Relating quality of Service to Customer Satisfaction in the Nigerian Automotive Service Sector

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Abstract. Service quality and customer satisfaction are two management concepts that have transformed the operational productivity and competitive standards of businesses across industries. While several operational strategies are developed as a result of these two concepts, operational productivity will depend on the effect on specific quality attributes that influences the consumer's judgment on their service experience. In developing countries, where unstructured and unregulated business practices sum up the characteristics of the automotive after-sale industry, it is then difficult for service providers to employ operation strategies developed to only suit structured business organizations. Instead, a customer approach provides a simplified approach to improving operational productivity. This study evaluates the relationship between service quality and customer satisfaction in the Nigerian automotive industry in a bid to recognize the perception of auto-repair clients through their service experience(s). Primarily focusing on four-wheeled automobile maintenance services, 200 respondents were obtained from passenger vehicle owners and make patronize auto-repair operators in Lagos state, Nigeria. Quantitative data analysis employed a mean item score, and regression analysis. The findings revealed that while service quality related to satisfaction, attributes such as empathy, reliability and assurance were responsible for their relationship. This studies outcome intends to create awareness for quality parameters that improve productivity and spark more discussion on the applicability of these service concept in the Nigeria automotive after-sales sector.

Keywords: Service Quality, Customer Satisfaction, After-sales, Vehicle Repairs.

1   Introduction

The quality of services and the satisfactory level attained in businesses have been widely discussed for over three decades as the two primary contributors to explaining consumer's response to service experience and the profitability or success of service-oriented businesses [1]. While the practice of quality and satisfaction strategies in businesses across industries, projects and in small enterprises have been found to creates a distinction amongst service providers and competitive edge, the impact of

37 these two concepts also reveal gaps or limitations in the operational structure of service-
38 oriented businesses [2] [3].
39 Interestingly, several studies have shown the importance of service quality attributes
40 and customer satisfaction to the productivity and profitability of business ventures in
41 the after-sales sector of the automotive industry. Whiles some studies have focused on
42 measuring these concepts, other discussions have been expected on suggesting
43 performance optimization strategies, focusing on the operational sections of service
44 businesses rather than from a customer approach [4] [5] [6]. Studies that have
45 concentrated on tackling performance optimization through a customer behavioural
46 approach have equally agreed and argued that service quality and satisfaction presents
47 far better solutions and provide innovative strategies toward improving businesses in
48 the automotive after-sales sector [7] [8].
49 For these reasons, this study is focusing on identifying the relationship between
50 service quality and customer satisfaction in the after-sales sector. Particularly in the
51 Nigeria automotive industry where the upstream sectors; research design and
52 manufacturing areas have been hampered by ill policies, poor government backing and
53 high importation of automobile since its inceptions leaving the aftersales sector as the
54 last surviving area for indigenous business stakeholders to practice [9] [10].

1.1 Service Quality and Customer Satisfaction

56 There exist several definitions to clearly explain service quality, many of which have
57 a similar direction towards the mindset of a customer and their judgement on the service
58 consumed and their perception of the efforts of the service provider [11] [12]. Customer
59 judgement was explained as a subjective evaluation of the inferiority or superiority of
60 a service provider's effort and the quality of the service consumed based on their
61 expectations or previous experience [1].
62 A review of studies showed that several researchers have driven deep into
63 identifying the impact of service quality, designing measuring models and identifying
64 its critical quality attributes that are responsible for influencing customer attitudes
65 towards services. These studies have produced several models for measuring service
66 quality and unending arguments on their applications and legitimacy [12]. Many of
67 these arguments have brought about some generally acceptable conclusion one of
68 which is the discussion of service quality instrument SERVQUAL is credible for
69 identifying the critical factors of service quality [13].
70 Conversely, the SERQUAL has been employed in several studies to identify the
71 quality attributes that influences auto-repair service customers, some of which the
72 research suggested were responsible for explaining the satisfactory level of service
73 delivery [7] [8] [14].
74 The Literature on customer satisfaction has also pointed out that service quality
75 amongst other factors were determinants of the customer's fulfilment response to the
76 outcome and process of a service consumed [15] [16]. For instance, a study conducted
77 on the after-sales services in Ebonyi state Nigeria identified the technical quality of
78 service workshops and its technicians were the key causes of low customer satisfaction
79 [8]. In agreement, other studies across different countries also pointed out some service

80 quality attributes such as staff attitude, empathy, service tangibility and reliability
81 qualities were responsible for the outcome of customer satisfaction in automotive after-
82 sales services [16] [17] [18] [19].

83   While these quality attributes have been said play a primary role as the determinants
84 of customer satisfaction, other studies argued that the emotional influence of perceived
85 values has a stronger effect of consumer's response to service than service quality [4]
86 [16] [20]. Studies on the juxtaposition of service quality and customer satisfaction
87 clearly revealed that whiles these two concepts appear very similar in their
88 conceptualization, definitions and implementation, their difference can be view as an
89 attitude and consequence structure [1] [15] [21]. Another study explained their
90 differences in individual structure and determinants. While one places emphasis on
91 expressing the productivity of a firm's effort delivering an expected service, the other
92 was established on the profitability of service provider based on the acceptance and
93 service performance judgement made by the customer [22].

94   When relating both concepts, researchers argued that a causal relationship exists
95 between service quality and customer satisfaction that the former holds the helm as an
96 antecedent variable while the later, a precedent variable [1] [22] [23].

97   In conclusion, the most effective approach towards service quality and customer
98 satisfaction are those employed through a customer focus because of its direct impact
99 on the most important element of services; the customers themselves [24]. While it
100 provides simplistic insights to challenging issues, irrespective of the size and nature of
101 the service, industry or firm,

2   Methodology

103   The rationale of the study was designed to provide practical insights to service
104 providers of customer's behavioural response to auto-repair services as well as an
105 addition to the body of knowledge that is quite limited in the region of focus, Nigeria.

106   The study employs a descriptive quantitative approach, one that is applied to
107 research focused on relating variables, understanding the unique traits of a group or
108 groups of factors and comparing the capability these factors to explain a real
109 phenomenon [25]. Similar studies have used the same approach to this approach [8]
110 [14]. Survey questionnaires, regarded as the most conventional method for quantitative
111 studies used to gather the primary data, a well-structured close-ended questionnaire
112 designed with a five-point Linkert scale was employed as the data collecting instrument
113 to gather respondents auto-repair experiences and the quality perceptions of their
114 service providers [26]. The questionnaire was structured similar to that of the
115 SERVQUAL instrument as its usefulness was justified in an extensive service quality
116 study for identifying customer's perceived quality attributes of services [13].

117   The research was conducted in Lagos for its high population density, extensive
118 relevance as a business capital city and has the highest presence of automobiles in
119 comparison to other regions in Nigeria [27] [28] [29]. With regards to the fact that
120 customer-centered nature of the study requiring a wide coverage capability, and time
121 sensitivity of the study, random sampling was employed to for questionnaire

122   distribution [26] [30]. Questionnaires were distributed to respondents who are owners
123   and regular users of a four-wheeler passenger vehicle in the Lagos metropolis.
124   Questionnaires were distributed and collected between October to November 2016.

125   3   Analysis Results and Discussion

126   Out of 300 distributed questionnaires, only 200 were deemed valid and used for data
127   analysis, producing a response rate of 66.67 per cent. SPSS version 21 was used to run
128   data analysis for the demographic analysis and standard multiple regression analysis to
129   evaluate the relationship between service quality and customer satisfaction.

130   3.1   Demographic analysis:

131   The demographic analysis which consists of 16 items in the questionnaire was designed
132   to capture the nature of the respondent's service regularity and their vehicle condition
133   when bought and also in use. Amongst the outcomes of the demography, a crux finding
134   showed that the highest percentage of owners and vehicle users are male. Demography
135   also revealed that majority (57 per cent) of the respondents owned only one vehicle,
136   most of which were purchased at a pre-owned state (fig 1) with at least five years in use
137   (fig 2) and were bought without service warranties. These findings all correlate with
138   the previous study in Nigeria about the dominance of pre-owned cars in circulation
139   [28]. In agreement with the aforementioned, another finding revealed that most
140   respondents take their cars for services and repairs much more regularly than the
141   standard annually service frequency expected due to the high age distribution of cars
142   when bought and in use.

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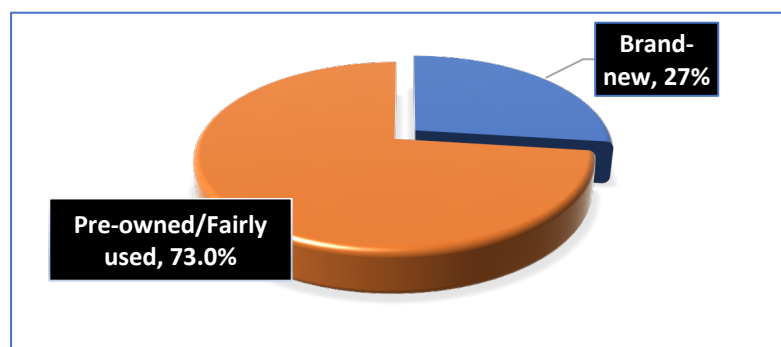
145   **Fig.**1. Distribution of State of car when purchased by Respondents

146
147
148   Demography study also revealed while that a higher percentage of respondents claim
149   to make use of more than one service option, most prefer the patronage of the
150   unauthorized independent service operators and roadside vendors than to the authorized

151 service centres. The aforementioned findings thus resonate with previous studies of the
152 prevailing importance of independent automotive services in both developing and
153 developed countries [4] [20] [31].
154
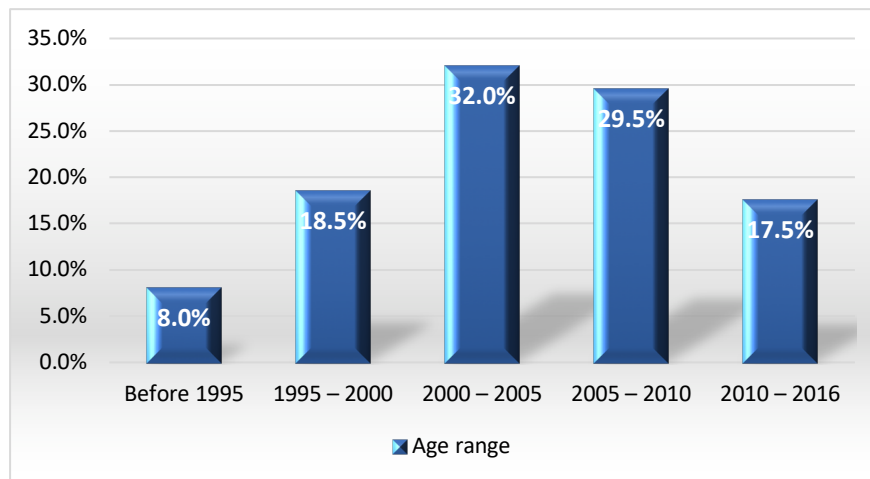
155 **Fig.**2. Distribution of Vehicle Period of Manufacture

156 **3.2 Standard Multiple Regression**

157 Analysis: A multiple regression analysis is employed to evaluate the relationship
158 between two constructs by exploring the correlation between their variables
159 (independent and dependent) [32, p. 146]. Multi-regression model equation to evaluate
160 the relationship between service quality and customer satisfaction was established
161 below.

162 $$Y_{CS} = X - X_2 - X_3 - X_4 - X_5$$

163

164 The five dimensions of service quality, Reliability, Empathy, Tangibility, Assurance
165 and Responsiveness, as constructed using studies SERVQUAL was inputted as the
166 independent variables denoted by (X), while customer satisfaction items were used as
167 the dependent variables denoted by (Y).
168 Tabachnick and Fidel [33, p. 172] argued that establishing regression preliminary
169 assumptions ensures the regression analysis produces an explainable and reliable
170 outcome without complications. These assumptions include assessing the sample
171 moulds, assessing whether multicollinearity or singularity patterns exist, and checking
172 the residuals of the model and the presence of outliers [32, p. 144]. The outcome of the
173 preliminary analysis and the multiple regression analysis was discussed below.
174

175 a) Sample Size: The study's sample size was met following the guidelines of the
176 assumptions of the standard multiple regression with respect to the quantity of
177 the minimum acceptable size of the independent variable [33, p. 23].

178　b)　Independent Variable Loaded: In accordance to the guidelines of a standard
179　　　multiple regression, the assumptions for the level of correlations of each
180　　　independent variable and the dependent variable was check [33, p. 140]. The
181　　　preliminary analysis revealed only three independent variables; Empathy,
182　　　Reliability and Assurance showed significant correlation with the independent
183　　　variable as revealed in Table 1.

184　　　　　　　　　　　　**Table 1.** Variation retained/Removed

Model	Variables Entered	Variables Removed	Method
1	Empathy Reliability Assurance	Tangibles Responsiveness,	Enter

　　　a. Dependent Variable: TrCS
　　　b. All requested variables entered.

185
186　c)　Multicollinearity, Singularity and Normality: To ensure a relationship
187　　　 exist between the independent and dependent variable, the multicollinearity
188　　　and singularity analysis carried out on the data by passing it through the
189　　　collinearity matrix [32]. Data preliminary analysis revealed values fell in an
190　　　acceptable range in both the value of Tolerance (1-R) and Variance inflation
191　　　factor (VIF). Followed was the test for normality, linearity and
192　　　homoscedasticity between the variable scores. This is undertaken to identify
193　　　or predict the type of relationship formed between the variables through the
194　　　patterns formed on the scattered plot graph [33, p. 125].
195　d)　Evaluating Each Independent Variables: On the coefficient matrix table, the
196　　　outcome of Beta values (β) is used to compare the relational impact of each
197　　　dependent variables towards the independent variable [32, p. 159]. thus,
198　　　highest β coefficient explains the dependent variable with the most substantial
199　　　contribution towards explaining customer satisfaction. Data Analysis showed
200　　　that empathy (β, -0.471) had the highest impact on customer satisfaction when
201　　　compared to the reliability (β, -0.265) and assurance (β, -0.210).
202　e)　Multiple Regression Analysis: Following the positive feedback from the
203　　　preliminary analysis validating the data for regression analysis, the model
204　　　employed was passed through validity test to explain the rate (R square) at
205　　　which the independent variables can explain the depended variable [32, p.
206　　　158]. ANOVA analysis was also performed to validate the statistical
207　　　significance of the model employed. According to Pallant [32, p. 155], the
208　　　model is considered statistically significant if the P-value falls below 0.1. The
209　　　outcome of the model verification showed that the three independent
210　　　variables, Reliability, Empathy and Assurance were responsible for explaining
211　　　71 percent (R square is 0.710) of the customer satisfaction variable. P-value
212　　　(0.000) also verified the statistical significance of the model as revealed in
213　　　Table 2 and Table 3.

214

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845	0.714	0.710	0.13599

a. Predictors (constant): Empathy, Reliability, Assurance
b. Dependent variable: Customer Satisfaction.

215

Table 3. ANOVA

Model	Sum of Squares	df	Mean Square	F	Std. Error of the Estimate
Regression	8.654	3	2.885	155.985	.000
Residual	3.458	187	0.018		
Total	12.113	109			

a. Predictors (constant): Empathy, Reliability, Assurance
b. Dependent variable: Customer Satisfaction.

216

217 The outcome of the multiple regression analysis does share some insightful finding.
218 Firstly, relationship structure between service quality and customer satisfaction was
219 identified, however, showed a nonlinearity pattern which does suggest the presence of
220 mediating effect factor which correlates with studies that have argued on a mediating
221 effect of perceived value [16] [4] [31]. Secondly, the percentage of the R square (71%),
222 standard error of the estimate (13%), and the level of P-values (0.000) not only revealed
223 the impact on service quality on customer satisfaction in Nigerian car repair services
224 but also validate statistical significance of the regression model applied. This outcome
225 does clearly validates previous studies that have observed the strong impact of service
226 quality as an important determinant of customer satisfaction [7] [13] [17] [21] [23].
227 Lastly, the outcomes of service quality dimension, empathy as the primary indicator of
228 customer satisfactory further readdresses the importance of customer interaction [8]
229 even in technical oriented services [4] [7] [17] [34]. This resolves regression model
230 equation as shown below with Assurance, Reliability and Empathy denoted as (X_2, X_3,
231 and X_5 respectively)

232 $$Y_{CS} = 2.656 - 0.210X_2 - 0.2.65X_3 - 0.471X_5$$

233 **4   Conclusions**

234 This paper presented an analysis of how quality service practices can promote
235 profitability in the Nigerian automotive industry by focusing on customers perception
236 rather than the business operational structure. The data employed 200 valid
237 questionnaires returned by car owners and regular users in the Lagos metropolis in
238 means to understand their service experience and quality perceptions. The analyzed
239 data revealed considerable relationship exists between service quality and customer

240 satisfaction in the characteristics of the quality attributes of service that is primarily a
241 function of the effort of service providers. The study shares agreements with previous
242 studies that argued on the strong impact of service quality on customer satisfaction in
243 the automotive service industry. The managerial implication of the study does highlight
244 the importance of improving customer interaction, particularly empathy qualities of car
245 repair services in Nigeria automotive industry. A considerable insight from the study
246 does suggest that the operational structures of authorized service centres are not
247 customer friendly and perceived too costly to motivate more customer patronage. On
248 the other hand, the impact of reliable service and the ability of service providers to
249 display competence should not be overlooked amongst independent service operators.
250 Future studies should be dispensed in benchmarking service quality practices among
251 automobile maintenance services in Nigeria. Also, studies should be focused on
252 developing operational strategies of regulating automobile services especially among
253 the non-authorized service operators in developing countries.

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