ANALYSIS OF THE MODERATING ROLE OF SERVICE FAILURE ON THE RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION: EVIDENCE FROM KENYA'S MOBILE PHONE SECTOR

Samson Ntongai Jeremiah ✉

Department of Business Administration, School of Business and Economics, Kenya

samwaqo@yahoo.com

Patrick B. Ojera

Department of Accounting & Finance, School of Business and Economics, Kenya

pbojera@yahoo.com

Isaac O. Ochieng'

Department of Mathematics and Business Studies Egerton University, Kenya

Isaac_ocheing'@yahoo.com

Abstract

Empirical studies on the relationship between service quality and customer satisfaction are inconclusive with some yielding positive results while others yielding weak insignificant and often negative results with limited efforts to resolve the conflict through a moderator investigation. The cause of these mixed results has remained unclear to date. Service failure, though seen as plausible moderator, is however not formally considered with its status and its likely effect on service quality-customer satisfaction relationship remaining unknown. The study sought to establish the moderating effects of service failure on the relationship between service quality practices on satisfaction levels of mobile phone subscribers in Kenya. Using a correlation research design on a population of 32.2 million, a sample of 384 subscribers of four mobile phones firms in Kenya was drawn using a proportionate stratified sampling technique. The study finding revealed that service failure negatively moderated the above relationship at β= -0.662,

p<0.05. This implies that as service failure encounters increases the satisfaction level of customers' decreases. The study added new knowledge that created clarity on the reasons for mixed and inconclusive results of the research in this realm by suggesting that through proper alignment and management of service failure encounters, the influence that service quality had on customer satisfaction can be intensified.

Keywords: Service Failure, Customer Satisfaction, Low Contact Service, Service Quality, Mobile Phone Industry

INTRODUCTION

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 customer's expectations, service delivery process and service outcome will have an influence on service quality. Moreover, Edvardsson (2005) note that service quality perception 1is 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 the mobile phone service sector, service quality infers 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).

Customer satisfaction basically 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.

Empirical evidence linking service quality to customer satisfaction has yielded mixed results. For instance, many studies have linked service quality and customer satisfaction as having direct relationship (Namanda, 2013; Auka, 2012; Nyaoga et al., 2013; Odhiambo, 2015; Kimani, 2014; Lai *et al.,* 2009; Wu and Lang, 2009; Kuo *et al.,* 2009; Baker, 2000). However, many other studies have depicted weak and insignificant link especially in mobile phone sector (Nimako et.al 2010; Uddin and Bilkis; 2012; Agbor, 2011). Consequently, the cause of this mixed results remain unknown.

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 is hypothesized to be potential moderators in the relationship between service quality and customer satisfaction. Service failure variable is proposed because the literature on service marketing suggests that it is plausible moderators of quality/satisfaction relationship for services (Walfried et al, 2000). These facts notwithstanding, empirically limited effort were put forward to establish their moderating roles especially in the context of low contact service setting. Therefore, little is known on the status and the moderating role of the service failure as moderator variables in the quality/satisfaction relationship.

Service Failure

A service failure is 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 satisfaction and commitment. 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 a critical issues for both service managers and researcher (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. Hence service failure has been identified as a neglected area requiring additional research (Andreassen, 1999; Tax, Brown and Chandrashekaran, 1998). Therefore, following the limited attention given to service failure little is known about how customers evaluate service failure and the potential effects that it has 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. For instance, moderation studies (Wang et.al, 2004; Caruana et. al, 2000) established the moderating role of customer value in the relationship between service quality and customer satisfaction and found it significantly so. However, with their small sample size and the problem of multicollinearity, their results cannot be generalized to all service setting including mobile phone services. Elsewhere, in a study in 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. Moreover, Walfried et al., (2000) study focused in banking services which is high end and high contact services with high service standards and high customer expectations. Therefore, the moderating role of service failure in quality/satisfaction model with regard to low contact services such as mobile phone services has not been formally explored. Consequently, little is known about the status of service failure and its influence on quality/satisfaction model in low contact services, particularly in Kenya's mobile services.

Kenya's Mobile Phone Market

Kenya's mobile phone sector, though growing in investment at adoption rate of 80.5 % by 2014 and contributing 12% growth in GDP in 2014, is however experiencing numerous challenges holding back its growth. Sectorial report by Communication Authority of Kenya (CAK) in 2013/2014 revealed that fraud on customers, frequent service interruptions, numerous customer complaints, limited network coverage in some parts of Kenya are some of the stakeholders' concerns. Besides, CAK have rated all the four mobile phone operators in Kenya as non-compliant in terms of set target for quality of service in 2013/2014 period. Attempts to resolve

these concerns concentrated with little success on policy issues instead of firm's internal management activities like service quality practices.

Hypotheses for the study

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.

RESEARCH METHOD

The study used a correlation research design to obtain the empirical data to address the objectives of the study. The study population constitutes a total of 32.7 million mobile phone subscribers obtained from the data published by CAK in 2014 which include staffs of those four mobile firms. The four mobile phones firms explored offer services ranging from call, money transfer and data services and include: Safaricom Kenya, Airtel Kenya, Orange Kenya and Essar Telkom. The study adopted a proportionate stratified sample of mobile phone subscribers drawn from the four mobile phone firm to select a sample of 384 respondents. The distribution of sample respondents under each stratum are as follows: Safaricom (251), Bharti Airtel (59), Essar Yu (41) and Telkom Orange (33). Both primary and secondary data was collected on different aspects of the service quality, service failure, customer communication and their likely impacts on customer satisfaction. Pre-validated self-administered questionnaires with lowest scale reliability at α=0.739 were used to collect primary data while expert review was used to test for content validity.

Data analysis involved the use of inferential statistics. Responses for all questionnaires except for demographic profiles were captured on a seven point Likert scale ranging from 1 to 7. Data computation was done with the aid of a statistical software package (SPSS). Moderated regression analysis was used to determine the moderating role of service failure on the relationship between service quality dimensions and customer satisfaction.

EMPIRICAL RESULTS AND DISCUSSIONS

Response Rate

Out of 402 questionnaires issued to the respondents, a total of 381 questionnaires were obtained, yielding a satisfactory response rate of 99.2%. 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). Since the response rate for the current study is at 99.2%, it is deemed to be adequate and nonresponse biased is greatly minimized.

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

The objective of the study sought to establish whether the relationship between service quality. This objective of the study was actualized by use of Moderated Regression Analysis (MRA). This was informed by realization that weak relationship among variables can be remedied by incorporating appropriate moderating variable (Luft and Shields, 2003). Furthermore, inconsistent research findings particularly with regards to service quality-customer satisfaction can be resolved with the inclusion of the contextual factors in the form moderator variables to synergies the relationship. 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. The procedure involved adding the interactive term between service failure and service quality and observing a significant increase in shared variance in R^2. That is, the change in R^2 from the restricted regression model (without moderator variable) to the full regression model (with moderator) should be statistically significant. However, in order to avoid multicollinearity in a multiplicative regression models, a procedure called mean centering was performed so that all construct measures were mean centered before calculating interaction terms (Bagozzi et al., 1992; Cohen and Cohen, 1983).

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 coefficient is shown in Table 1.

Table 1: 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

The Table 1 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;

$$\hat{Y} = -0.391+ 0.267X + 1.437Z -0.662XZ\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots1$$

The model can be re expressed as;

$$\hat{Y} = (-0.391 + 1.437Z) + (0.267 -0.662Z) X\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots2$$

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 mean that as service failure encounters increases by one units, the satisfaction level of customers decreases by -0.662. The summary statistics for moderator regression model are shown in Table 2.

Table 2: 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	df1	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

As shown in Table 2, 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) implying that the relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya. When compared to 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 (increase in R^2= 0.064, *p*=.000) or 6.4%. This change

though small was significant. Moreover, the variables in 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 hypothesis $H_o: \beta_i = 0$, which states that the relationship between service quality and customer satisfaction is not moderated by service failure among mobile phone firms in Kenya is not supported.

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 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 that the both models are 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). Similar view was held by Fairchild and Mackinnon (2009) who noted that interaction effect; in this case 6.4% is very low but never the less confirm moderation. This effect though small, confirms the 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).

DISCUSSION OF THE RESULTS

This finding concurs with theoretical arguments asserted by 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 (B= -0.662, p=0.000). However, the results implies 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 implies 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 rare. However, one notable exception to this scarce empirical work was the study by Walfried et al., (2000). In the survey-

based empirical studies conducted in private International Banks, Walfried et al., (2000) concluded that service failure did not have a moderating role in quality/satisfaction relationship along the five dimensions of SERVQUAL scale. Walfried et al., (2000) further concluded that service quality is a "higher order' variable that operates independent of alignment to service failure a moderator variable.

However, Walfried et al., (2000) emphasized that even though service failure did not moderate the service quality/ customer satisfaction as was measured using SERVQUAL scale, it does nonetheless moderate the relationship between functional quality measured using SERVPERF scale and customer satisfaction. According to Parasuraman et al., (1988), the somewhat inconsistent findings of the past studies could be due to conflicting views about the dimensionality of service quality constructs. Zeithaml et al., (1990) observed that up to date, researchers are not in agreement yet over whether to use SERVQUAL scale or functional/technical measure of service quality. Moreover, getting precise measure of service quality is quite a challenging undertaking. Such variance in research findings can also be attributed to variability inherent in the service that tends to defy standardization of service quality standards (Gibson, 2009). However, the findings of the current study have made a major milestone towards bringing clarity on the interrelationship between service quality and customer satisfaction relationship that has often remained inconclusive. This study hypothesized and confirmed moderation of service failure on the ever elusive service quality-customer satisfaction relationship. The study further added new knowledge that created clarity on the reasons for mixed and inconclusive results of the research in this realm. Indeed, the finding imply that through proper alignment and management of service failure encounters, the influence that service quality had on customer satisfaction can be intensified.

Another study that sought to introduce the possible role of a moderator in the relationship between service quality and customer satisfaction of customers of audit firm was that of Caruana *et al* (2000) study. 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 and is deemed statistically significant. However, the beta coefficient for the moderating effect is negative thus having a small negative effect on the overall level of satisfaction. However, Caruana *et al.* (2000) had a serious problem of multicollinearity since variables were strongly correlated and the small samples of 80 participant based on one case rendered it not generalizable. By contrast, the current study went beyond existing literature which didn't report much on service failure as potential moderator. In a bid to clarify the enigmatic relationship between service quality and customer satisfaction and to resolve results of the previous

inconclusive findings in this context, the study tested its moderation effect and found it positively significant. This study therefore made a significant contribution to knowledge by highlighting on how contingency factor can be aligned in quality-satisfaction model to better explain the mixed results by providing moderation findings as further empirical evidences and theory development.

CONCLUSIONS AND RECOMMENDATIONS

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. The study found that moderating effect of service failure on the relationship between service quality and customer satisfaction is statistically significant. The study made a major milestone towards bringing clarity on the interrelationship between service quality and customer satisfaction through a moderator investigation. The study therefore concluded that moderating effect of service failure which improves the model's goodness of fit is statistically evident. This implies that as service failure encounters increases the satisfaction level of customers' decreases. In other words, service failure encounters influences customer satisfaction level negatively. The explanatory power of service quality on quality-customer satisfaction can be enhanced by aligning and controlling for service failure as contingency factors that has a significant influence on this relationship.

Based on the second conclusion that found that positive relationship between service quality and customer satisfaction was moderated by service failure, and that service quality is a predictor variable which operates well if aligned with service failure to better influence customer satisfaction, the following recommendations are made: That service manager should formulate viable service strategies to minimize on service failure encounters in areas such as delivery failure, response failure and eliminate unprompted employee actions. 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. In addition, 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.

SUGGESTIONS FOR FURTHER STUDIES

Since 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.

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