



Service Quality as a Mediator of Customer Complaint Behaviour and Customer Loyalty

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ABSTRACT

Aims to examine the mediating role of service quality (SQ) in customer complaint behaviour (CCB) and customer loyalty (CL). Adopts a quantitative cross-sectional research design and uses the MedGraph program, Sobel tests and the Baron and Kenny method to test for mediation effect of SQ on the relationship between CCB and CL. SQ is a significant mediator in the relationship between CCB and CL of Ugandan mobile phone subscribers. Adding SQ to the relationship boosts the relationship between CCB and CL by 45% among the mobile phone subscribers studied. Findings suggest that when SQ is low, a high level of CL may not be attained among mobile phone subscribers. Managers, policy-makers, and mobile telephone companies should advocate and strive for improvements across all dimensions of SQ to boost the loyalty of cell phone customers. This study is the first to test the mediating role of SQ in the relationship between CCB and CL among mobile phone subscribers in a developing nation context. Contributes to the positive significant influence of SQ in enhancing the level of CL based on CCB.

Keywords: Customer Complaint Behaviour, Service Quality, Customer Loyalty

JEL Classifications: D1, L15

1. INTRODUCTION

In service industry, the subject of service quality (SQ) remains crucial as business strive to maintain a comparative advantage in the market place (Kumar et al., 2009; 2010; Tan et al., 2015). In the aftermath of globalization, the operating environment for, for example, banking and telecommunication industries has become more dynamic and competitive. SQ is commonly noted as critical prerequisite and determinants of competitiveness for establishing and sustaining relationship with customers (Tan et al., 2015). SQ and customer satisfaction levels are thought to determine the likelihood of repurchase decisions (Parasuraman et al., 1988; Narteh and Kuada, 2014). Ramzi and Mohamed (2010) assert that dimensions of SQ such as empathy, responsiveness and reliability significantly predict customer loyalty (CL).

In addition, SQ may lead to positive word-of-mouth (WOM) and favourable behavioural intentions (Gee et al., 2008). Grönroos (1984) defines SQ as a perceived judgement resulting from an

evaluation process where customers measure their expectations against the service they perceive they have received. SQ is a critical dimension of competitiveness (Saunders et al., 2007), and a concept that has generated considerable debate in the research literature due to the difficulty of both defining and measuring it, with no overall consensus emerging regarding either aspect.

The debate may be due to SQ's dimensions of reliability, assurance, tangibility, responsiveness and empathy (Parasuraman et al., 2005), from which a SQ measurement instrument (SERVQUAL) was developed. Quality of a particular service is whatever the customer perceives it to be. In a study on SQ of mobile telephone operators in Pakistan, Khan (2010) found SERVQUAL to be a valid instrument to measure SQ in mobile phone services. The instrument is still under debate, however, due to its use of gap scores and the variation of SQ dimensions used from one industry to another. For example, convenience and network quality have been found to be important extra dimensions of SQ in surveys on

mobile telephone companies (MTCs) because of the influence of technology (Seth et al., 2008; Lai et al., 2007).

SQ as perceived by the customer may differ from the quality of service actually delivered (Mersha et al., 2012; Ismail and Mohd Mokhtar, 2016). Services are subjectively evaluated experiences, where production and consumption take place simultaneously. Interactions occur, including a series of moments of truth between the customer and the service provider (Boakye et al., 2015; Osarenkhoe and Byarugaba, 2016). Such buyer-seller interactions or service encounters have a critical impact on the perceived service. SQ has been defined in a number of ways, but one of the most popular definitions is: “A comparison between the expected service and the perceived service” (Grönroos, 1984, p. 9). This definition is user-based and thus high SQ is achieved by consistently meeting or exceeding the customer’s expectations.

In addition, the issue of providing the promised service in a timely, accurate and dependable manner requires the highest priority (Byarugaba and Osarenkhoe, 2012). Earlier studies indicate that reliability significantly affects mobile phone customers’ perception of SQ, where the reliability of a service has been established as the driver of mobile phone SQ (Lee et al., 2008; Negi, 2009). Parasuraman et al. (1988) introduced SERVQUAL, an instrument developed to measure SQ in terms of customer expectations and organizational performance based on five generic SQ dimensions: Reliability, assurance, tangibles, empathy and responsiveness (promptness). While SERVQUAL has remained popular with many researchers (Lee, 2005), it has also been subject to criticism (Ladhari, 2009), largely because replication of results has not been achieved, which has led others (Seth et al., 2008) to develop alternative models and approaches, such as a component for measuring service performance (SERVPERF).

Parasuraman et al. (1988; 2005) have claimed that SERVQUAL provides a basic skeleton through its expectations/perceptions format, which encompasses statements for each of the five noted SQ dimensions. When necessary, this skeleton can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization. In their 1988 paper, Parasuraman et al. also claimed that the final 22-item scale and its five dimensions have sound and stable psychometric properties. With respect to technology, however, the dimensions of network quality and service convenience have also been proposed (Seth et al., 2008; Lai et al., 2007). Furthermore, there is general agreement that SQ is a multi-dimensional construct (Samen et al., 2012), though debate remains on how best to conceptualize and operationalize this construct (Seth et al., 2008).

The conceptualization and measurement of SQ has been dominated by the use of the expectancy-disconfirmation paradigm (Oliver, 1997) and the related SQ model and SERVQUAL instrument (Parasuraman et al., 1988). According to this model, SQ is defined by a comparison of customer expectations and perceptions of the service actually received (Parasuraman et al., 2005). In an alternative, performance-only or SERVPERF model, Cronin and Taylor (1992) reject the evaluation of quality expectations and include only performance measures of the service encounter. Both

models are widely used in SQ research, but the performance-only model has the advantage of efficiency with respect to empirical data collection (Jain and Gupta, 2004).

Researchers have also criticized the SERVQUAL scale for its use of gap scores (Samen et al., 2012), measurement of expectations, positively and negatively worded items, the lack of generalizability of its dimensions, and the definition of a baseline standard for good quality (Lai et al., 2007). SQ has become a major area of attention for researchers because of its strong influence on cost savings, customer satisfaction and CL (Seth et al., 2008). When companies offer similar services at the same price, the factor that determines which company clients opt for is the quality of service provided. Due to the nature of services, however, SQ and its requirements are not easily articulated by buyers and sellers (Lovelock and Wirtz, 2007).

1.1. Empirical and Problem Settings

Uganda has four main mobile phone operators: Uganda Telecom (UTL), mobile telephone network (MTN), Orange Uganda, and Airtel Uganda (Market Review, 2009). The quality of service and the services these operators provide influence the consumer’s choice of provider. According to the Uganda Communications Commission (UCC; Uganda Telecommunications Sector Policy Review, 2005), the parameters on which a mobile telephone company can provide quality include network and service accessibility, access delay, voice quality and text messaging (short message service, [SMS]). A mobile service provider must continuously assess whether the quality of the service it offers matches customer expectations (Byarugaba and Osarenkhoe, 2012). While MTN was ranked the service provider with the largest market share (47%) and orange Uganda as the provider with the smallest market share (4%) (BMI, 2011/2012), orange Uganda ranked number one in UCC quality service ratings for the years (2010 up to 2012). Other studies have indicated a relationship between SQ and CL (Lee et al., 2008), yet this has not been the case for Orange Uganda.

Mobile telephone services include calls, internet services, SMS, data storage, and sending and receiving money. Four operators (MTN, Airtel, Warid and UTL) offer mobile money services and noted this as a means for bringing about greater financial inclusion to the “unbanked” (Uganda Budget Report, 2011/2012). The increasing competitiveness of new wireless broadband solutions compared to landline alternatives led to heightened interest in internet subscriptions, which increased 29% in 2011. Network operators have introduced dynamic discounts, flat-rate plans, chat zones and mobile broadband solutions in order to bring more value-added services to their subscribers. With greater saturation of the cell phone market (Market Review, 2009), Ugandan MTCs need to realize that their performance can improve by focusing more on retaining their current customers than constantly seeking new ones.

It can be deduced that companies cannot completely eliminate the possibility of service failures (Hess et al., 2003; Komunda and Osarenkhoe, 2012). What is important, however, is how companies recover from service failure. Effective recovery from service

failures contributes to positive customer evaluations. Responding effectively to consumer complaints can have a dramatic impact on patronage intentions and the spread of negative WOM (Verhoef, 2003; Kim et al., 2011). Consequently, continuous improvement of SQ has been recognized as a critical task for service managers in mobile phone services. Moreover, mobile phone operators must enhance their trustworthiness by keeping the customer's best interests at heart, providing customized services, and ensuring exemplary behaviour of contact personnel to make interactions with the MTC a positive memorable experience.

In addition to the original five dimensions of SQ (reliability, tangibility, empathy, assurance and responsiveness), mobile operators should also focus on the other two SQ dimensions - service convenience and network quality - proposed by Seth et al. (2008) and Lai et al. (2007), both of which significantly affect MTC customers' perception of SQ. MTC have problems pertaining customer complaint behaviour (CCB) - staff making poor responses and poor SQ leading to problems associated with retention of customers. There are problems of dropped calls, poor handling of customer complaints regarding promptness and lack of courtesy (Byarugaba and Osarenkhoe, 2012; Lepmets, 2012).

Gaps in literature: The current understanding of customer complaints like poor network quality, poor customer care and lack of explanation about service failure is limited (Kim et al., 2011; Tronvoll, 2012). The studies which have been carried out did not use an integrated approach which allows for consideration of joint influence of predictor variables. Services by nature are complex and some customers get dissatisfied, because service failure is inevitable. Unfortunately, while 4% unhappy customers complain, 96% do not complain. Thus attention should be devoted to both those who complain and those who do not (Komunda and Osarenkhoe, 2012).

Furthermore, a review of extant literature shows that little attention has been devoted to CCB - how the firm responds to complaints, and how this response affects complainants' subsequent attitudes and behaviors (Gruber et al., 2009). Although a relationship between CCB and CL is established in existing literature (Tronvoll, 2012), there is lack of agreement over the reasons for complaining (Maxham and Netemeyer, 2003) and attention has not been devoted the interaction of CL with CCB and SQ (Sousa and Voss, 2009). Duffy et al (2006), Gruber (2009) did a study on CCB and did not use an integrated approach that allows study of a number of variables at a go. Integrating CCB and service recovery will facilitate a deeper understanding of consumer's cognitive processes - a position where an individual holds two or more elements of knowledge relevant to each other, but inconsistent with one another (O'neil and Palmer, 2004).

To address these gaps, this study aims at integrating CCB, SQ with CL. While a substantial body of research has been carried out on CCB, our paper is the first to test the mediating role of SQ in the relationship between CCB and CL among mobile phone subscribers in Uganda. The study generates quantifiable evidence and contributes to our knowledge on the positive significant influence of SQ in enhancing the level of CL based on CCB.

The overarching objective of this study is threefold: Firstly, to determine the relationship between CCB and CL of mobile telephone subscribers; secondly, to examine the relationship between CCB and SQ; thirdly, to establish the relationship between SQ and CL.

To address this overall objective, the following research question is formulated:

RQ: What is the relationship between CCB, SQ and CL of mobile telephone subscribers?

2. LITERATURE REVIEW

A strong, sustainable, and world-class service industry requires a good SQ standard (Ren and Lam, 2014). More importantly, high SQ contributes to bottom-line financial performances (Berry et al., 1985; Buttle, 1996). But to promote a strong service industry, companies need help identifying elements that are salient to ordinary customers. It is pertinent to note that customers engage in positive WOM about a company and its products when they perceive high SQ (Komunda and Osarenkhoe, 2012; Matos and Rossi, 2008; Gonzalez et al., 2007).

The importance of word-of-mouth (tendency for consumers to talk about a product or company to friends and neighbours, setting in motion a chain of communication that could spread through a whole market) cannot be overemphasised. Each activity in conjunction with WOM could escalate to create negative brand images and beliefs. Unfortunately, word of mouth, according to Mason (2008) has had little attention from the academic community, with the exception of electronic or Internet based word of mouth, and that academic theory to underpin word of mouth that has not been considered before. Mason's study is particularly important because, in South Africa and possibly in other under-developed and developing countries like Uganda, word of mouth is critical to marketing to less sophisticated or literate markets. The ability to identify key factors within SQ that affect WOM behavior will provide a more actionable strategy to connect with the customers. In return, positive WOM accelerates the acceptance of new goods and services (hence, increases revenue) and reduces promotional costs in mature ones (Keller, 2007; Tan et al., 2015).

In the last two decades, SQ has drawn much attention from practitioners and researchers alike. SQ is popularly recognized as the results from the comparison of expected service and perceived quality (Parasuraman et al., 1988). It is not equivalent to satisfaction but directly related to it (Bolton and Drew, 1992). The result of the comparison is a subjective judgment in which each consumer makes his or her own evaluation in the comparison (Parasuraman et al., 1988). Accordingly, SQ covers how customer's requirements and desire are met, as well as how the service delivered matched customers' expectations. Furthermore, Shekarchizadeh et al. (2011) suggested that SQ is the consideration of various related components, including customer satisfaction, the relative impression of an organization's service.

2.1. CCB and SQ

Customer complaints are a natural consequence of any service activity (Michel et al., 2009) because mistakes are an unavoidable feature of all human endeavours and also of service delivery (del Rio-Lanza et al., 2009). For the consumer, this renders complaining a means of making one's feelings known when unfair seller practices are encountered, when disappointment with a product arises, or when more general disapproval of business conduct occurs (Fornell and Westbrook, 1979). Conceptualized in this way, dissatisfaction is the attitude resulting from disconfirmation of expectations, and complaining is a behavioural expression of this dissatisfaction. When managing complaints, it is important that a company understand CCB and why consumers choose specific complaint behaviours, particularly behaviours that do not involve the direct voicing of a complaint to the organization. Gruber (2011) asserts that managing complaints well and retaining customers after service failures and complaints, should be the cornerstone of an organization's customer satisfaction strategy.

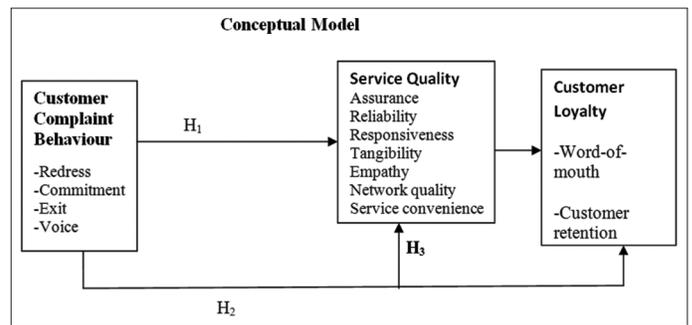
In light of the ongoing discussion of SQ, debate on such controversial concepts like the multi-dimensionality and gaps in SQ is far from over and there remains an avenue for potential contribution to the SQ literature (Byarugaba and Osarenkhoe, 2012). The majority of studies have been aimed at measuring or validating SQ from the customer's perspective only, with little attention given to examining SQ from a management or employee perspective. Companies should go beyond customer satisfaction through providing quality services and also by handling customer complaints in ways that will lead to loyal customers (Gee et al., 2008); in any case, CL should be the goal of MTCs in Uganda.

2.2. SQ and CL

The SERVQUAL instrument (Parasuraman et al., 1988) has now been employed across a broad spectrum of sectors ranging from financial services to telecommunications but has been critiqued as being confusing (Lai et al., 2007). This research is vital to establish the instrument's validity regarding the generic dimensions of reliability, tangibility, empathy, assurance and responsiveness as it relates to the use of SERVQUAL in African contexts (Khan, 2010). SQ is a key area for researchers because of its strong impact on image creation, costs and CL (Seth et al., 2008). Aydin and Ozer (2005) add that SQ enhances customers' inclination to buy again, buy more, buy other services, become less price-sensitive, and to tell others about their favourable experiences, concluding that there is a positive relationship between SQ and CL.

Oliver (1997) and Gee et al. (2008) maintain that, with respect to CL, all service encounters offer an opportunity to provide superior SQ and distinguish a firm from its competitors. With CL being so vital for business survival, it seems strange that the relationship between SQ and CL is not equally well-established (Ramzi and Mohamed, 2010). The CL-SQ relationship has been studied but not in the telecom industry (Lee et al., 2008). And while SQ has an effect on CL, there remains considerable debate as to the nature of this effect (Ramzi and Mohamed, 2010). The assumption is that there is a strong relationship between SQ attributes and customer behaviours such as repurchase intention (Oliver, 1997).

Figure 1: A conceptual model



In addition, a study of Turkish cell phone users suggests that SQ is a necessary component but is alone not sufficient to create loyalty (Aydin and Ozer, 2005). SQ has been found to affect both behavioural intentions and behavioural outcomes. Buyers purchase a lot of services from suppliers with whom they have high-quality relationships (Camarero, 2007).

2.3. Hypotheses of the Study

The conceptual hypotheses for this study were:

- H₁: There is a significant relationship between the CCB of mobile phone subscribers and SQ.
- H₂: There is a significant relationship between CCB and MTC CL.
- H₃: The relationship between CCB and CL is significantly mediated by SQ.

The current study empirically investigated the relationships shown in the conceptual model (Figure 1) and presented in the three study hypotheses above with a view to establishing the relationship between the study variables, as well as the mediation effect of CCB on CL.

3. METHODOLOGY

Stratified random sampling was the method used for the study. A cross-sectional survey was used, referring to a study that involves collecting data from a population or a representative subset thereof at one specific point in time (Saunders et al., 2007; Babbie, 2010). The population of the study constituted subscribers to mobile phone operators, made up of students, academic staff, administrative staff and support staff at Makerere University in Kampala, Uganda. This population was chosen because Makerere University is one of the oldest universities in East Africa. Most people at the university are well-educated and informed of their rights as consumers, and are knowledgeable about how to go about complaining and able to use the various channels available to lodge their complaints to MTCs. The University's staff and students are a multicultural, cosmopolitan group of people from across Uganda and, as mobile phone subscribers, use their phones to make calls, to text, and to access social media and mobile banking. The total population of mobile phone subscribers at Makerere University (2012/2013 academic year) was 50,949.

The sample used was determined based on the Krejcie and Morgan (1970) Table 1, where, for populations >10,000, the sample size is 400. The sampling technique used to select students and staff

was stratified random sampling. Uganda currently has four major mobile phone companies, all of which offer voice, text and data services. The unit of analysis was MTC subscribers, specifically students, academic staff, administrative staff and support staff at Makerere University in Kampala. Lists of all of the University's students and staff were obtained from the Human Resource Office and Registrar's Office.

The study used both primary and secondary data. The primary data is described in detail below. The secondary data used were in the form of reports, brochures, flyers, periodicals, manuals, monographs and journals. The bulk of these materials were obtained from the Uganda International Trade Fair organized by the Uganda Manufacturers Association, of which the MTCs (UTL, MTN, Orange and Airtel) are members.

The primary data was collected from Makerere University mobile phone subscribers (students and staff) using a self-administered questionnaire. The questionnaire was divided into four sections. Section A provided info on the phone subscribers' demographics (age, gender, marital status, education level, income); Section B dealt with CCB relating to the dimensions of seeking redress, voicing complaints, exit and commitment; Section C concerned SQ regarding the dimensions of reliability, responsiveness, assurance, tangibility, service convenience, empathy and network quality; and Section D dealt with CL (customer retention and WOM). The questions were formulated based on the objectives of the study and included both open- and closed-ended questions. A 5-point scale was developed (1) not at all, (2) to a small extent, (3) to a moderate extent, (4) to a large extent, and (5) to a very large extent as this rating scale has a fairly robust nature. The survey's question items were developed from the literature with appropriate modifications to suit the context of the current study.

As noted, the survey was self-administered. The researcher explained to the respondents the purpose and objectives of the study and how to fill in the questionnaire to ensure reliable and valid information. The researcher assured the respondents of total confidentiality regarding their responses, and kindly requested that they to fill out the questionnaire. The questionnaire method was used because it could be administered simultaneously to many respondents. A total of six hundred questionnaires were distributed to the respondents. For the staff of Makerere University, the drop and pick-up later method was used to collect the questionnaires, and for the students the questionnaire was administered by the researcher at the beginning of the semester in a classroom setting. Cronbach's alpha was used to ascertain the reliability of the

Table 1: Population of Makerere University (2012-2013)

Category	Population (%)
Students	46.274 (50)
Academic staff	1823 (20)
Support staff	1597 (17)
Administrative staff	1255 (13)
Total population	50.949 (100)
Sample	400

Source: Human Resource Office, Makerere University Registrar's Office, Makerere University

Table 2: Reliability of the instrument

Part of instrument	Variable	Number of items	Alpha coefficient
Whole instrument		55	0.751
Section A	CCB	9	0.740
Section B	Service quality	29	0.836
Section C	Customer loyalty	17	0.784

CCB: Customer complaint behaviour

instrument as advocated by Kothari (2005) and Nunnally (1978). A pilot study was also undertaken to establish the reliability of the instrument using the internal consistency approach using the SPSS software package (Version 19). Reliability tests were conducted on a pilot study of 81 individuals selected from within the sample. CCB, SQ and CL all showed an acceptable alpha coefficient of over 0.70, with an overall alpha coefficient of 0.751. The pertinent results of the reliability of the instrument are summarized in Table 2.

As shown in Table 2, the alpha coefficient for the instrument as a whole was high, at 0.751. As regards the variables, SQ had the highest measure at 0.836 and CCB the lowest at 0.740. The Cronbach alpha values exceeded the acceptable level of 0.70 as recommended by Nunnally (1978), confirming that the scale was reliable.

Validity refers to the extent to which data collection methods accurately measure what they are intended to measure (Saunders et al., 2007). A test has content validity built into it by careful selection of study items. The exploratory factor analysis (FA) was conducted based on the criterion of a Kaiser-Meyer-Olkin (KMO) measure above 0.7; while Bartlett's test is significant at eigen-values <1. To ascertain validity, the questionnaire was tested on 81 respondents. The constructs of the variables (CCB, SQ and CL) were subjected to KMO and Bartlett's test extraction using principal component analysis (PCA) with varimax rotation using Kaiser normalization. The KMO measure of sampling adequacy should be >0.05 for satisfactory FA to proceed. In the current study, the KMO values exceeded 0.660 and the results for Bartlett's test of sphericity for the variables were statistically significant at 0.000, confirming construct validity.

The operationalization of study variables was based on a detailed review of the literature and previous studies. The variables under study included an independent variable (CCB), the dependent variable (CL) and the mediating variable (SQ). The SQ was measured using Parasuraman's, 1988 SERVQUAL model, which was improved based on the literature review. The dimensions of this variable included reliability, assurance, tangibility, empathy and responsiveness, to which service convenience and network quality were also added. A 5-point scale was adopted for all of the scales of the questionnaire.

The collected data was first cleaned, edited and coded, and the data then was analysed using the Statistical Program for Social Sciences (SPSS, Version 19). The analysis of data was carried out using both descriptive and inferential statistics. Assumptions of parametric tests included the normality of distribution of the

Table 3: Summary of the study variables

Thematic area	Item description	Frequency	Mean score	SD
Customer complaint behaviour	Voice	336	2.59	0.799
	Commitment	336	2.56	0.682
	Redress	336	2.45	0.820
	Exit	336	2.22	0.942
Grand mean score		336	2.45	0.810
Service quality	Service convenience	336	3.34	0.754
	Tangibility	336	3.30	0.750
	Assurance	336	3.29	0.841
	Network quality	336	3.27	0.782
	Empathy	335	2.96	0.772
	Responsiveness	336	2.79	0.779
	Reliability	336	2.73	0.717
Grand mean score		336	3.09	0.597
Customer loyalty	Customer retention	336	3.12	0.579
	Word-of-mouth	336	2.95	0.680
Grand mean score		336	3.30	0.629

Table 4: Summary of KMO and Bartlett’s test

Variable	KMO	Bartlett’s test of sphericity		
		χ^2	df	Significant level
Customer complaint behaviour	0.680	630.5	66	0.000
Service quality	0.781	1109.3	171	0.000
Customer loyalty	0.665	345.4	21	0.000

KMO: Kaiser-Meyer-Olkin

Table 5: Correlation of study variables

Variable	Customer complaint behaviour	Service quality	Customer loyalty
Customer complaint behaviour			
Pearson correlation	1		
Significant (two-tailed)			
Service quality			
Pearson correlation	0.242**	1	
Significant (two-tailed)	0.000		
Customer loyalty			
Pearson correlation	0.255**	0.653**	1
Significant (two-tailed)	0.000	0.000	

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

data, the linearity of the data, and the homogeneity of variance, and a test of multi-collinearity was used to assess whether the assumptions of parametric data were tenable.

4. FINDINGS

Descriptive statistics using frequency, mean scores and correlations and regressions were computed for the variables. The pertinent results of these values are summarized in Tables 3-11.

The results presented in Table 3 indicate that the mean score for the study’s dependent variable (CL) was 3.12, SD = 0.579. CL had the highest- (mean score = 3.30, SD = 0.629) implying that mobile phone subscribers need to hold a positive attitude regarding WOM and repurchase decisions. As regards the coefficient of variation, the variable with the largest dispersion from the average was CCB (33%), followed by SQ (24.9%); and the variable with

the smallest coefficient of variation was CL (19%). Here, MTC subscribers must have high regard for a service’s quality in order to have a positive attitude with respect to WOM and making repeat purchase decisions.

FA was used to validate the questionnaire by testing for convergent validity, discriminant validity and construct validity, applying KMO and Bartlett’s test for sampling adequacy and then PCA and varimax methods to extract the factors that measured the study variables as shown in preceding sections. PCA and varimax rotation were done using eigen-values ≥ 0.5 . Factors with eigen-values > 1 were extracted and items with factor loadings ≥ 0.5 were retained. The pertinent results are shown in Table 4.

As presented in Table 4, sampling adequacy of CCB was determined by KMO measure of sampling adequacy = 0.680, Bartlett’s test = 630.5, df = 66 and Significant = 0.000, implying that the sample was adequate for CCB. Sampling adequacy of SQ was determined by KMO = 0.781, Bartlett’s test = 1109.3, df = 171 and Significant = 000. Further, the sampling adequacy of CL was determined by KMO = 0.665, Bartlett’s test = 345.4, df = 21 and Significant = 0.000, meaning that the sampling adequacy was significant and moderate at 78.8%.

4.1. Correlation between CL and Independent Variables

In this section, the research findings are presented using statistical techniques based on tests of the hypotheses. The results are interpreted in relation to the conceptual and theoretical model. In order to address the objectives and test the hypotheses of the study, zero-order correlation analysis was carried out. The objective of doing this was to determine whether there was a significant linear relationship between the predictor variable (CCB), mediating variable, and the dependent variable. As shown in the previous section, the data fulfilled the parametric conditions and, consequently, bivariate correlation analysis was performed and Pearson correlation coefficients generated to measure the magnitude of the relationship between the study variables.

A correlation analysis was run using the Pearson product-moment correlation coefficient technique to establish the relationship

Table 6: Relationship of customer retention and word-of-mouth

Variable	Customer retention	Word-of-mouth	Customer complaint behaviour	Service quality
Customer retention				
Pearson correlation	1			
Significant (two-tailed)				
Word-of-mouth				
Pearson correlation	0.541**	1		
Significant (two-tailed)	0.000			
Customer complaint behaviour				
Pearson correlation	0.270**	0.233**	1	
Significant (two-tailed)	0.000	0.000		
Service quality				
Pearson correlation	0.652**	0.512**	0.240**	1
Significant (two-tailed)	0.000	0.000	0.000	

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

Table 7: Regression of service quality on customer complaint behaviour

Variable	R	R ²	F	Significant (P)	Constant	B	β	T
Customer complaint behaviour (H ₃)	0.239	5.7%	20.052	0.000	2.429	0.276	0.239	4.478

B: Unstandardized coefficient, β: Standardized coefficient, Dependent variable: Customer loyalty, Independent variables: Customer complaint behaviour and service quality

Table 8: Regression of customer loyalty on customer complaint behaviour

Variable	R	R ²	F	Significant (P)	Constant	B	SE	β	T
Customer complaint behaviour (H ₁)	0.263	6.9%	24.267	0.000	2.329	0.293	0.060	0.263	4.926

B: Unstandardized coefficient, SE: Standard error, β: Standardized coefficient, Dependent variable: Customer loyalty, Independent variable: Customer complaint behaviour

between CCB, SQ and CL. The results were discussed in relation to literature in order to establish the extent to which they relate to existing knowledge. The correlation coefficient provided a numerical summary of the direction and strength of the linear relationship between the variables. As indicated in Table 5, all of the Pearson correlation coefficients (r) fell within the range of -1 to +1.

The results in Table 5 indicate that the relationship between CCB and CL was positive and statistically significant ($r = 0.255^{**}$, $P = 0.000$). This finding suggests that improved handling of complaints will lead to increased CL. It also suggests that when customers receive quality service they remain committed and keep subscribing to their current MTC. This implies that when the mobile operators handle customer complaints in line with the expectations of their subscribers, the subscribers are willing to seek redress and have an understanding for the service provider in the case of service failures.

The results similarly show that there was a high positive significant correlation between SQ and CL ($r = 0.653^{**}$, $P = 0.000$), where SQ relates directly to CL. The implication of this result is manifested in terms of reliability, responsiveness, empathy, tangibility and assurance of the services by MTC staff, as they work to attain positive WOM about the company and, consequently, to retain customers in long-term relationships. Finally, there was a positive and significant relationship between CCB and SQ ($r = 0.242^{**}$, $P = 0.000$). The implication of this result is that favourable CCB (seeking redress, voicing complaints to service operators, and using selected MTC services) leads to an enhancement of SQ.

The correlation analyses evaluated the linear relationships between the study variables. Table 6 shows the correlations of study variables with respect to the dimensions of the dependent

variable for the relationships between customer retention and SQ (0.652^{**}), WOM and SQ (0.512^{**}), SQ and CCB (0.240^{**}), customer retention and CCB (0.270^{**}), and WOM and CCB (0.233^{**}). The correlation between customer retention and WOM was statistically significant for CCB and SQ. All correlations for the three study variables were positive and statistically significant, with the highest being between SQ and CL. The relationships between CL dimensions and CCB, as well as between CCB and SQ were positive and statistically significant.

H₁: There is a significant relationship between CCB and SQ.

Favourable CCB (voicing complaints to service operators, seeking redress, using selected services of the MTC) leads to improved SQ. The results of simple regression analysis with predicting SQ are shown in Table 7.

The results in Table 7 show that CCB had a statistically significant influence on SQ; the coefficient of determination (R²) was 0.057, meaning that the independent variable explained 5.7% of the variation in SQ, with 94.3% of the variation remaining unexplained. This means that the model provided a relatively weak fit.

The standardized value of the computed scores for SQ was $\beta = 0.239^{**}$, with a significance level of $P = 0.000$. This implies that CCB influences the SQ of MTCs. The standardized regression coefficient was used because it removes the unit of measurement of the predictor and outcome variables and consequently enables one to compare the relative effect of predictors measured on different scales.

H₂: There is a significant relationship between CCB and CL

Table 8 provides a model summary of CCB and CL, where the coefficient of determination (R^2) for Model 1 was 0.069, meaning that CCB (the independent variable) explained 6.9% of the variation in CL, with 93.1% of the variation remaining unexplained. This signifies that the selected independent variable had little explanatory power for the dependent variable.

The standardized regression coefficient of the computed scores of SQ was $\beta = 0.263^{**}$, with a significance level of $P = 0.000$. This implies that the CCB influences MTC CL. The standardized regression coefficient was used because it removes the unit of measurement of the predictor and outcome variables, enabling comparison of the relative effect of predictors measured on different scales.

H_3 : The relationship between CCB and CL is significantly mediated by SQ

To improve the goodness of fit of the model, the mediating effect of SQ was introduced in the model between CCB and CL. In this case, CL was regressed on CCB and SQ, where SQ was a mediating factor, to assess whether there was a significant change in the relationship between the study variables. The pertinent results are shown in Table 9.

A model summary of service quality and customer loyalty in Table 9(a) shows that the coefficient of determination (R^2) for Model 1 was 0.438, which meant that the SQ dimensions explained 43.8% of the variation in customer loyalty, with 56.2% of the variation remaining unexplained. However, with the addition of the CCB variable in Model 2, the results show that the coefficient of determination increased ($R^2 = 0.450$) and therefore provided a fairly good fit, meaning that the model explained 45% of the variation in CL.

Analysis of variance (ANOVA) was used to assess the overall significance of the regression model. In Model 1 in Table 9(b), the F-value was 251.140 and the $P = 0.000$. In Model 2, the F-value was 131.073, and the $P = 0.000$. This means that both models were significant ($P = 0.000$ at $\alpha = 0.05$ level of significance) in explaining the relationship between CCB, SQ and CL.

In Table 9c, the coefficients of the mediated model show a significant relationship between CCB, SQ and CL ($\beta = 0.636$ and $P = 0.000$ at $\alpha = 0.05$ level of significance). This shows that SQ (a mediating variable) had a statistically significant influence on CL, with $R^2 = 45\%$ ($P = 0.000$). This implies that mediation, the results improved to explain 45% of its variation ($R^2 = 0.450$). The standardized regression coefficient (β) of the computed scores for CCB was 0.110 ($P = 0.011$). Since the β -coefficient was not equal to zero, and was statistically significant ($P = 0.011$), SQ had a significant mediating effect. The pertinent results are summarized in Table 10.

The results in Table 10 reveal that the correlation between CCB and CL was moderate and statistically significant ($r = 0.263$, $P = 0.000$), while the mediating effect of SQ on CCB was low yet statistically significant ($r = 0.239$, $P = 0.000$). The mediated relationship is depicted in Figure 2.

Table 9a: Regression results for customer complaint behaviour, service quality and customer loyalty. Goodness of fit of service quality and customer complaint behaviour

Model	R	R ²	Adjusted R ²	SE of the estimate
1	0.662 ^a	0.438	0.436	0.43377
2	0.670 ^b	0.450	0.446	0.43003

^aPredictors: (Constant), service quality, ^bPredictors: (Constant), service quality, customer complaint behaviour, SE: Standard error

Table 9b: Regression results for customer complaint behaviour, service quality and customer loyalty. Analysis of variance statistics for service quality and customer loyalty

Model	Sum of squares	df	Mean square	F	Significant
Regression	47.253	1	47.253	251.140	0.000 ^a
Residual	60.586	322	0.188		
Total	107.838	323			
Regression	48.477	2	24.239	131.073	0.000 ^b
Residual	59.361	321	0.185		
Total	107.838	323			

^aPredictors: (Constant), service quality, ^bPredictors: (Constant), service quality, customer complaint behaviour

Table 9c: Regression results for customer complaint behaviour, service quality and customer loyalty. Coefficient of the customer complaint behaviour, service quality and customer loyalty model

Model	Unstandardized coefficients		Standardized coefficients	t	Significant
	B	SE	β		
Constant	1.184	0.120		9.875	0.000 ^a
SQ	0.600	0.038	0.662	15.847	0.000 ^a
Constant	0.977	0.143		6.820	0.000 ^a
SQ	0.576	0.039	0.636	14.927	0.000 ^a
CCB	0.112	0.044	0.110	2.573	0.011

^aDependent variable: Customer loyalty, CCB: Customer complaint behaviour, SQ: Service quality, CL: Customer loyalty

As shown in Figure 2, the mediating effect of SQ on the relationship between CCB and CL is confirmed, with a symmetric confidence interval of 95% (lower limit = 0.20794, upper limit = 0.54747).

The results yield a large and significant Sobel z-value, further confirming that SQ mediates the relationship between CCB and CL. SQ is therefore a significant mediator in the association between CCB and CL, and this reduces the relationship between the two variables by 1% in the MTCs. This means that the presence of SQ weakens the direct relationship between CCB and CL. While SQ accounts for 61.7% of the indirect relationship, the direct relationship accounts for 61.8%. The main conclusion that may be drawn from the relationship between CCB and CL is that SQ partially mediates it, slightly weakening the direct association between CCB and CL to Ugandan mobile phone companies.

The unstandardized indirect effect was: $a*b = 0.37771$; $SE = 0.0866$. The direct effect was 0.820, the indirect effect was 0.535, and the indirect to total ratio was 0.811. The overall total

Table 10: Summary of mediating effect of service quality on customer complaint behaviour and customer loyalty

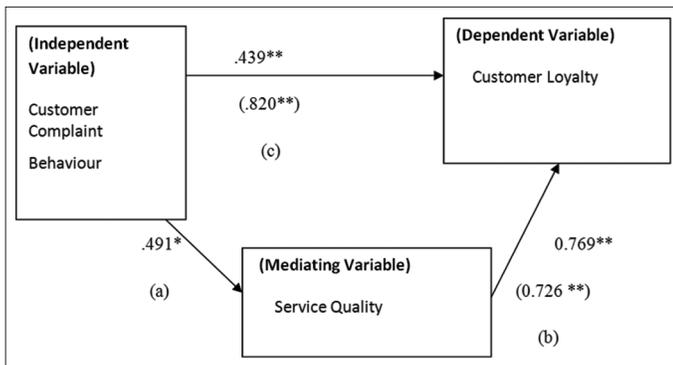
Analysis	R	R ²	R ² change	β	Significance (P-value)
Analysis 1: Customer loyalty and customer complaint behaviour	0.263	0.069		0.263	0.000
Analysis 2: Service quality and customer complaint behaviour	0.239	0.057		0.239	0.000
Analysis 3: Step 1: Customer loyalty on service quality	0.662	0.438		0.662	0.000
Step 2: Customer loyalty on customer complaint behaviour	0.670	0.450	0.011	0.636	0.000

Table 11: Summary of hypotheses testing

Hypothesis	Analytical model	R	R ²	ANOVA (P)	β	Coefficient (P)	Decision
H ₁ : There is a significant relationship between CCB and SQ	SQ=2.429+0.276CCB, P<0.05, R ² =5.7%	0.239	5.7	0.000	0.239	0.000	Hypothesis not rejected
H ₂ : There is a significant relationship between SQ and CL	CL=1.184+0.600SQ, P<0.05, R ² =43.8%	0.662	43.8	0.000	0.662	0.000	Hypothesis not rejected
H ₃ : The relationship between CCB and CL is mediated by SQ	CL=0.997+0.576SQ+0.112CCB, P<0.05, R ² =45%	0.636	45	0.000	0.636	0.000	Hypothesis not rejected

CCB: Customer complaint behaviour, SQ: Service quality, CL: Customer loyalty

Figure 2: MedGraph-generated depiction of the mediating effect between the variables of customer complaint behaviour, service quality and customer loyalty



standard coefficient = 0.439. Further, SQ has a direct relationship with CL ($\beta = 0.820$). CCB and CL is significantly mediated by SQ ($\beta = 0.726^{**}$, Significant = 0.000). There is also a relationship between SQ and CL, with a statistically significant correlation coefficient of 0.769^{**} .

4.2. CCB, SQ and CL

The objective of the current study was to assess the effect of SQ (mediator variable) on the relationship between CCB and CL. The results in Table 11 show that SQ had a statistically significant influence on CL as a mediating variable, with a significance level of $P = 0.000$, $\beta = 0.636$, and coefficient of determination (R^2) of 0.450, meaning that the mediating variable represents 45% of the variation. The main conclusion to be drawn from this relationship is that SQ partially mediates the relationship between CCB and CL in Ugandan MTCs. The results obtained from the MedGraph indicate that SQ accounts for 61.7% of the indirect relationship, while the direct relationship accounted for 61.8%. SQ slightly weakens the direct association between CCB and CL.

The study established the mediating effect of SQ on CCB and CL, revealing this effect to be positive and statistically significant. Hypothesis 3 was therefore not rejected. This finding suggests that SQ may play an important role in influencing the relationship between CCB and CL. Previous studies have shown a linear,

positive and statistically significant relationship between CCB and CL (Komunda and Osarenkhoe, 2012).

The overall objective of the study was to determine the mediating effect of SQ on CCB and CL in mobile phone subscribers. The study also sought to establish the influence of CCB on CL of mobile subscribers, and whether SQ (mediator) influenced this relationship. The study hypothesized the existence of a significant relationship between CCB and CL, and three hypotheses about these relationships were tested using primary data. This section summarizes the major findings. The results of the study revealed that the influence of CCB on CL in Ugandan MTCs was positive and statistically significant ($\beta = 0.263$, $P < 0.05$) and was partially mediated by SQ. These findings contribute to the general body of knowledge on consumer behaviour by showing a mediation effect on the study variables. SQ had a positive and significant direct relationship with the other variables, namely CCB and CL, and also as a mediating variable.

4.3. Conclusion and Implications

The purpose of our paper is to examine the mediating role of SQ in CCB and CL using a case study of mobile phone subscribers in an emerging market setting. While a substantial body of research has been carried out on CCB, our paper is the first to test the mediating role of SQ in the relationship between CCB and CL among mobile phone subscribers in Uganda. The study generates quantifiable evidence and contributes to our knowledge on the positive significant influence of SQ in enhancing the level of CL based on CCB.

SQ had a positive and statistically significant direct effect on CL ($P < 0.05$). This suggests that any improvements to the quality of services, in the form of tangibility, service convenience, network quality, assurance, empathy and responsiveness, have a direct but varying impact on CL. The findings show that to improve and sustain the loyalty of mobile phone subscribers, MTC management should place an emphasis on various dimensions of SQ. Consequently, SQ results in customer satisfaction, and customer satisfaction leads to CL and retention (Reichheld and Sasser, 1990; Hallowell, 1996). Companies that provide higher perceived SQ tend to be more profitable than others, and companies

that provide poor services lose customers (Philips and Hazlett, 1997). The former has a competitive advantage over the latter, an advantage that is essential for service companies to excel in an increasingly competitive business environment (Parasuraman et al., 1985; Johnson and Sirikit, 2002). To improve SQ, service companies need to understand which aspects of customer service impact SQ. This understanding can help companies to measure, control, and subsequently improve their SQ (Ren and Lam, 2014).

The service sector now accounts for almost two-thirds of the GDP in industrial countries and even in several developing countries (Tan et al., 2015). The telecommunication industry has become intensively competitive due to globalization. Therefore, mobile phone providers need to understand what are the strategies are efficient and applicable to close each of the gaps in GAPs model to improving SQ (Tan et al., 2015). In line with previous findings in Malaysia, these findings suggest that the most critical customer service problems in the telecommunication industry in Uganda are employee related. Some examples are employee's lack of skills, lack of knowledge, and insufficient number of employee and employee's attitudes of resistance to change in a new environment (Ren and Lam, 2014; Tan et al., 2015).

MTCs should make it their policy to recruit staff with an array of soft skills such as (but not limited to) empathy, reliability and the ability to respond promptly to customer complaints. The goal should be to work towards winning and retaining their subscribers by making a good impression through friendly, polite and competent interaction. For successful complaint resolution, MTC management should design staff training programs in handling customer complaints. As Gruber (2011) suggests, staff should go beyond just a smile and provide a warm, heartfelt response and to treat subscribers nicely when handling complaints.

MTCs should adopt a positive approach when dealing with customer complaints such as "a complaint is gold," to help maintain the relationship with their current mobile phone subscribers and generate positive WOM about the company for image creation and, consequently, customer retention. This implies that management should ensure that their companies encourage dissatisfied customers to complain in order to express their feelings and suggest how they would best like their problems to be addressed. MTCs should also provide timely, convenient channels for subscribers to express their disappointment regarding service failures.

In addition, management should put in place easily accessible avenues through which subscribers can voice their complaints, in the form of customer care centres, suggestion boxes and 24 h automated services to address frequently asked questions, rather than leaving subscribers to complain privately in their social circles. This can be achieved through prompt service recovery in situations where service failures are encountered, which lead customers to switch providers, to quietly walk away, or to complain directly to friends and family, or through social media like Facebook, WhatsApp and Twitter. Mobile phone operators should be proactive by anticipating negative WOM to prevent or minimize such messages from reaching social media or social networks.

Furthermore, MTCs should establish a system for recording all complaints from subscribers, for effectively communicating these complaints to the staff of the company, and then work towards avoiding repetition of the same problems. Such notations can then be used to find solutions to problems and be kept as a record to be used in the future to avoid recurrences (stability in terms of attribution theory) that may hinder subscribers from voicing future complaints.

Social implications are that complaints handling is not a substitute for abdicating the responsibility for managing quality and achieving customer satisfaction. The former and the latter are nothing but synonymous expressions and quite compatible concepts. However, customers don't always show dissatisfaction before they leave a provider. A great response strategy can convert angry and upset customers into loyal, raving fans. Although they are essential, complaining behavior and seeking social support are insufficient to examine all customer behaviours triggered by negative emotions. It is important for future research to investigate how other coping behaviors such as negative WOM and switching intentions affect repurchase intentions.

Other implications of the results of mediation testing are that the relationship between CCB and CL was partially mediated by SQ. This implies that the MTCs were considered to provide a quality service to customers, thus boosting CL; that is, they provided services as promised, were dependable, and were able to handle subscriber complaints promptly to meet customer expectations. MTC management should consider and monitor SQ dimensions, especially those of convenience, tangibility and network quality. From the survey, SQ is the sense of monitoring customer dissatisfaction and the company's aim to provide services that exceed customer expectations as being important to a moderate extent. MTCs need to routinely survey customer complaints to keep track of how mobile subscribers behave when it comes to complaints, that is, whether they voice them, seek redress, and remain committed to the company or exit, as this impacts their loyalty to the mobile operator. This enables MTC operators to handle subscriber dissatisfaction as or before it arises. Future research should use quantitative and a qualitative approach. Only cross-sectional used. A longitudinal study may therefore be useful in future to investigate the mediating impact of SQ over a longer period of time.

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