timely services; Right service the first time; Keeping to promise	5	0.859
2	Empathy	Having customer's best interest at heart; Dealing in a caring fashion; Understands the needs of the customers; Giving Customers individual attention	4	0.831
3	Tangibility	Visually appealing facilities; Modern Equipment; Looking neat, professional appearance; Visually appealing materials associated with the service	4	0.807
4	Image	Reputation of the service provider; How successful the service firm is; Tendencies of customers to be associated with the service provider; The brand image of the services; How service provider is socially responsible	5	0.815
5	Technical Quality	Products are of high quality; Successfulness in completion of services; Level of technological knowledge and skills in solving problem; Range of products available	4	0.802
6	Assurance	Knowledgeable employees; Making customers feel safe in their transactions; Instilling confidence in customers	3	0.753

Source: Field data, 2013

Item EMP4 (having convenient operating hours) was also eliminated since it had a high correlation with both tangibility and empathy dimensions. ASS2 (employees should be

courteous/polite to customers) was eliminated due to its high association with empathy dimension. As indicated in Table 4.12d, all the six components derived are associated with a specific SQ dimensions with responsiveness dimension eliminated due to its high associated with empathy and reliability. The three dimension are relates to a firms interaction with customers with responsiveness playing a mediating role between empathy and reliability.

4.11.3 Derived Factors

Factor 1 had only item from the original reliability dimension, which were all retained in the derived instrument. It refers to the ability of the MNO to perform the promised service dependably and accurately. They included aspects of being truthful, dependable and consistent in solving customers' complaints/problem, performing the services right the first time, being timely in delivery of network services and insisting on error-free records.

Factor 2 had only items from original empathy dimensions. Item EMP4 (having convenient operating hours) was also eliminated since it had a high correlation with both tangibility and empathy dimensions. The SQ dimension here included: giving customers individual attention, dealing with customers in a caring fashion, having customers' best interest at heart and putting more effort to understand the specific customers' needs.

Factor 3 had only items on Tangibility and all the original items were retained. They items included: having modern equipment, provision of visually attractive offices equipment and materials; having well dressed and neat employee; and clean/comfortable general physical environment of the service point.

Factor 4 had only item related to Image dimensions. All the items were retained and they included success of network, brand image, reputation in provision of services, involvement in corporate and social responsibility and tendency of the customer to be associated with MNO.

Factor 5 had items related to Technical Quality. All the items related to technical quality were retained save for the TEC5 (network innovativeness) which was eliminated since the item did not meet the initial reliability test. The retained item dimensions included network having a variety of products/services, high quality of products/services, employees having adequate technological knowledge and skills in solving customer problems and success in completion of services.

Factor 6 had only items related to assurance. ASS2 (employees should be courteous/polite to customers) was eliminated due to its high correlation with factor associated empathy and

assurance dimensions. The retained SQ items included employees ability to use required skills and knowledge to answer customers' questions, behaviour of employee in instilling confidence in customers and feeling safe in transaction with the MNO.

4.11.4 Confirmatory factor analysis (CFA)

Confirmatory factor analysis was performed on the remaining 25 items using Principal Component extraction method with Varimax extraction to confirm the dimensionality of the derived instrument. The CFA was run based on the procedure discussed above and the results are presented in Table 4.12e. The factor loading values was obtained from items ASS3 and ASS4 indicating moderately high values while item IMA4 indicated a higher factor value above 0.5. Lastly, 21 items recorded values above 0.6, which are considered strong in determining SQ (Garson 2007)

From the FA, the derived service quality model for mobile telephony context in Nairobi, Kenya is as presented in Figure 4.2 below

Figure 4.2   Derived SQ dimension for Mobile Telephony Context in Kenya
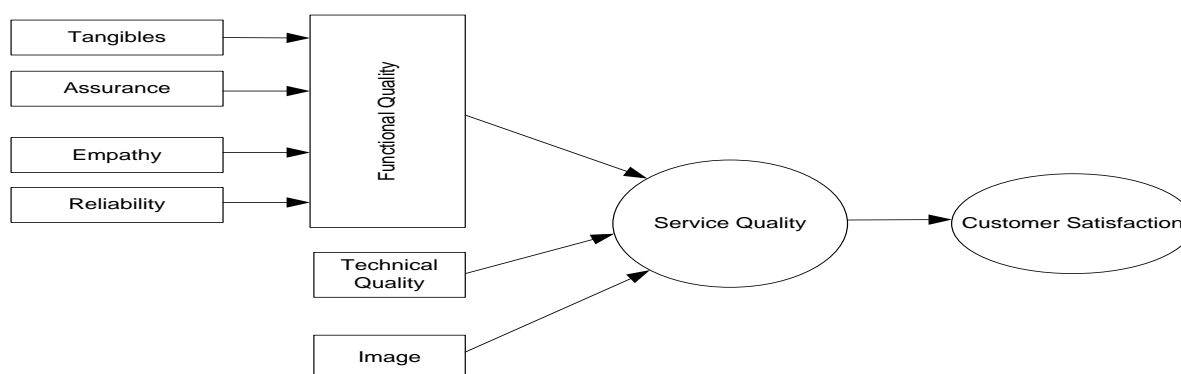
Source: Author, 2013

Using the factor analysis, it can be concluded that six dimensions have a major contribution to the customer satisfactions. These are reliability, assurance, tangibility, technical quality, image and empathy. Responsiveness was eliminated since it is highly correlated with other quality dimensions such as empathy and reliability, which were the main contributors to customer care service.

Table 4.12e   Confirmatory Factor analysis of derived Instrument for Mobile Telephony Industry in Kenya

Rotated Component Matrix

	Component					
	1	2	3	4	5	6
Dependability and consistency	.756					
Right service the first time	.754					
Keeping to promise	.750					
Timely services	.743					
Accuracy in records	.734					
Visually appealing facilities		.735				
Modern Equipment		.719				
Visually appealing materials associated with the service		.707			.314	
Looking neat, professional appearance		.678				
Reputation of the service provider			.790			
How successful the service firm is			.777			
The brand image of the services			.721			
Tendencies of customers to be associated with the service provider			.690			
How service provider is socially responsible		.302	.557			-.407
Products are of high quality				.866		
Successfulness in completion of services				.701		
Level of technological knowledge and skills in solving problem				.693		
Range of products available		.402		.659		
Dealing in a caring fashion					.759	
Having customer's best interest at heart					.746	
Giving Customers individual attention		.390			.679	
Understands the needs of the customers				.338	.623	
Knowledgeable employees	.343			.313		.601
Making customers feel safe in their transactions		.378			.391	.490
Instilling confidence in customers		.314			.387	.409

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

Source: SPSS output, 2013

Out of the 32 variables used to capture the quality dimensions, 25 variables were found to have strong relationship due to high factor loadings. The resultant survey instrument was tested for reliability and the results proved that the tool is reliable. The resultant conceptual framework model was then revised to eliminate responsiveness in the future studies in the telephony industry among the subscribers in Kenya.

CHAPTER FIVE: SUMMARY, CONCLUSSION AND RECOMMENDATIONS

5.1   Summary

The findings revealed that there was a strong relationship between service quality dimensions and customer satisfaction and that the resultant regression model indicates 76% contribution of the seven quality dimensions to customer satisfaction. Tangibility does not have a significant contribution to customer satisfaction. Reliability was the most important factor to invest in followed by responsiveness, technical quality and assurance. Responsiveness was highly correlated to empathy and reliability and was thus eliminated as a measure of service quality. The final conceptual framework therefore had six dimensions with 25 items spread across the dimension.

In general, it was found that customer's perception of service quality offered by MNO did not meet their expectations since all gaps scores have negative values. Orange subscribers were the most satisfied (gap score of -0.5610) followed by Airtel customers (-0.7332) and lastly Safaricom customers (-0.8858). The different in satisfaction was significant across the MNO. Tangibility and assurance dimension did not differ significantly across the MNO.

Analysis across the personal profile indicated that Technical quality was the most affected by personal profile, followed by reliability, responsiveness while the least affected by personal profile was image and tangibility dimensions. MNO should therefore customize their services based on personal profile of the customers.

5.2   Conclusions

In conclusion, there was strong relationship between the quality service dimensions and customer satisfaction. Subscribers are generally dissatisfied with the services being offered by the MNO although the majority were satisfied. The MNO should therefore prioritize their quality service dimensions since they impact differently on customer satisfaction and that they are currently at different investment levels. Reliability and technical quality should be given more importance and that there is no need to invest in responsiveness since it is less effective due to redundancy.

Future survey should adopt the six dimensions derived through the factor analysis in telephony industry. The tool derived is more reliable and consist of 25 items across the six SQ dimensions.

5.3   Recommendations

Based on the findings, the study recommend that MNO should focus more on the reliability and technical quality in order to improve service delivery to a higher level. The MNO should customize its services based on the personal profile since they largely affect customer satisfaction. The future surveys should consider using the derived model and use the survey instrument based on the 25 items

5.4   Limitation of the Study

The study was limited by the geographical location since the data was only collected in Nairobi. The survey may not be generalized with high confidence level although it portrays the general feeling of Kenyan population since Nairobi is a metropolitan city with heterogeneous population.

5.5   Suggestions for further Research

Further research should be done involving all the stakeholders in Mobile telephony industry since the present study only looked at the subscribers. The scope of the future survey should be widened to have a full representation of the Kenyan population both in urban and rural areas.

REFERENCES

Albert C, Arthur H.M and Pierre R.B (2000), "Service Quality and Satisfaction – the moderating role of value", European Journal of Marketing, Vol. 34 No. 11/12, pp1338-1352

Agyapong, K.Q, (2010) "The Effect of Service Quality on Customer Satisfaction in the Utility Industry – A Case of Vodafone (Ghana) " International Journal of Business and Management Vol. 6, No. 5; May 2011

Bartlett J.E., Kotrlik J.W, Higgins C.C (2001), "Organizational Research: Determining Appropriate Sample Size in Survey Research", Information Technology, Learning, and Performance Journal, Vol. 19, No. 1, Spring 2001

Chingang N. D and Lukong P. B (2010), "Using the SERVQUAL Model to assess Service quality and Customer Satisfaction – An Empirical study of grocery stores in Umea", Umea School of Business, Master thesis, Umea University

Christopher, G.L., Rodghier, M. and Digant, G. (2011), "The relationship between Perceived Service Quality and Patient Willingness to recommend at a national oncology hospital network"(http://www.biomedcentral.com/1472-6963/11/46 - 16th , Feb, 2012

Communication Commission of Kenya,(2013) "Third Quarter of the Financial Year 2012/13", Quarterly Sector Statistics Report, Nairobi, Kenya.

Communication Commission of Kenya,(2012) "Fourth Quarter of the Financial Year 2011/12", Quarterly Sector Statistics Report, Nairobi, Kenya.

Cooper, D. R. & Schindler, P. S. (2006) "Business Research Methods: empirical investigation", Journal of Service Research, 1 (2), pp. 108-28.

Crandall A., Otieno A., Mtuku L and Jessica C (2012), "Mobile usage at the Kenya Base of the Pyramid", iHub Research – Research Solution Africa, Nairobi, Kenya

Crowin, J.J and Taylor, S.A (1992), "Measuring Service Quality: are Examination and Extension", Journal of Marketing, 56(3), pp. 55 – 68.

Dean, E.H and Miller, S.J. (1993), "Measuring Service Quality and its Relationship to Future Consumer Behaviour", Journal of Health Care Marketing, Vol. 13 No.4, pp. 32-41

Gi-Du, K. & James, J. (2004) "Service quality Dimensions: An Examination of Grönroos' Service Quality Model", Managing Service Quality 14(4), pp. 266–277.

Government of Kenya – Office of the Prime Minister, (2010), "Review of the Performance Contracting in the Public Sector"

Jayaraman M, Shankar C and Hor W.M (2010), "Service Quality Delivery and Its Impact on Customer Satisfaction in the Banking Sector in Malaysia", International Journal of Innovation, Management and Technology, Vol. 1, No. 4 pp 398-404

Boyer K.K and Lewis M.W.(2002), "Competitive Priorities: Investigating the need for trade-offs in operations strategy", Department of Marketing and Supply Chain management, Production and Operations Management Society Journal, Vol. 11, No.1, USA

Khan, A.S and Manthiri A. A. (2012), "Quality of Service in the Mobile Industry in Madarui District", Arabian Journal of the Business and Management Review (OMAN Chapter), Tamilnadu- India, Vol. 1 No. 9, pp 60-76

Kode, R., Wetzels, M. and Bloemer, J. (1977), "Relationship between Perceived Service Quality, Service Loyalty and Switching Cost", International Journal of Service Industry Management, Vol. 9 No. 5, November, pp. 436-453.

Landari, R (2009), "A review of twenty years of SERVQUAL research", International Journal of Quality and Service Science, Vol. 1, No. 2, pp 172-178

Manyi, J.A. (2011), "The Relationship between Customer Satisfaction and Service Quality: a study of three Service sectors in Umeå", Umea School School of Business, Masters Thesis,

Wang I.M and Shieh C.J. (2006), "The relationship between Service Quality and Customer Satisfaction: the example of CJCU Library", Journal of Information & Optimization Sciences, Vol. 27 No.1, pp. 193-209

Mohammad M. R., Abdullah and Ataur R (2011), "Measuring Service Quality using SERVQUAL Model: A Study on Private Commercial Banks in Bangladesh", Journal of Business Management Dynamics Vol. 1, No. 1, July 2011, pp 01-11

Naftali Waburi ,(2009), "The Contribution of mobile phones to the Kenyan Economy" Market & Social Research, Nairobi, Kenya

Nek, K.Y.Y., Azman,I. and Zebrina, R.J. and Salomawati, I. (2009), " Service Quality Dimension, Perceived Value and Customer Satisfaction: ABC Relationship model testing", Journal – Faculty of Business & Economics, Univesiti Pendidikan Sultan Idris, Tanjong Malim, Perak, Malaysia, Vol. 2 No.1, pp 66-78

Nimako S, Azumah F K, Donkor F and Adu-Brobbey V, (2012) "Confirmatory factor analysis of service quality dimensions within mobile telephony industry in Ghana" The Electronic Journal Information Systems Evaluation , Vol.15 N0. 2 pp197-215,

Nitin, S., Deshmukh, S.G. and Prem, V. (2005), "Service Quality Model: a review, "International Journal of Quality & Reliability Management, Vol. 22 No. 9, pp. 913-949

Parasuraman A. University of Miami (2002), "Library Assessment of Benchmarking Institude", University of Miami, Montererey CA

Otemba, J.A. (2012), "Service quality dimensions and customer Satisfaction in the Kenyan Telecomunications", School of Business, University of Nairobi

Reid R.D, and Sanders N.R (2005), "Operations Management, 2nd Edition", Wisley Publications

Saunders, M., Lewis P. & Thornhill, A. (2007) Research Methods for Business Student (6th edition), Pearson Education Limited

Tirimba O. M, Richard B. N, Robert M. B, Thomas O. O, Tom O. K. (2013), "Service Quality and Customer Satisfaction at Kenya Airways Ltd", School of Business, University of Nairobi

Willis K., and Onen D., (2005), "Guidelines for Writing a Research Proposal", Options Printers and Publishers, Kisumu, Kenya.

APPENDICES

APPENDIX 1:   STRUCTURED QUESTIONNAIRE

Introduction:

I am a student at the University of Nairobi doing Masters Degree in Business Administration (MBA). I am undertaking the above research project, as a part of the academic requirements for a Masters. The purpose of the study is to investigate the relationship between service quality and customer satisfaction with a view of identifying the strategic dimensions of service quality which impact positively on customers. I would be grateful if you could spare sometime and attend to my questionnaire answering the questions as honesty as possible.

The information you shall provide shall be treated confidentiality and will be used solely for this research. You should not indicate your name. However, the findings of this study can be availed to you upon completion of the research and on request. Thank you for your time and thoughtfulness.

SECTION A: EXPECTATIONS (LEVEL OF IMPORTANCE) AND PERCEPTION (EXPERIENCE) ON THE MOBILE NETWORK SERVICES

Expectations: *This section deals with your opinion of mobile network. Please show the extent to which you think the main mobile network you subscribes to should possess the following features. We are interested in knowing your expectation from ideal mobile network in the world. You rank each statement as follows:*

Not Important   **Very Important**

| 1 | 2 | 3 | 4 | 5 |

Perceptions: *The statements deal with the perceptions of service experienced in mobile network. Please show the extent to which this statement reflects your perception of service in the main mobile network you subscribes to.*

You rank each statement as follows:

Very Dissatisfied   **Very Satisfied**

| 1 | 2 | 3 | 4 | 5 |

Put a cross (⊠) on your choice of answer.

SN	Statements	Expectations					Perceptions				
		How important is this item to you					Level of satisfaction with this item				
1.0	**Reliability**										
1.1	The mobile network should be truthful (keeping to promises)	1	2	3	4	5	1	2	3	4	5
1.2	The network should be dependable and consistent in solving customers' complaints/problems	1	2	3	4	5	1	2	3	4	5
1.3	The network should perform services right the first time	1	2	3	4	5	1	2	3	4	5
1.4	The network should be timely in the delivery of SMS, MMS, Money transfer and other network services	1	2	3	4	5	1	2	3	4	5
1.5	The network should insist on error-free records ie airtime and money balances, and personal information	1	2	3	4	5	1	2	3	4	5
2.0	**Responsiveness**										
2.1	The network ability to give prompt customer services and attend to customers' needs/problems	1	2	3	4	5	1	2	3	4	5
2.2	The employees should be approachable, easy to contact and respond to customers request	1	2	3	4	5	1	2	3	4	5
2.3	The staff should be able to communicate clearly to customers	1	2	3	4	5	1	2	3	4	5
2.4	The employees should be willing to help customers in an emergency situations	1	2	3	4	5	1	2	3	4	5
3.0	**Assurance**										
3.1	The ability of employees to use the required skills and knowledge to answer customers' questions	1	2	3	4	5	1	2	3	4	5
3.2	The employees should be courteous/polite to customers	1	2	3	4	5	1	2	3	4	5
3.3	The behavior of employees in instilling confidence in customers	1	2	3	4	5	1	2	3	4	5
3.4	The customer should feel safe in transaction with the network. ie keeping and transfer of money and airtime	1	2	3	4	5	1	2	3	4	5
4.0	**Tangibility**										
4.1	The network should have modern equipment	1	2	3	4	5	1	2	3	4	5
4.2	Provision of visually attractive offices, equipment and materials like starter packs and reload cards	1	2	3	4	5	1	2	3	4	5
4.3	The employees should be well dressed and appear neat	1	2	3	4	5	1	2	3	4	5
4.4	The general physical environment of the service points should be clean and comfortable to stay in.	1	2	3	4	5	1	2	3	4	5
5.0	**Empathy**										
5.1	The employees should give customers individual attention	1	2	3	4	5	1	2	3	4	5
5.2	Dealing with customers in a caring fashion. Ie having convenient terms, free airtime, promotions	1	2	3	4	5	1	2	3	4	5
5.3	Having the customers' best interest at heart	1	2	3	4	5	1	2	3	4	5
5.4	The network should have operating hours convenient to all customers	1	2	3	4	5	1	2	3	4	5
5.5	The network should always put more effort to understand the specific customers' needs	1	2	3	4	5	1	2	3	4	5
6.0	**Technical Quality/Products**										
6.1	The network should have a variety of products/services	1	2	3	4	5	1	2	3	4	5
6.2	The products/services offered by the network should be of high quality	1	2	3	4	5	1	2	3	4	5

SN	Statements	Expectations	Perceptions
		How important is this item to you	Level of satisfaction with this item
6.3	The employees should have adequate technological knowledge and skills in solving customers problems	1 2 3 4 5	1 2 3 4 5
6.4	Services should be completed successfully. Ie calls not aborted, SMS and MMS delivered promptly, line activation, credit reloading, borrowing for credits, sending of airtime and money	1 2 3 4 5	1 2 3 4 5
6.5	Network innovativeness- ability to use current technology to improve services	1 2 3 4 5	1 2 3 4 5
7.0	**Image**		
7.1	How successful the network has been in the last years	1 2 3 4 5	1 2 3 4 5
7.2	The brand image being used by the network in provision of its services	1 2 3 4 5	1 2 3 4 5
7.3	The network reputation in provision of its services	1 2 3 4 5	1 2 3 4 5
7.4	The involvement of the mobile network in corporate and social responsibility ie sponsoring sports, providing scholarships, development initiatives	1 2 3 4 5	1 2 3 4 5
7.5	The tendency of the customer to be associated with the mobile network	1 2 3 4 5	1 2 3 4 5

SECTION B: RESPONDENTS PROFILE

Provide the following personal information (DO NOT INDICATE YOUR NAME)

8.1   Indicate your Gender:

1. Male   [   ]   2. Female   [   ]

8.2   Tick your age bracket?

1. Less than 18 years   [   ]   5. 50 – 59 years   [   ]
2. 18 -29 years   [   ]   6. 60 – 69 years   [   ]
3. 30- 39 years   [   ]   7. 70 years and above   [   ]
4. 40 – 49 years   [   ]

8.3   What is your higher Level of Education?

1. Primary Level (KCPE)   [   ]   4. College (Diploma/ HND)   [   ]
2. Secondary Level (O/A level)[   ]   5. University (Bachelors)   [   ]
3. College (Certificate)   [   ]   6. University (Masters/ PhD) [   ]

8.4   How many mobile networks do you subscribe to?

1. One   [   ]   3. Three   [   ]
2. Two   [   ]   4. Four   [   ]

8.5   Indicate your main mobile Network

1. Safaricom   [   ]   3. Airtel   [   ]
2. Orange/Telcom Wireless   [   ]

8.6   Indicate the tariff you subscribe to:

1. Postpaid	[ ]	2. Prepaid (using scratch cards)	[ ]

8.7   Tick the **three** (3) main reasons for subscribing to the above-mentioned network?

1. Cheaper services provider   [ ]
2. Good Customer Care   [ ]
3. Good network service connectivity (strong and stable connection   [ ]
4. Has wide range of network tariff to pick from   [ ]
5. Has national network coverage   [ ]
6. Most of my friends are in the same network   [ ]
7. Money transfer services   [ ]
8. Customer loyalty offers (bonga points and credit borrowing)   [ ]
9. Has used for a long time   [ ]
10. Free talk time/SMS   [ ]
11. Others (specify) _____ [ ]

8.8   The following are some of the services obtained from the service network provider. Indicate in order of frequency of the services you normally obtain from your main mobile network provider. (1-least frequent, 10-most frequent). Tick (√) appropriately.

No	Services	Least Frequent								Most Frequent	
1	Make/receive calls	1	2	3	4	5	6	7	8	9	10
2	Send/receive SMS	1	2	3	4	5	6	7	8	9	10
3	Send/receive money	1	2	3	4	5	6	7	8	9	10
4	Data/internet services	1	2	3	4	5	6	7	8	9	10
5	Purchase airtime	1	2	3	4	5	6	7	8	9	10
6	Credit Borrowing	1	2	3	4	5	6	7	8	9	10
7	Banking services	1	2	3	4	5	6	7	8	9	10
8	Payment of bills	1	2	3	4	5	6	7	8	9	10
9	"Please call me"/call back services	1	2	3	4	5	6	7	8	9	10
10	Airtime/bonga points transfer	1	2	3	4	5	6	7	8	9	10
11	Sale of mobile and related products	1	2	3	4	5	6	7	8	9	10
12	Back up of contacts	1	2	3	4	5	6	7	8	9	10
13	Voice mail services	1	2	3	4	5	6	7	8	9	10
14	Quotes	1	2	3	4	5	6	7	8	9	10
15	Call back tunes/sikiza tunes	1	2	3	4	5	6	7	8	9	10
16	News and Information	1	2	3	4	5	6	7	8	9	10

8.9   What is your current employment status?

1. Employed (formal)	[ ]		5. Farmer	[ ]
2. Employed (informal/ casual worker)	[ ]		6. Student	[ ]
3. Self-employed (technical)	[ ]		7. Others (specify) _____	[ ]
4. Self –employed (business operator)	[ ]			

8.10   Tick the monthly income bracket that apply to you

1. None	[ ]	5. Kshs. 30,001 - 40,000	[ ]
2. Kshs. 10,000 and below	[ ]	6. Kshs. 40,001 - 50,000	[ ]
3. Kshs. 10,001- 20,000	[ ]	7. Kshs. 50,001 - 100,000	[ ]
4. Kshs. 20,001 - 30,000	[ ]	8. Kshs. 100,001 - 150,000	[ ]

9. Above Kshs 150,000   [   ]

8.11   Tick your average daily expenditure on mobile communication

1. Kshs. 20 and below	[ ]	5. Kshs. 151 - 200	[ ]
2. Kshs. 21- 50	[ ]	6. Kshs. 201 – 250	[ ]
3. Kshs. 51- 100	[ ]	7. Above Kshs 250	[ ]
4. Kshs. 101, - 150	[ ]		

Thanks for your Time

For official use only

8.12   Indicate Customer Service Point commonly visited by the respondents: _____

8.13   Name of the Research Assistant:_____

APPENDIX 2: DESIGN OF DATA COLLECTION TOOLS

A self-administered, structured questionnaire will be used to collect data from respondents as recommended for a large survey (Saunders 2000; Cooper and Schindler 2006; Malhotra & Birks 2007). Based on the recommendations of Danaher and Haddrell (1996), Devlin, Dong & Brown (1993) and Rust & Oliver (1994) the researcher will adopt five-point disconfirmation scales to measure dimensions of perceived service quality.

This present study is part of a larger study so the questionnaire will have five 7 items related to respondents' identification data, and included seven dimensions of service quality with thirty-two items. The five Functional Quality items were basically based on constructs initially developed by Parasuraman et al. (1988), but modified for the research context. Thus Functional Quality is defined in terms of five main variables: tangibles, reliability, responsiveness, assurance and empathy. Technical quality and image constructs were developed by the researchers guided by similar previous studies, and specific indicators for each Functional Quality variable were based on previous research (Gi-Du and James 2004; Parasuraman et al. 1988; Wang & Lo 2002). The items were then modified within the context of the Kenya Mobile Telephony industry settings. The main dimensions and their specific indicators are depicted in Table 1 and Table 2

The questionnaires developed for this study are customized around the major variables of SERVQUAL as proposed by Parasuraman et al.(1988). The aspects considered for Technical Quality and Image are summarized in Table 2

The questionnaire is designed to have two major sections. The first section will have statements divided into two parts. The first part seeks to measure the expectations of customers and the second part seeks to measure their perception

The second section is the demographics part that provides general information about the respondents profiles. The profile information includes; age, gender, education level, average income level, average monthly expenditure /daily expenditure on mobile communication, name of the service point, profession/occupation, name of the network, number of mobile phones etc. This will enable the researcher to get a better understanding of the type of respondent and relate it to how they perceive service quality in mobile telephony. They will assist in conducting inferential analysis across customer characteristics for the purpose of generalization.

Table 1   Service Quality Factors in Mobile Phone Service for determination of Functional Quality

SN	Service Quality Variables	Factors
1.1	Providing services as promised	Reliability
1.2	Dependability in handling customers service problems	
1.3	Performing services right the first time	
1.4	Providing services at the promised time	
1.5	Keeping accurate records free from error	
2.1	Prompt Service to customers	Responsiveness
2.2	Readiness to respond to customers' request	
2.3	Employees make information easily obtainable by customers	
2.4	Willingness to help customers	
3.1	Employees who have knowledge to answer customer questions	Assurance
3.2	Employees who are consistently courteous	
3.3	Employees who instill confidence in customers	
3.4	Making customers feel safe in their transactions	
4.1	Modern Equipment	Tangibles
4.2	Visually appealing facilities	
4.3	Employees who have a neat, professional appearance	
4.4	Visually appealing materials associated with the service	
5.1	Giving Customers individual attention	Empathy
5.2	Employees who deal with customers in a caring fashion	
5.3	Having customer's best interest at heart	
5.4	Convenient business/operating hours	
5.5	Employees who understands the needs of the customers	

Source: Formed based on Parasuraman et al (1988) SERVQUAL model

Table 2   Quality Variables for Technical Quality and Image

SN	Service Quality Variables	Factors
6.1	Range of products available	Technical Quality/ Products
6.2	Products are of high quality	
6.3	Employees level of technological knowledge and skills in solving customers problem	
6.4	Successfulness in completion of services ie calls	
6.5	Degree of innovation and use of current technology	
7.1	How successful the service firm is	Image
7.2	The brand image of the services	
7.3	Reputation of the service provider	
7.4	How service provider is socially responsible	
7.5	Tendencies of customers to be associated with the service provider	