MODERATING EFFECTS OF SERVICE FAILURE AND CUSTOMER COMMUNICATION ON THE RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION AMONG MOBILE PHONE FIRMS IN KENYA

BY

SAMSON NTONGAI JEREMIAH

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION

DEPARTMENT OF BUSINESS ADMINISTRATION

MASENO UNIVERSITY

DECLARATION

DECLARATION BY THE CANDIDATE

I certify that this thesis has not been previously presented for a degree in Maseno University, or in any other University. The work reported herein has been carried out by me and all sources of information have been acknowledged by means of references.

Signature _____ Date_____

Samson Ntongai Jeremiah

PG/PhD/030/2013

DECLARATION BY THE SUPERVISORS

This thesis has been submitted for examination with our approval as the University supervisor.

1. Dr. Patrick Boniface Ojera, PhD

   Department of Accounting and Finance

   Maseno University

   Signature _____ Date_____

2. Dr. Isaac O. Ochieng', PhD

   Department of Commerce

   Laikipia University

   Signature _____ Date_____

ACKNOWLEDGEMENT

I wish to acknowledge the immense contribution of various authorities whose input led to the successful development and completion of this thesis. To begin with, I wish to thank in the most sincere way the Almighty God for availing me not only a rare opportunity to pursue postgraduate studies, but also seeing me through the successful completion of the same. I further extend my heartfelt gratitude to Maseno University for the opportunity it offered me to pursue studies through the Staff Development Programme that significantly reduced the college fees burden on me and provided a conducive learning environment. I also want to express my lasting appreciation to my supervisors Dr. Patrick Boniface Ojera of Maseno University, Department of Accounting and Finance and Dr. Isaac O. Ochieng' of Laikipia University, Department of Commerce. They both tirelessly participated in the conception, design and successful development of this thesis as well as their constructive criticisms that greatly helped to improve this work.

I am also greatly indebted to staff of the School of Business and Economics of Maseno University. Specifically, I would like to thank Dr. Jairo Mise for academic mentorship, Dr. Fredrick Aila for academic support, Dr. Kiprotich Isaac, my friend and a colleague for inspiring me through his own timely academic progression and through other valuable advice, Dr. Beatrice Abong'o, Dr. Charles Ondoro the Chairperson of the Department of Business Administration for the administrative support he gave me during the entire period I was writing this thesis. I also received significant support from Prof. Mohamed Mukras, Dr. Alphonce Juma Odondo, whose critical advice especially on the areas of research methodology significantly improved this study. Finally, I want to appreciate the moral support and constant encouragement I received from my good friends Mohamed Dawe Chute, Kamau Ndichu and Benson Yano. They have been my source of inspiration and strength from the commencement of this academic journey to its logical conclusion.

DEDICATION

I dedicate this thesis to my father Jeremiah M'timitu and my mother Martha Askala who kept on instilling in me words of hope, encouragement and hard work in academic pursuits. May I also dedicate this work to my aunty Najma Ali Hassan and her family for their constant financial and emotional support throughout my academic progress

ABSTRACT

Worldwide, Telecommunication Industry revenue has reached 2.1 trillion dollars in 2013 and is expected to grow by 3.4% by 2014. In Kenya, the mobile phone sector is growing at 80.5% adoption rate and contributed 12% GDP growth in 2014. The 2013/2014 Communication Authority of Kenya (CAK) sectorial report, however, revealed frequent service interruptions, numerous customer complaints, fraud, limited network coverage as key concerns of stakeholders. Past studies have focused on establishing quality-satisfaction relationship in high-contact service settings like banking, hospitality and learning institutions only. Consequently, aspects of this relationship in low-contact services that are highly integrated with technology, such as Kenya's mobile phone services are not known. Furthermore, the inconsistent findings regarding effect of service quality on customer satisfaction suggests that moderating processes may be involved. Hitherto, limited efforts to resolve the conflict through moderator investigation exist. Service failure and customer communication, though plausible moderators, have, however, not been considered. Consequently, their likely effect on service quality-customer satisfaction relationship remains unknown. The purpose of the study was to examine the moderating effect of service failure and customer communication on the relationship between service quality and customer satisfaction. The specific objectives were to: establish the effect of service quality on customer satisfaction; examine the moderating effect of service failure on service quality and customer satisfaction relationship; and analyze the moderating effect of customer communication on service quality and customer satisfaction relationship. Expectancy disconfirmation theory guided the study in a correlational survey research design. The population was 32.2 million subscribers of four mobile phones firms in Kenya out of which 384 respondents were selected using proportionate stratified sampling technique. Pilot results *(N=10)* revealed 42-item instrument overall mean reliability α=0.943.Discrimant validity was tested using factor intercorrelations where all values are less than 0.7 indicating that the retained factors are measures conceptually different constructs. Results revealed Reliability (β=0.143, p=0.009); Assurance (β=0.419, p=0.000) and Empathy (β=0.559, p=0.000) meaning they significantly predicted customer satisfaction in Kenya's mobile phone firms. Service failure (ΔR^2=0.064; p=0.000) moderated the relationship significantly implying the interactive effect of service failure improved customer satisfaction by 6.4% while customer communication (ΔR^2=0.059; p=0.000) moderated the relationship meaning the interactive effect of customer communication improved customer satisfaction by 5.9%. The study concluded that service quality practices (reliability, assurance and empathy) were significant predictors of customer satisfaction; service failure has a negative moderating effect (β= -0.662, p=0.000) on the relationship between service quality and customer satisfaction; while customer communication moderates the relationship positively (β=0.640, p=0.000). Recommendations were that firms should continue enhancing service quality dimensions, mitigate service failures and institute effective customer communication strategies as these efforts enhance customer satisfaction. The study's significance is informing service marketing literature and marketing policy by isolating service failure and customer communication as key variables.

TABLE OF CONTENT

ABBREVIATIONS AND ACRONYMS

ABC	African Banking Corporation
ATM	Automated Teller Machines
CAK	Communication Authority of Kenya
CPATI	Certified Public Accounting Training Institution
CBD	Central Business District
EU	European Union
GTF	Global Technology Forum
GDP	Gross Domestic Product
GSMA	Group Special Mobile Association
ICT	Information and Communication Technology
IT	Information Technology
KMO	Kaiser-Meyer-Olkin
KCB	Kenya Commercial Bank
KASNEB	Kenya Accountant and Secretaries National Examination Board
MRA	Moderated Regression Analysis
MTN	Mobile Telecommunication Networks
OLS	Ordinary Least Square
PCA	Principle Component Analysis
SEM	Structural Equation Modeling
SERVPERF	Service Performance
SERVQUAL	Service Quality
SMS	Short Message Service
SD	Standard Deviation
SPP	Structure Process Performance
3G	Third Generation of Mobile Telephony
VIF	Variance Inflation Factor

ZRESID	Standardized residual
ZPRED	Standardized predicted value

OPERATIONAL DEFINITION OF TERMS

Assurance	Refers to the knowledge and courtesy of employees and their ability to inspire trust and confidence.
Customer Satisfaction	A post consumption evaluative judgment concerning a specific product or service
Customer Communication	The ability of a customer to communicate freely and easily interacts with service firm
Consumers	The final or end users of a given product-market offering
Delivery failure	These are failures in the service delivery system which may either make services unavailable or unreasonably slow thereby causing costly customer inconvenience
Empathy	This involves individualized and caring attention the firm provides to its customers
High Contact Service	Is that service where customer's direct interaction with the service provider is seen as relatively more intense.
Low Contact Service	Is that service where customer's direct contact with the service provider is seen as relatively less intense.
Service Failure	The occurrence of unsatisfactory service encounters experienced by service clients.
Service Quality	The extent to which a firm successfully serves the purpose of the customer. The sum total of customers' expectations, service delivery process and service outcome will have an influence on service quality
Tangible	Refers to the appearance of physical artefact and staff members connected with the service (accommodation, equipment, staff uniforms and so on.
Reliability	Refers to the ability to deliver the promised services.

Responsiveness	The readiness of the staff members to help in a pleasant and effective way
Response failure	These are failure by service employees to respond to customers' implicit and explicit needs.
Service Setting	Totality of ambience and physical environment in which service occurs. It is also called services cape.

Unprompted employee failure: These are failures arising from employees behaviour that are totally unexpected by customers. These behaviour may include poor attitudes, employee who ignores customers and unusual behaviour such as rudeness, abusiveness and inappropriate touching.

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER ONE
INTRODUCTION

This chapter presents the background to the study and builds a case for the research problem. It reviews the concepts of customer satisfaction, service quality, service failure and customer communication, then introduces the development and challenges in the mobile phone sector in Kenya. This section also entails the statement of the problem, hypotheses, objectives, justification and the conceptual framework.

Background to the Study

Globally many marketing scholars (Parasuraman, Zeithaml and Berry, 1988; Azman, Norashyikin and Muhammad, 2009) have acknowledged service quality is an important antecedent to customer satisfaction. In fact, literature on quality management suggests that service quality is a vital driver of customer satisfaction (Kotler and Armstrong, 2012; Azman *et al.,* 2009). Spreng and Mackoy (1996) have acknowledged the fact that the dual concepts of service quality and customer satisfaction are indeed core aspects of marketing theory and practice. In a highly competitive mobile phone sector such as that of Kenya, service quality becomes a critical success factor for gaining a sustainable competitive advantage in the marketplace which eventually translates into customer satisfaction (Parasuraman, Zeithaml and Berry, 1985). There is therefore need for a paradigm shift of focus by service managers and academicians aimed at seeking to understand how clients perceive the quality of their services. This is true because delivering high quality service will cause satisfaction and make a firm attain sustainable competitive advantage in the market place (Shemwell, Yavas and Bilgin, 1998; Odhiambo, 2015). The concepts of service quality and customer satisfaction are drawn from the expectancy disconfirmation theory that proposes that service quality is a vital driver of customer satisfaction. In tandem with the proposition of the theory, the interaction between the concept of service quality and customer satisfaction will be anchored by expectancy disconfirmation theory as a guiding theoretical grounding for this study. However, the study further hypothesizes that the interaction between the service quality and customer satisfaction is expected to be moderated by service failure and customer communication. These concepts are discussed in the following sub-sections.

1.1.1 Customer Satisfaction

Customer satisfaction relates to the extent to which a product's perceived performance matches a buyer's expectations (Kotler and Armstrong, 2012). Kotler (2006) observes that modern organizations are endeavoring to become customer oriented by adopting customer-driven initiatives that seek to build long-term profitable relationships with their customers. Consequently, there is a paradigm shift of focus from merely satisfying customers to achieving ultimate customer delight thereby making customer satisfaction gain more attention from both practitioners and scholars in recent times (Nimako, Dokor and Veronica; 2012). Since customers play a vital role in the success of an organization (Agbor, 2011; Lee and Ritzman, 2005) they should be placed first in management priorities.

According to reports by Communication Authority of Kenya of 2013/2014, the problem of the core service delivery in terms of signal quality and network coverage are affecting customer satisfaction in the context of mobile phone services. Additionally, issues to do with perceived price fairness, service failure problems, efficiency of services provided, availability of product variety, clarity of network and fast connectivity were cited as issues affecting customer satisfaction levels. The theory of expectancy disconfirmation suggest that improving service quality will not only help a firm gain a sustainable competitive advantage in the marketplace but also results in increased satisfaction levels for their customer (Oliver, 1980).

The status of customer satisfaction with regard to mobile service quality worldwide is varied. At global level for instance, a survey conducted in Europe indicates that customer satisfaction levels with regard to service quality provided by mobile phones firms are inconsistent across Europe (Oracle white paper, 2011). Furthermore, consumers want operators to improve the quality of services offered. Moreover, the global trend in the mobile phone market indicates that consumers are today very willing to switch between mobile operators. There is therefore need to increase brand loyalty through increased personalization of customer services. Therefore, the critical need for and importance of quality improvement in the telecommunication industry continues to be a loudly voiced customer demand (Oracle White Paper, 2011). In Africa, customer satisfaction level with regard to service quality delivered in Ghana's mobile Network is reported to be moderately low at 43.5% (Nimako *et al.*, 2012). This indicates that customer satisfaction was neither

equal to, nor better than the desires and expectations of customers. In Kenya, however, the status of customer satisfaction with respect to Kenya's mobile services remains unknown.

1.1.2 Service Quality

Service quality can be perceived as the result of customers' comparison of their expectations about a service and their perception of the way the service has been performed (Gronross, 1984; Caruana, Money and Berthon; 2000). Further, when all service quality features such as tangibility, responsiveness, empathy, assurance and reliability are effectively implemented; it may result in enhanced satisfaction of service clients (Gronross, 1984, Parasuraman *et.al.*, 1988; Azman, 2009). With regard to mobile phone services, service quality relates to issues to do with net quality which include indoor and outdoor coverage, smoothness of connectivity along the effective delivery of other value added service (Gerpott, Rams and Schindler, 2001). Since the mobile phone market is in a highly competitive service sector, service quality becomes a very critical success factor for gaining sustainable competitive advantage that will translate into customer satisfaction and profit for the firm.

However, according to Buttle (2006), the conceptualization, dimensionality, operationalization and measurement of the service quality practices has been problematic as there exist no universally acceptable scale to measure service quality along its diverse manifestations. Even though many marketing scholars (Zeithaml, Parasuraman and Berry, 1990; Bitner and Hubert, 1994; Sureshchandar, Rajendran and Anantharaman, 2002) suggested that the 22 items scale of the SERVQUAL model are reasonably good predictors of service quality in its wholeness, Zeithaml *et al.* (1990) observed that to date, researchers are not in agreement over whether to use SERVQUAL scale or functional/technical measure of service quality. Moreover, getting a precise measure of service quality is quite a challenging undertaking. This, in part, can also be attributed to variability inherent in the service that tends to defy standardization of service quality (Gibson, 2009). Consequently, this has caused many researches involving the study of service quality practice to generate mixed and inconsistent results due to the conflicting views about the dimensionality of service quality constructs. Therefore, with this apparent lack of acceptable measurement scale, more so in the context of Kenya's mobile phone services, the status of service quality practices with regard to mobile phone services remain unclear.

Empirical evidence linking service quality to customer satisfaction has yielded mixed results. For instance, Walfried, Monalis and Winsor (2000) studied the effect of service quality on customer satisfaction in international private banks of USA and found that service failure exerts significant influence in customer satisfaction in banking industry. Similarly, studies (Namanda, 2013; Auka, 2012; Odhiambo, 2015; Suleiman, 2013) in banking sector have compared favourably with the findings of Walfried *et al.,* (2000). On the contrary, Agbor (2011) did a study in Umea University and found that there was no significant relationship between service quality and customer satisfaction. The findings of Agbor (2011) have differed from the findings of studies by Namanda (2013), Auka (2012), Odhiambo (2015), and Suleiman (2013). Elsewhere, Nimako *et al,* (2010) in his study on the service quality delivered by mobile telecommunication networks in Ghana also differed with Namanda (2013), Auka (2012), Odhiambo (2015), and Suleiman (2013) by concluding that service quality has weak but significant effect on customer satisfaction. Even though Nimako *et al.* (2000) studied the effect of service quality on customers' satisfaction in Ghana's Mobile Network, they did not use SERVQUAL scale thereby limiting the conceptualization and dimensionality of the study. In Kenya's aviation sector, Nyaoga, Manani, Basire, Ombati and Kongere (2013) found that there is a positive relationship between service quality and customer satisfaction in air transport. The findings of Nyaoga *et al.,* (2013) is in contrast with that of Uddin and Bilkis (2012) who found that service quality and fair price have indirect influence on customer satisfaction of mass service industries like mobile phone operators. However, Uddin and Bilkis (2012) did not isolate and assess the role of service quality in customer satisfaction but looked at multiple factors affecting the satisfaction level of customers in mobile phone sector. Moreover, their finding suffers a weakness due to the problem of multicollinearity of data as the independent variables were highly correlated to each other.

Furthermore, the studies reviewed above are not without limitations. For instance, the study by Odhiambo (2015) overlooked two aspects of service quality: assurance and tangibles. Therefore, making these two aspects of service quality and their likely effect on customer satisfaction unclear. Moreover, the small sized sample reduces reliability of results especially in terms of drawing inferences. Other studies like Namanda (2013) on Kenya's banking sector ignored two important dimensions of service quality namely: responsiveness and assurances. In addition, Auka (2012) failed to establish the direct link between service quality and customer satisfaction but instead focused on the influence that multiple factors

had customer loyalty in banking sector. On the other hand, Suleiman (2013) focused only on the individual dimensions of service quality separately, and their resulting effects on customer satisfaction in banking industry. This service sector depict a different service setting from that of mobile phone sector. Finally, Nyaoga *et al.,* (2013) used descriptive statistics in its analysis which are regarded as a less preferred approach to establish cause and effect relationship. Moreover, air transport sector is regarded as high contact service whose setting does not relate to a low contact services as in the case of mobile phone sector.

According to Gerpott *et al.* (2001) mobile phone sector in Kenya has become an important key in the development of the economy of developed countries since 1990s. Kenya's mobile phone sector has grown exponentially but has continued to experience numerous challenges relating to the quality of services offered to customers. These challenges include: numerous customer complaints about unsolicited marketing text, frequent service interruption due to server/network breakdown and cable cuts causing frequent delays and costly inconvenience to customers, fraud targeted at customers has also become endemic in the mobile market place (CAK, 2012). Moreover, the sectoral report of 2013/2014 period released by the Communication Authority of Kenya rated all the four mobile phone operators in Kenya as non-compliant in terms of service quality standards. Specifically, the report indicated that Safaricom, Airtel and Telkom Kenya achieved an overall rating of 62.5% which is below the set target for quality of services. Past efforts to address these challenges majorly concentrated with little success on policy issues. However, some policy issues were seen as unfair and discriminatory by some operators. For instance, the Fair Competition and Equality of Treatment Regulation which requires dominant players to report to the regulator before revising pricing has been facing resistance for some operators (CAK, 2014). Therefore, no effort has been put forward to address the foregoing challenges from firms' internal management practices such as service quality management. In Kenya, most studies (Auka, 2012; Nyaoga *et al.,* 2013; Odhiambo, 2015; Kimani, 2014) relating service quality to customer satisfaction have only focused on sectors like banking, aviation and higher learning institutions which are regarded as high contact service setting with intense client-service provider interaction. Therefore, none of the reviewed studies analyzed effect of service quality practices on satisfaction of mobile phone service users, as a low contact services which is highly integrated with a technology. Consequently, the status of service quality practices and its consequences on satisfaction levels of the mobile phone subscribers in Kenya is not known.

1.1.3 Service Failure

A service failure is a service performance that fails to meet customer expectations (Walfried *et al.,* 2000). Typically, when a service failure occurs, a customer will expect to be compensated for the inconvenience in the form of any combination of refunds, credits, discounts or apologies. The strength of a customer relationship with the organization prior to a service failure has a buffering effect in the event of service failure (Walfried *et al.,* 2000). This study explores the following three dimensions of service failure: delivery failure, response failure and unprompted employee actions. Research suggests that customers who expect the relationship to continue have lower service recovery expectations, and in turn, are more satisfied with service performance after recovery (Polaris Marketing Research, 2011). The severity of the service failure is expected to moderate the relationship between quality and satisfaction. Even with strong recovery, research indicates that customers may still be upset, engage in negative word-of-mouth, and be less likely to develop trust with and commitment to the organization, if the original service failure was really bad (Polaris Marketing Research, 2011). Service failure and recovery is therefore a critical issue for both service managers and researchers (Mc Collough *et al*, 2000). However, until recently, the research on the nature and the effect of service failure on the customer satisfaction has been limited. Therefore, service failure has been identified as a neglected area that requires additional research (Andreassen, 1999; Tax, Brown and Chandrashekaran, 1998). Following the limited attention given to service failure, it is unclear how customers evaluate service failure and its potential effect on customer satisfaction.

Previous attempts in terms of empirical investigation to test for moderation effect on the service quality-customer satisfaction relationship have failed due to poor conceptualization of dimensionality of variables (Walfried *et al.,* 2000). Moreover, many moderation studies have modeled other moderators in service quality-customer satisfaction relationship. For instance, moderation study by Wang *et al.* (2004) sought to establish the moderating role of customer value in the relationship between service quality and customer satisfaction in China's mobile telecommunication market and found it significant. Similarly, Caruana *et al.* (2000) explored the moderating role of value on the relationship between service quality and customer satisfaction in an audit firm which revealed small negative moderation effect on quality-satisfaction relationship. However, the studies by Wang *et al.* (2004) and Caruana *et al.* (2000) differed in terms of direction of effects. Whereas Wang *et al.* (2004)

found positively significant moderating effect, Caruana *et al.* (2000) on the other hand found that customer value had a small negative moderating effect in the relationship. Elsewhere, in a study on USA banking services, Walfried *et al.* (2000) attempted to introduce service failure as a moderator into service quality-customer satisfaction relationship with little success as there was no moderation. However, Walfried *et al.* (2000) omitted the empathy dimension of service quality hence limiting the conceptualization of dimensions of his study. In Europe, Reimann, Lunemann and Chase, (2008) differed from Walfried *et al.* (2000) as they modelled and tested the moderation effect of uncertainty avoidance on the relationship between perceived service quality and customer satisfaction instead of service failure.

However, the above reviewed studies are not without weaknesses. For instance, moderation studies (Wang *et al.,* 2004; Caruana *et al.,* 2000; Reinman *et al.,* 2008) have all tested for other variables like customer value, uncertainty avoidance as possible moderators instead of service failure. Moreover, studies by (Mc Collough *et al.,* 2000) only tested for direct effect of service failure on customer satisfaction instead of its moderating role on quality-satisfaction relationship. Study by Caruana *et al.* (2000) had a major limitation due to the problem of multicollinearity since variables were strongly correlated coupled with the use of small sample size of 80 respondents thus making generalization of their results difficult. Moreover, Most studies (Walfried *et al.,* 2000; Wang *et al.,* 2004; Caruana *et al.,* 2000; Reinman *et al.,* 2008) that have tested moderation effect have focused on other sectors such as banking services, audit services which are high end and high contact services with high service standards and high customer expectations. Their analysis has excluded the mobile phone sector in a developing country like Kenya. Therefore, the moderating role of service failure in quality/satisfaction relation with regard to low contact services such as mobile phone services has not been formally explored. Consequently, the status of service failure and its influence on quality/satisfaction model in low contact services, particularly in Kenya's mobile services industry is not known.

1.1.4 Customer Communication

Customer communication refers to the ability to freely converse with the service firm. Zeithaml *et al.* (1990) perceived that customer communication will play a critical role in the service delivery process; by eliminating ignorance regarding customer's expectation by service firms. This was further supported by Mohr's and Nevin's (1990) theoretical model

which suggested that communication, among other things serves to moderate the effects of circumstance and conditions in the service exchange process. This study explored the following dimensions of customer communication: complaints, suggestions, compliments and abandonment of usage. Excellent customer service and communication programmes can make companies stand apart from their competition, stand out as accomplished in the business world and stand out with their customers and employees. Even though customer communication was theoretically perceived as a plausible moderator in the service quality-customer satisfaction relationship, its moderating role has not been tested empirically yet.

Empirical evidence by Junaid, Theeb, Motairi, Egab, Muhammad and Jamal (2012) tested for direct effect of communication on customer satisfaction in the context telecommunication services in Malaysia and found that communication influences satisfaction negatively though insignificantly. Similarly, Rezaie and Forghani (2011) also tested direct effect of communication on customer satisfaction in the context of users of Information Technology services in Isfahan University in Iran but differed from Junaid *et.al.* (2012) in the direction of effects. Whereas Junaid *et al.* (2012) found that communication has exerted negative insignificant direct effect on customer satisfaction, Rezaie and Forghani (2011) found that among other factors, communication plays a vital role in explaining variation in customer satisfaction among IT service users. Despite Junaid *et al.,* (2012) focusing on telecommunication services and establishing a direct link between communication and customer satisfaction, their study had failed to establish the moderating role of communication on the quality-satisfaction relationship. On the other hand, a study by Gantasala and Padmakumar (2013) modelled and tested the mediating effects of customer communication on relationship between service quality and customer satisfaction of Telecom Company in Oman. The studies by Gantasala and Padmakumar (2013) and Junaid *et al.,* (2012) were similar in terms of the context as both were done in telecommunication sector in Asian market but different in terms of their focus. Whereas Junaid *et al.,* (2012) tested for the direct effect of communication on customer satisfaction, Gantasala and Padmakumar (2013) on the other hand, tested for the its mediating role and found it significantly so. Most studies reviewed (Junaid *et al.*, 2012; Rezaie and Forghani, 2011; Gantasala and Padmakumar, 2013) did not shade light on the likely effect of communication as a plausible moderator variable on quality-satisfaction relationship as some only tested direct effect while others tested mediating effect. Furthermore, most studies reviewed were conducted in the context of developed countries thereby missing the

analysis of Kenya's mobile phone context. This is despite the fact that the Kenya's mobile sector is currently experiencing many challenges like low access to telecommunication infrastructure, high operation and regulation costs and stiff competition that has forced small operators like Essar Yu to quit the sector and put off many potential developers of mobile services. Therefore, there is no known attempt to empirically establish the moderating role of customer communication on the relationship between service quality and customer satisfaction despite advances in theoretical literature (Zeithaml *et al.,* 1990; Mohr and Nevin, 1990) that it can moderate. Consequently, the status and the likely effect of customer communication on quality-satisfaction relationship is not known.

1.1.5 The Mobile Phone industry in Kenya

Globally, the U.S.A mobile phone market is outperforming the E.U market in many important respects relating to customer service. In 2012 alone, the U.S mobile market grew by 42% overall from 2009 with the device segment growing at 152% (Chetan Sharma Consulting, 2013). Further, a report by Telecommunication Industry Review (2012) indicates that the worldwide telecommunications industry revenue has reached $ 2.1 trillion in 2012 and is expected to grow by 3.4% by 2013. This growth in revenue is expected to continue everywhere expect Europe. This is so because Europe's share of the global telecommunications markets has been declining regularly from 31% in 2005 to just 25% in 2012. In contrast, Asia Pacific region led the growth but Africa is also growing faster than is obvious (Telecommunication Industry Review, 2012).

During the last decades, developments in the mobile phone sector have presented a great success story in Kenya's economy. The ICT sector in Kenya grew at an average of nearly 20% per year from 1999-2013. The internet usage rates for 2013 were around five to ten adults. There are over 32 million mobile phone users in the country and virtually every adults has access to one. Besides, over 45% of the population enjoys internet access. It is noteworthy that Kenya has led the world in mpesa electronic cash transfer through mobile telephony platform (CAK, 2014). Another success story with mobile phones services is the emergence of digital transaction culture which have enabled high proportion of Kenya's urban population to support family members in rural part of the country. Finally, today Kenyan businesses can access world-class fibre-optic links to the rest of the world and fierce telecom competition has significantly lowered connectivity prices (CAK, 2014).

Kenya has experienced a tremendous growth in investment in the mobile phone sub-sector which has facilitated improvement in technology infrastructure. From the year 1992 when mobile phone was first introduced, subscribers numbered 1,100 compared to 32.8 million mobile phone subscriptions in Kenya by 2014. Revenue from this sector has contributed up to an estimated 12.1% to the Kenyan economy (Communication Authority of Kenya, 2013). The growth in mobile telecommunication sector has therefore had a positive impact on the Kenyan economy. As at July 2013, there were four major mobile phone firm operators in Kenya namely: Safaricom Kenya, Airtel Networks, Telkom Kenya (Orange) and Essar Telkom (CAK, 2013). The latter two are relatively smaller. Besides, the sector comprises 32.8 million subscribers who form both post-paid and pre-paid customers. The government also plays a critical role in sector regulation by licensing and enforcing legal aspects governing the sector through Communication Authority of Kenya**.** CAK being a state-owned corporation, is responsible for ensuring fair play in the airwaves among competitors, licensing and developing and coordinating the policies and strategies with respect to development and operation of telecommunications services in Kenya (CAK, 2012).

Despite the promising growth trends in performance by the mobile phone sector in Kenya, there are many challenges that affect both the operators and their customers (subscribers).These challenges include: lower access to telecommunications infrastructure with network coverage in northern parts of Kenya still being a challenge, high operations and regulatory costs/challenges have further put off many potential developers of mobile services. Kenya's tax regime has also been blamed to be the biggest obstacle holding back the growth of the sector by treating this service as a luxury (GSMA, 2008; CAK, 2012). Finally, cut-throat competition has reduced the stock turnover and profit earned by individual small business operators.

1.2 Statement of the Problem

Despite growing at 80.5 per cent adoption rate and contributing 12 per cent GDP growth in 2014, Kenya's mobile phone sector has experienced myriad challenges that have held back its growth. The 2013/2014 sectorial report by Communication Authority of Kenya (CAK), revealed that frequent service interruptions, numerous customer complaints, fraud targeted on customers, limited network coverage on some part of Northern Kenya as key stakeholders' concerns. Moreover, CAK have rated all four Kenyan mobile phone operators as non-compliant (62.5%) in terms of set quality of service targets of 80 per cent. Service

quality management literature shows plausible but mixed relationship between service quality and customer satisfaction. Moreover, many of such studies focused on establishing the relationship between service quality and customers satisfaction in high end market and in high contact services with high service standards and high customer expectation such as the banking and hospitality sector. Consequently, aspects of quality-satisfaction relationship particularly in the case of low contact services offered by mobile phone firms is not known. Furthermore, the inconsistent findings regarding the effect of service quality on customer satisfaction and the weak explanatory power of the service quality on satisfaction suggests that moderating processes may be involved. However, the studies in other context on the relationship have yielded inconsistent results with limited effort to resolve the conflict through moderator investigation. While service failure and customer communication are theoretically plausible moderators of the service quality-customer satisfaction relationship, there is no empirical evidence on Kenya's mobile market sector, particularly on the inclusion of these plausible moderators in the elusive customer service quality - customer satisfaction relationship. Therefore, this study investigated the moderating effects of service failure and customer communication on the relationship between service quality and customer satisfaction among mobile phone firms in Kenya.

1.3 Objectives of the Study

The overall objective of the study was to examine the moderating effects of service failure and customer communication on the relationship between service quality and customer satisfaction among mobile phone firms in Kenya.

Specific Objectives:

Specifically, the study sought to:

i. Establish the effect of service quality on customer satisfaction in mobile phone firms in Kenya.

ii. Examine the moderating effect of service failure on the relationship between service quality and customer satisfaction in mobile phone firms in Kenya.

iii. Analyze the moderating effect of customer communication on the relationship between service quality and customer satisfaction in mobile phone firms in Kenya.

1.4 Hypotheses for the Study

The following hypotheses were tested in this study;

i. H_o: β_i =0 Service quality has no significant effect on customer satisfaction among Kenya's mobile phone firms.

ii. H_o: β_i =0 The relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya.

iii. H_o: β_i = 0 The relationship between service quality and customer satisfaction is not moderated by customer communication among mobile phone firms in Kenya.

1.5 Scope of the Study

This research focused on the study of four concepts namely service failure, customer communication, service quality and customer satisfaction as constructed in the conceptual framework in Figure1.1. The research took the form of a consumer study where mobile subscribers of the four mobile phone service operators in Kenya were targeted as participants to validate constructs and estimate econometric models. Besides, viewing the subject from a customer perspective was seen as appropriate since customers are the ones who ultimately consume the service and are therefore the best judges of quality. The study area is Kenya because it is regarded as the world leader in mobile money transfer services with a penetration rate of 80.5% rising exponentially hence widely accepted as a vibrant mobile economy (CAK, 2014). Finally, to achieve the stated objectives, mobile subscribers who have been using the network services in at least the last 6 months of the year 2014 were targeted as possible participants in the study to get objective and accurate views on their service quality assessment and their level of satisfaction. Therefore, the study was conducted between May, 2014 and September, 2015 at a time when there were four active mobile firms in Kenya.

1.6 Significance of the Study

The state of Kenya's mobile phone environment with respect to customer satisfaction and service quality delivered still remains unclear due to scanty documentation. In tandem to the above fact, a major service sector that would benefit from clarity of the interrelationship among service quality, service failure, customer communication and customer satisfaction is

the mobile phone sector in Kenya. Statistics obtained from articles that relate customer service quality to satisfaction show that little research has been conducted on this subject particularly with service quality dimensions hence the need for more research in this area (Agbor, 2011). Furthermore, the relationship between service quality and customer satisfaction shows a paradoxical connection worth studying. Besides, knowledge gained from this study may be used to develop strategies for efficient management of service quality standards to influence consumers profitably.

Moreover, prior studies (Nimako *et al.*, 2010; Uddin and Bilkis; 2012; Agbor, 2011; Lai, griffin and Babin, 2009; Wu and Lang, 2009; Kuo, Wu and Deng, 2009; Baker, 2000), have used different scales to measure service quality. Consequently, this has led to model misspecification, poor conceptualization of the study constructs and generation of paradoxical findings. However, the current study made contribution by developing and validating a scale which service managers in mobile phone sector, that marketing specialists and policy makers can use to empirically determine the extent of service quality practices as determinant of customer satisfaction in mobile phone sector.

Finally, by ignoring the role of moderating variables in the elusive quality-satisfaction relationship, majority of past studies have yielded inconsistent results with limited effort to resolve the inconsistency through a moderator investigation. Therefore, by isolating and analyzing the moderating role of service failure and customer communication, this study contributes to better clarity of the relationship as well as in theory development and validation. The study is insightful for academics and practitioners in the field of service marketing and quality management in the mass service industry.

1.7 Conceptual Framework

Figure 1.1 provides a conceptual framework from which to develop hypotheses. The framework is modified from Walfried *et al.*, (2000) as shown in Appendix III. Walfried et al, (2000) framework was used to measure banking services in USA international bank which was regarded as a high contact service setting and therefore included both SERVQUAL and SERVPERF measures of service quality. However, the current study modified and used Walfried et al, (2000) framework by omitting SERVPERF measures of service quality. The use of SERVQUAL scale only to measure service quality in the context of low contact services such as Mobile phone services was deemed appropriate and

sufficient given that service expectation and standards are relatively low as compared with those of high contact setting. The framework will comprise of four variables namely: service quality as independent, service failure and customer communication both as moderator variables, customer satisfaction as dependent variable. First, as depicted in Figure 1.1, customer satisfaction is expected to be influenced by service quality operationalized using SERVQUAL scale with dimensions which comprise: tangibles, reliability, responsiveness, assurance and empathy. This is attributed to the fact that service quality is a vital determinant of customer satisfaction since superior service quality offered by a service firm would lead to customer satisfaction (Yi, 1990; Gantasala and Padmakumar, 2013).

Further, the inconsistent findings regarding the effect of service quality on customer satisfaction and the weak explanatory power of the service quality on satisfaction suggests that moderating processes may be involved. Baron and Kenney (1986) noted that the use of moderator variable influences the strength of the relationship between two variables and can be used to cure weak relationships in social science studies. Similarly, Cohen, Cohen, Aiken and West (2003) noted that the testing of interactions is at the very heart of theory testing in the social science. However, to date there is limited effort to empirically resolve those inconsistent research findings through moderator investigation. Despite service failure and customer communication being seen as plausible moderators in theoretical literature, they are however not formally considered empirically especially in a low contact service setting. Subsequently, this study hypothesizes that the relationship between service quality and customer satisfaction is moderated by service failure and customer communication. For instance, communication plays a critical role in the service delivery process. Mohr and Nevin's model (1990) suggests, among other things, that communication serves to moderate the effects of various circumstances and conditions associated with exchange, on the outcomes of exchange, as well as the impact that organizational climate exerts on buyer-seller satisfaction. Therefore, customer communication is expected to moderate relationship between service quality and customer satisfaction and is operationalized by complaints, suggestions, compliments and abandonment of usage. Service Failure on the other hand is expected to moderate relationship between service quality and customer satisfaction and is operationalized as delivery failure, response failure and unprompted employee actions. For instance, according to Polaris Marketing Research (2011), the severity of the service failure is expected to influence the customer satisfaction and commitment. All the three

independent variables: namely service quality, service failure and customer communication are abstract constructs and are measured using a seven point agreement Likert scale. The interplay of variables is summarized in Figure 1.1.

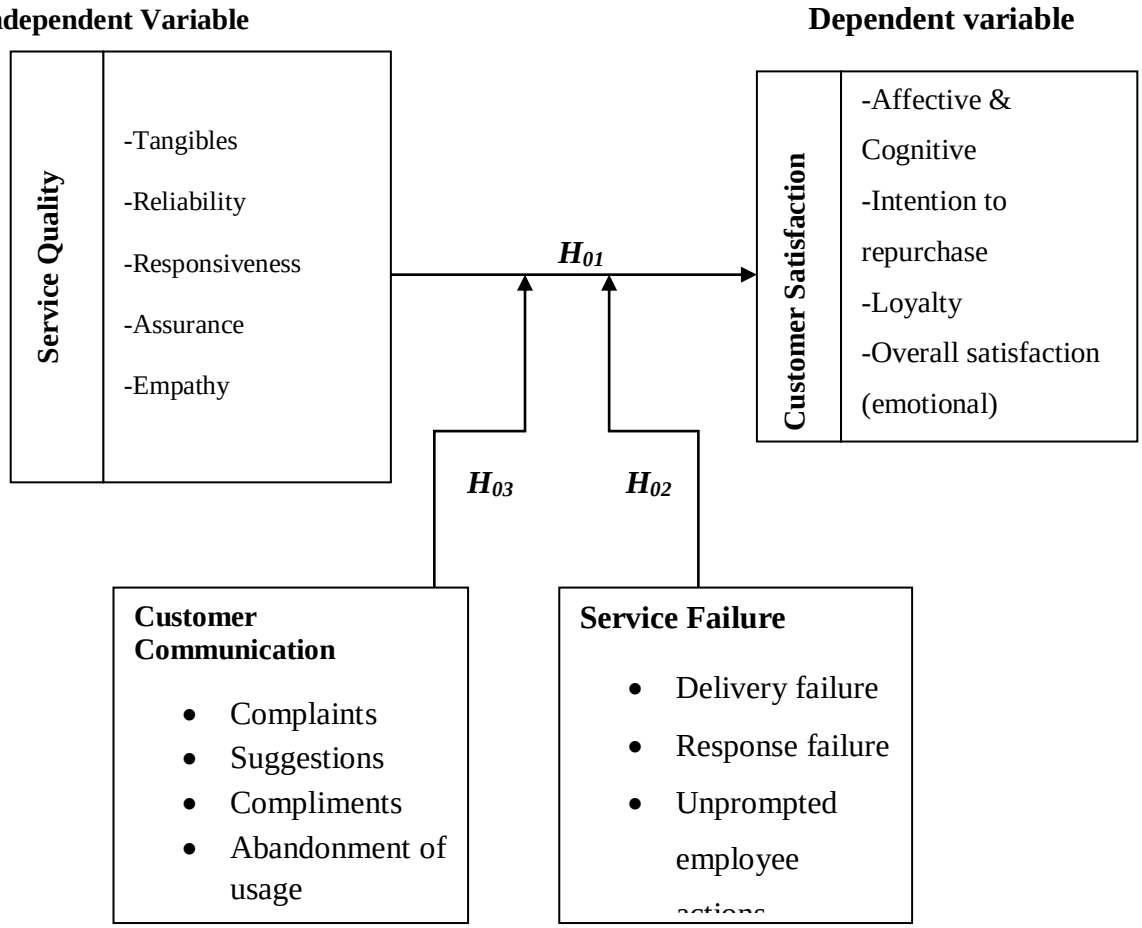


Fig.1.1: The Effects of Service failure, Customer Communication and Service Quality on Customer Satisfaction

Source: Adapted from Walfried *et.al*, (2000, Pg. 11)

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews both theoretical and empirical literature related to service quality, service failure, customer communication and customer satisfaction to establish the level of knowledge related to the research topic. Thereafter, identified knowledge gaps from the review are summarized.

2.1 Theoretical Perspectives

This review explores theoretical foundation of the study by advancing the theory that guided the study as well as defining the concepts and dimensions of the variables. According to Kerlinger (1979), a theory is a set of interrelated constructs, definitions and propositions that presents a systematic view of phenomena by specifying relations among variables with the purpose of explaining natural phenomena. There are a number of theories associated with the satisfaction and service paradigms. These theories have been used to understand the process through which customers form satisfaction judgment (Oliver, 1980). In other to evaluate their suitability for the study, the cognitive dissonance theory, contrast theory, expectancy disconfirmation theory and their corresponding critiques have been reviewed in the following subsections.

2.1.1 Cognitive Dissonance Theory

Cognitive dissonance is basically an uncomfortable feeling caused by holding two contradictory ideas simultaneously. Proposed by Festinger (1957), the theory suggests that people have motivation to reduce discomfort/dissonance by changing their attitude and behaviour or by justifying or rationalizing them. Festinger (1957) further stated that cognitive dissonance revealed high explanatory power in explaining the state of dissatisfaction/discomfort buyers often find themselves when making a purchase. However, this theory was criticized as having relatively scarce application area. Specifically, critics have termed dissonance as often being merely a transitory phenomenon. Moreover, addressing cognitive dissonance empirically has presented some difficulties because of the problem of measurement and data collection. As a theory of satisfaction, it has also failed to provide a theoretical link between two variables of the study namely service quality and customer satisfaction because it ignored service quality practices as a critical antecedent of

customer satisfaction. Therefore, cognitive dissonance theory fails as a complete explanation of consumer satisfaction.

2.1.2 The Contrast Theory

Dawes *et al.* (1972) defined contrast theory as the tendency to magnify the discrepancy between one's own attitudes and the attitudes represented by an opinion statement. According to the contrast theory, any discrepancy of experience from expectations will be exaggerated in the direction of the discrepancy. For instance, if the firm raises expectation in its advertising and then a customers' experience turns out to be only slightly less than that promised, the product or service would be rejected as totally unsatisfactory (Terry, 1997). However, critics have noted that contrast theory of customer satisfaction only predicts customer reaction instead of reducing dissonance/dissatisfaction since the consumers will magnify the difference between the expectation and performance of the products or service. Additionally, it overlooked the aspects of service quality as the critical variable of the present study.

2.1.3 The Expectancy Disconfirmation Theory

Proposed by Oliver (1980), this theory states that satisfaction level is a result of the difference between the expected and the perceived performance of service. Precisely, satisfaction, which is a positive disconfirmation, occurs when a product or service performs between that customer's expectations. At the other extreme, a performance that is worse than expectation of customer will cause dissatisfaction. This is termed as negative disconfirmation (McQuitty, Finn and Wiley, 2000). Furthermore, Mattila and O'Neill (2003) have argued that amongst the most popular satisfaction theories is the expectancy disconfirmation theory, which states that satisfaction is related to the size and direction of the disconfirmation experience that occurs as a result of comparing service quality performance against customer expectation. The expectancy/disconfirmation paradigm provides the theoretical basis for the link between quality and satisfaction (Yi, 1990). Many empirical studies support this model for identifying the causal link between service quality and satisfaction (Anderson and Sullivan, 1993; Cronin and Taylor, 1992; Anderson *et al.*, 1994). In this regard, the current study was anchored on the expectancy disconfirmation theory which provides the theoretical grounding for the study. In the current study, the theory is deemed appropriate as it provides a theoretical link between the study variables. Specifically, the two main research variables namely: service quality and customer

satisfaction were drawn from the expectancy disconfirmation theory. According to the theory, satisfaction is the direct consequence of service quality. Furthermore, researchers have argued that customer satisfaction has a potential to impact either directly or indirectly the business performance especially on profitability. Luo and Homburg (2007) suggest that customer satisfaction can positively affect a firm's profitability. Besides, other researchers like Chi and Qu (2008) have concluded that customer satisfaction increases customer loyalty repurchase intention and enhance brand popularity through the positive word-of–mouth. Customer satisfaction model stipulates that satisfaction is influenced by service quality. That is to say, higher satisfaction results from customers getting expected service quality (Hutchinson *et al.*, 2009). Perceived service quality is a reflection of the differences between the customer's expectations and a product's real performance. The main elements of this theory are discussed below.

2.1.4 The Concepts of Service Quality, Customer satisfaction, Service Failure and Customer Communication

2.1.4.1 The Concept of Service Quality

Service quality is the extent to which a firm successfully serves the purpose of the customer (Zeithaml, Parasuraman and Berry, 1990). The sum total of customers' expectations, service delivery process and service outcome will have an influence on service quality. Moreover, Edvardsson (2005) note that service quality perception is formed in the process of production, delivery and service consumption. Furthermore, prior experience with a particular service will largely influence the extent of their customer perceptions of service quality (O'Neill and Palmer, 2003). In a highly competitive market, service quality becomes a very critical success factor for gaining a sustainable competitive advantage in the marketplace which will then translate into customer satisfaction. There is need therefore for a paradigm shift by service managers and academicians in order to understand how clients perceive the quality of services. In the mobile phone service sector, service quality implies network quality which includes voice reproduction, indoor and outdoor coverage, smoothness of connectivity along with effective delivery of other value added services (Gerpott *et al,* 2001). However, in order to appreciate effectively the concept of service quality, the study adopted the SERVQUAL model to aid in conceptualizing and operationalizing service quality as one of the main variables of the study.

The SERVQUAL model has five dimensions of service quality across a variety of services include: tangibles, reliability, responsiveness, assurance and empathy (Parasuraman *et al.*, 1991, Carman 1990, Crompton and Mackay, 1989). Tangibles relate to the physical evidences of service such as facilities, tools and appearance of the personnel; reliability is concerned with the consistency of performance and dependability; responsiveness deals with the willingness of employees/staff to deliver services; assurance covers issues relating to the courtesy of staff and their ability to inspire trust and confidence. Finally, empathy relates to the personalized contact that a firm gives to its customers.

Several studies show that SERVQUAL model is a tool popularly used for measuring service quality dimensions in many service industries (Parasuraman, Berry and Zeithaml, 1985). However, Buttle (1996) notes that the conceptualization, dimensionality, operationalization, measurement and applications of the SERVQUAL model have been subject of much criticism. On one hand, Sureshchandar *et al.* (2002) observe that there is a general agreement that the 22 items scale of the SERVQUAL model are reasonably good predictors of service quality in its wholeness. Further, similar sentiments were put forward by Bitner and Hubert (1994) who suggested that the SERVQUAL items of Parasuraman *et al.*, (1988), when measured at the level of the firm's services, appears to be good predictors of service quality. It is recognized as a principal instrument in the services marketing literature for assessing quality (Parasuraman *et al.*, 1991; Gantasala and Padmakumar, 2013).

This fact notwithstanding, a good number of prior studies (Nimako et al, 2010; Uddin and Bilkis; 2012; Agbor, 2011; Lai *et al.*, 2009; Wu and Lang, 2009; Kuo *et al.*, 2009; Baker, 2000), have used different scales to measure service quality leading to poor conceptualization of the study constructs and generation of paradoxical research findings. This suggests absence of accepted measurement scale for measuring service quality in the context of mobile phone sector. Consequently, the status of service quality practices and its consequences on satisfaction levels of mobile phone subscribers in Kenya is not known.

2.1.4.2 The Concept of Customer Satisfaction

Customer satisfaction refers to a post consumption evaluative judgment concerning a specific product or service (Gundersen, Heide and Olsson, 1996). The customer contrasts pre-purchase expectations with the perceptions of performance during and after the consumption experience (Oliver, 1980). Despite customer satisfaction being a popular subject of great interest among marketing practitioners and academic researchers, there still

does not appear to be a consensus regarding its role (Giese and Cole, 2000) and this has remained a critical gap in knowledge even in terms of designing appropriate service quality standards.

Customer's satisfaction levels can be best understood by analyzing the expectancy disconfirmation theory that seeks to explain how a customer compares the expected and perceived performance of service quality to arrive to a state of satisfaction and dissatisfaction. In the current study, the following dimensions of customer satisfaction were explored: Intention to purchase, loyalty, overall satisfaction and affective and cognitive elements. Customer satisfaction status with regard to mobile service quality worldwide is varied. In Europe for instance, customer satisfaction levels with regard to service quality provided by mobile phones firms are inconsistent (Oracle white paper, 2011). In Africa and in particular in Ghana's mobile Network, customer satisfaction level was reported to be moderately low at 43.5% (Nimako *et al.*, 2012). In Kenya, however, customer satisfaction levels with respect to Kenya's mobile services remains unknown due to scanty documentation.

2.1.4.3 The Concept of Service Failure

According to Walfried *et al.* (2000), service failure refers to the occurrence of unsatisfactory service encounters. Walfried *et al.* (2000) further suggested that service failure have a potential to moderate the service quality/customer satisfaction relationship. Zeithaml *et al.* (1990) on the other hand proposes that service failure potentially has immense impact on consumers especially in their "switching behaviour". Roos (1999) states that service failure is one "pushing determinate" that drives customer switching behaviour and that successful service recovery can mean the difference between customer retention and defection. According to Stauss and Friege (1999), customer retention is critical to a company as it boost the profitability. However, due to unique nature of services (specifically, inseparability and variability), it is impossible to eliminate service failure or to ensure 100% error-free services.

Christine and Klaus (2003) noted that not all consumers will be satisfied and few organizations can guarantee to deliver "zero defects" service every time. Service failure and customer dissatisfaction may be inevitable. Mobile phone services are technology-based services with heavy dependence on machines for delivery and maintenance of services. It is therefore likely to have high potential of service failure due to factors that are largely

outside the individual organization's control such as poor weather (Christine and Klaus, 2003). Mc Collough *et al.* (2000) noted that service failure and recovery is a critical issues for both service managers and researcher. In line with Bitner *et al.* (1990), service failure classification model, service failure was operationalized by delivery failures, response failure and unprompted/unsolicited employee actions. However, until recently, research on the nature and the effect of service failure on the customer satisfaction has been limited. Therefore, service failure has been identified as a neglected area requiring additional research (Andreassen, 1999; Tax, Brown and Chandrashekaran, 1998). As a result, following limited attention given to both service failure and recovery, the information about how customers evaluate service failure, and the potential effects that it has on customer satisfaction is not known. Despite service failure being seen as a significant variable in theoretical literature (Mc Collough *et al.,* 2000; Christine and Klaus, 2003), it is nonetheless yet to be formally tested empirically to establish its moderating effects on the service quality/ satisfaction relationship especially in the context of low contact service settings such as the mobile phone sector.

2.1.4.4 The Concept of Customer communication

Walfried *et al.* (2000) postulated that the ability of a customer to communicate freely and easily with the service firm will moderate the quality/satisfaction relationship. This is further supported by Mohr's and Nevin's (1990) theoretical model which suggests that communication, among other things, serves to moderate the effects of circumstance and conditions in the service exchange process. Moreover, Zeithaml *et al.* (1990) perceive that communication can play a critical role in the service delivery process by eliminating ignorance regarding customers' expectation by service firms. In the study, customer communication is operationalized by complaints, suggestions, compliments and abandonment of usage.

Despite advances in the theoretical literature (Zeithaml *et al.,* 1990; Mohr and Nevin, 1990) that customer communication can moderate the quality/satisfaction relationship, there is no known attempt to empirically establish the moderating role of customer communication on the relationship between service quality and customer satisfaction. This is particularly so especially in the context of low contact service settings such as the case of mobile phone services. This fact was further acknowledged by Gantasala and Padmakumar (2013) who noted that the level of communication has not been tested in terms of its moderating effect

on the service quality-satisfaction relationship. Consequently, the status and likely effect of customer communication on quality-satisfaction relationship is not known.

2.1.4.5 The Concept of Moderation in Relationship

Cohen *et al.* (2003) observed that in statistics and regression analysis, moderation occurs when the relationship between two variables depends on a third variable. The third variable is referred to as the moderator variable or simply the moderator. The effect of a moderating variable is characterized statistically as an interaction (Cohen *et al.,* 2003) that is, a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between dependent and independent variables. Specifically within a correlational analysis framework, a moderator is a third variable that affects the zero-order correlation between two other variables, or the value of the slope of the dependent variable on the independent variable (Baron & Kenny, 1986).

Cohen *et al.* (2003) underscored the importance of moderators or interaction research by stating that the testing of the interaction is at the heart of theory testing in social science. The aim of a moderator investigation is to uncover the hidden effect or nature of relationships in behavioral sciences inquiry. Service failure and customer communication are hypothesized to be potential moderators in the relationship between service quality and customer communication. A service failure variable and a customer communication variable are proposed because the literature on service marketing suggests that they are a sets of plausible moderators of quality/satisfaction relationship for services (Walfried *et al.,* 2000). This fact notwithstanding, empirically limited effort was put forward to establish their moderating roles especially in the context of low contact service setting. Therefore, the status and moderating role of the two suggested moderator variables in the quality/satisfaction relationship is not known.

2.2 Empirical Studies on Service Quality, Customer Satisfaction, Service Failure and Customer Communication

2.2.1 Empirical Studies on Service Quality and Customer Satisfaction

There are empirical evidences suggesting that the five dimensions of service quality namely: tangibility, reliability, assurance, empathy and responsiveness are associated with high level of customer satisfaction. However, other studies indicate a negative and weak relationship between service quality and customer satisfaction. The empirical work on the

interrelationship between service quality and customer satisfaction are summarized subsequently.

Uddin and Bilkis (2012) conducted a study that sought to explore customer satisfaction and its influencing factors in the mobile phone operation industry in Bangladesh. In their study, data were collected through a questionnaire in a survey research design and analyzed using factor analysis with Principle Component Analysis (PCA) and Structural Equation Modeling (SEM). The empirical result of this study showed that service quality and fair price have indirect influence on customer satisfaction of mass service industries such as the mobile phone operators. Furthermore, fair price showed weak but positive impact on customer satisfaction ($r = 0.136$, $p<0.05$) at 95% confidence level. However, the study found a weak but significant direct impact of service quality on customer satisfaction ($r = 0.016$, $p< 0.01$). This study concluded that service quality is not a significant predictor of customer satisfaction in the context of mobile phone operation industry in Bangladesh. The study, however, did not isolate and assess the role of service quality in customer satisfaction but considered multiple factors that affect satisfaction level of customers in the mobile phone sector. Furthermore, the finding suffers from weakness due to the problem of data co-linearity.

Nimako *et al.* (2010) sought to analyze overall customer satisfaction with the service quality delivered by mobile telecommunication networks (MTNs) in Ghana. In order to achieve this objective, the authors conducted a cross-sectional survey using structured questionnaires personally administered to over 1000 subscribers selected from four mobile telecom networks in 2008. However, the findings indicated that irrespective of the mobile telecom network in Ghana, customer satisfaction was low; neither equal to nor better than the desires and expectations of customers. Specifically, the result indicated a customer satisfaction index of 48.3 % which could be described as considerably low because it fell below the satisfactory index of 50%. Therefore, the study concluded that service quality has a weak but significant effect on customer satisfaction in the context of mobile telecommunication networks (MTNs) in Ghana. The study depicted weak explanatory power of service quality as a predictor of customer satisfaction but failed to unearth the underlying reasons for the same. Moreover, service quality was measured using a different scale other than widely accepted SERVQUAL scale. Consequently, this result further intensified the ongoing debate by scholars and researchers on the paradoxical nature of the

relationship between service quality and customer satisfaction leaving research in this field still inconclusive.

Agbor (2011) reports a study aimed at examining the relationship between customer satisfaction and service quality in three service sectors. To achieve this objective, Agbor (2011) study used convenient sampling technique to collect quantitative data from a sample of 220 customers of Umea University (100), ICA (60) and Forex Bank (60). Data were analyzed using Chi-square to test the hypotheses separately and in a group. The study yielded one of the most interesting but controversial results. Specifically, it showed a distinct result for the relationship between service quality and customer satisfaction in three of service settings. For instance, in the case of ICA and Forex, there was a significant relationship between service quality and customer satisfaction. However in the case of Umea University, there was no significant relationship between service quality and customer satisfaction. The study found that service quality is not the only factor that could lead to customer satisfaction in the different service sectors but failed to reveal other latent variables that could amplify or strengthen this weak link between service quality and customer satisfaction. Moreover, the three service settings namely: University, ICA and Forex bank all depict high contact service setting where client expectations and service standards are all expected to be high. Consequently, the study did not focus on low contact service setting. In addition, the views of internal customers (employers) were not factored in the analysis of data.

Abdullah and Rozario (2009) conducted a survey that sought to identify attributes that influence customer satisfaction in hotels in Kuala Lumpur in Malaysia. In particular, the study analyzed three variables i.e. ambience/place, service quality and food quality as independent variables and customer satisfaction as the dependent variable. In their study, a survey questionnaire was administered to 149 sample respondents from one of the well-known hotels in Kuala Lumpur, Malaysia. The findings of this study showed that there was a positive significant relationship between place/ambience($r=0.563$, $p=0.000$) and service quality ($r=0.544$, $P=0.000$) with customer satisfaction but the relationship between food quality and customer satisfaction was significant but was in the negative direction ($r= -0.268$, $P=0.001$). The study concluded that the impact of quality on satisfaction is varied across different measures of service quality in hospitality industry. However, since the study focused on the hospitality sector which is a high contact service setting, the results may not relate well to other service setting particularly low contact service setting like in the case of

mobile phone sector. Moreover, the study failed to isolate and assess the role of service quality in customer satisfaction but instead examined multiple factors that affect satisfaction level of customers in hospitality sector.

In yet another related study, Suleiman (2013) report a study that sought to identify the impact of the basic dimensions of the SERVQUAL model on the level of customer satisfaction in dealing with the housing bank in Karak, Jordan. Using a simple random sample of 375 questionnaires, data was collected and analyzed. A review of the statistical analysis revealed that tangible dimension has interpreted (47.8%) of the variation in customer satisfaction; reliability dimension has interpreted (55.7%); responsiveness (43.7%); assurance dimension (51.3%); and empathy dimension affects the level of customer satisfaction by 68.3%. The study concluded that all the five dimensions of service quality influenced customer satisfaction positively. The study established that all the five dimensions of service quality were significant predictors of customer satisfaction. Even though, Suleiman (2013) study focused on the individual dimensions of service quality separately and the resulting effects of the same on customer satisfaction. It did not, however, analyze the impact that the various contingencies might have on the already established quality-satisfaction relationship. In addition, the banking service sector depicts different service settings from the mobile phone sector hence the result cannot be adequately generalized to all service sector which includes mobile phones service sector.

Wang and Shieh (2006) conducted a study that sought to investigate the relationship between service quality and customer satisfaction in Chang Jung Christian University library in Taiwan. A questionnaire survey was conducted to reveal users' perspective on service quality. A valid sample of 55 respondents was studied. The result indicated that there was a significant positive relationship between service quality and user satisfaction (R^2 =0.410, p=0.000) indicating further that it was statistically significant. Further, the finding indicated that all dimensions other than "responsiveness" had significantly positive impacts on user satisfaction. Specifically, tangibles (R^2=0.446 P=0.000), Responsiveness (R^2= 0.033, p=0.186), Reliability (R^2=0.409, p=0.000), Assurance (R^2=0.183, p=0.001) and empathy (R^2=0.377, p=0.000). The study therefore concluded that service quality was positively related to customer satisfaction in the context of university library services in Taiwan. The study, however, used a small sample size making the result unfit for generalization to other service setting. Furthermore, the views of internal customers were

ignored thereby making it difficult to accurately establish if there was a relationship between the user's expected service quality and managers' perceived service quality.

Walfried *et al.* (2000) conducted an exploratory study that utilized a sample of international private banking customers in United State of America. The aim of the study was to examine the effect of service quality on customer satisfaction. In order to measure service quality, they used SERVPERF model instead of the widely accepted and well-known measure of service quality, SERVQUAL. This study used ordinary least square (OLS) regression to test six models of customer service quality. The findings of the study indicate that service quality yields a significant influence on customer satisfaction in the banking industry ($r = 0.74$, $P < 0.05$). However, the study ignored the use of empathy dimension of SERVQUAL model but only dwelt on the functional dimension of quality thereby limiting the scope of conceptualizing study variables. Omission of the empathy dimension from Walfried *et al.* (2000) study has made the finding involving empathy factors of the SERVQUAL model less clear. Further, their finding only sheds light on aspects of the quality and satisfaction relationship as it operates in a high end and high contact service such as banking services but not in low contact service settings such as mobile network services.

Mohammad and Alhamadani (2011) reported a study that examined the level of service quality as perceived by customers of commercial bank working in Jordan and its resulting effect on customer satisfaction. The study utilized SERVQUAL scale to measure service quality. Data were collected by using 260 questionnaires which were distributed randomly to customers of commercial banks in Jordan. Data were analyzed using multiple regression techniques to test the impact of service quality and customer satisfaction. The result indicated that service quality ($R^2 = 0.261$, $p<0.05$) is an antecedent of customer satisfaction.

Namanda (2013) conducted a study that sought to establish the relationship between service quality and customer satisfaction in ABC Bank in Uganda. Data were collected using closed ended self-administered questionnaires in a case study research design. The study was conducted on 80 respondents from ABC bank main branch who are selected using convenient sampling techniques. Data was analyzed using correlation analysis. The findings revealed that there was a significant positive correlation between service quality and customer satisfaction ($r = 0.830$, $p<0.05$).The study concluded that service quality, a part from dimension like responsiveness and courtesy, improves customer satisfaction; reduce customer churn leading to organizational stability. However, since the study (Namanda,

2013) focused on banking sector, which is regarded as high contact service setting, it failed to shed light on aspects of low contact services as in the case of mobile phone services. Moreover, the use of a small sample size of 80 respondents and convenient sampling techniques also makes the results not generalizable to other contexts of service settings.

Auka (2012) sought to examine the extent to which service quality, perceived value and customer satisfaction influence customer loyalty in commercial banks in Nakuru Municipality in Kenya. To actualize this objective, a simple randomized ex-post facto design was adopted to investigate and analyze the research problem. A stratified random sampling technique was used to obtain a sample of 384 from a population of 48,000 customers of commercial banks in Nakuru. Data were analyzed through Pearson correlation and regression analysis. The findings revealed that there was positive and significant relationship between service quality and customer loyalty (R^2 =0.198, p<0.05); Customer satisfaction and customer loyalty (R^2 =0.236, p<0.05) and perceived value and customer loyalty (R^2 =0.156, p<0.05). Overall, the regression results revealed that the three variables of service quality, customer value and customer satisfaction explain only 27.1% (R^2 =0.271, p<0.05) of the factors that influence customer loyalty in banking. The study concluded that service quality, customer value and satisfaction are critical success factor that influence firm's competitiveness of the organization. However, the study did not establish the direct link between service quality and customer satisfaction but instead focused on the influence that multiple factors had customer loyalty in banking sector.

Another empirical analysis on the relationship between service quality and customer satisfaction in Certified Public Accountant Training Institutions (CPATIs) in Kenya was provided by (Kimani, 2014). Based on a descriptive survey design, samples of 500 respondents were drawn using stratified sampling techniques from a population of 5000 students registered with KASNEB. The study revealed that 76.3% (R^2 =0.763, *$p<0.05$)* of customer's satisfaction in CPATIs is explained by the five dimensions of the SERVQUAL model. The study concluded that service quality dimensions differ in importance to customers thereby influencing customers' satisfaction differently. However, since learning services offered by CPATIs are in high contact service setting. The study by Kimani (2014) did not shed light on the aspects of service quality perspectives in the context of low contact service setting as in the case of mobile phone sector in Kenya.

In Kenya's Aviation sector, Nyaoga *et al.* (2013) conducted a study that explored the key determinants of customer satisfaction for passengers at Kenya Airways. The study adopted a case study approach to obtain information on key determinants of customer satisfaction for passengers at Kenya Airways. A sample of 100 passengers who used Kenya Airways services for a period of six month between Jan-June, 2012 were used. Self-administered questionnaires were administered to collect primary data. The data collected was analyzed into of means, frequencies and percentages. The finding of the study indicate that among the key determinants of customer satisfaction are: language security and safety, proper communication with customer, provision of food variety, compassion by airline crew. This study concluded that there is a relationship between service quality and customer satisfaction in air transport and other related sector. However, the study used descriptive statistics in its analysis which are not appropriate approaches of establishing cause and effect relationships. Moreover, air transport sector is regarded as high contact service whose setting does not relate to a low contact service as is the case with the mobile phone sector.

Odhiambo (2015) completed a study that sought to determine the effect of service quality on customer satisfaction at Kenya Commercial Bank. Specifically, the study established the effect of reliability, responsiveness and empathy dimension of service quality on customer satisfaction. Using a descriptive survey design, the study collected a sample of 100 KCB customers from a population of 400,000 customers based in Nairobi's CBD area. The sample size was arrived at using a systematic sampling technique and data collected using a structured questionnaires administered to respondents. Data were analyzed using descriptive statistics such as mean, frequency, standard deviation and inferential statistics like correlations and regression analysis were also used. The multiple regression analysis results showed that 80.1% (R^2 =0.801, $p<0.05$) of variation in customer satisfaction is influenced by responsiveness, reliability and empathy. The study concluded that in banking services, only three out of five dimensions of service quality namely: responsiveness, reliability and empathy are critical antecedents of customer satisfaction. However, Odhiambo (2015) overlooked two other aspect of service quality: assurance and tangibles hence making these two aspects of service quality and their likely effect on satisfaction levels of customers unclear. In addition, the small sized sample reduced reliability of results especially in terms of drawing inferences.

Shashzad and Saima (2012) conducted a study that sought to investigate factors that can influence customer satisfaction in cellular industry in Peshawar region in Pakistan. To fill the research objectives, 150 students of five universities were targeted. Structured questionnaires were distributed to collect data from the respondents. Data collected were analysed by use of descriptive statistics, correlation analysis and regression analysis. Overall, the results indicated that customer service, price fairness, sales promotion, coverage, signal strength and promotion explain the variance in customer satisfaction by up to R^2 =0.763. However, price fairness was seen as a major variable with standardised coefficient (*b*=0.240), followed by coverage with standardized coefficient (*b*=0.224) and customer service with a standardized coefficient of (*b*=0.160). The remaining variables such as signal strength (*b*=0.013), sales promotion (*b*=0.012) and promotion (*b*=0.096) exerted less influence on customer satisfaction in cellular industry. Despite all the coefficient being significant with p-value being less than 0.05, the study however concludes that there is weak positive relationship between service quality and customer satisfaction in the context of Cellular industry in Pakistan. However, just like a study by (Uddin and Bilkis, 2012), the study did not isolate and assess the effect of service quality on customer satisfaction but evaluated multiple factors affecting satisfaction level of customers in mobile phone sector. Small sized sample limits the generalization of findings to other service setting as well.

In another related study by Stergios *et al.* (2012), a variety of factors influencing the satisfaction of Greek users of mobile phone services were studied. A survey was carried out on a sample of 300 people. Confirmatory factor analysis was used to analyse the research model while Structural Equation Modelling (SEM) was used in model development. The result shows that the total effect of perceived value, signal quality, service quality and company image on customer satisfaction ranges from high to very high respectively (*b*=0.226, *b*=0.189, *b*=0.217 and *b*=0.759). Overall, all of them explain about 77% (R^2 =0.770) of customer satisfaction, hence concluding that service quality is a critical antecedent of customer satisfaction. However, by examining multiple factors that affect satisfaction level of customers in mobile phone sector, the study failed to isolate and assess the significant influence that service quality will exert on satisfaction levels of mobile phone service users.

From the foregoing empirical review, it is evident that there exist plausible but mixed results in studies linking service quality to customer satisfaction. Walfried *et al.* (2000)

studied the effect of service quality on customer satisfaction and found that service quality exerts significant influence in customer satisfaction. Similarly, studies (Namanda, 2013) in the banking sector have compared favourable with the findings of Walfried et.al. (2000). On the contrary, Agbor (2011) study in Umea University found that there was no significant relationship between service quality and customer satisfaction and thus conflicting with the findings of Namanda (2013). In Kenya's banking sector, both Odhiambo (2015) and Auka (2012) conducted studies and found that service quality is a critical determinant of customer satisfaction. However, they differed in their focus of their respective studies in that, whereas Odhiambo (2015) analyzed service quality along its five dimensions, Auka (2012) on the other hand, focused on how multiple factors, one of which was service quality, influence a firm's competiveness. Elsewhere, Nimako *et al.* (2010) concluded that service quality has a weak but significant effect on customer satisfaction in mobile telecommunication networks in Ghana. In contrast, Wang and Shieh (2006) differed with Nimako *et al.* (2010) in the direction of results since Wang and Shieh (2006) established that service quality had significantly positive effect on customer satisfaction in University Library service in Taiwan. Nyaoga *et al.* (2013) found that there is a direct relationship between service quality and customer satisfaction in air transport in Kenya. In contrast, Uddin and Bilkis (2012) differed with Nyaoga *et al.* (2013) in that service quality and fair price have an indirect influence on customer satisfaction of mass service industries like mobile phone operators.

Furthermore, the above reviewed studies are not without limitations. For instance, the studies (Wang and Shieh, 2006; Shashzad and Saima, 2012; Abdullah and Rozario, 2009) used small sample sizes while Agbor (2011) utilized convenience sampling technique thereby rendering their results unfit for generalization. Odhiambo (2015) overlooked two aspects of service quality: assurance and tangibles hence making these two aspects of service quality and their likely effect on satisfaction levels of customers unclear. In addition, the small sized sample reduces reliability of results especially in terms of drawing inferences. Other studies like Namanda (2013) ignored two importance dimensions of service quality namely: responsiveness and assurances in its analysis hence posing a limitation. Even though Nimako *et al.* (2000) studied the effect of service quality on customers' satisfaction in Ghana's Mobile Network, they omitted the use of SERVQUAL scale thereby limiting the conceptualization and dimensionality of the study. In addition, Auka (2012) did not establish the direct link between service quality and customer

satisfaction but instead focused on the influence that multiple factors had customer loyalty in banking sector. On the other hand, Suleiman (2013) focused only on the individual dimensions of service quality separately and their resulting effects on customer satisfaction in banking service sector which depicts different service setting from that of mobile phone sector. Therefore the findings cannot be generalized. Finally, Nyaoga *et al.* (2013) used descriptive statistics in their analysis which are regarded as a less preferred approach to establish cause and effect relationship. Uddin and Bilkis (2012) did not isolate and assess the role of service quality in customer satisfaction and instead focused on multiple factors affecting satisfaction level of customers in mobile phone sector thus becoming a limitation. Furthermore, their findings are weak due to the problem of multicollinearity as the variables were highly correlated with each other.

In Kenya, most studies (Auka, 2012; Nyaoga *et al.,* 2013; Odhiambo, 2015; Kimani, 2014) relating service quality to customer satisfaction have only focused on sectors like banking, aviation and tertiary learning institutions which are regarded as high contact service setting with intense client-service provider interaction. Their limitations notwithstanding, none of the above reviewed studies analyzed the effect of service quality practices on satisfaction of mobile phone service users, as a low contact services which is highly integrated with a technology. Consequently, the status of service quality practices and its consequences on satisfaction levels of mobile phone subscribers in Kenya is not known.

2.2.2 Empirical Studies on Service Failure, Service quality and customer satisfaction

Mc Collough *et al.,* (2000) conducted two studies using scenario-based experiments to reveal the impact of failure expectations, recovering expectation, recovery performance and justice on customers' post recovering satisfaction. By using a control condition of non-service failure, the research evaluated the service recovery paradox. The study found that the mean satisfaction ratings of participants who experienced service failure as greater than those who did not experience service failure. This is so because, no recovery effort can completely mitigate the harm caused by the service. In addition, the customer satisfaction level was found to be lower after service failure and recovery (even given high recovery performance) than in the case of error-free service. Mc Collough *et al.,* (2000) recommended that companies should strive to avoid service failure than to respond to it through service recovery effort. However, this study did not highlight the moderating role

of service failure in quality-satisfaction relationship and, in particular, in the context of the mobile phone sector.

Another study that sought to introduce the possible role of a moderator in the relationship between service quality and customer satisfaction was that of Caruana *et al.*, (2000). In order to explore the moderating role of value on the relationship between service quality and satisfaction, a survey of 80 customers of an audit firm through personal interview were conducted over a period of four weeks. A moderated regression analysis that seeks to determine the change in R^2 was used. The result indicated that when the dependent variable (satisfaction) is regressed on service quality (independent variable), the result provided a significant R^2 of 0.51. When a moderator variable was introduced, the R^2 increased from 0.53 to 0.60 ($P<0.05$) and was deemed statistically significant. However, the beta coefficient for the moderating effect was negative thereby showing a small negative effect on the overall level of satisfaction. However, the library services are high customer contact services therefore the results may not be relevant for lower contact cases like mobile phone service. Besides, the problems of multicollinearity and the use of a small sample size of only 80 respondents makes generalization of their results difficult.

Reimann, Lunemann and Chase (2008) tested the moderation effects of uncertainty avoidance on the relationship between perceived service quality and customer satisfaction. The study addressed the issue of cultural differences among 303 Spanish, German and Swedish business-to-business customers. The study revealed that clients from a culture of a high degree of uncertainty avoidance were less satisfied than low-uncertainty avoidance clients when, as a result of a service defect, their service expectations were not met. The central finding for Reimann *et al.* (2008) is that the degree of uncertainty avoidance as a cultural variable has a significant moderating influence on the perceived service quality-customer satisfaction relationship. This study is, however, not focused on the final consumer but rather on institutional buyers.

Based on the data from China's mobile telecommunication market, Wang, Lo and Yang, (2004) investigated moderating effect of customer value on the relationship between perceived quality and customer satisfaction. Face-to- face customer survey was conducted to collect data from consumers of China Mobile and China Unicom, the duopoly companies in China that compete with each other in the mobile communication market. The results, based on the development of structural equation models using partial least square

techniques, revealed that the moderating effect of customer value on the relationship between perceived service quality and customer satisfaction is statistically evident as was measured using SERVQUAL scale. Despite focusing on the mobile phone services, this study modelled other variables other than service failure to analyse its moderating role on quality-satisfaction relationship. Therefore, the role of service failure in this relationship is unclear.

From the aforementioned literature, it is evident that many moderation studies have modeled other moderators in service quality-customer satisfaction. One notable case was moderation study by Wang *et al.* (2004) that sought to established the moderating role of customer value in the relationship between service quality and customer satisfaction found it significantly so. This finding compared favourably with Caruana *et al.* (2000) who also explored the moderating role of value but differed in the direction of results. Whereas Wang *et al.* (2004) found positively significant moderating effect, while Caruana *et al.* (2000) found that customer value had a small negative but significant moderating effect in the relationship. Consequently, this has made previous empirical studies that sought to test for moderation effect on the service quality-customer satisfaction relationship fail due to poor conceptualization of dimensionality of variables (Walfried *et al.,* 2000). Elsewhere, Walfried *et al.,* (2000) introduced service failure as a moderator with little success as there was no moderation but was criticized for omitting the empathy dimension of service quality thereby limiting the conceptualization of dimensions of their study. Reimann *et al.,* (2008) differed with Walfried *et al.,* (2000) as they modelled and tested the moderation effect of uncertainty avoidance on the relationship between perceived service quality and customer satisfaction instead of service failure and found it significantly so.

The studies reviewed suffered several limitations. Most studies (Wang *et al.,* 2004; Caruana *et al.,* 2000; Reinman *et al.,* 2008) have all tested for other variables like customer value, uncertainty avoidance as possible moderators instead of service failure. Mc Collough *et al.* (2000) only tested for direct effect of service failure on customer satisfaction instead of its moderating role on quality-satisfaction relationship. Caruana *et al.,* (2000) study had major limitations due to the problem of multicollinearity since variables were highly correlated coupled with the use of small sample size of 80 respondents therefore rendering generalization of the results difficult. Moreover, most studies (Walfried *et al.,* 2000; Wang *et al.,* 2004; Caruana *et al.,* 2000; Reinman *et al.,* 2008) that have tested moderation effect

have focused in other sectors like banking services, audit services which is high end and high contact services with high service standards and high customer expectations. Their analyses have excluded the mobile phone sector in developing country like Kenya. Therefore, the moderating role of service failure in a quality/satisfaction model with regard to low contact services such as mobile phone services has not been formally explored. Consequently, the status of service failure and its influence on quality/satisfaction model in low contact services, particularly in Kenya's mobile service industry is not known.

2.2.3 Empirical Studies on Service Quality, Customer Communication and Customer Satisfaction

Gantasala and Padmakumar (2013) examined the effect of service quality on customer satisfaction after the privatization of a Telecom company in Oman using two methodological perspectives. Service quality was measured using SERVQUAL model. Gantasala and Padmakumar (2013) proposed communication as a suitable mediator of the relationship between quality and satisfaction. A random sampling method was used and out of 572 customers who were given questionnaires, 369 responded (64.5% response rate). The result shows that service quality has a direct effect on customer satisfaction but indirect effect on communication. The R^2 =0.93 for customer satisfaction. The standardized coefficient from service quality to customer satisfaction is 0.69 while that from communication to customer satisfaction is 0.88. This clearly indicates the proposed path between service quality, communication and customer satisfaction. However, the study was criticized for ignoring the important facet of SERVQUAL which includes employee perspectives. Besides, the study modelled communication as a mediator and not a moderating variable.

Juaid *et al.* (2012) did a study to examine the direct effects of staff conduct, communication, access to service and credibility on satisfaction towards telecommunication services in Malaysia. The study focused on 100 university lecturers to see whether they were happy with the services provided by the telecommunication firms. Data analysis was performed using structural equation modelling (SEM). Significantly, the results revealed that the relationship between communication and customer satisfaction (β= - 0.289, p-value= 0.415) are found to be insignificant. The study concludes that communication influences satisfaction negatively though insignificant. Despite focusing on telecommunication services and establishing a direct link between communication and customer satisfaction,

the study did not establish the moderating role of communication on the quality-satisfaction relationship.

In an attempt to determine factors affecting customer satisfaction in outsourcing IT services in University of Isfahan in Iran, Rezaie and Forghani (2011) carried out quantitative research to comprehensively evaluate these factors. The survey targeted 252 users of IT services in Isfahan University. A seven factor framework of customer satisfaction analysed include: responsiveness, reliability, communication, service attitudes, empathy, quality of information and ethics. Analysis showed that among other factors, communication ($\beta = 0.259$, $p < 0.001$) plays a vital role in explaining variation in customer satisfaction among IT service users. A recommendation was further made to improve quality of communication so as to enhance satisfaction levels. Even though this study revealed a direct effect of communication on customer satisfaction, there are no known attempts to empirically establish its moderating role in on the relationship between service quality and customer satisfaction.

From the aforementioned studies, researches on the role of communication as a moderator in the relationship between service quality and customer satisfaction are indeed limited. Empirical evidence by Juaid *et al.* (2012) only tested for direct effect of communication on customer. Similarly, Rezaie and Forghani (2011) also tested direct effect of communication on customer but differed with Juaid *et al.* (2012) in the direction of effects. Whereas Juaid *et al.* (2012) found that communication has exerted negative insignificant direct effect on customer satisfaction, Rezaie and Forghani (2011) found out that among other factors, communication plays a vital role in explaining variation in customer satisfaction among IT service users. Despite Juaid *et al.* (2012) focusing on telecommunication services, their study did not establish the moderating role of communication on the quality-satisfaction relationship. Elsewhere, Gantasala and Padmakumar (2013) modelled and tested the mediating effects of customer communication on the relationship between service quality and customer satisfaction. The studies by Gantasala and Padmakumar (2013) and Junaid *et al.* (2012) were similar in terms of the context as both were done in telecommunication sector in Asian market but differed in terms of focus of their studies. Whereas Junaid *et al.* (2012) tested for the direct effect of communication on customer satisfaction and confirmed its significance, Gantasala and Padmakumar (2013) on the other hand tested for the its mediating role and found it significantly so.

In addition, most studies reviewed (Juaid *et al.*, 2012; Rezaie and Forghani, 2011; Gantasala and Padmakumar, 2013) did not shade light on the likely effect of communication as a moderator variable on quality-satisfaction relationship as some only tested direct effect while others tested mediating effects. Furthermore, these studies, as reviewed, were conducted in the context of developed countries hence missing the analysis of Kenya's mobile phone context. This is despite the fact that Kenya's mobile sector is currently experiencing many challenges like low access to telecommunication infrastructure, high operation and regulation costs and stiff competition that has forced small operators like Essar Yu to quit the sector and put off many potential developers of mobile services. Theoretically, customer communication is seen as a sound moderator but empirically, there was no known attempt to establish the moderating role of customer communication on the relationship between service quality and customer satisfaction. As such, the status and the likely effect of customer communication on quality-satisfaction relationship in Kenya's mobile phone sector is not known.

2.2.4 Summary of Gaps

Existing literature shows that plausible but mixed relationship exists between service quality and customer satisfaction. Apparently, the cause of this mixed result has remained unclear. Moreover, past studies have attempted to establish this relationship in other contexts such as in banking, hospitality and University library services which are regarded as a high end and high contact service settings. These studies have, however, did not shed light on aspect of quality-satisfaction relationship as in the case of low contact service setting in which mobile phone firms operate under. Furthermore, there is no evidence that a psychometric scale exists to measure services quality practices in such service setting. Consequently, the status and effect of service quality practices on customer satisfaction in mobile phone firms in Kenya is not known. Moreover, studies involving service failure and customer communication as moderators in quality-satisfaction relationship are rare. Most studies attempted to establish the direct effect of these aforementioned variables on satisfaction with limited effort to empirically establish their moderating role on the relationship between service quality and customer satisfaction. Other studies focused on modelling other variables such as value, uncertainty avoidance as possible moderators of this relationship with little success. Therefore, the status of service failure and customer communication and their moderating role in quality-satisfaction relationship is not known. Therefore, this study analyses the influence of service failure and customer communication

in the relationship between service quality and customer satisfaction among mobile phone firms in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter presents the research methodology which encompasses research design, the study area, the target population, sampling frame, sampling techniques, instrumentation, reliability and validity test, analysis and presentation of data. Special attention is paid to model specification because of the multiplicative nature of variables involved in moderation studies such as this.

3.1 Research Design

A research design is a systematic plan to study a scientific problem. It basically encompasses the method and procedures employed to conduct scientific research by defining the study type, data types and collection techniques and the methods of analysis of data (Kothari, 2004). This study followed the quantitative paradigm as it is in tandem with the researcher's characteristics and the main purpose of the study (Creswell, 1994).The quantitative paradigm is the traditional, positivist, experimental or empiricist paradigm (Schiffman and Kanuk, 2009). The positivists tend to assume that a single, objective reality exist independent of what individuals perceive. Besides, they place a high priority on identifying causal linkages between and amongst variables. Utilizing a positivist quantitative paradigm, this study explored the relationship between service quality and customer satisfaction as well as the moderating effects of service failure and customer satisfaction on the same relationship.

In tandem with the positivist quantitative research paradigm and philosophical orientation which has been adopted for this study, the researcher used a correlational survey research design to obtain the empirical data to address the objectives of the study. According to Mugenda and Mugenda (2003), the correlational approach helps in determining whether and to what degree a relationship exists between the quantifiable variables. Therefore, the method of knowledge enquiry and research design adopted were appropriate for the focus and objectives. A survey gathers data at a particular point in time with the intention of describing the nature of the existing condition, or determines the relationship that exists between specific events (Chava and Nachmias, 1996). According to Mugenda and Mugenda (1999) and Mutai (2005), survey study involves finding out what people are doing and thinking and gathering information from them at a particular point in time.

This design was deemed appropriate for the study because it gave the principal researcher a profile of relevant aspects of the phenomena of interest from an individual, organization and industry perspective. With respect to this study, the design was specifically intended to present the relationship between the service quality and customer satisfaction as was moderated by customer communication and service failure. This research design was therefore relevant for the study as it also enabled the researcher to take control over the research process (Saunders *et al.*, 2007).

3.2 Study Area

The study was conducted in Kenya because it was regarded as the world leader in mobile phone transfer money transfer services with a penetration rate of 80.5% rising exponentially hence regarded as a vibrant mobile economy (CAK, 2014). Despite this growth, the sector was bedeviled by numerous quality related challenges like endemic customer fraud, frequent service interruptions, poor signal quality; that is holding back the growth of the mobile phone sector in Kenya, a situation that warrants a study. Geographically, Kenya is located at longitude 100N and latitude 3800 E. In terms of land mass, it covers an area of 582, 650 Km^2 out of which 569,250 Km^2 is dry land while 13,400 Km^2 is covered by water. Kenya has a population of approximately 40 million people. A detailed map of the study area is attached as an appendix IV in page 120.

3.3 Target Population

Kombo and Delmo (2006) defined population as a group of individuals, objects or items from which samples are taken for measurement. The research took the form of a consumer study where mobile subscribers of the four mobile service operators in Kenya were targeted as participants both to validate constructs and estimate econometric models. The four targeted mobile phone firms offer services ranging from call, money transfer and data services and include: Safaricom Kenya, Airtel Kenya, Orange Kenya and Essar Telkom. In this regard, a total of 32.7 million mobile phone subscribers obtained from the data published by CAK in 2014 which include staff of those four mobile firms, formed the universe of the study. However, caution was taken to ensure that respondents who are 18 years and above and who have used a network services for a period of 6 months at the time when the study was conducted were selected for final analysis. Viewing the subject from a customer perspective was also seen as appropriate since customers are the ones who

ultimately consume the service hence become the best judge of its quality (Parasuraman *et al.,* 1991).

3.4 Sample Size and Sampling Procedure

Sekaran (2003) defines a sampling frame as a listing of all elements in the population from which a sample was drawn. The study adopted a proportionate stratified sampling technique in which mobile phone subscribers were drawn from the four mobile phone firms that existed at the time when the study was conducted. Daniel (2012) notes that in proportionate stratified sampling, the number of elements allocated to the various strata is proportional to the representation of the strata in the target population. This technique of sampling is suitable for the study as it accounts for geographically diverse subscriber population (Fienberg, 2003). Therefore, the mobile phones firms, as a stratification basis are a convenient way of organizing sampling and data collection. The sampling units are the individual subscribers of those four mobile phone firms who, at the time of study, were resident in Kenya. A sampling frame for the study was therefore constructed according to the proportionate market share of each of the four mobile firms as shown in Table 3.1.

Table 3.1: Study population and sample size

Mobile Phone Firms in Kenya	No. of Subscribers in Millions	Proportion in (%)	Study Sample
Safaricom Kenya	21.8	66.7	256
Airtel Networks	5.4	16.5	64
Telkom Kenya (Orange)	3.0	9.2	35
Essar Telkom	2.5	7.6	29
	32.7	**100**	**384**

Source: Communication Authority of Kenya, (2014).

Kothari (2004) defines a sample size as the number of items to be selected from the universe to constitute a sample. Since the study considered drawing a sample from a large population of over 10,000 members, the sample size was determined according to the formula suggested by Mason, Lind and Marchal (2002) and Nargundkar (2003) as below:

Let sample size $n = p.q\left(\frac{z}{e}\right)^2$ .....equation 3.1

Where

n = Sample size;

p = Proportion belonging to the specified category;

q = Proportion not belonging to the specified category;

z = z value corresponding to the level of confidence; and

e = the margin of error required.

Let the p value = 0.5 and q =1-p= 1-0.5=0.5 and 95% confidence level.

Thus: $n = 0.5\ x\ 0.5\ \left[\frac{1.96}{0.05}\right]^2$ = 384

In order to cater for non-response, a total of 402 questionnaires were filled by respondents representing subscribers of the existing four mobile phone companies namely: Safaricom, Airtel, Essar Telkom and Telkom Kenya Orange. However, 21 questionnaires were found to be unfit for the analysis as they were uncompleted with some having missing values ranging between 16 to 3 values. Ultimately, a total of 381 questionnaires were obtained, yielding a satisfactory response rate of 99.2% as shown in Table 3.2. It is important to note that as a rule of thumb, a minimum response rate of 75% is considered adequate (Fowler, 1993; Ary et al., 1996). Others like Babbie (1990) state that 50% is adequate, 60% is good and 75% is very good. Since the response rate for the current study was at 99.2%, it is deemed to be adequate and nonresponse bias is greatly minimized. Furthermore, the questionnaires received were completed to a good standard and were found useable since they were complete and consistent.

Table 3.2 Response Rate

	Total No.(Millions)	**Sample**	**Response**	**% Response**
Safaricom	21.8	256	254	99.2
Bharti Airtel	5.4	64	64	100
Essar Yu	2.5	29	29	100
Telkom Orange	3.0	35	34	97.1
Total	32.7	384	381	99.2

Source: Survey data (2014)

Moreover, care was taken to establish the acceptable sample size for specific data analysis techniques. For instance, with regard to regression analysis, the 99.2% from 381 observation was deemed appropriate. As a rule of thumb, Sekaran and Bougie (2010) say the acceptable sample size for regression analysis should be between 10 and 20 observations for each and every variable. Huang *et al.* (2014) further state that the effective sample which falls between 140 and 280 cases is deemed adequate.

3.5 Data Collection Methods

The process of data collection involves a number of activities namely: sourcing for data, data collection procedures and validation of data collection instruments. These are discussed consecutively.

3.5.1 Data Sources

Both primary and secondary data were collected on different aspects of service quality, service failure, customer communication and their likely impact on customer satisfaction. Primary data were generated from the survey conducted through the questionnaire method to fulfil the main purpose of the study. Primary data were mainly in the form of perception data on respondents' views about service quality, service failure, customer communication and customer satisfaction. Survey research is appropriate for collecting primary data in marketing research because it allows collection of robust information on behaviour, feelings, attitude and personal characteristics (Tull and Hawkins, 2004). Secondary data, on the other hand, are data collected for some other purpose but appears useful and relevant for the current study (Tull and Hawkins, 2004). With respect to this research, several secondary data sources were used and include: published sectorial report of 2013/2014 period by CAK, reports by Business Monitor International for 2012 and Telecommunication Industry Review reports of 2012 among others. These data sources served to augment data from the primary sources.

To facilitate analyses using inferential statistics, the data were ratio scaled for ease of manipulation in order to identify their correlational properties. Therefore, Likert scales are employed in primary data collection for data to be analysed inferentially (Norman, 2010).

3.5.2 Data Collection Procedures

The process of data collection was preceded by recruitment and training of five research assistants who were dispersed to different towns in Kenya on a rotational basis. The towns

included: Kisumu, Nakuru, Eldoret, Nairobi, Mombasa, Isiolo, Garissa, Marsabit, Migori and Narok. This distribution ensured that regional and cross-cultural diversity of the study respondents are catered for. At the initial stage, the researcher supervised the research assistants by accompanying and observing their activities in the field as per their training guide. Subsequently, the research assistants were then released in the field to personally deliver the questionnaires to the respondents. This procedure was preferred as it enhanced the response rate, response quality and due to the geographical dispersion of the units of study, being scattered throughout the whole country (Saunders *et al.,* 2003).

Prior to data collection, the participants were assured of confidentiality and anonymity of responses and were, in addition, promised access to a copy of research report as an incentive. Before individual respondents were allowed to participate in the study, care was taken to ensure that only those respondents/subscribers who had used their respective network service up to six months and above were selected. Additionally, since questionnaires were worded in English, the research assistants were instructed to establish their language mastery of the subscribers through verbal conversation before issuing questionnaires to them. The technique ensured that final participants in the study were knowledgeable about the subject and were eligible to participate in the study having met the time duration for using and assessing the service quality.

The selected respondents were presented with the research instrument and encouraged to respond to it. The respondents self-administered their feedback and the completed questionnaires are collected soon for analysis. Further, in order to reduce non-responses, follow up visits and call reminders were done by research assistants to encourage respondents to return the questionnaires in time (Welch, 2011). Finally, a total of 402 copies of the questionnaires were delivered. Out of this, 381 were successfully received representing a response rate of 99.2 percent. The data collection process lasted a period of 3-4 weeks.

3.5.3 Data Collection Instrument

A questionnaire was the main instrument of data collection. In order to improve both content validity and response rate, questionnaire was formulated with guidelines adopted from Dilman (2000). First, scales were drawn from in-depth literature from which the

indicators for each construct with modification to suit the study context were drawn. These modifications are in term of the wording of the statements to suit the industry. Subsequently, a pool of items for each dimensions and which were suitable for use in self-administered questionnaires were extracted. For Service quality, the dimensions were: tangibles, reliability, responsiveness, assurance and empathy. For customer satisfaction, the key dimensions were: Overall satisfaction, intention to repurchase and loyalty among others. Customer communication dimensions included: views on channels effectiveness to receive complaints, suggestions, compliments and abandonment of usage. Finally, the dimensions on service failure were delivery failure, response failure and unprompted employee actions. This approach of surveying literature to identify underlying constructs strengthened the research with a framework built on dimensions of constructs that are prominent within the literature (Bailey *et al.,* 2000; Ojera *et al.,* 2011).

Secondly, the pool of items was submitted for evaluation by an expert panel of academics. In this regard, a team of five content expert scholars drawn from the School of Business and Economics, Maseno University went through draft questionnaires items to judge its clarity, relevance and suggest areas for review. The questionnaires were then piloted on 10 mobile phone network subscribers who were thereafter excluded from the main study. This small sample was guided by the suggestion by Saunders *et al.*, (2007) that a minimum of (10) ten members for pre-testing are adequate. This process produced 42 items with modification to the context of the study. Most items in the questionnaire are on Likert-type scale with a few dichotomous questions. Likert-type scale is intended to facilitate easy coding and analysis. The respondents were asked to express their level of agreement on a seven point Likert scale, with scores anchored at the extremes 1 and 7 (Vagias, 2006; Aila, 2014). The instrument was deemed suitable for the study because it was time saving, maintained confidentiality of information and had no room for interviewer bias. Questionnaires were further deemed appropriate for the study because they are easy to analyze statistically (Kavulya, 2007).

The final questionnaire for data collection had the following five sections, capturing all the dimensions of the study variables: Section A captured general information on respondent's gender, age, and experience on network and detail on choice of network provider. The remaining four sections each had several structured items. Section B sought to obtain views about service quality practices of the selected mobile phone firms. These items were set under five subheadings: tangibles, 4 items; reliability, 5 items; responsiveness, 4 items;

Assurance, 4 items; empathy, 5 items. Section C presents customers' view on service failure and comprised of 6 items. Section D presents views on customer communication and comprised of 4 items. Finally, section E presented the 9 item pool that sought to measure customers' view on their satisfaction level. The research instrument is included as Appendix II.

3.5.4 Reliability Tests

According to Sekaran (2000), reliability test measures the extent to which any measuring procedure yields the same results on repeated trial. The reliability analysis was conducted on all the multi-items scales to check the internal consistency of the scales and constructs. In this view, the study adopted a cut off at an alpha $\alpha = 0.70$ Cronbach's coefficient which was recommended by Nunnally (1978) as a good indicator of reliability. Variables with low reliabilities were deleted to improve the overall reliability of the research instrument to be used in the main research. Reliability test for all the five dimensions of service quality namely: Tangibility, Reliability, Responsiveness, Assurance and Empathy were (alpha values of 0.739, 0.887, 0.882, 0.732, 0.942) respectively. For service failure, an alpha value of $\alpha = 0.944$ was obtained. While for the case of customer communication and customer satisfaction, an alpha coefficient of $\alpha=0.765$ and $\alpha=0.913$ were obtained respectively. The mean reliability for the entire 42 items was at $\alpha = 0.943$. Although some Alpha values were moderate, they were, nonetheless, acceptable since alpha values are above the threshold of 0.60 (Bagozzi and Yi, 1988) and above a minimum 0.70 level recommended by Nunnally (1978) for measurement instruments thereby indicating good stability. The reliability results have been presented in Table 3.3.

Table: 3.3: Analysis of Internal Consistency

Constructs	No. of items	Cronbach's alpha
Service quality		
i).Tangibles	4	0.739
ii). Reliability	5	0.887
iii). Responsiveness	4	0.882
iv). Assurance	4	0.732
v). Empathy	5	0.942
Service Failure	6	0.944
Customer Communication	4	0.765
Customer Satisfaction	9	0.913
Mean Reliability	**42**	**0.943**

Source: Pilot Survey, 2014

3.5.5 Validity Tests

Validity is the extent to which a construct or a set of measures correctly represents the concept of the study, and the degree to which it is free from any systematic or non-random error (Nunnally, 1978). In this regard, the following basic types of validity were determined. Bolliger and Inam (2012) noted that face validity, which is defined as the degree to which a test seems to measure what it purports to measure, can be established through expert judgement and supervisors' assessment. Subsequently, the number of items retrained for each subscale has good face validity.

Content validity refers to the general agreement among the subjects and the researcher that the instrument has measurement items that cover all aspects of the variables being measured. This was achieved through ratings by expert judges. The pool of items generated from this exercise that were deemed to represent the underlying dimensions of service quality were given to an expert panel of five scholars drawn from the fields of the marketing profession. These experts expressed their degree of agreement/disagreement with the use of different items on a Likert scale of seven points. This process produced 22 items that were

customized to measure service quality in the mobile phone sector services consistent with SERVQUAL scale envisage by (Parasuraman *et al*., 1991, Carman 1990, Crompton and Mackay, 1989). In summary, the process produced an instrument with: 22 items for measuring service quality; 6 items for measuring service failure; 4 items for measuring customer communication and 9 items for measuring customer satisfaction. Furthermore, the expert panel, in an interactive manner, revised questions and response-options until all evaluators concurred that each question accurately reflected the underlying dimensions of each construct. Therefore, the entire instrument has sound measure theoretically.

According to Nunnally (1978), construct validity refers to the degree to which measurement scale assesses the theoretical construct its purports to assess. It is achieved by assessing face validity, content validity, convergent and discriminant validity. The researcher sought to operationalize the study constructs as a multi-item measurement scales. Therefore, there is a critical need to provide evidence of dimensionality of multi-item measurement scale using factor analysis (Carmines and Zeller, 1979; Nunnally, 1978). Through factor analysis, information contained in a number of original variables were summarized into a smaller set compact dimensions or constructs with minimum loss of information on original variables (Hair *et al.,* 2006).

Convergent validity which means variables within a single factor are highly correlated was examined through factor loading (Bearden *et al.,* 2011). In this regard, all constructs indicated a significant alpha level ($p<0.0001$) for Bartlett's test of Sphericity stating that there was sufficient correlation between the variables (Meyer *et al.,* 2006). Furthermore, the Bartlett's Test of Sphericity for each subscale is significant at $p=0.000$ meaning each scale is unidimensional (Field, 2005).

Discriminant validity refers to the extent to which the factors are unrelated or uncorrelated to each other. Trochim (2006) stated that discriminant validity can be best assessed by examining the factor intercorrelation matrix where the correlation coefficient between factors should not exceed 0.7 levels. In addition, the factor model should have a non-significant chi-square goodness-of-fit test (Conway and Huffcutt, 2003). In this regard, Table 3.4 indicates the validation results where all subscales are seen as valid.

Table 3.4: Summary of Validation Tests

Subscale	Factors retained	Items retained	Scale reliability	KMO	Bartlett's Test(p-values)	Goodness-of-fit test(p-value)	Variance explained (%)	Factor intercorrelation (r)
SQ	4	22	0.915	0.913	0.000	0.151	47.393	F1-F2,r = -0.454 F2-F3, r =-0.431 F3-F4, r =0.268
SF	1	6	0.944	0.832	0.000	0.145	57.858	_
CC	1	4	0.762	0.697	0.000	0.237	55.014	_
CS	2	9	0.913	0.510	0.000	0.573	84.683	F1-F2, r =0.303

SQ= Service Quality; SF=Service Failure; CC= Customer Communication; CS= Customer satisfaction

Source: Pilot survey, 2014

From Table 3.4, the subscale Kaiser-Meyer-Olkin measure of sampling adequacy ranges between $0.510 \leq KMO \geq 0.944$ indicating good sampling adequacy (Field, 2005). Further, subscales are unidimensional as was shown by Bartlett's Test of Sphericity significant at p=0.000 (Field, 2005). The goodness-of-fit test based on maximum likelihood exploratory factor analysis show insignificant p-values for the chi-square tests ranging between $0.141 \leq p \leq 0.573$ indicating good fit for each constructs. In addition, each subscale explained adequate variance $47.393 \leq VE \leq 84.683$. The factor intercorrelations where all are less than 0.7 and indicate that the retained factors measure conceptually different constructs thus proving discriminant validity (Vagias, 2006).

3.6. Testing for the Assumptions for the Linear Regression

Since the study employed linear regression analysis in the analysis of quantitative data, there was need to determine if the assumptions of linear regressions were not violated before subjecting the data to further analysis as was emphasised (Hair *et. al*., 1998). In this regard, the assumptions which are considered necessary if the conclusions can be drawn about the population on the basis of a regression analysis on a sampled data include: types of variables, homoscedasticity, and linearity, normality of residuals, multicollinearity and independent errors.

3.6.1 Type of variables

As a pre-requisite for linear regression analysis, all predictor variables must be quantitative in nature and the outcome must be quantitative, continuous or unbound (Field, 2005). In this

study, both the predictor variables, service quality and the outcome variable, customer satisfaction were quantitative. These variables were initially abstract constructs that were qualitative in nature. However, through thorough expert review, the constructs were then quantified by way of converting the sets of items into a seven point Likert type questions which can quantitatively be analysed.

3.6.2 Linearity and Homoscedasticity

Homoscedasticity is a condition characterized by variance which does not differ greatly between distributions (Field, 2005). It requires that the dependent variables exhibit equal levels of variance across the range of a predictor variable as shown by a scatter graph also known as constant variance or Homogeneity of variance. If the assumption does not hold, the results are overestimating the goodness of fit as measured by the Spearman coefficient *r*. A plot of standardized differences between the observed data and the values predicted by the regression model (ZRESID) against the standardized predicted values of the dependent variables (ZPRED) was used to assess whether the assumption of random error and homoscedasticity had been satisfied. This was done for customer satisfaction which was the dependent variable. The normal p-p plots and scatter plots, showing satisfaction of linearity and homoscedasticity conditions, respectively is indicated in Figure 3.1.

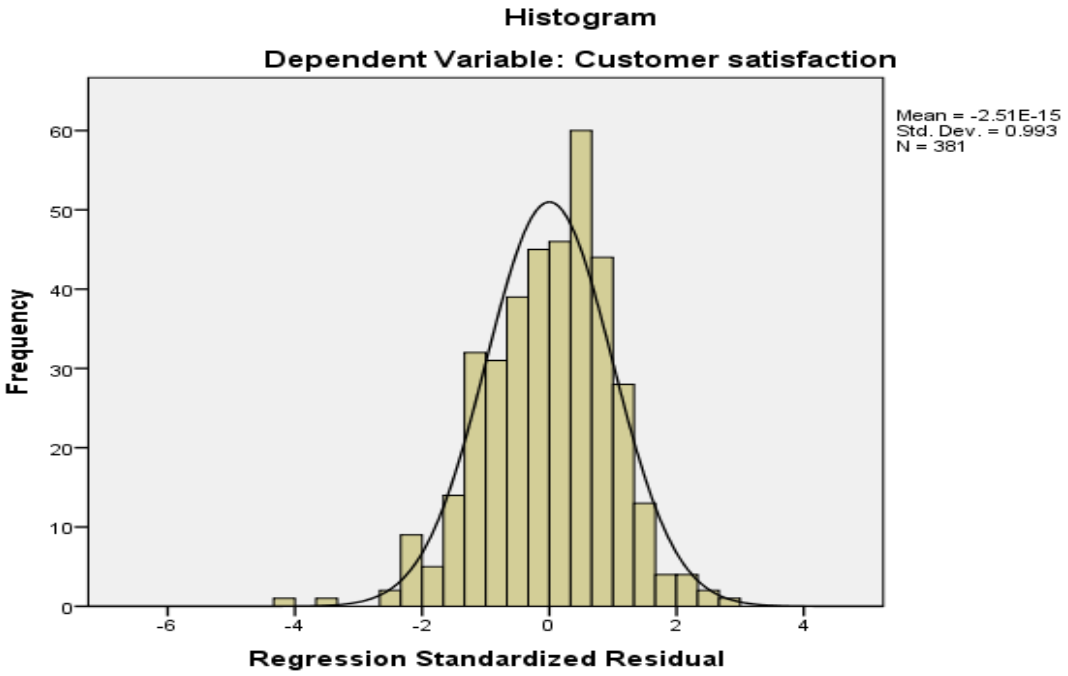


Figure 3.1: Histogram of regression standardized residuals for customer satisfaction.

Source: Survey data, (2014)

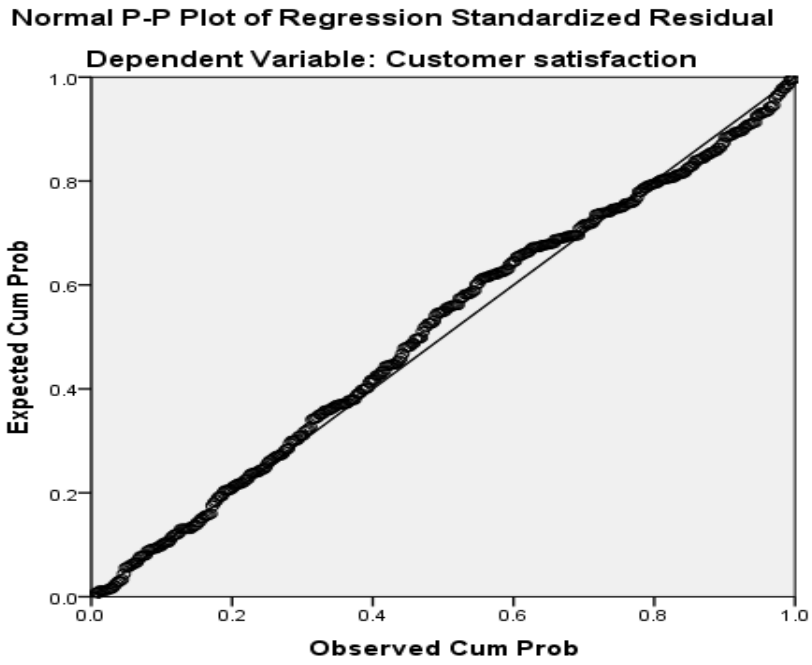


Figure 3.2: Normal P-P plot of Regression Standardized Residuals for customer satisfaction.

Source: Survey data, (2014)

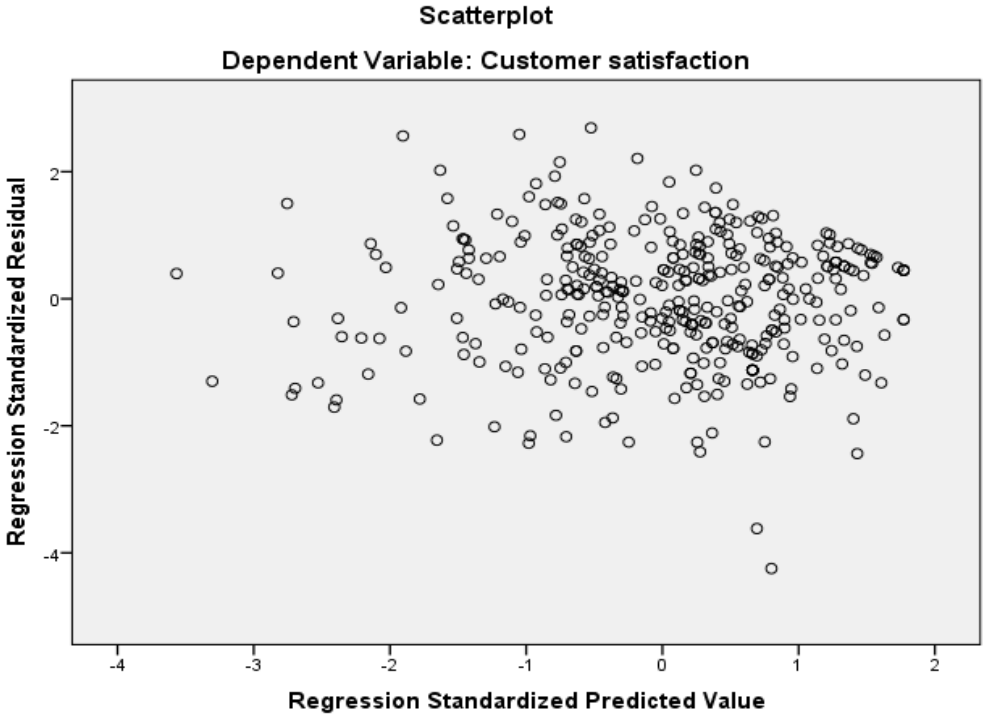


Figure 3.3: Scatter plot of ZRESID against ZPRED for customer satisfaction.

Source: Survey data (2014)

In Figure 3.3, the points are more or less randomly and evenly spread in scatter plot. In addition, the shape of the normal scatter p-p plot of regression-standardized residuals satisfied the requirement of rectangularity necessary for linearity and homoscedasticity. Further, there is no curvilinear pattern, and the assumption of linearity is re-emphasised (Field, 2000).

3.6.3 Testing for the Normality of Residual

This assumption signifies the generalizability of the findings by looking at the residuals and normal probability plot (Tabachnick and Fidell, 2007). In this study, normality was assessed using histogram of regression of standardized residuals and a normal probability plot (P-P plot) of regression standardized residuals done for a composite customer satisfaction. Both indicated that the assumption of normality is met by the data. Further test for normality was assessed using measures of Skewness and Kurtosis (Tabachnick and Fidell, 2001). The results are shown in Table 3. 5.

Table 3.5: Testing for Normality Requirement of Residual

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Tangibles	-1.132	.125	1.205	.249
Reliability	-.693	.125	.021	.249
Responsiveness	-.520	.125	.024	.249
Assurance	-.894	.125	.790	.249
Empathy	-.503	.125	.066	.249
Customer satisfaction	-.662	.125	.061	.249

Source: Survey Data (2014)

Tabachnick and Fidell (2001) noted that for the distribution to be considered normal, the values of Skewness and Kurtosis should fall within the interval -2.0 to 2.0. From the Table 3.5, the value of Skewness and Kurtosis ranged within the acceptable interval further confirming that normality assumptions were met.

3.6.4 Testing for Multicollinearity

The researcher felt that there was a critical need to test for multicollinearity because highly collinear items can distort the results substantially or make them unstable and not generalizable (Hair et al., 1998). This study assessed the multicollinearity of the independent variables by means of tolerance and variance inflation factors (VIF). A

tolerance of below 0.01 or a VIF greater than 10 is regarded as indicative of serious multicollinearity problems (Field, 2005; Pallant, 2007).

Table 3.6: Collinearity Statistics of Independent Variables

Independent Variables	Collinearity Statistics	
	Tolerance	**Variance Inflation Factor**
Tangibles	0.672	1.488
Reliability	0.431	2.321
Responsiveness	0.526	1.900
Assurance	0.600	1.667
Empathy	0.601	1.664
Dependent Variable: Customer satisfaction		

Source: Survey Data (2014)

From Table 3.6, the tolerance statistics were all well above 0.10 and the variance Inflation factor (VIF) values were all below 10. This was a solid proof that there was no evidence of multicollinearity within the data.

3.6.5 Independent errors

The assumption of independent of errors was tested using the values of Durbin-Watson statistics. The test was aimed at finding out whether prediction of dependence errors were correlated. Table 3.7 shows the results.

Table 3.7 Test for independence of Errors(Durbin Watson Test)

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	-.678	.301	
Tangibles	-.060	.054	-.043
Reliability	.143	.055	.129
Responsiveness	.039	.048	.036
Assurance	.419	.055	.318
Empathy	.559	.049	.473
Durbin-Watson	**1.842**		

Dependent Variable: Customer satisfaction

Sources: Survey Data (2014)

In this study, the values of Durbin-Watson statistic was found to be 1.842 which implies that the errors were uncorrelated as the statistics is within the intervals 1.50-2.50 (Tabachnick and Fidell, 2001) or 1.0 to 3.0 (Field, 2005). Therefore, the assumption of independent errors is tenable (Field, 2000).

3.7 Data Analysis

This section discusses the data analysis methods. With the method used to collect the primary data, there was a risk of receiving incomplete questionnaires, either because of language and that the respondent ignored or did not see the question. Since the problem of incomplete questionnaires is very common in questionnaire answering, it is always good to see how to sort this out to avoid problem in analysis of incomplete questionnaires. To avoid this undesirable state, the researcher took a caution by going through the questionnaires and selected only those that were filled out in full and discarded away the incomplete ones. Therefore, in this regard, out of a total of 402 questionnaires filled during field survey, only 381 were completed and had no missing values. A total of 21 questionnaires had missing values of between 16 and 3 cases. These were regarded unfit for analysis and avoided. The remaining 381, which were complete, were then subjected to further analysis to address the stated objectives of the study.

Preliminary data analysis included the use of descriptive statistics such as mean, frequency and standard deviation to analyse qualitative data such as gender, age experience on network services among others. This approach was deemed appropriate since descriptive methods tend to be stronger in validity but weak in reliability (Kibwage, 2002 & Odondo, 2007).

To achieve specific objective one of the study, measures of degree of association and relationships were used to give the study multivariate analysis, where numerous variables was directly associated with the dependent variable. This approach was deemed appropriate since inferential statistics tend to be stronger in reliability but weak in validity (Kibwage, 2002 & Odondo, 2007). Therefore, the use of both descriptive and inferential statistics aided the researcher in gaining a higher degree of reliability and validity (Babbie, 1986). An outline of the correlation model is described in subsection 3.7.1 as follows.

3.7.1 Correlation Analysis

Correlation analysis was used to determine the relationship between variables namely: service quality (Tangibles, Reliability, Responsiveness, Assurance and Empathy) and customer satisfaction. Since the data set in this study was ordinal, Spearman's rank coefficient is appropriate for both continuous and discrete variables, including ordinal variables (Lehman, 2005). Further, Spearman rank correlation is used to test the association between two ranked variables, or one ranked variable and one measurement variable. The measure is appropriate because the Likert scale used in service quality scales, customer satisfaction is ordinal and therefore ranked (Norman, 2012). Therefore, Spearman's rank correlation is an appropriate measure of strength of association.

3.7.2 Factor Analysis

Factor analysis was performed to validate the scale for measuring the study constructs. In this regard, exploratory factor analysis was used to validate the research instrument and ultimately perform hypothesis testing (Costello and Osborne, 2005). Specifically, maximum likelihood exploratory factor analysis in which the rotation method is oblique's direct oblimin method was used (Conway and Huffcutt, 2003). The number of factors retained is based on Kaiser's criterion of Eigen values greater than 1 (Raven, 2009) and with a variable with loadings of .30 or higher should be considered.

3.7.3 Regression Model

Due to the inherent weakness in correlation results especially the third variable problem (*tertium quid*) and the difficulty in determination of causality (Field, 2005), there is therefore need to exercise caution when interpreting correlation results. The correlation results could not reveal other measured or unmeasured variables affecting the results. In an attempt to overcome this serious shortcoming with correlation results and in order to test a null hypothesis for the first objective, a multiple regression analysis between the five indicators of service quality as independent variables and customer satisfaction as dependent variable was run. Therefore, the coefficient of determination, R^2 was relied on to overcome the problem of determining causality as it indicates the amount of variability in one variable that is explained by the others. The construct scores were estimated by obtaining the average response score of all items per case under each construct. The first model (Model 1) contains an array of variables that constitute service quality as generally agreed in many SERVQUAL modelling studies. This model utilized cross-sectional data

only to explore the hypothesised relationship between service quality and customer satisfaction in specific objective one.

The regression model was in the form:

Model 1

$$Y_i=\beta o+\beta_1 X_{1i}+\beta_2 X_{2i}+\beta_3 X_{3i}+ \beta_4 X_{4i}+ \beta_5 X_{5i}+ \varepsilon_i \quad \text{.....} \text{ Equation 3.2}$$

B_0 The constant or intercept

$\beta_{i\,(i=1\,,2\,,3)}$ Are the regression coefficients or change induced in Y by each X

X_{1i} Tangibles (*measured by number of composite variables*)

X_{2i} Reliability (*measured by number of composite variables*)

X_{3i}, Responsiveness ''

X_{4i} Assurance ''

X_{5i} Empathy ''

ε_i Error *(assumed to have a normal distribution and constant variance)*

i Number of respondents under consideration.

3.7.4 Moderator Regression Model

Moderated regression analysis was used to address specific objective (ii) and (iii) by determining the moderating effect of both service failure and customer communication on the relationship between quality and satisfaction separately. The simple rule is that the components of any products must always be included when testing the moderator effect (Cohen, 1978). According to Cohen (1978), the model for moderator analysis is not additive as in the case of other regression models. For this reason, interpreting the coefficients in the model is based on un-standardized coefficients rather than standardized coefficients (Whisman and Mc Clelland, 2005). Moderator analysis was adopted to determine the relationship between explanatory variables; Service quality and (Service failure, customer communication: moderator variables) and; the dependent variable namely customer satisfaction.

Moderated regression analyses (MRA) include multiplicative terms that might be highly correlated with their constituents, a situation that is prone to problems of multicollinearity in the estimation of regression coefficients (Cohen & Cohen, 1983). To alleviate this problem, mean centering of all the variables was done before calculating interaction terms, a procedure that has been demonstrated to reduce such multicollinearity in multiplicative regression models (Cohen & Cohen, 1983, Howell, 2007). As Yi (1989) posits, mean

centering "yields the same R^2 as the current practice, while producing such desirable properties as scale independence, low multicollinearity, and a clear interpretation of main effects". Furthermore, care was taken to test for multicollinearity in the final regression output using Variance Inflation Factor (VIF) where values less than 10 were treated as acceptable. In addition, other regression diagnostic test such as test for normality of independent variables, linearity and homoscedasticity was performed to establish the reliability and validity of the regression model.

Researchers have posited that moderated regression analysis is the most general and conservative method for testing contingency hypothesis in which interaction exists (Aguinis, 2004, Cohen & Cohen, 1983, Dowling & Mc Gee 1994). In this regard, a moderated regression analysis was conducted for contingent hypotheses testing the moderating effects of service failure on the relationship between service quality and customer practices were tested. This procedure involves the regression of the dependent variable on the independent variable (service quality), the potential moderating variable, and the cross- product interaction term of the independent variable and the potential moderating variable. If the cross-product interaction term produces a significant change in the R-square value (that is, significantly increases the amount of variance accounted for in the criterion variable), then the moderating variable is identified as having a significant effect on the nature of the relationship between service quality and the criterion variable. However, in order to avoid multicollinearity in a multiplicative regression model, a procedure called mean centering was performed to ensure that all construct measures were mean centered before calculating interaction terms (Bagozzi *et al.,* 1992; Cohen and Cohen, 1983).

The moderated regression analysis used to test data is mathematically presented below:

The models for the regression analysis are given below.

Model 2

Additive model: $\mathbf{Y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \varepsilon_i}$ **Eq. 3.3**

Where $\mathbf{Z_i}$ is a moderator variable which can either be service failure or customer communication.

Model 2, introduces the service failure or customer communication respectively as moderators in order to establish its contribution in the service quality/customer satisfaction model 1.

Model 3

Moderator Model: $\mathbf{Y_i = b_0 + b_1 X_i + b_2 Z_i + b_3 X_i Z_i + \varepsilon_i}$ **3.4**

Where $\mathbf{X_i Z_i}$ is the cross product of interaction term between service quality and either service failure and customer communication (potential moderators)

Model 3 encompasses the dependent and independent variables, the potential moderating variable and the cross-product interaction term of the dependent and potential moderating variable (Service quality or customer communication) respectively.

Source: Adapted from Aikin and West (1991), Fairchild and Mackinnon (2009), Ahimbisibwe *et al. (*2012) and Whisman and McClelland (2005)

Y= Dependent Variable (Customer satisfaction)

X= Independent Variable (Service quality)

Z= Moderator Variables (Service failure/customer communication respectively)

XZ = Interaction Terms (Interaction of Service Quality and service failure/customer communication respectively)

β_0 =Standardized Y intercept in the additive model (model without the interaction term)

β_1 = Standardized coefficient of X in the additive model

β_2 = Standardized coefficient of X in the additive model

b_1 = Un-standardized coefficient of X in the moderator model (Main effect of X on Y if Z is zero or Simple effect of X on Y if Z is above zero).

b_2 = Un-standardized coefficient of Z in the moderator model (Simple effect of Z on Y)

b_3 =Un-standardized coefficient of XZ in the moderator model (The interaction measure for moderation)

ε = Residual in the equations

$_i$ = Number of respondents under consideration

$(b_0 + b_2 Z_i)$= The Y intercept of the moderator model.

$(b_1 + b_3 Z_i)$=The slope of Y to X for different values of Z

Equation 3.5 represents the linear functional form with $(b_0 + b_2 Z_i)$ representing the intercept and $(b_1 + b_3 Z_i)$ representing the slope of Y_i to X_i, therefore at different values of Z, Y_i to X_i slope is expected to have different values. The moderator model coefficients are expressed as *b* because their interpretation is supposed to be based on un-standardized values. As

depicted in the regression equations, the interaction term, XZ, is entered last to ensure that the coefficient is not confounded with variance arising from the main effects of the variables. In addition, Z can be considered a moderator variable only if the change in R^2 for equation (3.3) compared to equation (3.4) is statistically significant.

3.8 Data Presentation

Data are presented by use of tables, figures and equations (Field, 2015; Zikmund *et al.*, 2010). This technique of presenting data was suitable as it aided in describing and summarizing large data sets into meaningful outputs that are easily interpretable.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter presents the results of the study followed by the discussion of the findings in light of the research objectives. This part is divided into two main sections. The first section addresses the descriptive aspects of the data such as the demographic characteristics of the respondents and the description of the extent of the service quality and customer satisfaction. In the second section, the results of the test hypotheses are discussed beginning with the main effects and ending with the moderating effects of the associated variables.

4.1 Characteristics of the Mobile Phone Users

Table 4.1 summarizes the distribution of respondents by gender. The majority (57.2%) of the respondents were male compared to 42.8% who were female. This preliminary indication suggests that the number of male subscribers is more than their female counterpart in the study area.

Table 4.1: Distribution of Mobile Phone Users by Gender

	Frequency	Percent
Male	218	57.2
Female	163	42.8
Total	381	100

Source: Survey data (2014)

The distribution of respondents based on the type of network they subscribe to are indicated in Table 4.2. The analysis revealed that most (86.6%) of the respondents subscribe to a prepaid call services while only 13.4 % subscribe to postpaid services. This result indicates that the growing trend in customer preference for a prepaid call service as opposed to postpaid services which was largely seen as a preserve of a few business class individuals.

Table 4.2: Distribution based on Type of Network Connection

	Frequency	Percent
Prepaid	330	86.6
postpaid	51	13.4
Total	381	100

Source: Survey data (2014)

The distribution of respondents based on their year of network usage is shown in Table 4.3. Majority of the respondents representing 52.2% have had an experience with a given mobile network for a period of more than 5 years. This suggests that the level of adoption of innovation in the mobile phone sector is relatively high among the users of this service. This was followed by those who stated that they had been on a particular network for a period of between 1-5 years representing 32.5%. Others, 4.7%, confirmed that they had been on a network for at least 6 months.

Table 4.3: Distribution of Respondents based on Years of Network Experience

	Frequency	**Percent**
About 6months	18	4.7
About 1year	40	10.5
Between 1-5 years	124	32.5
More than 5 years	199	52.2
Total	381	100

Source: Survey data (2014)

The age profile of the respondents revealed that most (43.8%) of them were aged between 24-29 years with 31.8% falling over 30 years. On the other hand, 21% of the respondents fell between 19-23 years of age. While only 3.4% of respondents were aged 18 years.

Table 4.4: Distribution of respondents by their current age

	Frequency	Percent
About 18year	13	3.4
19_23 years	80	21
24-29 years	167	43.8
>30years	121	31.8
Total	381	100

Source: Survey data (2014)

Table 4.4 summarizes the distribution of the respondents by age. Since the vast majority of respondents were well over 24 years of age, approximately 75.6%, we can conclude that the use of mobile phone services is more prevalent among young adults than teenage youth. This can be attributed to their level of income, social status, occupational demand and robust activities of life.

4.2 Extent of Service Quality Practised by Mobile Phones Firms in Kenya

Addressing the objectives of the study requires description of several explanatory variables to ascertain their explanatory capacity. This was achieved and presented frequency distributions, means and standard deviation for each variables consecutively. First, effort was put to establish the extent of service quality practised by mobile phones firms in Kenya. To determine this, respondents were asked to indicate the extent to which mobile phone firms carry out service quality practices on a scale of 1 to 7. In this study, SERVQUAL scale consisting of five dimensions namely; Tangibles, Reliability, Responsiveness, Assurance and Empathy were used as a measure of service quality practices in the mobile phone sector in Kenya.

4.2.1 Tangible dimension of Service Quality

The descriptive measures of tangible dimensions of service quality are found in Table 4.5. Respondents were also asked to indicate their level of agreement with the extent to which firms have modern looking equipment, visually appealing physical facilities, neat employees and visually appealing materials such as brochures.

Table 4.5 Measure of tangible dimension of service quality

		Response scale								
		1	2	3	4	5	6	7	Mean	Std. Dev
My mobile network provider has modern-looking equipment	N	5	5	12	24	62	111	162		
	%	1.3%	1.3 %	3.1%	6.3%	16.3%	29.1%	42.5%	5.92	1.288
The physical facilities at my mobile network provider is visually appealing	N	7	4	15	23	64	147	120		
	%	1.8%	1.0 %	3.9%	6.0%	16.8%	38.6%	31.5%	5.77	1.29
Employees at my mobile network provider are neat in appearance	N	8	9	11	36	71	128	114		
	%	2.1%	2.4 %	2.9%	9.4%	18.4%	33.6%	29.9%	5.63	1.385
Material e.g. brochures or statements associated with the service was visually appealing in an excellent mobile network provider	N	11	9	8	31	70	105	145		
	%	2.9%	2.4 %	2.1%	8.1%	18.4%	27.6%	38.1%	5.73	1.457
Overall Mean									5.76	1.355

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey data (2014)

From Table 4.5, it is evident that the tangible aspects of service quality were practiced to a high extent by mobile phone companies in Kenya. On a scale of 1 to 7, the average overall mean score revealed that tangibles was at a high level of 5.76 representing 82.3% of respondents. This suggests that it is a prevalent practice of service quality among mobile phone firms in Kenya.

4.2.2 Reliability dimension of Service Quality

The descriptive measures of reliability dimensions of service quality are found in Table 4.6. Respondents were are asked to indicate their level of agreement with the extent to which firms promises to do something by certain time, will show sincere interest in solving

customer interest, will perform service right the first time, will provide services at the time they promise to do so and will insist on error-free record.

Table 4.6 Measure of Reliability Dimension of Service Quality

	Response scale									
	N	1	2	3	4	5	6	7	Mean	SD
When my mobile network provider promises to do something by a certain time, it will do so.	N	26	16	9	35	80	116	97	5.28	1.71
	%	6.8 %	4.2 %	2.4 %	9.2%	21.0 %	30.4 %	25.5 %		
When customers have a problem my mobile network provider will show a sincere interest in solving it	N	8	13	20	52	87	101	97	5.35	1.475
	%	2.1 %	3.4 %	5.2 %	13.6 %	22.8 %	26.5 %	25.5 %		
My mobile network provider will perform the service right the first time	N	16	20	24	41	104	94	78	5.1	1.611
	%	4.2 %	5.2 %	6.3 %	10.8 %	27.3 %	24.7 %	20.5 %		
My mobile network provider will perform their service at the time they promise to do so	N	17	23	24	48	91	86	89	5.08	1.679
	%	4.5 %	6.0 %	6.3 %	12.6 %	23.9 %	22.6 %	23.4 %		
My mobile network provider will insist on error-free record	N	23	20	33	65	64	85	84	4.92	1.766
	%	6.0 %	5.2 %	8.7 %	17.1 %	16.8 %	22.3 %	22.0 %		
Overall mean									**5.15**	

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey data (2014)

From Table 4.6, it is evident that reliability aspects of service quality were practiced to a high extent by mobile phone companies in Kenya. On a scale of 1 to 7, the average overall mean score revealed that reliability was moderately level at 5.15 (SD. = 1.648) representing 73.6% of respondents. This suggests that it is a moderately prevalent practice of service quality among mobile phone firms in Kenya.

4.2.3 Responsiveness Dimension of Service Quality

The descriptive measures of responsiveness dimensions of service quality are found in Table 4.7. Respondents were also asked to indicate their level of agreement with the extent to which firm's employees will tell customers exactly when the service will be performed, if they will give prompt service to customers, if employees will always be willing to help customers and that they will not be too busy to respond to customers' requests.

Table 4.7 Measure of Responsiveness Dimension of Service Quality

		Response scale								
		1	2	3	4	5	6	7	Mean	SD
Employees of my mobile network provider will tell customers exactly when services will be performed	N	24	14	21	34	107	90	90	5.15	1.68
	%	6.3%	3.7%	5.5%	8.9%	28.1%	23.6%	23.6%		
Employees of my mobile network provider will give prompt service to customers.	N	17	24	14	47	93	109	73	5.11	1.621
	%	4.5%	6.3%	3.7%	12.3%	24.4%	28.6%	19.2%		
Employees of my mobile network provider will always be willing to help customers	N	14	12	20	43	85	99	104	5.35	1.567
	%	3.7%	3.1%	5.2%	11.3%	22.3%	26.0%	27.3%		
Employees of my mobile network provider will never be too busy to respond to customer request	N	101	47	38	52	55	46	42	3.57	2.105
	%	26.5%	12.3%	10.0%	13.6%	14.4%	12.1%	11.0%		
Overall Mean									**4.80**	**1.74**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey data (2014)

Table 4.7 revealed that Responsiveness aspects of service quality were practiced to a moderate extent by mobile phone companies in Kenya. On a scale of 1 to 7, the average overall mean score revealed that responsiveness was at a moderate level of 4.80 (SD = 1.743) representing 68.6% of respondents who are in agreement. This suggests that it is a moderately prevalent practice of service quality among mobile phone firms in Kenya.

4.2.4 Assurance Dimension of Service Quality

Table 4.8 illustrates the responses to measures of assurance dimensions of service quality. Respondents were further asked to indicate their level of agreement with the extent to which firms' employees' behaviour will instil confidence in customers, employees will be consistently courteous with their customers, customers will be safe in their transactions and employees will have the knowledge to answer customer questions.

Table 4.8 Measure of Assurance Dimension of Service Quality

		Response scale								
		1	2	3	4	5	6	7	Mean	SD
The behaviour of Employees will instill confidence in customer	N	8	10	12	48	80	101	122	5.55	1.438
	%	2.1%	2.6%	3.1%	12.6%	21.0%	26.5%	32.0%		
Customers will be safe in their money transfer transactions	N	19	23	23	38	82	98	96	5.16	1.716
	%	5.0%	6.0%	6.0%	10.0%	21.5%	25.7%	25.2%		
Employees of mobile phone firms will be consistently courteous with customers	N	5	10	9	29	86	111	128	5.71	1.328
	%	1.3%	2.6%	2.4%	7.6%	22.6%	29.1%	33.6%		
Employees of mobile phone firms will have the knowledge to answer customer questions	N	7	6	11	34	73	95	153	5.79	1.375
	%	1.8%	1.6%	2.9%	8.9%	19.2%	24.9%	40.2%		
Overall Mean									**5.55**	**1.46**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=agree and 7=Strongly agree.

Source: Survey data (2014)

As indicated in Table 4.8, it is evident that assurance aspects of service quality were practiced to a greater extent by mobile phone companies in Kenya. On a scale of 1 to 7, the average overall mean score revealed that assurance was at a moderate level of 5.55 (SD=1.464) representing 79.3% of respondents. This suggests that it is a highly prevalent practices of the services quality among mobile phone firms in Kenya.

4.2.5 Empathy Dimension of Service Quality

The survey responses for empathy dimensions of service quality are depicted in Table 4.9. Respondents were asked to indicate their level of agreement with the extent to which firms

will give customers individual attention, will provide an operating hours convenient to their customers, will understand the specific needs of customers and will have customers' best interest in heart. The responses were on a 7-point scale and revealed that empathy was at a moderately high level of 5.36 (SD = 1.575) representing 76.6% of respondents who were in agreement with that view suggesting that it is a moderately prevalent practice of service quality among mobile phone firms in Kenya.

Table 4.9 Empathy Dimension of Service Quality

		Response scale								
		1	2	3	4	5	6	7	Mean	Std. Dev
My mobile network provider will give customer individual attention	N	15	9	10	19	61	125	141	5.74	1.507
	%	3.9%	2.4%	2.6%	5.0%	16.0%	32.8%	37.0%		
Employees give customers personal attention	N	14	12	12	32	76	133	100	5.49	1.504
	%	3.7%	3.1%	3.1%	8.4%	19.9%	34.9%	26.2%		
My mobile network provider will have operating hours and location convenient to all its customers	N	25	12	18	55	70	92	105	5.2	1.735
	%	6.6%	3.1%	4.7%	14.4%	18.4%	24.1%	27.6%		
The employees understand the specific needs of customers	N	12	9	23	43	85	96	112	5.41	1.531
	%	3.1%	2.4%	6.0%	11.3%	22.3%	25.2%	29.4%		
My mobile network provider will have customer's best interest at heart	N	20	14	28	64	93	100	62	4.95	1.597
	%	5.2%	3.7%	7.3%	16.8%	24.4%	26.2%	16.3%		
Overall Mean									**5.36**	**1.575**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey data (2014)

4.2.6 Summary of the Extent of Service Quality Practised by Mobile Phones Firms in Kenya

Table 4.10 shows that tangibility as one of the construct used to measure the extent of service quality is a moderately prevalent practice at 82.3% (mean score= 5.76, SD=1.355) among mobile phone firms in Kenya. This implies that the surveyed firms have equipment that seem to be modern which is visually appealing to the sampled respondents in the study area. This was closely followed by assurance dimension of service quality at 79.3% (mean score=5.55, SD =1.464). Respondents strongly agreed that employees' instil confidence in their customers and consistently remain courteous. However, responsiveness recorded the lowest mean score of 4.80 (68.6%) indicating that it was only moderately practised by the mobile phone firms in the study area.

Table 4.10 Summary of the Extent of Service Quality Practised by Mobile Phone Firms in Kenya

	Overall Mean score	**SD**	**Percent Score**
1.Tangibility	5.76	1.355	82.3%
2.Reliability	5.15	1.648	73.6%
3.Responsiveness	4.80	1.743	68.6%
4. Assurance	5.55	1.464	79.3%
5. Empathy	5.36	1.575	76.6%
Mean Composite Service quality	**5.324**	**1.557**	**76.08%**

Source: Survey data, 2014

On the whole, it is evident that the prevalent view among the respondents regarding service quality as was practiced among the surveyed mobile phone firms was at a moderate level as revealed by an overall mean score of 5.324 (SD.=1.557) representing 76.08% of responses in support of that view. All variables have mean values around or slightly below the mean composite service quality of 5.324. This further suggests that service quality is applied to a moderate extent across all its five dimensions namely: Tangibles, Reliability, Responsiveness, Assurance and Empathy meaning that mobile phone firms in Kenya have adopted service quality practices to moderately significant level.

4.3 Extent of Customer Satisfaction among Mobile Phone Firms in Kenya

In addition, the researcher sought to establish the extent of customer satisfaction among mobile phone firms in Kenya descriptively as shown in Table 4.11

Table 4.11: Extent of Customer Satisfaction among Mobile Phone Firms in Kenya

		Response scale								
		1	2	3	4	5	6	7	Mean	SD
Overall, I am satisfied with my current mobile network provider	N	24	24	12	30	108	76	106	5.17	1.754
	%	6.3	6.3	3.1	7.9	28.3	19.9	27.8		
I am likely to continue to choose/repurchase from my mobile network provider	N	22	17	17	46	92	89	97	5.17	1.692
	%	5.8	4.5	4.5	12.1	24.1	23.4	25.5		
I am likely to recommend my mobile network provider to a friend and family	N	17	16	11	41	81	97	117	5.4	1.629
	%	4.5	4.2	2.9	10.8	21.3	25.5	30.7		
The services offered to me were important to me	N	1	9	13	41	70	127	117	5.68	1.295
	%	0.3	2.4	3.4	10.8	18.4	33.3	30.7		
The services offered to me fit well with my situation/problems	N	10	20	20	37	93	108	86	5.28	1.537
	%	2.6	5.2	5.2	9.7	24.4	28.3	22.6		
The services offered to me exceeded the requirement my situation/problems	N	48	43	45	75	80	57	32	4.04	1.537
	%	12.6	11.3	11.8	19.7	21.0	15.0	8.4		
I feel absolutely delighted with delivered services	N	16	13	30	61	95	93	71	5.03	1.569
	%	4.2	3.4	7.9	16.0	24.9	24.4	18.6		
I feel very pleased with services delivered	N	13	17	31	56	94	81	81	5.06	1.594
	%	3.4	4.5	8.1	14.7	24.7	21.3	21.3		
I am completely satisfied with the services delivered by the service provider	N	26	26	23	52	94	74	85	4.91	1.783
	%	6.8	6.8	6.0	13.6	24.7	19.4	22.3		
Overall Mean									**5.08**	**1.599**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey data (2014)

On a seven point Likert scale, respondents were asked to show their level of agreement with 9 items used as indicators or measures of customer satisfaction. The findings revealed that customer satisfaction levels among mobile phones users in the study area is at a moderate level of 72.6% (mean score 5.08, SD = 1.599). Specifically, a vast majority of respondents 81.1% (mean score of 5.68, SD = 1.295) were strongly in agreement that the services provided to them by the mobile phone firms were important to them. Whereas, only 57.7% (mean score= 4.04, SD. =1.537) of the respondents agreed that the services offered to them by their respective mobile phone companies exceeded the requirement of their situation or problems. There are, however, varied responses for the remaining items that ranged from 4.04 to 5.68 in mean score.

4.4 Extent of Service Failure in Mobile Phone Sector in Kenya

In this study, service failure was measured by service failure classification model proposed by Bitner *et al.* (1990) that was operationalized as: delivery failures, response failure and unprompted/unsolicited employee actions. On a 7 point Likert scale, the respondents were asked to consider their score on the extent to which the network service provider gave unreasonable service, provided unreasonably slow service, failed to respond to individual customer needs and special request or even ignored customers and exhibited unusual behaviour like ruddiness. Table 4.12 illustrates the response to the measure of service failure.

Table 4.12: Measure of Service Failure in Mobile Phone Firms in Kenya

		Response scale								
		1	2	3	4	5	6	7	Mean	S D
My mobile network provider will give unreasonable service.	N	119	94	51	29	30	22	34	2.89	1.963
	%	31.2	24.7	13.4	7.6	7.9	5.8	8.9		
My mobile network provider will provide unreasonably slow service	N	79	98	64	36	41	33	26	3.17	1.871
	%	20.7	25.7	16.8	9.4	10.8	8.7	6.8		
Employees of my mobile network provider fail to respond to individual customer needs and special request	N	117	84	52	41	42	16	27	2.9	1.878
	%	30.7	22.0	13.6	10.8	11.0	4.2	7.1		
Employees of my mobile network provider have poor attitudes towards customers	N	141	121	34	23	15	17	30	2.53	1.862
	%	37	31.8	8.9	6.0	3.9	4.5	7.9		
Employees of my mobile network provider will ignore customers	N	146	111	40	19	18	28	19	2.51	1.813
	%	38.3	29.1	10.5	5.0	4.7	7.3	5.0		
Employees of my mobile network provider exhibits unusual behaviour such as rudeness and abusiveness	N	157	115	43	18	11	15	22	2.33	1.717
	%	41.2	30.2	11.3	4.7	2.9	3.9	5.8		
Overall mean									**2.723**	**1.850**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey Data (2014)

From Table 4.12, the responses revealed that most of the variables measuring service failure have mean values close to the mean point of three. Based on the overall mean of 2.723 (SD.=1.850), it appears that the level of occurrence of service failure associated with mobile phone services in Kenya has been reported to be low among mobile phone users.

4.5 Extent of Customer Communication in Mobile Phone Sector in Kenya

As a necessary part of descriptive analysis of the explanatory variables, the study sought to establish from customers' perspective the extent to which the mobile phone firms have put in place channels or mechanisms to facilitate free flow of communication between their customers and themselves. Table 4.13 illustrates the responses to measures of customer communication. Respondents were also asked to indicate their level of agreement with the extent to which the mobile network provider has put in place channels for receiving complaints from customers, mobile network provider has put in place channels for receiving suggestions from customers, my mobile network provider has put in place channels for

receiving compliments from customers and customers communicate their dissatisfaction by abandoning usage of the network services. Table 4.13 illustrates the responses to the measure of customer communication.

Table 4.13 The Measure of the Extent of Communication Levels

		Response scale								
		1	2	3	4	5	6	7	Mean	Std. Dev
My mobile network provider has put in place channels for receiving complaints from customers/subscribers	N	18	10	12	36	75	99	131	5.52	1.607
	%	4.7	2.6	3.1	9.4	19.7	26.0	34.4		
My mobile network provider has put in place channels for receiving suggestions from customers/subscribers	N	19	20	17	44	82	123	75	5.16	1.632
	%	5.0	5.2	4.5	11.5	21.5	32.3	19.7		
My mobile network provider has put in place channels for receiving complements from customers/subscribers.	N	17	17	27	46	78	111	82	5.15	1.637
	%	4.5	4.5	7.1	12.1	20.5	29.1	21.5		
Subscribers/customers communicate their dissatisfaction by abandonment of usage of the network services.	N	34	22	29	63	69	86	76	4.78	1.849
	%	8.9	5.8	7.6	16.5	18.1	22.6	19.9		
Mean									**5.153**	**1.681**

1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree nor disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

Source: Survey Data (2014)

From Table 4.13, the responses revealed that most of the variables measuring customer communication had mean values close to the mean point of five. Based on the overall mean of 5.153 (SD =1.681), it appears that the level of customer communication practices associated with mobile phone services in Kenya has been reported to be moderately high among mobile phone users.

4.6 Examining the Effect of Service Quality on Customer Satisfaction

The first objective was to establish whether service quality practice across its five dimensions had an effect on satisfaction levels of mobile phone customers in Kenya. This

was actualized through the testing of the first null hypothesis stated as; H_o: β_i =0 Service quality has no significant influence on customer satisfaction among Kenya's mobile phone firms. The first step to conducting multiple regression analysis in order to test this stated hypothesis was by conducting correlation analysis. Service quality was measured by five parameters namely: Tangibles, Reliability, Responsiveness, Assurance and empathy; which are consistent with those used by leading researchers like (Parasuraman, Berry and Zeithaml, 1985) in measuring service quality standards. The results of bivariate association between service quality measures and customer satisfaction are discussed in subsection 4.6.1.

4.6.1 Bivariate Association between Service quality measures and Customer Satisfaction

In order to assess bivariate association between independent and dependent variable, Spearman rank Correlation analysis was performed. Since both service quality dimensions and customer satisfaction is measured in Likert scale and hence ordinal, Spearman rank correlation becomes appropriate non-parametric measure of strength of association between these variables. (Norman, 2010; Churchill and Iacobucci, 2004). The correlation matrix of all variables was depicted in Table 4.14.

Table 4.14: Correlations of Variables with Customer Satisfaction among Mobile Phone Users in Kenya.

Variables	*N*	Correlation with Customer satisfaction (Spearman's rho, ρ)	*p*-value
Tangibles	381	.381**	.000
Reliability	381	.570**	.000
Responsiveness	381	.553**	.000
Assurance	381	.587**	.000
Empathy	381	.564**	.000

**. Correlation is significant at the 0.01 level (1-tailed)

Source: Main survey data, 2014

The results from the correlation matrix in Table 4.14 revealed that customer satisfaction has a significant positive correlation with all the five dimensions of service quality. The association between tangibles and customer satisfaction ρ = 0.381, (p= 0.000) is positively weak but significant at 95% confidence level. The association between reliability and customer satisfaction ρ = 0.570, (p = 0.000) is positive and equally significant, suggesting that there is a statistically significant positive association between reliability and customer

satisfaction. Similarly, the association between responsiveness and customer satisfaction ρ = 0.553, (p = 0.000) was found to be positive and sufficiently significant at 95% confidence level. The association between assurance and customer satisfaction ρ = 0.587, (p = 0.000) was found to be positive and equally significant. Lastly, the association between empathy dimension of service quality and customer satisfaction ρ = 0.561, (p = 0.000) was found to be positive and significant. These results concur with those of Wang and Shieh (2006) whose findings indicated that overall service quality has a significantly positive effect on customer satisfaction. Among the five dimensions of service quality except for responsiveness (r=0.195, p> 0.1), all have a significant positive effect on customer satisfaction (Wang and Shieh, 2006). This result implies that as service quality is enhanced across its five dimensions namely: Tangibles, Reliability, Responsiveness, assurance and empathy, the customer satisfaction level increases.

However, in an attempt to overcome the shortcoming with correlation results and in order to test a null hypothesis for the first objective, a multiple regression analysis between the five indicators of service quality as independent variables and customer satisfaction as dependent variable was run. The detailed results of the multiple regression analysis involving all indicators of the service quality and customer satisfaction are presented in Table 4.15, Table 4.16 and Table 4.17 and discussed in the following subsections.

Table 4.15: ANOVA Results of the Relationship between Service Quality Measures and Customer Satisfaction

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	482.715	5	96.543	116.932	.000
	Residual	309.612	375	.826		
	Total	792.327	380			

a. Dependent Variable: Customer satisfaction

b. Predictors: (Constant), Empathy, Tangibles, Responsiveness, Assurance, Reliability

Source: Survey Data, 2014

Table 4.15 presents ANOVA results of the Service quality-customer satisfaction model. The data test revealed that F (5, 375) = 116.932 at p = 0.000, an indication that the model fits the given data well.

Table 4.16: Summary of Service Quality-Customer Satisfaction Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.781	.609	.604	.90864	.609	116.932	5	375	.000	1.842

a. Predictors: (Constant), Empathy, Tangibles, Responsiveness, Assurance, Reliability

b. Dependent Variable: Customer satisfaction

Source: Survey data, 2014

The Service quality-Customer satisfaction model summary in Table 4.16 shows that the proportion of variance in the customer satisfaction explained by the independent variables (all five dimensions of service quality) is 60.9% or R^2=0.609. According to Cohen (1988), 60.9 % of variation explained by the model is regarded as a large increase. The other variation in customer satisfaction of 39.1% was explained by other external factors outside this model. The difference between R^2=0.609 and adjusted R^2=0.604 is 0.005 and shows that the suggested model generalizes quite well as the adjusted R^2 is too close to R^2. According to interpretation by Field (2005), shrinkage of less than 0.5 depict that the validity of the model is very good. The value of Durbin-Watson is 1.842, which is close to 2. This indicates lack of serial correlation.

Table 4.17: Estimated Regression Coefficients for Variables in Service Quality-Customer Satisfaction Model

Table Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.678	.301		-2.252	.025		
Tangibles	-.060	.054	-.043	-1.093	.275	.672	1.488
Reliability	.143	.055	.129	2.620	.009	.431	2.321
Responsiveness	.039	.048	.036	.806	.421	.526	1.900
Assurance	.419	.055	.318	7.623	.000	.600	1.667
Empathy	.559	.049	.473	11.370	.000	.601	1.664

Dependent Variable: Customer satisfaction

Source: Main survey, 2014.

Table 4.17 shows that out of the five independent variables, three independent variables which include: Reliability (β = 0.143, p = 0.009); Assurance (β = 0.419, p = 0.000) and Empathy (β = 0.559, p = 0.000) had positive significant effect on customer satisfaction. The β statistics is interpreted by ranking measures of these independent variables, whereby the

higher the magnitude of the β values, the more influence the variables has on the customer satisfaction. The unstandardized β coefficient of reliability shows that units change in the level of reliability causes 0.143 standard deviation in customer satisfaction level and the change is significant as shown by the p-value while a unit change in assurance and empathy causes 0.419 and 0.559 standard deviation in customer satisfaction levels among mobile phone firms respectively. Other variables, Tangibles (β = -0.060, p = 0.275) and Responsiveness (β = 0.039, p = 0.421), had insignificant negative effect and positive effects on the customer satisfaction levels among mobile phone firms respectively. The coefficient of a constant term was at (β = -0.678, p = 0.025) and is significant. The negative signs of the coefficient for indicate that the dimension of Tangibles influences customer satisfaction negatively though insignificant. The VIF values ranged from 1.488 to 2.321 and these are within the range recommended by Pan and Jackson (2008), and Rogerson (2001). Therefore, the regression results indicated that there was a statistically significant positive relationship between the service quality and customer satisfaction in a mobile phone sector in Kenya thereby rejecting H_o: β_i =0, Service quality has no significant influence on customer satisfaction among Kenya's mobile phone firms.

By adding regression coefficient as was shown in Table 4.6.3c, the study developed analytical model equations for predicting customer satisfaction level among mobile phones firms:

$$\hat{Y} = -0.678 - 0.060Tangible + 0.143Relaibility + 0.039Responsiveness + 0.419Assurance + 0.559Empathy \quad \text{.....Eq. 4.1}$$

t= (-2.252) (-1.093) (2.620) (0.806) (7.623) (11.370)

S.E= (.301) (.054) (.055) (.048) (.055) (.049)

R^2=0.609 or 60.9%

From the foregoing results, the following discussion can be adduced. Firstly, the finding of the current study has received enormous support from theoretical literature. For instance, Oliver (1980) acknowledges that customer satisfaction is the direct consequence of service quality. This affirms the proposition of the expectancy disconfirmation theory which states that satisfaction level is a result of the difference between the expected and the perceived performance of service. Moreover, Lai *et al., (*2009); Wu and Lang, (2009); Kuo *et al.,*

(2009) have all advanced the argument that with the improvement in service quality, customer satisfaction will be enhanced. Others like (O'Neill and Palmer, 2003) have concluded that in a highly competitive market place, service quality becomes a very critical success factor for gaining a sustainable competitive advantage in the marketplace which will then translate into customer satisfaction.

Empirically, the findings are similar with the study by Walfried *et al.,* (2000) who found that service quality (R^2= 0.74, $p < 0.05$) yields a significant influence on customer satisfaction in the banking industry. However, Walfried *et al.,* (2000) finding differed with the present study as it ignored the use of empathy dimension of SERVQUAL model and instead dwelt on the functional dimension of quality. Consequently, this has made findings involving SERVQUAL model less clear. Similarly, Namanda (2013) concurred with Walfried *et al.,* (2000) by confirming a positive relationship between service quality and customer satisfaction in the banking sector in Uganda. However, the present study and Namanda (2013) differed from Walfried *et al.,* (2000). Whereas the former tested and confirmed that service quality had a positive effect on customer satisfaction when measured along SERVQUAL scale, the latter tested and confirmed the relationship using functional quality scale called SERVPERF. Contrary to the above authors, Agbor (2011) failed to confirm positive significant effect of service quality on customer satisfaction in a university library services and instead found that there was no significant relationship between service quality and customer satisfaction. Further support for the result of the present study was offered by (Lin and Wang, 2006) who, in a case-based study, found service quality to have a significant positive effect on customer satisfaction (R^2=0.410, P=0.000). This finding is plausible because of the complementary nature of the five dimensions of service quality. That is to say that service quality exerts more influence if all the five dimensions are aggregated into a composite variable than if each element is disaggregated.

In Kenya's banking sector, both Odhiambo (2015) and Auka (2012) conducted studies and found that service quality is a critical determinant of customer satisfaction but differed in variables studied. Whereas Odhiambo (2015) analyzed service quality along its five dimensions namely: tangibles, reliability, responsiveness, assurance and empathy; Auka (2012) on the other hand, focused on how multiple factors one of which was service quality influence firm's competiveness. Nyaoga *et al.* (2013) found that there is a direct relationship between service quality and customer satisfaction in air transport in Kenya. By contrast, Uddin and Bilkis (2012) differed from the present study and Nyaoga *et al.* (2013)

by concluding that service quality and fair price have indirect influence on customer satisfaction of mass service industries like mobile phone operators. Despite focusing on mobile telecommunication services in Ghana, Nimako *et al.* (2010) differed from results of the present study and that of Wang and Shieh (2016). Whereas, Nimako *et al.* (2010) concluded that service quality has weak but significant effect on customer satisfaction, Wang and Shieh (2006) found that service quality had significantly positive effect on customer satisfaction in University Library service in Taiwan.

However, the studies (Wang and Shieh, 2006; Shashzad and Saima, 2012; Abdullah and Rozario, 2009 Namanda, 2013; Nyaoga *et al.*, 2013) have all used small sample sizes thus limiting the generalizability of their result. Studies by Agbor (2011; Namanda, 2013) utilized convenience sampling technique thereby rendering their results unfit for generalization. In other cases, (Stergios *et al.*, 2012; Shashzad and Saima, 2012) had many parameters which presented a problem for the collection of required data thus reducing the reliability of their findings. Odhiambo (2015) overlooked two aspects of service quality: assurance and tangibles hence making these two aspects of service quality and its likely effect on satisfaction levels of customers unclear. Namanda (2013) ignored two important dimensions of service quality namely: responsiveness and assurances in its analysis hence posing a limitation. Nimako *et al.* (2000) omitted the use of SERVQUAL scale thereby limiting the conceptualization and dimensionality of the study. Auka (2012) and Uddin and Bilkis (2012) failed to establish the direct link between service quality and customer satisfaction but instead focused on the influence that multiple factors had on customer satisfaction. Furthermore, their finding suffers a weakness due to the problem of data co-linearity. Nyaoga *et al.* (2013) used descriptive statistics in their analysis which are regarded as not better way to establish cause and effect relationship. All the above studies relating service quality to customer satisfaction have only focused on sectors such as banking, aviation and tertiary learning institutions which are regarded as high contact service settings with intense client-service provider interaction. The few studies like (Nimako *et al.*, 2000) that focused in telecommunication sector overlooked SERVQUAL perspective of measuring service quality. Therefore, none of the these studies analyzed the effect of service quality practices on satisfaction of mobile phone service users, as a low contact service which is highly integrated with technology using an acceptable and validated SERVQUAL scale. Therefore, information on mobile phone services in Kenya is lacking. However, the current study has a made a major milestone towards new knowledge

by developing and validating service quality measurement scale with enhanced sample size to be used in measuring low contact services. Unlike past studies which largely focused on high contact service settings such as banking and hospitality sector, the current study added to new knowledge by revealing the significantly positive effect of service quality (R^2= 0.609, $p<0.05$) on satisfaction of mobile phone service users, as a low contact service which is highly integrated with technology with an acceptable measurement scale. Consequently, the effect of service quality on customer satisfaction in mobile phone services in Kenya was established.

4.7 Establishing the Moderating Effect of Service Failure on the Relationship between Service Quality and Customer Satisfaction in Mobile Phone Firms in Kenya

The second objective of the study sought to establish whether the relationship between service quality practices and customer satisfaction is moderated by service failure. This involved testing the null hypotheses two stated as: H_o: β_i =0, the relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya. This hypothesis was tested and actualized by use of Moderated Regression Analysis (MRA). This was informed by the realization that weak relationship among variables can be remedied by incorporating appropriate moderating variable (Luft and Shields, 2003). Furthermore, inconsistent research findings particularly with regard to service quality-customer satisfaction can be resolved with the inclusion of the contextual factors in the form moderator variables. The study tested the interaction between service quality and service failure. This procedure involved hierarchical regression which entails entering service quality and service failure in step 1, and then entering the interaction variable (which is the cross product between service quality and service failure) in step 2. In order to reduce threats of multi-collinearity by reducing the size of any high correlation of service quality and service failure with the new interaction, standardized values were used for the interaction variable (Ondoro, 2014). The summary regression coefficients are shown in Table 4.18.

Table 4.18: Estimated Regression Coefficients for Variables in the Effect of Service Failure on the Relationship between Service Quality-Customer Satisfaction Model

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.764	.192		-3.975	.000		
	Service quality	.224	.047	.144	4.717	.000	.566	1.768
	Service failure	.865	.033	.792	25.872	.000	.566	1.768
2	(Constant)	-.391	.161		-2.423	.016		
	Service quality	.267	.039	.173	6.789	.000	.562	1.781
	Service failure	1.437	.051	1.315	28.044	.000	.415	2.410
	Interaction term	-.662	.050	-.598	-13.248	.000	.421	2.375

a. Dependent Variable: Customer satisfaction

Source: survey data (2013)

The Table 4.18 shows the standardized (β) and un-standardized (B) coefficients for Service quality and service failure with and without the interaction term. The un-standardized coefficient should be used while reporting coefficient for moderation as they represents simple effects rather than the main effects that are exposed in the additive regression model (Whisman and McClelland, 2005). Without the interaction term, B for Service quality and service failure are 0.224 and 0.865 respectively with both being significant at *(p*=0.000). The B coefficient when the interaction term was introduced for service quality, service failure (moderator) and interaction term are 0.267, 1.437, and -0.662 respectively. As a result, the hypothesized moderation model was confirmed to be;

$$\hat{Y} = -0.391 + 0.267X + 1.437Z - 0.662XZ \quad \text{Equation 4.2}$$

The model can be re expressed as;

$$\hat{Y} = (-0.391 + 1.437Z) + (0.267 - 0.662Z)X \quad \text{Equation 4.3}$$

In the model, the intercept and the XY slope is influenced by Z (the moderate variable) intercepts and slopes of line $\hat{Y}$ X. The un-standardized co-efficient of the moderator model b_3 is -0.662. This means that for each unit increase in Z, the slope relating X to *Y* decreases by -0.662. This further mean that, as service failure encounters increases by one unit, the satisfaction level of customers decreases by (-0.662). The summary statistics for moderator regression model are shown in Table 4.19.

Table 4.19 Model Summary of Effect of Service Failure on the Relationship Between Service Quality and Customer Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
2	.894	.800	.798	.64824	.800	753.773	2	378	.000	
3	.929	.863	.862	.53617	.064	175.521	1	377	.000	1.972

a. Predictors: (Constant), Service failure, Service quality

b. Predictors: (Constant), Service failure, Service quality, Interaction term

c. Dependent Variable: Customer satisfaction

Source: Survey data (2014)

As shown in Table 4.19, the full Model 3 includes service quality as the independent variable, service failure as the moderator and the interaction effects. This model is significant at (R^2=0.863, Adjusted R^2=0.862, F (1,377) 175.521, p=.000) thus rejecting hypothesis H_o: $\beta_i = 0$; (the relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya). When compared with the reduced Model 2, which only includes predictor variable and moderators (steps 2), the addition of the interaction terms in the full model significantly increases the R^2 by (ΔR^2=0.064; p=0.000) or 6.4%). Although it was small, this change was statistically significant. Moreover, the variables in the two models: (Model 2=service quality and service failures, Model 3= service quality, service failure and interaction term) are also found to predict variance in the customer satisfaction significantly differently (Model 2-F change=755.77; Model 3- F change=175.521, p=.000). Therefore, the moderating effect of service failure which improves the model's goodness of fit is statistically evident. The hypothesised contingency model therefore explains 86.3% of the variance in customer satisfaction among mobile phone firms in Kenya.

The adjusted R^2 of Model 2 is 0.798 and R^2 is 0.800 for the main model with service failure. When the interaction of service failure with main the predictor variable is also introduced in the model, R^2 is 0.863 with adjusted R^2 dropping to 0.862. The differences in the two cases of R^2 for each model are less than a ceiling of 0.5 (Field, 2005). The low shrinkage between the R^2 and adjusted R^2 in each model depict both models as valid and stable for the prediction of the dependent variable, customer satisfaction, at 80% and 86.3% variance respectively. The power to detect interaction effects is often low because of the small effect sizes observed in social science (Aikin and West, 1991). A similar view was held by

Fairchild and Mackinnon (2009) who noted that interaction effect; in this case 6.4% is very low but confirm moderation. The significant interaction indicates that the presumed moderator (service failure) does actually moderate the effect of the predictor (service quality) on the outcome variable (customer satisfaction among mobile phone firms in Kenya).

This finding concurs with Zeithaml *et al.* (1990) who observed that service failure has immense impact on consumers especially in their "switching behaviour". The study found out that service failure moderate the relationship between service quality and customer satisfaction negatively (ΔR^2=0.064; p=0.000). However, the results imply that service quality does not operate independently as a determinant of customer satisfaction but rather its predictive power can be enhanced by managing service failure encounters as this will impact negatively on service quality-customer satisfaction model. Furthermore, the results imply that when the firms put effort to reduce on service failures encounters, the effect of service quality on customer satisfaction will be intensified thus resulting to the higher the satisfaction levels of the customers among mobile phone companies in Kenya.

Empirical studies that investigate the moderating role of service failure on the relationship between service quality and customer satisfaction are limited. One notable case was a moderation study by Wang *et al.* (2004) that sought to establish the moderating role of customer value in the relationship between service quality and customer satisfaction found it significantly so. Similarly, Caruana *et al.* (2000) also explored the moderating role of value but differed in the direction of results with Wang *et al.* (2004). Whereas Wang *et al.* (2004) found positively significant moderating effect, while Caruana *et al.* (2000) found that customer value had a small negative moderating effect on the relationship. Consequently, this has made previous attempts that sought to test for moderation effect on the service quality-customer satisfaction relationship fail to clarify the causes of the inconsistent results due to poor conceptualization of dimensionality of variables. Attempt by Walfried *et al.,* (2000) to introduced service failure as a moderator bore little success as there was no moderation. Elsewhere, Reimann *et al.,* (2008) differed with Walfried *et al.,* (2000) as they modelled and tested the moderation effect of uncertainty avoidance on the relationship between perceived service quality and customer satisfaction instead of service failure and found it significantly so.

Studies by (Wang *et al.,* 2004; Caruana *et al.,* 2000); have all tested for other variables like customer value while (Reinman *et al.,* 2008) tested for uncertainty avoidance as possible moderators in service quality-customer satisfaction relationship. All these studies have therefore failed to hypothesise and model service failure as a possible moderator. Other studies like Mc Collough *et al.,* (2000) only tested for direct effect of service failure on customer satisfaction instead of its moderating role on quality-satisfaction relationship their by failing to give reasons for the inconsistent results. Further, Caruana *et al.,* (2000) study had the problem of multicollinearity since variables were highly correlated coupled. Moreover, most studies that have tested moderation effect have focused on other sectors such as banking services, audit services which is high end and high contact services with high service standards and high customer expectations. Their analysis has excluded the mobile phone sector in a developing country like Kenya. However, the finding of the present study has made a major milestone towards bringing clarity on the interrelationship between service quality and customer satisfaction relationship that has often remained inconsistent. This study hypothesized and confirmed moderation of service failure (ΔR^2=0.064; p=0.000) on the elusive service quality-customer satisfaction relationship. The study further added new knowledge that has created clarity on the reasons for mixed and inconsistent results of the research in this realm. Indeed, the findings, imply that, through proper alignment and management of service failure encounters, the influence that service quality has on customer satisfaction can be intensified. This study therefore made a significant contribution to knowledge by highlighting on how service failure as a moderator can be aligned in a quality-satisfaction model to better explain the mixed results by providing moderation findings as further empirical evidence and for theory development

4.8 Analysis of Moderating Effect of Customer Communication on the Relationship between Service Quality and Customer Satisfaction

The third objective of the study sought to establish whether the relationship between service quality and customer satisfaction was moderated by customer communication. This procedure involved testing the third null hypothesis sated as: (H_o: $\beta_i = 0$); the relationship between service quality and customer satisfaction is not moderated by customer communication among mobile phone firms in Kenya. In order to test the third hypothesis, moderated regression analysis was done and results were displayed in Table 4.20 and Table 4.21.

Table 4.20: Estimated Regression Coefficients for Variables in the Effect of Customer Communication on the Relationship between Service Quality-Customer Satisfaction Model

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.122	.202		-.604	.546		
	Service quality	.269	.049	.173	5.444	.000	.578	1.729
	Customer communication	.793	.033	.760	23.841	.000	.578	1.729
2	(Constant)	-.156	.174		-.896	.371		
	Service quality	.168	.043	.109	3.885	.000	.555	1.801
	Customer communication	.453	.041	.434	11.092	.000	.283	3.538
	Interaction term	.640	.055	.443	11.621	.000	.299	3.349

a. Dependent Variable: Customer satisfaction

Source: Survey Data, 2014

Table 4.20 Shows the standardized (β) and un-standardized (B) coefficients for Service quality and service failure with and without the interaction term. Without the interaction term, B for Service quality and customer communication are 0.269 and 0.793 respectively with both being significant at (p=0.000). The B coefficient when the interaction term was introduced for service quality, service failure (moderator) and interaction term are 0.168, 0.453, and 0.640 respectively.

As a result, the hypothesized moderation model was confirmed as;

$$\hat{Y} = -0.156 + 0.168X + 0.453Z + 0.640XZ \quad \text{.....Equation 4.3}$$

The model can be re expressed as;

$$\hat{Y} = (-0.156 + 0.453Z) + (0.168 + 0.640Z)X \quad \text{.....Equation 4.4}$$

In the model, the intercept and the XY slope is influenced by Z (the moderate variable) intercepts and slopes of line $\hat{Y}$ X. The un-standardized co-efficient of the moderator model b_3 is 0.640. This means that for each unit increase in Z, the slope relating X to *Y* increases by 0.640. This means that as customer communication levels increases by one unit, the satisfaction level of customers' increases by 0.640. The summary statistics for moderator regression model are shown in Table 4.21.

Table 4.21: Model Summary of Effect of Customer Communication on the Relationship between Service Quality and Customer Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.882	.778	.777	.68195	.778	662.870	2	378	.000	
2	.915	.837	.835	.58593	.059	135.039	1	377	.000	1.670

a. Predictors: (Constant), Customer communication, Service quality

b. Predictors: (Constant), Customer communication, Service quality, Interaction term

b. Dependent Variable: Customer satisfaction

Source: Survey Data, 2014.

As shown in Table 4.21, the full model 3 includes service quality as the independent variable, customer communication as the moderator and the interaction effects. This model is significant at (R^2=0.837, Adjusted R^2=0.835, F (1,377) 135.039, *p*=.000) thus rejecting null hypothesis three which states: (H_o: $\beta_i = 0$); the relationship between service quality and customer satisfaction is not moderated by customer communication among mobile phone firms in Kenya. When compared to the reduced Model 2, which only includes predictor variable and moderators in step 2, the addition of the interaction terms in the full model significantly increases the R^2 (ΔR^2=0.059; *p*=0.000 or 5.9 %). Fairchild and Mackinnon (2009) noted that interaction effect, though small, was significant and depict moderation. Therefore, the moderating effect of customer communication which improves the model's goodness of fit is statistically evident. The hypothesised contingency model thus explains 83.7 % of the variance in customer satisfaction among mobile phone firms in Kenya. The low shrinkage between the R^2 and adjusted R^2 in each model depict that the both models are valid and stable for the prediction of the dependent variable, customer satisfaction, at 77.8 % and 83.7 % variance respectively. Therefore, the presumed moderator (customer communication) does actually moderate the effect of the predictor (service quality) on the outcome variable (customer satisfaction) among mobile phone firms in Kenya as was shown by the significant interaction. Furthermore, the results imply that service quality does not operate independently as a determinant of customer satisfaction but rather its predictive power can be enhanced by customer communication. The greater the effort by firms to put in place customer communication mechanisms, the greater the intensity of influence of service quality on customer satisfaction levels.

This result suggests that aligning service quality with customer communication will lead to higher satisfaction levels for customers. The notion that customer communication may play a moderating role is derived from Mohr's and Nevin's (1990) theoretical model which suggests that communication, among other things, serves to moderate the effects of circumstance and conditions in the service exchange process. Therefore, among other contextual variables, a proper alignment between customer communication and service quality can be used to better address the customer satisfaction level. This was further supported by Walfried *et al.,* (2000) who postulated that the ability of a customer to communicate freely and easily with the service firm will enhance the quality/satisfaction relationship. Overall, the study findings find general support that high level of customer satisfaction and subsequently higher long term profitability can be achieved by aligning or focusing firm's communication activities and strategies with service quality practices (Oliver, 1980; Zeithaml *et al.,* 1990; Gantasala and Padmakumar, 2013; Mohr and Nevin, 1990). Moreover, the resulting clarity facilitates better customer satisfaction by setting service quality performance standards, goals, criteria and actions (Oliver, 1980). Zeithaml *et al.* (1990) concluded that communication will play a critical role in the service delivery process by eliminating ignorance regarding customers' expectation by service firms.

Empirical studies on the role of communication as a moderator in the relationship between service quality and customer satisfaction are indeed limited. For instance, contrary to the findings of the present study, Walfried *et al.* (2000) found that moderating role of customer communication in quality/satisfaction relationship was implausible. In addition, Walfried *et al.* (2000) differed from the current study in that, whereas the former conducted a study in banking services regarded as a high contact services, the latter was conducted study in mobile phone sector regarded as low contact services. Other studies such as Juaid *et al.* (2012) only tested for direct effect of communication on customer satisfaction. Similarly, Rezaie and Forghani (2011) tested direct effect of communication on customer satisfaction but differed with Juaid *et al.* (2012) in the direction of effects. Whereas the later found that communication has exerted negative insignificant direct effect on customer satisfaction, the former found that communication plays a vital role in explaining variation in customer satisfaction. In yet another study by Gantasala and Padmakumar (2013), customer communication was modelled and tested in terms of its mediating effects of customer communication on relationship between service quality and customer satisfaction. The studies by Gantasala and Padmakumar (2013) and Juaid *et al.,* (2012) were similar in terms

of the context as both were done in telecommunication sector in Asian market but differed in terms of focus of their studies. Whereas Juaid *et al.,* (2012) tested for the direct effect of communication on customer satisfaction and confirmed its significance, Gantasala and Padmakumar (2013) on the other hand tested for the its mediating role and found it significant. However, Both Juaid *et al.,* (2012) and Gantasala and Padmakumar (2013) differed from the finding of the present study that tested and established customer communication as a moderator in quality-satisfaction relationship.

Despite Juaid *et al.,* (2012) focusing on telecommunication services, their study had failed to establish the moderating role of communication on the quality-satisfaction relationship. Rezaie and Forghani, (2011) only tested for direct effects of customer communication instead of its moderating role. On the other hand, Gantasala and Padmakumar, (2013) modeled customer communication as a mediator variable instead of a moderator. Furthermore, these studies as reviewed were conducted in the context of developed countries hence missing the analysis of Kenya's mobile phone context. Therefore, despite customer communication being seen as a theoretically sound moderator, there was no known attempt to empirically establish the moderating role of customer communication on the relationship between service quality and customer satisfaction in a low contact services like telecommunication services. As such, the status and likely effect of customer communication on quality-satisfaction relationship in Kenya's mobile phone sector is not known. It is for this reason that the present study provided an insight into this elusive explanation by hypothesizing and confirming moderation effect of customer communication (ΔR^2=0.059; p=0.000) in the relationship between service quality and customer satisfaction. Furthermore, the findings of the present study on the moderating role of customer communication underscore the notion that a match between a company's communication strategy and overall service quality strategy is critical in order to satisfy customers. Through a moderator investigation, the study has made immense contribution to the body of new knowledge by isolating and studying customer communication as a more refined construct that facilitates avoidance of ignorance by customers regarding the perceived level of service quality.

4.9 Summary of the Hypothesized Empirical Framework and Results

Hypothesis one entailed the testing of the main effect to determine the effect of service quality practices (Tangibles, reliability, responsiveness, assurance and empathy) on

customer satisfaction. Hypothesis two tested whether the relationship between service quality practices and customer satisfaction was moderated by service failure. This involved the testing of the moderating effect of service failure on the relationship between service quality and customer satisfaction. Finally, hypothesis three sought to find out if customer communication had any moderating role on the relationship between each service quality and customer satisfaction.

The results indicated that service quality practices along its five dimensions positively influenced customer communication. In the case of the moderating effect of service failure, the result indicated that service failure played statistically significant role as a moderating variable in the service quality-customer satisfaction relationship. On the other hand, the relationship between service quality and customer satisfaction does vary with the level of customer communication put in place by the mobile phone firms surveyed. In conclusion, the study findings are that, service failure and customer communication significantly moderates the relationship between service quality and customer satisfaction among mobile phone firms in Kenya. Table 4.22 gives a summary of hypotheses testing, both for main effect and interactive effects.

Table 4.22: Summary of the Hypothesized Empirical Framework and Results

	Hypotheses	Expected sign	Regression Coefficient	Statement
1.Main effect of service quality on customer satisfaction				
H_o: $\beta_i = 0$	Service quality has no significant influence on customer satisfaction among Kenya's mobile phone firms.			
	i).Tangibles	-	-.060	Not significant
	ii) Reliability	+	.143	Significant
	iii) Responsiveness	+	.039	Not significant
	iv) Assurance	+	.419	Significant
	v) Empathy	+	.559	Significant
2.Moderating Effect of service failure				
$H_o: \beta_i = 0$	The relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya.	-	-.662	Significant
3.Moderating effect of customer communication				
$H_o: \beta_i = 0$	The relationship between service quality and customer satisfaction is not moderated by customer communication among mobile phone firms in Kenya.	+	.640	Significant

Source: Survey Data (2014)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents summary of study findings based on each research question, conclusions and recommendations of the study. It also presents the limitations of the study. Finally, it suggests areas for further study.

5.1 Summary of Findings

The first objective of the study was to determine the relationship between service quality and customer satisfaction in mobile phone firms in Kenya. Its corresponding null hypothesis was that service quality has no significant influence on customer satisfaction among Kenya's mobile phone firms. The study revealed that there was a statistically significant positive relationship between service quality and customer satisfaction in the mobile phone sector in Kenya. Specifically, three dimensions of service quality: reliability, assurance and empathy had positive significant effects in the service quality- customer satisfaction model. The other two dimensions: tangibles and responsiveness had insignificant negative effects and positive effects on the customer satisfaction levels among mobile phone firms respectively. This is in contrast to prior studies that found dimensions like tangibles and responsiveness as significantly important aspects of service quality in other sectors like banking and hospitality sector. These findings contributed to new knowledge by developing and validating service quality measurement scale with enhanced sample size to be used in the subsequent studies involving low contact services. It also provided a new empirical evidence linking service quality practices to satisfaction levels of customers in low contact service settings. It further provided information on mobile phone services quality practices in Kenya which were previously lacking.

The second objective of the study was to determine the moderating effect of service failure on the relationship between service quality and customer satisfaction in mobile phone firms in Kenya. Its corresponding null hypothesis was that the relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya. The study found that the moderating effect of service failure on the relationship between service quality and customer satisfaction is statistically significant. However, this findings runs contrary to other studies in other sectors like banking services

which found that service failure was not a significant moderator in the relationship between service quality and customer satisfaction. The study made a major milestone towards by clarifying the interrelationship between service quality and customer satisfaction through a moderator investigation.

The third objective involved the analysis of the moderating effects of customer communication on the relationship between service quality and customer satisfaction. Its corresponding null hypothesis was that the relationship between service quality and customer satisfaction is not moderated by customer communication among mobile phone firms in Kenya. The study revealed that positive relationship between service quality and customer satisfaction was moderated by customer communication. In contrast, other studies conducted in a high contact service setting like banking services did not reveal any moderating role of customer communication in the relationship between service quality and customer satisfaction. This finding is therefore a breakthrough in explaining the paradoxical relationship between service quality and customer satisfaction that can be enhanced by inclusion of customer communication as a moderator variable.

5.2 Conclusions

Three conclusions can be drawn based on the preceding evidence. The first conclusion based on the first results is that overall, service quality practice is a critical antecedent of customer satisfaction in a mobile phone services in Kenya. This finding makes an important contribution in terms of modelling quality-satisfaction relationship as it identifies the variables which can be manipulated to better predict the level of customer satisfaction arising from the quality of services offered by mobile phone firms in the study area.

Based on the second results, it is concluded that, controlling for service failure encounters significantly intensifies the effect that service quality can have on satisfaction levels of customers in mobile phone sector. This implies that, as service failure encounters decreases, the satisfaction level of customers' decreases. In other words, service failure encounters influence customer satisfaction level negatively. The explanatory power of service quality on customer satisfaction can be enhanced by aligning and controlling for service failure as contingency factors that has a significant influence on this relationship.

The third conclusion based on the third results is that customer communication strategies as was practised by mobile phone firms improves the satisfaction levels through its interactive

effect. Further, this conclusion is important as it provides an explanation to the hitherto low predictive power of service quality in the quality-satisfaction model. When applied in a low contact services as in the case of mobile phone services, customer communication can moderate the relationship between service quality and customer satisfaction.

5.3 Recommendations

In view of the findings and conclusions of the study, the following recommendations were made. Based on the first conclusion, it is recommended that, in order to intensify the influence of service quality practices on customer satisfaction and to satisfy customers who encounter a service problem, mobile phone companies in Kenya are encouraged to conduct continuous service quality assessment to enable them to align and adjust their service standards to the changing customer needs. Secondly, since the competitive environment in Kenya has become intense, mobile phone firms should improve quality of their service through: vigorous investment in network coverage, upgrading, competitive pricing, improving signal clarity and quality, innovating and diversifying service offering to attract and retain subscribers to their network. Finally, since employees also play a key role in telecommunication services, the frontline staff need to know the importance of their role in service delivery which can be achieved through staff training.

Based on the second conclusion that controlling for service failure encounters significantly intensifies the effect that service quality can have on satisfaction levels of customers in the mobile phone sector, the following recommendations are made: First, mobile phone companies in Kenya are encouraged to institute appropriate service failure recovery mechanisms to minimize on the impact that service failure encounters can have on users of mobile phone services. This can be achieved through significant investments in technology to enhance their service production capacity and to subsequently minimize on service down time occasioned by service interruptions due to network congestions and frequent system maintenance. Secondly, employees can also be enlightened through training on ethical service delivery to eliminate employee-related fraudulent activities that can cause serious service failure leading to customer dissatisfaction.

The third conclusion is that customer communication strategies as was practiced by mobile phone firms improve the satisfaction levels through its interactive effect. In line with this conclusion, the following recommendations can be drawn: First, mobile phone firms should consider integrating service marketing communications to achieve common purpose of

enhancing customer satisfaction. Secondly, these firms should institute customer expectation management programme through all forms of communication. Thirdly, they should emphasize on interactive marketing in their communication plan. People in research, design, sales, and production must work as a team to foresee problems of production and use that might be encountered with the product or service. In order to fill the gap between customer expectations and management perceptions of the same, service firm managers must collect data on customer expectation and relate customer data to overall service strategy. Further, recommendations are that service managers should increase internal communication and track service performance on satisfaction through customer feedback systems that will allow customers communicate directly with their service providers.

5.4 Contribution of the Study

This study makes several important contributions to both theory and practice of service quality in Kenya and other developing and developed nations.

5.4.1 Contribution of the Study to Theory

The theory of the expectancy disconfirmation theory that links service quality and customer satisfaction has not been yet fully explored and is still not without research controversies. A good number of prior studies have used different scales to measure service quality as an independent variable in quality-satisfaction model, resulting into model misspecification and generation of paradoxical research findings. First, the researcher endeavored to make an extensive and critical review of prior studies. Given the past inconclusive and often fragmented literature, this study makes a significant contribution in synthesis of service quality frameworks. Secondly, the study has offered the most logical and plausible explanation of the paradoxical relationship between quality and satisfaction. This was achieved through the finding in which both service failure and customer communication appears to moderate the link between service quality and customer satisfaction. The major contribution of this study in this regard is that of establishing a relationship between service quality and customer satisfaction and explaining how this relationship is moderated by both service failure and customer communication thereby contributing towards validation and upgrading of the existing theory. Researchers can now enhance the predictive power of service quality practices by incorporating the moderator variable such as service failure and customer communication. Thirdly, the study developed and validated an instrument for measuring service quality practices in the telecommunication sector. This is an important

contribution of the study as it validates the SERVQUAL scale of the Parasuraman *et.al,* (1988) with several modifications to a multi-item scales to suit the objectives of the study and enhance its reliability. The fourth contribution relates to the finding of the empirical survey. The current study entailed a comprehensive research into service quality, customer communication and customer satisfaction in the mobile phone sector of Kenya. Given the academic lacuna in service quality practices, research on mobile phone sector particularly in emerging economies where firm-level studies are very limited, this has resulted in the documentation of service quality practices and customer communication in Kenya.

5.4.2 Contribution of the Study to Marketing Practice

The finding of this study brings out several important contributions to the marketing profession. First, the finding of moderate prevalence level of some service quality dimensions particularly reliability and responsiveness has direct implications for service managers in the mobile phone sector in Kenya. It indicates that, although all components of service quality are practised in a complementary fashion, service managers have paid little attention and effort on responsiveness and reliability aspects of service quality in the studied mobile phone firms. If managers want to exert more influence on the service quality practices in their firms, more attention should be focused on the design of responsiveness and reliability systems. Further, the study has established the most significant determinant of customer satisfaction. Since customer satisfaction is the ultimate interest of firms in a competitive mobile phone sector, this study has empirically determined the variables which can significantly impact on customer satisfaction and which the service managers in the mobile phone sector can actually take advantage of to both satisfy their clients and meet the firm's objective of profitability. Furthermore, using the SERVQUAL dimension to examine the relationship between customer satisfaction and service quality will help the management to better understand what these dimensions mean to the customers and to the organization.

Finally, through one of its findings, the study revealed that relationship between service quality and customer satisfaction is moderated by contextual variables like customer communication. In this study, consistent with the previous studies, the benefits of contextual variables on the quality-satisfaction model has been largely ignored and therefore the contribution of this study lies on how service managers can utilize customer

communication strategies to positively influence how service quality practices can impact on customer satisfaction profitably.

5.5 Limitations of the Study

Notwithstanding the immense contributions to the body of the knowledge on service quality practices and customer satisfaction modelling, it is paramount to evaluate the results in the context of the study limitations. First, the choice of survey design as the preferred methodological choice for the study has a profound effect especially on the measurement problems. Surveys and their cross-sectional nature of data will imply that conclusions are generally limited by virtue of being collected at one point in time and do not give the sequence of events. However, studies based on crossectional data tend to provide information for subsequent studies in the same areas of interest.

The second limitation relates to the self-report nature of the research instruments that was used to measure and collect data on the study variables. The outcome of this study therefore reflects the perception of respondents who are both internal and external customers of mobile phone firms. This has, however, raised concerns over their objectives as was alluded to by (Chenhall, 2003). However, the limitation relating to the subjective measure was suppressed by the various validity tests. Moreover, multiple respondents helped to reduce error relating to common method bias. Finally, the psychometric properties of self-administered questionnaire were tested to ensure reliability and validity.

The third limitation relates to the fact that the current study focused only on the mobile industry in Kenya. Concerns have been raised by previous scholars as to whether focus on a single industry was enough to make results of the study more generalizable to other industries. However, the focus of such a study conferred the obvious advantage of control for industry effects. Moreover, the Kenyan mobile phone sector is such a large and rapidly growing sector that contributes to 12% growth in economy. Due to this, an appreciation of the concept of service quality practices with a view to enhancing customer satisfaction and subsequently improving profitability of firms in the context of the mobile phone sector will have immense implications for other firms in Kenya and other emerging economies around Africa.

5.6 Suggestions for Further Studies

Based on the foregoing conclusions on the findings of this study, and in tandem with the missed opportunities arising out of using the selected rather than alternative research methodologies and techniques, the researcher suggested the following future research directions in the field relating to the service quality-customer satisfaction relationship.

Firstly, this study used cross-sectional data to test the hypothesis on the relationship between service quality and customer satisfaction and the subsequent moderating roles of the contextual variables in the relationship. It only provided a snapshot picture at a single point in time. Therefore, there is need to conduct a longitudinal study to provide even more conclusive evidence of the above relationship.

Given that the current study is limited to a few organizations in one service industry, the assertion that the relationship between service quality and customer satisfaction is moderated by customer communication and service failure would need to be validated by further research. Perhaps an effective way to validate this assertion is by focusing future studies on various other unrelated industry players through comparative studies between the players.

Furthermore, the moderator variables should be expanded and validated beyond just buyer-service communication and incidence of service failure. For instance, questions like: What other moderators of the quality/satisfaction relationship exist other than the two researched about? What are the particular situations and/or service settings wherein these moderators operate? These may be asked and answered through further research intervention. Furthermore, the possibility of incorporating a mediating role of service failure and customer communication into the quality-satisfaction model can be explored.

Moreover, effective measurement of service quality remains a challenge, and as such, necessitates measuring validation processes that include, among others, independent replications of the same study. Furthermore, the hypotheses were tested using data obtained from Kenya's mobile phone sector. There is therefore need to test these results in different national cultures and economic contexts to be able to establish global generalizability.

Finally, future studies should explore the possibilities of joint moderation of service failure and customer communication in quality-satisfaction relationship.

REFERENCES

Abdullah, D. N. & Rozario, F. (2009), Influence of service and product quality towards customer satisfaction: A case study at the staff Cafeteria in Hotel. *International Journal of Social, Behavioral, Educational, Economics, Business and Industrial Engineering*, 3 (5), 346-351.

Agbor, J.M. (2011). *The relationship between customer satisfaction and service quality*. A Study of three service sectors in Umea, published thesis; Umea School of Business, Umea University; www. Usbe.umu.se.

Ahimbisibwe, A., Nangoli, S., & Tusime, W. (2012). Moderating effect of buyer-supplier Trust on the relationship between outsourced formal contracts and supplier delivery performance: An empirical study of public sector procurement. *International Journal of Business and Social Sciences,* 3(17), 50-71.

Aguinis, H. (2004). *Regression analysis for categorical moderators*, New York: Guilford.

Aila, F.O. (2014), *Effect of consumer attitudes, consumer characteristics and biosecurity principles on consumer preferences for indigenous chickens in Kisumu City, Kenya*. Unpublished thesis. Department of Business Administration, Maseno University.

Andreassen, T. W. (1999). What drives customer loyalty with complaint Resolution? *Journal of Service Research*, 1, 324-32.

Auka, D.O. (2012). Service quality, satisfaction, perceived value and loyalty among customers in commercial banking in Nakuru Municipality, Kenya. *African Journal of Marketing Management,* 4(5), 185-20.

Ary, D., Jacobs, L., & Razavieh, A. (1996). *Introduction to research in education.* Fort Worth, TX: Holt, Rinehart, and Winston.

Azman, I, Norashyikin, A, & Muhammad, M. A (2009). Perceive value as a moderator on the relationship between service quality features and customer Satisfaction: *International Journals of Business Management,* 4(2*),* 71-79.

Babakus, E. & Boller, G.W. (1992), An empirical assessment of the SERVQUAL Scale, *Journal of Business Research,* 24, 253-68.

Babbie, E. (1986),*The practice of social science* (3rd .ed.).Belmont, C.A, Wadsworth.

Babbie, E. R. (1990). *Survey research methods.* Belmont, CA: Wadsworth.

Bagozzi, R., & Yi, Y., (1988). On the evaluation of structural equation models. *Journal of Academy of Marketing Science*, 16, 74-94.

Bagozzi, R.P., Baumgartner, H. &Yi, Y. (1992). State versus action orientation and the theory of reasoned Action: An Application to Coupon Usage. *Journal of Consumer Research, Inc*. 18, 505-518.

Bailey, A. Johnson, & Daniels, G. (2000). Validation of a multi-dimensional measure of strategy development processes. *British Journal of Management,* 11, 151-162.

Baker, D.A. and Crompton, J.L. (2000), Quality, satisfaction and behavioral Intentions. *Annal of Tourism Research*, 27 (3), 785-804.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychology research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*. 51, 1173-1182.

Bitner, M.J., & Hubbert, A.R. (1994) *Encounter Satisfaction versus Overall Satisfaction versus Quality*, In R.T. Rust & R.L. Oliver (eds.), Service Quality: New Directions in Theory and Practice, Thousand Oaks, California: Sage. 72-94

Bitner, M. J., Booms, B. H. & Tetreault, M. S., (1990), "The Service Encounter: Diagnosing Favorable and Unfavorable Incidents," *Journal of Marketing*, 54(1), 71-84.

Business Monitor International (2012) *Kenya telecommunication report*, pp.88

Bolliger, D.U., & Inam, F.A. (2012). Development and validation of the online student connectedness survey (OSCS). *The International Review of Research in Open and Distance Learning*, 13(2), 41-65.

Buttle, F. (1996), SERVQUAL: Review, critique, research agenda, *European Journal of Marketing,* 31(1), 8-32.

Buttle, F. (2006). Customer retention management processes: A quantitative study. *European Journal of Marketing*, 40(1), 83-99.

Carman, J. M. 1990. Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *Journal of Retailing,* 66 (1),33–55.

Carmines, E.G & Zellner, R.A (1979). Reliability and validity assessment. Beverley Hills, CA. Sage Publishers.

Caruana, A., Money, A.H. & Berthon, P.R. (2000). Service quality and satisfaction – the moderating role of value .*European Journal of Marketing*, 34(11/12), 1338-1352.

Chava, F. & Nachmias, D.N. (1996). *Research methods in the social sciences*. 5thed. London: Arnold.

Chenhall, R.H. & Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach. *Accounting, Organizations and Society*, (23) 3, 243-64.

Chetan Sharma Consulting, (2013). Mobile industry prediction survey (Accessed on 2ndFebruary,2014)http://www.chetansharma.com/MobilePredictions2013.htm

Christine, E & Klaus, S (2003). Service Failure and Service Recovery in Tourism: *A Review*. 6, 1-16.

Cohen, J. & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.), Hillsdale, NJ: Erlbaum.

Cohen, J.(1988). *Statistical power analysis for the behavioural science.* New York: 2nd ed. Academic Press.

Cohen, Jacob. Cohen, Patricia. Leona S. Aiken & West, Stephen H. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, N.J: L. Erlbaum Associates. ISBN 0-8058-2223-2.

Communication Authority of Kenya (2012). *The insider's guide to mobile Web and Marketing in Kenya, 2012.*

Communication Authority of Kenya (2013). *The insider's guide to mobile Web and Marketing in Kenya, 2013.*

Conway, J. M., & Huffcutt, A.I. (2003). A review and evaluation of exploratory factor analysis practices in organizational research. *Organizational Research Methods,* 6(2), 147-168.

Costello, A.B., & Osborne, J.W. (2005). Best practices in exploratory factor analysis practices: four recommendations for getting the most from your analysis. *A Peer-Reviewed electronic Journal,* 10(7), 1-9.

Chi, C. G. -Q., & Qu, H. (2008). Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach. *Tourism Management*, 29, 624-636.

Churchill, G.A. Jr., & Iacobucci, D. (2004). *Marketing research: Methodological foundations*. Mason, OH: Thomson/South-Western.

Chenhall, R.H. (2003). Management control system design within its organizational context: Findings from contingency-based research and directions for future. *Accounting, organizations and Society*, 28 (2-3), 127-168

Creswell, J.W (1994). *Research design: qualitative and quantitative approaches*. Sage Publication, Inc.

Crompton, J.L. & MacKay, K.J. (1989). Users' perceptions of the relative importance of service quality dimensions in selected public recreation programs. *Leisure Sciences*, 11, 367-75.

Cronin, J.J. & Taylor, S.A. (1992). Measuring service quality: A re-examination and extension, *Journal of marketing*, 56, 55-68.

Daniel, J. (2012). *Sampling essentials: Practical guidelines for making sampling choices.* London: Sage Publications Inc.

Dawes, R., Singer, D. & Lemons, P. (1972). An experimental analysis of the contrast effect and its implications for intergroup communication and indirect assessment of attitude. *Journal of personality and social psychology*, 21(3), 281-295.

Dowling, M.J, & McGee, J.E. (1994). Business and technology strategies and new venture performance: A study of the telecommunications equipment industry. *Management Science*, *40*(12), 1663-1677.

Dillman, D.A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). Washington: John Wiley and Sons.

Edvardsson, B (2005). Service quality: Beyond cognitive assessment. *Managing Service Quality*, 15 (2), 127–131.

Festinger, L. (1957). *A Theory of Ccgnitive dissonance*. Stanford, CA: Stanford University Press.

Field, A.P. (2000). *Discovering statistics using SPSS for windows: Advanced techniques for the beginner.* London: Sage.

Field, A.P. (2005). *Discovering statistics using SPSS.* 2nd ed. London: Sage Publication.

Fienberg, S.E. (2003). *Notes on stratified sampling for statistics 36-303: Sampling, surveys and society.* Department of Statistics, Carnegie Mellon University.

Fowler, F.J. (1993). *Survey research methods.* (2nd ed.). Thousand Oaks, CA: Sage.

Huang, L.C., Goh, Y. N., & Mohaidin, Z. (2014). Factors influencing consumer intentions to avoid broiler chicken meat and products in Malaysia. *International Food Research Journal*, 21(1), 181-188.

Gantasala V. P., & Padmakumar, R. (2013). SERVQUAL and customer satisfaction: The mediating influence of communication in the privatized Telecom Sector: *International Journal of Academic Research in Business and Social Sciences. 3 (3), 135-151.*

Gibson. C. (2009). Using SERVQUAL to assess the customer satisfaction level of the Oregon HIDTA ISC Analytical unit: Published thesis. Hartfield School of Government; Portland State University.

Gerpott, T.J., Rams, W., & Schindler, A. (2001). Customer retention, loyalty, and satisfaction in the German mobile cellular telecommunications market, *Telecommunications Policy*, 25, 249-269.

Giese, J.L. & Cote, J. A, (2000). *Defining customer satisfaction*, Academy of Marketing Science Review. Available: http://www.amsreview.org/articles/giese01-2000.pdf.

Gonroos, C. (1984). A service quality model and its market implications. *European Journal of Marketing*, 18(4), 36-44.

GSMA (2008). Taxation and the growth of the Mobile Services in Sub-Saharan African. Global Technology Forum.

Gundersen, M. G., Heide, M, & Olsson, U. H (1996). Hotel guest satisfaction among business travelers: What are the important factors? *The Cornell Hotel and Restaurant Administration Quarterly*, 37 (2), 72–81

Hair, J.F. Black, W.C. Babin, B.J.X, Anderson, B.J & Tatham, R.L. (1998). *Multivariate data analysis.* New York: MacMillan.

Hair, J.F., Black, W.C., Babin, B.J.X, Anderson, B.J & Tatham, R.L. (2006). *Multivariate data analysis*. Upper Saddle River: Pearson Education Inc.

Howell, D. (2007). *Statistical methods for psychology.* Belmont, CA: Thompson.

Hutchinson, J., Lai, F., and Wang, Y. (2009). Understanding the relationships of quality, value, Equity, satisfaction, and behavioral intentions among golf travelers, *Tourism Management*, 30, 298-308.

Junaid, Z., Nik, K, Theeb, M.A; Al Motairi, M. H, Egab A, Muhammad, S.A, & Jamal M, A (2012). Staff conduct, communication, access to service & customer satisfaction: The mediating effect of credibility. *American Journal of Economics, Special Issue, 37-40.*

Ittner, C.D. & Larcker, D.F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of accounting and Economics,* 32, 349-410.

Kibwage, J.K (2002): Integrating the informal recycling sector into solid waste management planning in Nairobi city, unpublished PhD Thesis.

Kim, Y.S., Moreo, P.J., & Yeh, R.J.M. (2004). Customers' satisfaction factors regarding university food court service. *Journal of Foodservice Business Research, 7*, 97-110.

Kimani, G.H. (2014). *Service quality and customer satisfaction in certified public accountant training Institutions in Nairobi*: unpublished Research project: School of Business. University of Nairobi.

Kerlinger, F.N. (1977). The influence of research on educational practices. *Educational Researcher,* 6(8), 5-12.

Kombo, K.D., & Delmo, L.A. (2006). *Proposal and Thesis writing*. Pauline Publications Africa, Nairobi.

Kothari, C.R. (2004). *Research Methodology-Methods and techniques*. New Age International Publishing Ltd.

Kotler, P & Armstrong, G (2012) *Principles of Marketing*, 13th ed, Prentice Hall, Pearson International Edition.

Kotler, P. & Keller. K. (2006). *Marketing Management*, 12th ed. New Jersey: Pearson Education Inc.

Kuo, Y-F., Wu, C-M., & Deng, W-J. (2009). The relationships among service quality, Perceived value, customer satisfaction, and post-purchase intention in mobile value-added services, *Computers in Human Behavior*, 25, 887-896.

Lai, F., Griffin, M., & Babin, B.J. (2009). How quality, value, image, and satisfaction create loyalty at a Chinese telecom, *Journal of Business Research*, 62, 980-986.

Lehman, A. (2005). *Jmp For Basic Univariate and multivariate statistics: A Step-by-step Guide*. Cary, NC: SAS Press. 123. ISBN 1-59047-576-3.

Lee, J. K. & Ritzman, L. P. (2005). *Operations Management; Process and value Chains.* 7th ed. New Jersey: Person Education.

Lin, H-H., & Wang, Y-S (2006). An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & Management*, 43, 271-282.

Luft, J., & Shields, M.D. (2003). Mapping management accounting: graphics and Guidelines for theory consistent empirical research. *Accounting, Organizations and Society*. 28, 169-249.

Luo, X. & Homburg, C. (2017). Neglected outcomes of customer satisfaction, *Journal of Marketing*, 71(2), 133-149.

Mason L.M, Lind D.A & Marcha W.G (2002): *Statistical techniques in Business and Economics.* 11th ed, Mc Graw Hill. Irwin, United states, New York City.

Mattila, A., & O'Neill, J.W. (2003). Relationships between hotel room pricing, occupancy, and guest Satisfaction: A longitudinal case of a Midscale Hotel in the United States. *Journal of Hospitality & Tourism Research*, 27 (3), 328-341.

McQuitty, S., Finn, A. & Wiley, J. B. (2000). Systematically varying customer satisfaction and Its implications for product choice. *Academy of Marketing ScienceReview,2000(10),Available:http://www.amsreview.org/articles/mcquitty10-2000.pdf*.

McCollough, M. A., & Sundar, G. B (1992). The Recovery paradox: An examination of consumer satisfaction in relation to disconfirmation, service quality, and attribution based theories. *American Marketing Association.* Chicago: 119-119.

McCollough, M. A., Berry L. L., & Yadav, M. S. (2000). An empirical investigation of customer satisfaction after service failure and recovery, *Journal of Service Research*, 3, 626-637.

Mohr, J., & Nevin, J.R. (1990). Communication strategies in marketing channels: a Theoretical perspective. *Journal of Marketing*, 56, 36-51.

Mohammad, A.A., & Alhamadani, Y.M. (2011). Service Quality Perspective and customer Satisfaction in Commercial banks working in Jordan. *Middle Eastern Finance and Economics*, 14(1), 60-72.

Mugenda, O., & Mugenda, A., (1999). *Research methods quantitative approaches*, Nairobi African Centre of Technology Studies.

Mutai, K.B. (2006). *How to write quality research proposal. A complete and simplified Recipe.* Thelley Publications, New York.

Namanda, S. (2013). *Service Quality and customer Satisfaction: A case of ABC bank main branch, Uganda.* Published Dissertation: College of Education and External Studies, Makerere University.

Nunnally, J.C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Narver, J., & Slater, S (1990) The effects of market orientation on business philosophy, *Journal of Marketing*. 54(4), 20-35.

Nargundkar, R (2003). Marketing Research –Text and Cases: 2nd ed. New Delhi, Mc Graw-Hill education.

Naik. C.N., Gantasal. S.B, & Prabhakar. G.V. (2010). Service quality (SERVQUAL) and its effect on customer satisfaction in Retailing, *European Journal of social sciences*, 16(2), 223-243.

Nimako, S. G., Dokor, A.F., & Veronica, A.B. (2010). Overall customer satisfaction in Ghana's mobile telecommunication networks: *Implications for Management and Policy ADTF journal*. 7(3), 35-49.

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Adv. In Health Sci. Educ*. 1-8.

Nyaoga, R.B., Manani, T.O., Basire, R.M., Ombati, T.O. & Kongere, T.O. (2013). service quality and customer satisfaction at Kenya Airways Ltd; *European Journal of Business and Management*. 5(22), 170-180.

Odhiambo, M.R. (2015). *Effect of service quality on customer satisfaction in banking industry. A case study of Kenya Commercial bank.* Unpublished Research project. United State University Africa.

Odondo, A.J. (2007). *Structure and performance of formal retail market for Bamboo products in Kenya*, Unpublished thesis. Department of Economics and Business Studies, Maseno University.

Ondoro, C.O. (2014). *Analysis of strategic purchasing and supply chain Management, purchasing ethics and performance of public bus transport firms in nairobi, Kenya.* Unpublished thesis. Department of Business Administration, Maseno University.

Ojera, P., Ogutu, M., Siringi, E.M., & Othuon, L.A. (2001). Belief control practices and organizational performances: A survey of sugar industry in Kenya. *African Research Review, 5(4), 211-2017.*

Oliver, R.L. (1980) A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research,* 17, 460-469.

Olson, J. & Dover, P. (1979). Disconfirmation of consumer expectations through product trial". *Journal of Applied Psychology*, 64, 179-189.

O'Neill, M., & Palmer. A. (2003). An exploratory study of the effects of experience in consumer perceptions of the service quality construct. *Managing Service Quality*, 13 (2), 187–196.

Pan, Y., & Jackson, R. T. (2008). Ethnic difference in the relationship between acute inflammation and serum ferritin in US adult males. *Journal of Epidemiology and Infection, 136* (3), 421-43.

Pallant J, (2007). SPSS survival manual: Step by step guide to data analysis using SPSS for Windows: 3rd ed. Open University Press, Maidenhead.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research, *Journal of Marketing*, 49 (4), 41-50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.

Parasuraman, A., Berry, L.L. & Zeithaml, V.A. (1991), ``Refinement and reassessment of the SERVQUAL scale", Journal of Retailing, 67, 420-50.

Polaris Marketing Research (2011). *Service Recovery impact customer satisfaction:* Polaris Marketing Research.

Raven, M.R. (2009). The application of exploratory factor analysis in agricultural education. *Journal of Agricultural Education*, 35(4), 9-14.

Rogerson, P.A.(2000).Statisticalmethodsforgeography.London:SagePublications. fromhttp://www.amazon.com/exec/obidos/ASIN/0761962875/#reader _0761962875.

Roos, I. (1999). Switching processes in customer relationships. *Journal of Service Research*. 1, 68-85.

Reimann, M., Lunemann, U.F., & Chase, R.B. (2008). Uncertainty avoidance as a moderator of the relationship between perceived service quality and customer satisfaction. *Journal of Service Research*. 2 (1), 63-73.

Rezaie D, H and Forghani, P (2011) Determining factors affecting on customer satisfaction in outsourcing IT services in University of Isfahan *Interdisciplinary Journal of Contemporary Research in Business*. 3(5), 775-782.

Saunders, M Lewis & Thornhil, A. (2007). *Research methods in business*, New York, McGraw Hill Publishers.

Schiffman, LG. & LL. Kanuk (2009) *Consumer Behaviour*, 10th ed. Boston: Prentice Hall.

Sekaran, U. & Bougie, R. (2010). *Research methods for business: A skill building approach*. (5th ed.). New York, John Wiley and Sons.

Sekaran, U. (2003). *Research methods for business: Skill Building Approach,* 4th ed. India, *Replika Press PVT Ltd.*

Shemwell, D.J., Yavas, U., & Bilgin, Z. (1998). Customer-service provider relationships: An empirical test of a model of service quality, satisfaction and relationship oriented outcome. *International Journal of Service Industry Management,* 9, 155-168.

Shahzad, K., & Saima. A, (2012). Determinants of customer satisfaction in telecom Industry: A study of telecom industry Peshawar KPK Pakistan, *Journal of Basic and Applied Scientific Research.* 2 (12), 12833-12840.

Sojka, J., & Spangenberg, E.R, (1994). Ethical concerns in marketing research, in Advances in Consumer Research. *Association for Consumer Research,* 21, 392-396.

Spreng, R.A., & Mackoy, R.D. (1996). An empirical examination of a model of perceived Service quality and satisfaction. *Journal of Retailing*. 72 (2), 201-214.

Suleiman, A. (2013). Basic dimension of the SERVQUAL MODEL and its impact on the level of customer satisfaction: An empirical study of the Housing Bank in Karak, Jordan. *European scientific Journal*. 9(1), 21-34

Sureshchandar G.S., Rajendran, C., & Anantharaman R.N. (2002). The relationship between Service quality and customer satisfaction – a factor specific approach, *Journal of Services Marketing*. 16(4), 363 – 379.

Stauss, B. & Christian, F. (1999). Regaining Service customers, *Journal of Service Research*. 1, 347-61.

Stergios, V., Prodromos, C., & Apostolos, M. (2012). Customer satisfaction of Greek mobile phone services, *International Journal of Managing Value and Supply Chains (IJMVSC,).* 3(4), 43-54.

Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics*. 5th ed. Boston: Allyn and Bacon.

Tax, S.S., Brown, S.W., & Chandrashekaran, M. (1998). Customer evaluations of Service Complaint experiences: implications for relationship marketing. *Journal of Marketing*. 62, 60-76.

Telecommunication Industry Review (2012): *The Anthology of Market Facts and Forecast.* (Accessed on 2 February 2014) *http://www.insightcorp.com/reports/review12.asp*.

Terry, G. V. (1997). Improving your measurement of customer satisfaction: A guide to creating, conducting, analyzing, and reporting customer satisfaction measurement programs. *American Society for Quality*. 47, 1-47.

Tull, D.S., & Hawkins, D. I. (2004). *Marketing research: Measurement and methods.* Macmillan Publishing Company, London.

Trochim, W.M. (2006). *The Research methods knowledge base*. (2nd ed.). Internet www page, at URL:<http://www.socailresearchmethod s.net/kb/> (version current as of October 20, 2006). Accessed on 15 May 2014.

Uddin, B.M. & Akhter, B. (2012). Customer satisfaction in mobile phone service in Bangladesh: A survey research. *Management and Marketing Journal*. 10 (1), 21-36.

Vagias, W.M. (2006). *Likert-type scale response anchors.* Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University.

Walfried, M. L., Manolis, C. & Winsor, R.D. (2000). Service quality perspectives & satisfaction in private banking. *Journal of Service Marketing*. 14(3), 244-271.

Wang, I.M. & Shieh, C. (2006). The relationship between service quality and customer satisfaction: The example of CJCU Library. *Journal of Information and Optimization Sciences.* 27(1), 193-209.

Wang, Y., Lo H.P., & Yang, Y. (2004). An Integrated Framework for service quality, customer value, satisfaction: Evidence from China's telecommunication industry. *Information Systems Frontiers*. 6(4), 325-340.

Welch, W.W. (2011). *The sustainability of the advanced technological education Program.* Retrieved on 20th September 2014 from Evaluate: http://www.colorado.edu/ibs/decaproject/pubs/index.html.

Whisman, M.A., & Mc Clelland, G.H. (2005). Designing, testing and interpreting interactions and moderator effects in family research. *Journal of Family Psychology*, 19(1), 111-120.

Wu, C.H-J., & Liang, R.D. (2009). Effect of experiential value on customer satisfaction with service encounters in luxury-hotel restaurant. *International Journal of Hospitality Management.* 28, 586-593.

Yi, Youje (1989). On the evaluation of main effects in multiplicative regression models. *Journal of the Market Research Society. 31* (1), 133-138.

Zeithaml, V., A. Parasuraman., & Berry, L.L. (1990). *Delivering service quality*. New York: The Free Press.

Zeithaml, V.A., Parasuraman, A., & Berry, L.L. (1990). *Delivering quality service: balancing customer perceptions and expectations.* Macmillan. New York.

Zeithaml, V.A., Berry, L.L. & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing Management,* 60, 31-46.

APPENDIX I: LETTER OF INTRODUCTION

MASENO UNIVERSITY
OFFICE OF THE DEAN
SCHOOL OF BUSINESS AND ECONOMICS
==========
Tel: +254-057-351622, 351008,351011
Fax: +254-057-351221, 351153

Private Bag
MASENO KISUMU
Kenya.

24th March, 2014

To: ----------
Dear Sir,

RE: **LETTER OF INTRODUCTION**- **Samson Ntongai Jeremiah (PG/PhD/030/2013**
(Tel: 0702288108 Email: samwaqo@yahoo.com)

The above mentioned is a student pursing Doctor of Philosophy degree in Business Administration at the Department of Business Administration, School of Business and Economics. The title of his study is **"Influence of Service Failure and Customer Communication on the Relationship between Service Quality and Customer Satisfaction among Mobile Phone Firms in Kenya".** He has selected you to be included in this study.

The questionnaire attached asks questions about your perception of service quality of your mobile phone network, your satisfaction levels resulting from the same, and your experiences on service failure and customer communication. Based on your experience and knowledge of your mobile phone service provider; you are required to indicate the statement which best reflect your views. I also assure you that the information you provide will only be used for academic purposes and will be treated with utmost confidentiality. If you would like, we could send you the executive summary of the findings on request.

Thank you.

DR. PATRICK B. OJERA. (Tel: 0722330847)
DEAN, SCHOOL OF BUSINESS AND ECONOMICS
MASENO UNIVERSITY ***ISO 9001:2008 CERTIFIE***

APPENDIX 11: RESEARCH QUESTIONNAIRE

CODE | |

Preamble:

This study is being carried out in order to examine the ***Influence of Service Failure and Customer Communication on the Relationship between Service Quality and Customer Satisfaction among Mobile Phone Firms in Kenya*** *and is strictly for academic purposes only. Neither you nor your business organization shall be identified with the information you provide. All information provided shall be treated with utmost confidentiality.*

SECTION A: GENERAL INFORMATION

Instruction: tick (√) the appropriate box.

1. Gender

Male	
Female	

2. What is the type of your connection? (**Tick appropriately**)

Prepaid	
Postpaid	

3. How many years have you had the network experience? (**Tick as appropriate**)

about 6 months	About 1 year	Between 1-5 years	More than 5 years

4. On a scale of 1-4 indicate your current age

1= About 18year [ ] **2**= 19-23 years [ ] **3**= 24-29 years [ ] **4** = more 30 years [ ]

5. What is the name(s) of your phone network provider (**Tick appropriately**)

Safaricom	Barti Airtel	Essar Yu	Telkom Orange

Section B: Measurement of Service Quality using SERVQUAL Scale

The questions in this section are aimed at obtaining views about service quality of your mobile network providers using SERVQUAL SCALE. Please tick the appropriate box that best represents your opinion on the question. The score are measured on a seven-point

Likert scale where 1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree or disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

1) Tangibles

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. My mobile network provider(s) have modern-looking equipment.							
b. The physical facilities at my mobile network provider(s) are visually appealing							
c. Employees at my mobile network provider(s) are neat in appearance.							
d. Material e.g. brochures or statements associated with the service are visually appealing in my mobile network provider(s).							

2) Reliability

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. When my mobile network provider(s) promise to do something by a certain time, it will do so.							
b. When customers have a problem, my mobile network provider(s) show a sincere interest in solving it.							
c. My mobile network provider(s) perform the service right the first time.							
d. My mobile network provider(s) provide their services at the time they promise to do so.							
e. My mobile network provider(s) insist on error-free record.							

c) Responsiveness

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. Employees of my mobile network							

provider(s) tell customers exactly when services will be performed.							
b. Employees of my mobile network provider(s) give prompt service to customers.							
c. Employees of my mobile network provider(s) are always be willing to help customers.							
d. Employees of my mobile network provider(s) have never been too busy to respond to customer request.							

d) Assurance

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. The behaviour of Employees of my mobile network provider(s) instill confidence in customer.							
b. Customers of my mobile network provider(s) are safe in their transactions.							
c. Employees of my mobile network provider(s) are consistently courteous with customer.							
d. Employees of my mobile network provider(s) have the knowledge to answer customer questions.							

e) Empathy

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. My mobile network provider(s) give customer individual attention.							
b. My mobile network provider(s) have employees who give customers personal attention.							
c. My mobile network provider(s) have operating hours and location convenient to all its customers.							
d. The employees of my mobile							

network provider(s) understand the specific needs of customers.							
e. My mobile network provider(s) have customer's best interest at heart.							

SECTION C: Customers' view on service failure

The questions in this section are aimed at obtaining views about service failures of your mobile network providers. Please tick the appropriate box that best represents your opinion on the question. The score are measured on a seven-point Likert scale where 1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree or disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

1. **Service failure**

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. My mobile network provider(s) give unreasonable service.							
b. My mobile network provider(s) provide unreasonably slow service.							
c. Employees of my mobile network provider(s) fail to respond to individual customer needs and special request.							
d. Employees of my mobile network provider(s) have poor attitudes towards customers.							
Cont.	***Strongly agree*** 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
e. Employees of my mobile network provider(s) ignore customers.							
f. Employees of my mobile network provider(s) exhibit unusual behaviour such as rudeness and abusiveness							

SECTION D: Customers' view on customer communication

The questions in this section are aimed at obtaining views about communication of your mobile network providers with its customers. Please tick the appropriate box that best represents your opinion on the question. The score are measured on a seven-point Likert scale where 1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree or disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. My mobile network provider(s) have put in place channels for receiving complaints from customers/subscribers.							
b. My mobile network provider(s) have put in place channels for receiving suggestions from customers/subscribers.							
c. My mobile network provider(s) have put in place channels for receiving complements from customers/subscribers.							
d. Subscribers/customers communicate their dissatisfaction by abandonment of usage of the network services.							

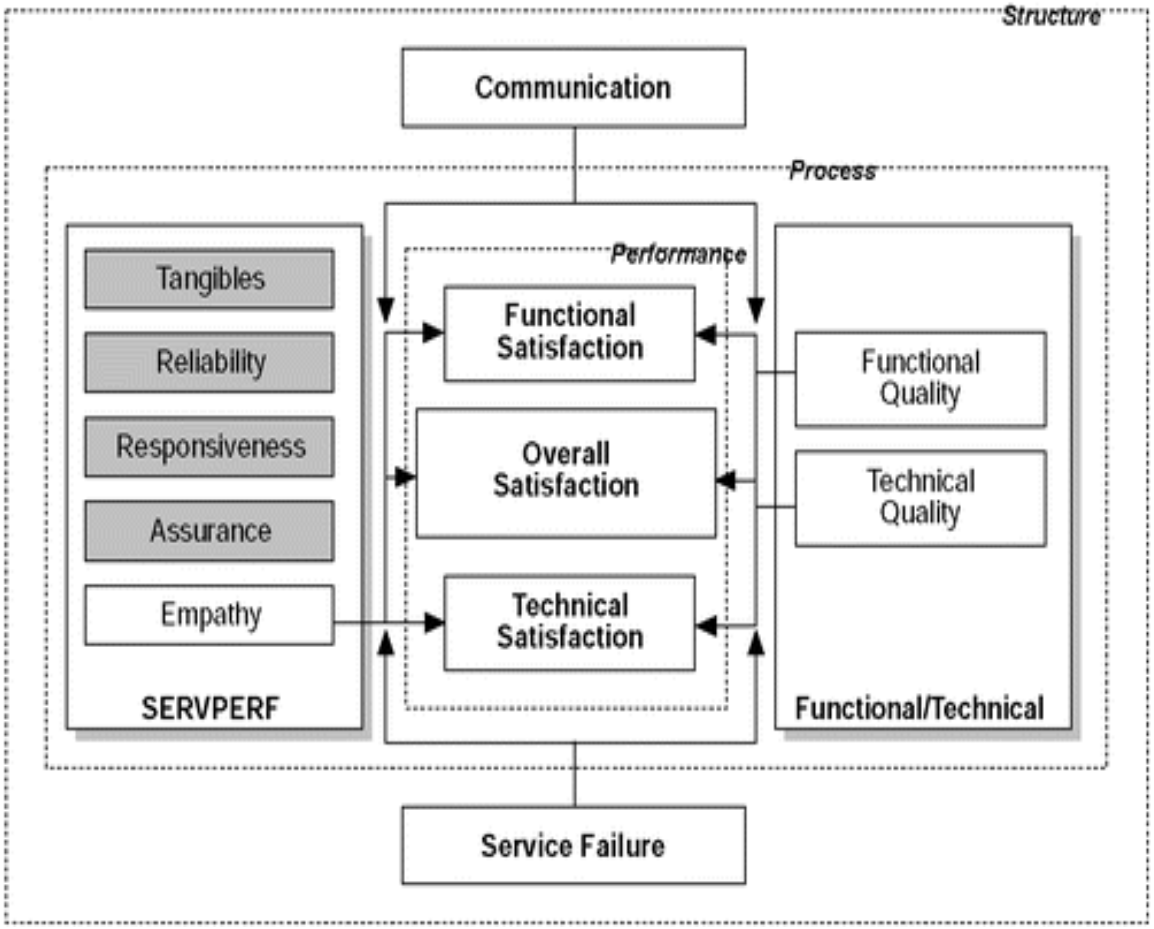
SECTION E: Customers' view on customer satisfaction

The questions in this section are aimed at obtaining views about customer satisfaction with your mobile network providers. Please tick the appropriate box that best represents your opinion on the question. The score are measured on a seven-point Likert scale where 1=Strongly disagree, 2=Disagree, 3= somewhat disagree, 4=Neither agree or disagree, 5=Somewhat agree, 6=Agree and 7=Strongly agree.

	Strongly agree 7	6	***5***	***4***	3	2	***Strongly disagree*** 1
a. Overall, I am satisfied with my current mobile network provider.							
b. I am likely to continue to choose/repurchase from my mobile network provider.							
c. I am likely to recommend my mobile network provider to a friend and family.							
d. The services offered to me by my mobile network provider were important to me.							
e. The services offered to me by my mobile network provider fit well with my situation/problems.							
f. The services offered to me by my							

mobile network provider exceeded the requirement my situation/problems.							
g. I feel absolutely delighted.							
h. I feel very pleased with delivered services.							
i. I am completely satisfied with the services delivered by the service provider							

APPENDIX III: AN S-P-P FRAMEWORK PERSPECTIVE



Source: Walfried et al., (2000)

APPENDIX IV: MAP OF KENYA

Source: *Google map (2013)*

APPENDIX V: RAW DATA

Mean score of various Service quality dimensions								
Tangibility	Reliability	Responsiveness	Assurance	Empathy	Customer Satisfaction	service Quality	Service Failure	Customer communication
6.5	6.2	4.75	3.25	6	4	5.34	3	4.25
6.75	6.4	6	5.5	6.6	6.89	6.25	1.83	6.5
5.5	5.6	5.75	5.25	6.2	3.33	5.66	5.17	5.25
2.5	5.6	5.5	6.25	6.4	4.44	5.25	5	6.25
4.75	6.2	4.5	4.75	4.6	4.78	4.96	6	4.75
6.5	5	6.5	1	4.6	3.78	4.72	5.67	5.75
6.75	4.2	1	5.5	5.2	5.33	4.53	6.33	6.25
6.75	5.2	5.25	2.75	6.6	4.56	5.31	6.17	6.5
6.25	6.4	5	6.25	6.8	5.11	6.14	2	5.75
5.25	5.6	5.25	5.25	5.8	5.89	5.43	6.67	7
7	6.8	5.25	5.75	5.6	6.78	6.08	2.33	6.5
6.75	5.4	6.5	6.5	5.6	5.67	6.15	6.33	5.25
6.75	6.2	5.25	4.75	5.6	4	5.71	6.67	5.25
7	6.8	5.5	6.75	6.6	7	6.53	1.67	6.5
7	6.2	5.5	6	6.6	4.67	6.26	5.17	6.25
6.75	6.4	6.25	5.75	5.4	6.56	6.11	6	6.5
6.5	6.4	6.5	6.25	6.2	6.11	6.37	5.67	4
6.25	6	6.25	6	6.4	6.22	6.18	1.17	5.75
5	5.4	5	5.5	6.2	5.78	5.42	6.67	5.5
7	6.8	7	7	6.4	5.33	6.84	6	6
6.25	6.2	4.5	5.5	5.4	5.56	5.57	4.33	4.75
5.75	5	4.75	5.75	4.6	5.67	5.17	2.33	5.25
5	5.2	4.25	4.5	6	3	4.99	3.67	6
7	5.8	5.5	5.5	5.8	5.22	5.92	4	7

5.25	4.6	3.5	5.5	6.6	6.22	5.09	1	5.75
7	5.8	5.75	6.5	3.8	6.78	5.77	3.33	6.5
6.25	6.8	6.25	6.25	6.8	5.56	6.47	1.33	3.25
7	4.6	6	7	3	5.78	5.52	3.83	5.25
4.5	4.6	4.75	4.75	5.6	5.11	4.84	1.67	5.25
7	7	7	7	7	7	7	1	7
5.5	4	3.5	7	5.8	5.56	5.16	3	6
6	3.8	4	2.5	3.4	3.22	3.94	4.83	2.5
6.5	4.8	4.75	5.5	5.2	5.44	5.35	1.33	2.5
4.75	3	4.25	6	6	4.44	4.8	3	6
5	5.6	4.75	6.25	6.2	5.11	5.56	2.33	5.25
3.75	3.2	3	5.25	3.2	4.11	3.68	2.67	2.5
2	4.4	4.25	4.5	4.4	4.11	3.91	5	3.75
5	4.4	4.25	4.25	4.8	4	4.54	2.83	5.5
4.75	5.2	5.5	5.25	5.6	4.67	5.26	1.5	5.25
5.5	5.4	5.75	5.75	5.4	6	5.56	6.17	6.75
3.75	5.4	5	4.75	4.6	4.89	4.7	5.5	6
6.5	6	6.25	6	6.2	6.56	6.19	2	5
6.25	5.6	5	6	4.8	5	5.53	3.33	6
2	2.6	2.5	4	4	2.56	3.02	6.33	2.5
4.25	5	4	6.75	5.4	5.44	5.08	3.33	6
3.75	3.4	5	5.75	4.8	5.22	4.54	6	5.5
6	3.8	2.5	2.25	1	1.44	3.11	7	1
5.25	5.4	6	5.75	5	5.56	5.48	2.17	4.25
6.75	4.4	6	6.25	6.2	4.44	5.92	1	4.75
4.25	4	5	4.5	4.4	5	4.43	2.67	3.5
5.5	4.8	6	6.75	4.2	4	5.45	1.17	6.75
6.5	4.6	5.25	6	4.8	4.89	5.43	2.67	6.75
6.75	3.4	3.75	4.75	4.8	4.44	4.69	1.83	4

5.75	4.4	6.25	6	6	4.78	5.68	1.5	4.5
6.25	4.8	5.5	6.75	5.6	6.67	5.78	6.17	6.25
4.75	4.6	5	5	4.6	4.67	4.79	1.5	4
5.25	5.8	5	5.75	4.8	5.67	5.32	1.17	5.75
6.25	6.8	6.5	6.25	6.6	6.67	6.48	4	6.5
5.25	5.4	5	6.5	6	6.56	5.63	1	6.5
2.75	2	2.5	2	2.6	1	2.37	5.5	2
6.25	6.8	6.25	6.75	7	4.22	6.61	2.83	2.5
4.75	4.8	3.75	4.75	5	2.56	4.61	1.5	2.75
4.25	5	5.5	6.75	6	6.33	5.5	3	6.5
3.75	5.6	4.5	4.75	3.4	5.78	4.4	2.67	3.25
4	2.6	2.75	4.75	5.2	3	3.86	2.33	5.5
2	1.4	2.25	4.5	3.4	1.44	2.71	3.33	4
4.25	2.8	4.5	5.25	5.2	4.33	4.4	5	4.25
5.5	5	5	4	5	4.11	4.9	5.17	4.75
4.75	3.2	3.75	5.25	5.6	3.56	4.51	3.67	7
7	6.2	3	6	2.6	6.78	4.96	1.5	5.25
5.75	4.6	4.75	5	3.8	4.56	4.78	3	3.5
6.25	5	5.75	6.75	5.8	5.11	5.91	2.83	5.75
5	4.8	5	5	5.6	4.89	5.08	2.17	6
5.5	5.6	5.25	6.75	6.2	6.44	5.86	1.5	6.5
5.5	5.4	5	5.25	4.8	4.89	5.19	2.33	4
4.75	5.6	5.75	6.25	5.6	6.44	5.59	3.67	5.25
4.25	4.8	4.75	5.25	4.8	5	4.77	3.33	4
6.75	6.4	6	5.75	5.8	6.22	6.14	1.33	3
2.75	3.4	5.75	6.5	3.6	5.22	4.4	2.5	5.25
5.5	7	7	7	7	7	6.7	1	7
6.25	4.8	5.5	5.5	3.6	4.22	5.13	2.33	2.5
5.25	4	4	3.5	3.8	3.44	4.11	4.17	3.75

6.25	6.6	6.25	6	6.2	6	6.26	1.67	5.5
5.25	5.4	6	4.25	4.6	3.33	5.1	2.33	4.5
5.25	4.6	6.5	6	5.4	5.89	5.55	2.5	6.5
6.25	7	6.5	6.5	7	6.67	6.65	1	7
5.25	3	2	4.75	5	5.11	4	2.5	6
7	6	6.25	6	7	6	6.45	1.5	7
5.5	4.4	5	4.25	4.4	4.56	4.71	4.5	3
4.75	3.2	4	4	4.4	4.44	4.07	4	4.75
6.5	6	6.5	6.75	6.4	6.56	6.43	1	6.75
6.5	6	6.5	6.75	6.4	6.56	6.43	1	6.75
4.5	2	7	7	7	6.89	5.5	1	4.5
4	5.6	4.25	6	6.8	6	5.33	1	6.75
4	1.6	2.25	3	3	3.89	2.77	1.33	6.25
5	3.2	4.25	5	4	4.89	4.29	3.17	4
6.25	6.4	4.75	7	6.4	6.33	6.16	1.17	5
6.25	3.6	5.25	6.75	5	7	5.37	1	1
6	4	4.75	5.75	6.2	5.67	5.34	1.33	6.25
7	7	7	7	7	7	7	1	5.25
4.5	3.6	4	4	4	4.56	4.02	4	4.5
6.5	6	6.75	7	6.6	6.11	6.57	1.5	5.75
4.75	4.6	4	5	4.2	2.78	4.51	2.5	4.25
3.75	3.4	3.75	4.25	4.4	3	3.91	2.67	3.75
4.25	3	3	5	3.4	4.56	3.73	2.33	5.5
4.5	4.2	4	6	5	3.67	4.74	2.33	1
7	5.8	2.5	7	3.4	5.11	5.14	4	1
7	2	4	5.5	4.6	5	4.62	2	7
6.75	6.8	6.75	7	6.4	6.89	6.74	1	5.25
5	3.2	4.25	5.5	3.6	3.78	4.31	1.67	3.25
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.5

5.75	6.4	4.75	6.75	5.6	5.33	5.85	2.67	5.25
5.5	4.4	5.25	6.25	6.4	6.56	5.56	2.67	5.25
6	6	5.5	5.75	5.4	4.33	5.73	2	3.25
6	6	5.5	6	6	4.89	5.9	3.67	3.25
6	6	5.5	5.25	5.4	4.89	5.63	2	3.25
6	6	5.5	5.25	5.4	4.89	5.63	2	3.25
5.5	4.8	2.25	2.75	4	2.11	3.86	2.83	4.5
5.5	5	5.5	6	5.6	5.89	5.52	1	5.75
5.25	6	4.5	6.75	5.8	4.89	5.66	1.5	5.5
5.75	6.4	4.75	6.75	5.6	5.33	5.85	2.67	5.25
6	6.4	5.5	6.5	6.2	6.44	6.12	1	5.5
7	5.4	6.25	6.25	6.8	5.67	6.34	1	5.25
5.75	6.6	4	5.5	6.6	4.78	5.69	1.83	5.75
6	6.6	4.25	6	5	5.22	5.57	2.33	5.25
6.75	5	4.5	5.5	6	4.89	5.55	2	5.75
6.75	5.6	4.75	5.25	7	5.44	5.87	1.33	5.25
7	6.8	5.5	6.75	6	5.44	6.41	2.17	5.5
6.5	6.2	4	5.25	5.8	5.67	5.55	2	5.5
6.75	4.8	4	4.5	5	4.78	5.01	2.5	4
6.5	6.6	5	5.25	6.4	4.89	5.95	3	6.5
6.75	6.2	5.5	5.25	5.2	4.67	5.78	1.83	5
6	6.6	6	6.25	6.2	5.89	6.21	2.5	4.75
7	7	7	7	7	6.33	7	1	6
7	7	7	7	7	6.33	7	1	5.5
7	7	5.5	7	7	6.33	6.7	2	6.25
6.25	6.2	6.25	6	6.4	5.89	6.22	1.5	3.5
6	5.2	4.5	5.75	5.6	4.89	5.41	1.67	4.75
7	7	7	6.75	6.8	6	6.91	1.33	7
7	7	7	7	7	7	7	1	7

6.75	6	6	7	6	7	6.35	1	7
6	7	7	6	7	7	6.6	2	7
6.25	5.8	6	6	5.4	6.22	5.89	1.17	5.75
6.5	6.4	6	6.75	6.6	6.67	6.45	2	6
5.75	2.2	3.75	2.5	3	1.56	3.44	5	2
6.5	6.4	6	6.75	6.6	6.44	6.45	2	6
6.25	4.6	2.75	3.75	4.6	4	4.39	2	4.25
6.25	5.8	4.25	6.75	5.6	4.89	5.73	2.5	5.5
6.5	6.8	4.75	6.5	5.6	5.56	6.03	2.33	5.5
6.75	6	4.25	5.75	6.8	5	5.91	2.17	5.75
6.75	5.6	4.25	6.5	6.2	5.89	5.86	2.33	4.75
6.5	6.4	4.5	6.5	5.8	5.56	5.94	2.5	5.25
7	6.4	4.25	6.25	6.4	5.22	6.06	1.67	6.5
6	5.4	4.25	6.25	5	4.11	5.38	2.5	5.5
6.5	6.4	6.5	6.75	6.6	5.67	6.55	2.5	6
6.5	6.4	6.5	6.75	6.6	6.67	6.55	2.5	6
6.5	6.4	6.5	6.75	6.6	6.67	6.55	2.5	6
6.5	6.4	6.5	6.75	6.6	6.67	6.55	2.5	6
6.5	6.6	6.5	6.75	6.6	6.67	6.59	2.5	6
6.5	6.4	6	6.75	6.6	6.67	6.45	2.5	6
6.25	5.2	6	6	6	5.44	5.89	2	6.25
6.25	4.6	4.25	5.5	4.4	4.89	5	2.17	2
5.5	4	2.5	5.5	4.6	5.11	4.42	3.83	5.25
6.5	4.4	5.25	6.25	5.4	5.22	5.56	1.83	5.25
5.5	5	4	5	4	3.78	4.7	2.83	3.5
5	4.6	5.5	4.5	5	4.11	4.92	3	6
5.5	5	4.5	5	5	3.11	5	4	4.5
5.5	5.4	5	5.25	4.4	2.89	5.11	3.17	4
6.5	5	5	6	5.8	4.11	5.66	3.33	5.75

4.5	3.8	4.5	2.5	3.4	2.67	3.74	4	5.75
5	3	5	5.25	5.2	3.33	4.69	3.5	5.75
4.25	4	3.5	3.75	4.4	4.22	3.98	4.17	4.5
2.5	1.8	2	2	2	2.22	2.06	5.67	3
6	5	5	5.5	4.4	4.44	5.18	2.67	4.75
4.25	4.6	4.25	4.5	4.4	2.22	4.4	2	4
3.75	5.4	4.5	6.75	7	5	5.48	1	5.5
6.5	5.2	4.75	6	4.8	4.22	5.45	2.83	6.75
6	5	4.75	5.75	5.4	5.11	5.38	2.67	5.5
7	5.8	5.5	5.75	6.6	5.22	6.13	2	5.5
6.5	5.2	4.75	6	6	4.33	5.69	2	5.5
5.25	5.8	4.5	5	6.2	5.44	5.35	2.33	6
6	6.6	5.75	4.75	5.2	5.56	5.66	3.5	5.5
7	5.2	5	6	5.8	4.89	5.8	1.5	6.5
5.5	5.4	4.75	5.75	5.4	5	5.36	3.67	5.75
6.5	5.2	4.75	5.75	5.8	5	5.6	1	6.75
6.75	4.8	4.25	4.5	5.8	4.89	5.22	2.17	5.5
7	5.6	5.25	4.75	5.4	6.67	5.6	1.17	5.5
6.25	5.2	4.5	5.25	5.8	4.78	5.4	1.67	5.25
6.25	6.4	4.5	5	5.6	5	5.55	2.67	6
6.25	5	4.75	5.5	5.4	4.67	5.38	3.17	5.5
6.5	4.4	4.25	6	5	4.67	5.23	4	5.5
5.5	5.4	4	5.25	4.8	4.56	4.99	2.17	5.5
6.75	4.4	4.5	4.25	4.6	4.22	4.9	2	4.5
6	5.6	4.5	5.75	6	5.89	5.57	2	5.5
5.5	4.8	4	4.75	5.6	5.22	4.93	2.83	4.75
4.5	4.2	4.5	4.5	4.2	3.44	4.38	4.33	4.25
6.5	5.2	4.5	5.25	5.6	5.44	5.41	2.17	5.5
5.5	6	5	6	5	5.56	5.5	2	4.5

6.5	4.6	4	5	5	3.67	5.02	2.17	5.5
5.75	5.4	4.75	5	5.8	4.11	5.34	2.33	5.5
5.25	5.6	4.75	5.75	5.2	3.78	5.31	2	5.5
6	4.4	4.25	5.25	5.2	3.56	5.02	3	5
4.75	3.8	4.25	5	5	3.44	4.56	2	5.25
4.75	3.4	4.25	4.75	4.8	2.33	4.39	3.33	3.25
5.25	4.2	4.25	5	5	5.56	4.74	3	4
6.25	3.4	6.5	6.5	6.2	6.11	5.77	5.83	6.25
7	6	6	6	5.4	4.56	6.08	6.17	6
4.75	3.6	2.5	4.25	4	4.11	3.82	3.5	3.25
5.25	4.2	5.75	5.75	5.6	4.44	5.31	2.83	5
4.25	4.2	4	4.25	4.6	3.11	4.26	1.5	5.5
6.25	5	7	6	4.6	3.56	5.77	4.17	6.5
4.5	4.8	4.75	4.5	4.4	3.78	4.59	2.5	4.75
2.25	1.8	2.25	5.5	2.2	3.89	2.8	3.5	2
5.25	5.2	4.75	5	5.6	5.78	5.16	2.33	5.25
6	4.8	6.5	5.5	5.2	6.33	5.6	4	4.5
5.5	5	5.25	4.25	6	4.89	5.2	1	4.75
6.5	5.4	5.75	4.75	5.4	5.22	5.56	2	5
5.5	4.8	4	5.75	5.2	6	5.05	2.67	5.25
6	4.6	5.25	5.75	4.2	4.67	5.16	2.5	6.5
5.75	2.8	3	6.25	4.2	4.67	4.4	4	6
5.5	4.8	4.25	4.5	5	5.56	4.81	3	5.25
6	1.6	2.5	4.75	3.4	1.67	3.65	2.5	6
5.75	6	5	7	2.8	3.22	5.31	4.67	1
6.75	4.8	4	4.5	5	4.78	5.01	2.83	4
6.75	4.8	4	5	4.8	4.78	5.07	2.83	4
6.25	4.4	2.75	3.75	4.6	4	4.35	2	4.25
7	6	5.25	6	4	5.67	5.65	2.5	3.25

6.5	4.6	4.25	5.5	5.4	4.56	5.25	2.33	6
6.25	5.6	3.5	4.25	5.2	5.44	4.96	1.83	5.5
3.25	2.2	2	2.75	3.8	2.33	2.8	6	4
6.25	2.6	3.5	5.75	3	5.56	4.22	1.67	5.25
3	2.6	2	3.25	4.2	2.67	3.01	2.83	4
5	5.8	5.5	5.5	6.4	6.11	5.64	2.67	5.5
6.75	6.4	5	5.75	3.4	5.89	5.46	1.33	5.75
6.25	5.2	4.5	5.75	5.6	4.78	5.46	1	5.25
6.25	5.4	3.5	5.5	5.4	6.11	5.21	2.33	4
5.75	5.8	5.75	4.75	6.4	5.44	5.69	1	6.75
7	7	7	7	7	7	7	1	5.5
4.75	4.6	4.25	4.75	4.6	5.67	4.59	1	3.5
5.75	4.8	4.25	6	4.6	4.78	5.08	2.67	4.5
4.75	3.4	4.5	5.25	5.8	4.33	4.74	2.17	4.5
7	7	6.75	6.5	5	6	6.45	2	2
7	7	5.5	6.75	7	5.33	6.65	4.17	6
5.5	4.4	4.75	5	5.4	5	5.01	2.83	5.75
5.75	5.4	2	6.25	5.4	4.89	4.96	2.5	5.5
5.75	6	1.5	5.5	6.2	5.22	4.99	1.5	4.75
5.75	3.6	1	6.25	5.4	4.89	4.4	2.5	5.5
5.5	4.4	5.25	6.25	6.4	6.56	5.56	2.67	5.25
6.25	3.6	1	6.25	5.4	5.67	4.5	2.33	5.5
5.5	6	5.25	6	5.8	6.22	5.71	2	6.75
6.25	6.8	6.75	6.5	6.6	6.33	6.58	5	6.5
5.75	4.2	4.75	6.5	3.4	5.11	4.92	3.83	5.5
5.75	1.8	2.5	3.75	4.2	2.67	3.6	4.33	4.75
6.75	6.2	3.5	6.25	5.2	4.89	5.58	3.5	4.25
3	3	3	3.75	3.6	3.78	3.27	2	3
7	6.4	5.5	6.25	5.8	6.33	6.19	1.33	6.75

3.75	5	4	4.75	4.6	3.33	4.42	1.67	3.5
5.75	5.2	5.5	4.25	5.4	5.44	5.22	5.83	5.75
6.5	6.4	6	6.75	6.6	5.89	6.45	2	6
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.5
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.5
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.5
5.25	6	4.5	6.75	5.8	4.89	5.66	1.5	5.5
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.25
6.5	6.8	7	6.75	6.6	6.67	6.73	1	2
5.25	6	4.5	6.75	5.8	4.67	5.66	2	5.5
6.5	5.4	3.25	4	5	4.56	4.83	2.67	5
6.5	6.8	6.75	6.75	7	7	6.76	1	7
6.5	6.4	5.25	6	6.2	2.11	6.07	1.5	5.75
3.25	2.8	2	3	3.6	1.67	2.93	2.83	3.75
5.75	4.6	6	5.25	5.6	4.78	5.44	2	6.75
5	4.4	3.5	4.5	4.2	4	4.32	3.67	5
3.25	1.6	2	3.75	2.4	1.33	2.6	4	3.25
6.75	4.6	1.25	3.75	3.6	4.56	3.99	2	4.25
6.75	4.6	4.75	5.5	5.8	5	5.48	2.5	5.5
6	5	4	4.5	4.6	3.78	4.82	2.33	4.75
5.75	3.4	2	6.25	5.8	4.67	4.64	2.67	5.5
6.75	3.6	3	5	5.4	5.11	4.75	2.5	5.5
7	6.8	6.75	6.25	7	4.67	6.76	1.17	6
6.25	2.6	2.5	6.25	3.4	3.22	4.2	3.67	5
6.5	6.4	6	6.75	6.6	6.67	6.45	2	6
6.5	6.8	3.75	6.5	6.2	5.44	5.95	2.5	5
6.75	7	4	4	3.6	6.89	5.07	2.67	3.5
7	6.6	6.25	6.25	6.2	5.11	6.46	1.17	6
5.5	4	3	3.75	4.4	3.22	4.13	2.67	4.25

5.5	4.2	4.5	5	5.4	5	4.92	1	5.75
6	6	6	5.75	6	6	5.95	4.17	5.5
5	6.2	6	6	5.2	6.33	5.68	2.17	6.5
5.5	4.6	5.5	6.25	4.4	5	5.25	6.17	6
4	5.2	3.75	5.5	5	4.44	4.69	2.17	5.25
6.5	6.6	4.5	5.25	5.8	4.78	5.73	3.67	5
7	6.2	6	6	6	6.11	6.24	1.5	5.75
6	6.2	7	7	6	6.56	6.44	1.33	6.25
7	5.8	5.5	6	6.2	6.56	6.1	1	5.5
6	6.2	5.75	5	6	6.56	5.79	1.67	5.5
4.5	3.6	3.75	4.25	4.8	3.89	4.18	4.17	4.75
4.5	3.4	3.5	4.25	4.2	4.33	3.97	5.17	4.75
3.75	1.6	2.5	4.75	1.6	2.44	2.84	4.17	4
6.25	4.2	4.75	4.5	4.4	4.67	4.82	3.83	5.25
4.5	4	3.5	4.75	5.8	5.22	4.51	2.67	6
5.5	4.6	4	6	5.8	6	5.18	2.5	5
5.5	1.4	1.25	3	2.4	2.89	2.71	4.83	2.5
5.25	5	4.25	4.75	4	5.33	4.65	4.83	4.25
5.25	2.2	3	4.75	4.8	4.44	4	2.67	1
6.75	6.6	6.75	6.25	6.8	6.89	6.63	1	5.5
4.75	2.6	5.25	4.5	4.2	2.22	4.26	4.33	5
6.25	6.4	5.25	6.25	5.8	6	5.99	1.5	5
6.25	2	2.5	7	5.8	4	4.71	1	2.5
3.25	4.8	5.5	5.75	5	4.89	4.86	4.33	5.5
6.5	5	6	6.25	6.8	6.22	6.11	1.17	5.25
4	5	4.5	5	4	6	4.5	7	6
6	3.2	2.25	4	4	4.67	3.89	2.67	4.75
6.5	6	5	6.75	3.8	6.56	5.61	1.5	3.25
7	4.6	6.25	6.5	6.6	6.56	6.19	1.67	7

7	7	7	7	6.8	7	6.96	2	7
6.5	5.6	4.75	6.25	6.4	6.22	5.9	1.17	6.25
5.5	7	6.25	7	7	7	6.55	1	7
5	4	2.75	5	4	3.11	4.15	4	4.5
5.75	3.2	4.5	5.25	5.6	4.67	4.86	3.83	5.25
6.25	6.8	6.25	7	7	6.89	6.66	3.17	5.75
5	2.6	3.5	3.25	3.6	3.67	3.59	5	3
6.5	5	5	5.75	6.8	5.11	5.81	3.33	3.25
5.25	6.8	7	7	6.8	7	6.57	1	7
6.5	4	5.5	6.5	6.2	6.11	5.74	2.17	6
6.5	4.8	5	4.75	4.8	4.22	5.17	1.33	4.75
6.5	5.6	6	5.75	5.6	5.89	5.89	1.83	5.25
4.75	3	4	3.5	4.8	5	4.01	3	5.5
7	6.4	6	6.75	5.6	6.78	6.35	1	5.25
6.75	4.4	6	5.75	6.2	5.78	5.82	6.67	6.25
6	6	6.25	6	6	5	6.05	2	5.75
6.5	3.4	2.5	3.5	3.8	5.33	3.94	5.5	4.5
6	5.2	4.25	6	6	5	5.49	2.33	4
5.75	5.6	5.25	5.5	5.6	4.22	5.54	3	5
6.5	6.6	6.25	6.25	6	6.44	6.32	3.33	5.25
6.5	4.6	3.5	6	6.6	4.44	5.44	2	7
4.75	5	2.5	4.5	5.8	6.22	4.51	4.33	5.75
4.5	5.2	6.25	6	5.6	6.11	5.51	3.5	4.25
5.75	5.2	4.25	6	5.2	5.33	5.28	1.83	5.75
4.75	5.8	5	4.5	4.4	5.89	4.89	2.5	7
6.5	5.6	5.25	5.75	6.6	5.56	5.94	1	6
6.75	6.8	6.5	7	6	5.67	6.61	1	4.5
5	4.4	5.25	5	5.8	5	5.09	3.33	5
3.5	3.8	3.25	3.25	3	2.11	3.36	1.33	4.25

4.25	4.6	2.5	3.75	2.4	5.56	3.5	2.33	7
4.75	3.2	3.5	4.25	4	3.22	3.94	2	3.75
3.75	5.4	5.5	5.5	4	4.56	4.83	2	4.75
6.5	7	6	6.25	4.6	6	6.07	1.5	6
5.5	4.6	5.5	4	3.4	6.33	4.6	2	5.5
6.75	7	6	5.25	4.6	4.56	5.92	5	6
6	5.8	3.75	6.25	5.4	5.67	5.44	2	5.75
6.75	6.2	7	7	7	7	6.79	1	4.75
6	6.8	6.75	7	4	4.56	6.11	2	3
6	5	5	4.75	4	4.89	4.95	2.17	4.5
6.25	6	6	6.25	6	5.33	6.1	2.5	4
6.75	4.8	4	5.5	5.8	4.44	5.37	1.83	5.25
6.75	3.6	2.75	5	5.4	5.22	4.7	2.5	5.5
6.75	4.8	4	5.5	5.8	4.44	5.37	1.83	5.25
6.75	4.6	3.25	4.5	4.6	4.56	4.74	2.33	5
6.75	4.6	3.25	3.25	4.6	4.56	4.49	2.67	5
6.75	4.6	4	4.5	5.6	4.78	5.09	2.5	4
3.5	4	4.5	5	5	5.56	4.4	5.5	5
5.25	5.4	5.25	6.25	5.6	6.33	5.55	1.67	5.5
5.5	5.2	5	6.5	6.2	5.67	5.68	2	4
5.5	6	5	5.75	7	5.78	5.85	2.5	5.25
5.75	5.4	5.25	5.25	6.4	5.22	5.61	3	6.25
6	5.2	5	6.75	6.2	3.78	5.83	2.83	5.75
6.25	6	4	5.5	5.8	4.78	5.51	2.83	4.75
6.5	6	4.75	6.75	5.4	4.67	5.88	1.83	5
6.5	6.4	3.75	6.75	5.8	6.67	5.84	2.5	6.75
5.5	5.6	5	6.25	6.2	5.44	5.71	2.5	5.75
6.25	6.2	4.5	7	6.8	5.78	6.15	2.33	6.5
6.75	6.8	6.5	6.5	6	6.89	6.51	3.67	6.5

4	6	5.5	5.5	6.6	5.89	5.52	4.83	7
4.75	4	3.75	4.75	5.6	5.67	4.57	2.17	5.5
5.75	3.6	1	6.25	5.4	5.78	4.4	1.83	4.25
6.5	6.6	7	6.25	7	5.33	6.67	4.5	5.75
5.75	5.2	5.5	3.75	5.4	4.89	5.12	3.83	5.5
5.75	3.6	1	6.25	5.4	5.56	4.4	2.5	5.5
5.5	6	5.5	6.25	6.2	6.78	5.89	1.83	5.75
6.25	5.6	6	6	6.2	2.56	6.01	2.5	4.75
5.5	4.6	3.25	4.25	4	5.11	4.32	2	5.25

Source: Survey data (2014)