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Customer Satisfaction and Transportation Service Quality of Mass Transit Operators in South-South States

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ABSTRACT

This study investigated customer satisfaction with transportation service quality dimensions of mass transportation companies in south-south States of Nigeria. A cross sectional survey research design was initiated with pragmatic research philosophy as the guide. The instrument for data collection was structured questionnaire. Sample size was determined after a pilot survey and this sample size was with Cochran formular which gave a sample size of 400 respondents. Pearson correlation was used to check collinearity and discriminant analysis while Cronbach alpha was used for internal reliability analysis. Multiple linear regression (MRA) was used for analysis and for hypotheses validation. The results of the study show that: there is no significant positive relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies; also, there is a significant positive relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies. Based on the findings, it was recommended among others, that mass transit companies should enhance their service quality by improving information about their routes and giving orientations to improve staff behaviour.

Keywords: Customer satisfaction, Accessibility, Comfort and Service quality

INTRODUCTION

The size of the service industry is expanding dramatically in virtually all countries around the world and Nigeria is not an exception. Organization for economic cooperation and development (OECD, 2000) notes that as an economy matures, the contribution to employment between agriculture, industry, and services changes significantly. Even in emerging economies, the services output represents at least half of the Gross Domestic Product (GDP) (Wirtz & Lovelock, 2018). In Nigeria, the service sector is pervasive and is a significant contributor to the economy. The services sector accounts for 44.4 per cent of the Nigerian GDP for the year 2021 while industry and agriculture account for 31.9 per cent and 23.7 per cent of the GDP for same year 2021 respectively. Thus, the services sector is dominant and strategic to the Nigerian economy. Transportation has been described as an essential ingredient in the economic life of every nation. It is the engine that drives the growth and development of people and countries. Mass transportation which is the movement of large number of people, goods and services is inevitable for the socio-economic and cultural integration of nations (Efobi & Anierobi, 2014). For this reason, the issue of mass transportation has attracted the attention of several administrations in Nigeria. Immediately after Nigeria gained political independence, different regional and city governments as well as private investors began to establish mass transportation system for easy movement of people and to ease inter-state and intra-state travels. Some of these are: the oriental lines, the Ibadan City Bus Service, the Kano line, later Kano State Transport Corporation, Kwara Line and Plateau State Transport Corporations among others. Unfortunately, most of these transport lines were comatose between the second half of 1970s and early 1980s due to mismanagement and fraud (Barret, 1993).

Most of the mass transport operators have collapsed while others are struggling to survive (Adesanya, 2002; Barret, 1993); due to many factors ranging from financial impropriety, inadequate government financial support, lack of qualified staff among others (Adesanya, 2002 and Barret, 1986). One Other problem worthy of note here is the term: *mass transit*. Onokala (2000) stress the implications of the use of small buses, carrying 18 passengers then but now carrying 14 passengers, as *mass transit* in Nigeria; while Ameigbebhor (in Onokala, 2000) studied vehicular traffic congestion in Port-Harcourt metropolis noting that Nigerian cities are dominated by small 14-18 passenger buses. All these problems have adverse effect on transportation service quality in South-south States in particular and Nigeria in general. Zeithaml, Berry and Parasuraman (in Wirtz & Lovelock, 2018) have identified 10 dimensions used by consumers in evaluating service quality which they subsequently consolidated into five broad dimensions: tangibles, reliability, responsiveness, assurance and empathy. Several studies (Enimola, Egwu & Nafiu, 2021; Mudenda & Guga, 2017; and Chocholac, et al. 2020) have used these dimensions either modified or in their original forms to evaluate quality of transportation service. EN13816 (2002) defines a set of recommended criteria to measure the quality of public transport services; these are divided into eight categories: availability, accessibility, information, time, comfort, safety, ecological impact. Other authors examined selected variables that are considered important in describing the service quality and orienting users' preferences in

public transport, e.g. comfort, cleanliness (Le-Klähn, Hall & Gerike 2014); line routing (Stopka, Čejka, Kampf, Bartuška, 2015); information about routes (Budiono, 2009); circulation of vehicles (Kampf, Zeman, Beneš, 2015); the overall condition of the vehicles and stops, security (Budiono, 2009); optimizing timetables, the availability of space and seats (Le-Klähn, Hall et al., 2014); network coverage, the competence and behaviour of staff, and time efficiency (Guiver, Lumsdon & Weston, 2008). Beirão and Sarsfield Cabral (2007) said that the use of public transport equally depends on the distance to be covered, lifestyle and personal characteristics. This study employed: accessibility, comfort, availability, reliability, staff behaviour and service information about routes together with personal characteristics as a moderating variable to evaluate customer satisfaction with mass transit service quality in South-south States.

The main objective of this study is to appraise customer satisfaction with transportation service quality dimensions of mass transportation companies in South-south States. Specifically, the objectives are:

1) To ascertain the relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies;

2) To find the effect of comfort on customer satisfaction with mass transportation services quality of mass transit companies;

CONCEPTUAL REVIEW

Customer Satisfaction

Central to the customer satisfaction theory, is the expectations or predictions and forecasts made by customers in comparison to the actual delivered value (Parasuraman, 1988). This implies that a measurement is required for customer satisfaction. The SERVQUAL model introduced by Parasuraman (1988) provides one of the most important bases in the theory of customer satisfaction. The model offers the criteria for the measurement of customer satisfaction with a product or service by assessing and comparing both perceptions and expectations across a range of differing product and service characteristics. As observed by Terblanche (2002), superior service quality leads to customer satisfaction. Therefore, service quality, as measured by the SERVQUAL model cannot be separated from customer satisfaction analysis. The outcome variable for this research is customer satisfaction hence service model in modified form is paramount. Further development of the customer satisfaction theory was conducted by Oliver (in Machirori & Fatoki, 2011), who introduced the expectancy disconfirmation theory (Nevo, 2005). Satisfaction is a judgment that follows a series of consumer product interactions. Most customer satisfaction studies are based on the expectancy-disconfirmation model of satisfaction (Wirtz & Lovelock, 2018). In this model, confirmation or disconfirmation of pre-consumption expectations is the essential determinant of satisfaction. During the decision-making process, customers assess attributes and risks related to a service offering. They also develop expectations about how the service they choose will perform (i.e., the predicted, desired, and adequate service levels). The zone of tolerance can be narrow and firm if the expectations are related to attributes that are important in the decision-making process. During and after consumption, consumers experience the service performance and compare it to their expectations. Satisfaction judgments are then formed on the basis of this comparison. If performance perceptions are worse than expected, it is called negative disconfirmation. If performance is better than expected, it is called positive disconfirmation, and if it is as expected, then it is simply called confirmation of expectations. Customers will be reasonably satisfied so long as perceived performance falls within the zone of tolerance, that is, above the adequate service level. If performance perceptions approach or exceed desired levels, customers will be delighted. Satisfied customers are more likely to make repeat purchases, remain loyal, and spread positive word of mouth. However, if the service experience does not meet their expectations, customers may suffer in silence, complain about poor service quality, or switch to a different provider in the future. The satisfaction judgments for individual attributes are aggregated by the consumer to an overall customer satisfaction evaluation. Multi-attribute models help us understand how customer satisfaction is created (Wirtz & Lovelock, 2018). Specifically, they help managers to identify the attributes that have a strong impact on overall satisfaction. This is especially important if customers are satisfied with some attributes but dissatisfied with others. Understanding this enables managers to cement the strengths of the firm's services and to focus improvement efforts where they matter most.

Accessibility

This refers to access to the mass transit systems including the link and connection between different transport modes. The accessibility is being enhanced and improved both in areas of the access to the stops and the access to the buses. This method implies that all manner of passengers can use mass urban service whether they are people with limited mobility, with baby carriages or with wheelchairs (disabled) (Chocholac et al. 2020). According to Vallejo (2010), the punctuality and regularity of the service has been improved and increased and also the travellers are informed on board, at the stops, by messages and by website of the journey times, frequencies, schedules and departures as well as waiting times. It is equally a comfortable system in all aspects. Accessibility also implies that bus services operate in close proximity to all residences and that the vehicle internally offers the passengers reasonably wide space convenience and comfort. The mass transportation service is aimed at not only transporting the passengers to their destinations, but also to do it in a fast and convenient way, and definitely without discriminating anybody with physical problems or residents of areas with narrow streets. Vehicle seats are further apart with less personal interactions that could give unimpressive experience in a journey. Imam (2014) state that over loading is in itself uncomfortable, especially when associated and accompanied with annoying fellow passenger behaviours like smoking or talking loudly on the mobile phone. She further stated that, users will not be satisfied with the accessibility, where the vehicles are not wheelchair accessible.

Comfort

This is the service elements introduced in order for the mass/public transportation services usage to be comfortable and pleasant to passengers. Beirao and Cabral (2007) reported that having a comfortable journey is very important for all the passenger respondents. Comfort implies that there are soft clean seats, a pleasant temperature, having air condition and not overloaded vehicle. This aspect attracts different evaluation from different categories of people/passengers. Ideally, regular mass transport users perceive that the new buses with air-condition and better or lower floor are *very good and very comfortable*. However, the number of passengers in the vehicle at peak periods can be problematic. Conversely, car users and occasional mass/public transportation users usually see buses as uncomfortable, too crowded, and at times smelly and air tight.

Customer Satisfaction versus Service Quality

Decisions on customer satisfaction and service quality are arrived at by comparing customers' expectations with their performance perceptions. Satisfaction and service quality are however, very distinguishable constructs. Wirtz and Lovelock (2022) see satisfaction as a specific evaluation of a single consumption experience, stressing that it is a direct and immediate consequence to that experience and could be seen as a fleeting judgment. In contrast, service quality relates to comparatively consistent attitudes and beliefs about a firm. Zeithaml et al. (2018) state that though customer satisfaction and service quality have some things in common, satisfaction is generally viewed as a broader concept, while service quality relies specifically on components and dimensions of service. For instance, a passenger may have been dissatisfied with a particular mass transit after an experience, but will still think that a mass transit offers great services, hence, satisfaction and quality are interrelated and intertwined. Though the perceptivity of a firm's overall service quality is stable, it can change with time in the same direction as transaction-specific satisfaction ratings (Palmer & O'Neill, 2003). To this end (Wirtz & Lovelock, 2018) state that it is service quality that in turn induces and informs repurchase intentions.

Oftentimes people refer to transaction quality like seat condition, waiting time, size and bus spaces, number of stops in a mass transit company, that relates to attribute satisfaction which includes courtesy of the driver and crew members, complaint handling among others. Wirtz and Lovelock (2018) says that both are transaction-specific and impact overall consumer satisfaction, which in turn influences service quality beliefs at both the attribute or overall level. These terms may confuse customers and passengers but when we distinguish between transaction-specific judgments and the more consistent beliefs, perceptions and attitudes, the difference in meaning becomes clear (Wirtz & Lovelock, 2018). It is worthy of note that customers repurchase intents are determined by their overall beliefs about the service quality of the firm rather than by individual, transaction-specific satisfaction judgments formed as a result of consumption.

Empirical Review

Here in this section, we review and present relevant empirical papers and researches on the topic of mass transportation service quality and customer satisfaction. Chocholac et al. (2020) studied service quality of the urban public transport companies and sustainable city logistics. The article is focused on the evaluation of the outcomes from the primary research concerning the service quality performed by the urban public transport companies in the Hradec-Pardubice residential agglomeration. Selected statistical methods were used to evaluate the data. The results are discussed in the context of published research studies. Research in this article found that respondents are more satisfied with the quality of services performed by the urban public transport companies, but the perception of individual service quality factors varies from one user group to another. The research also confirms a different perception regarding customer care and comfort by different age groups of respondents. The article implies that public transport companies should pay attention to setting fare prices for different groups of passengers. Budiono (2009) studied on customer satisfaction in public bus transport: a study of travellers' perception in Indonesia. An increase in population generates increasing in travel demand. Indonesia as one of the most populated countries in the world next after China, India, and USA face a large number of travel demand. Nowadays, Indonesia deals with an explosive growth in vehicle ownership and utilization. An increased road length and new roads generate faster and longer trips, more trips by car and higher car ownership all of which adds up to more traffic congestion and pollution. Public transport is one important solution for this problem. Public transport operators are forced to place emphasis on the monitoring and improvements of the services provided in an attempt to address the increasing rate of car ownership. This study focuses on travellers' satisfaction with service quality attributes. Using self-rate questionnaire to investigate overall customer satisfaction and factor that influence public transport users' satisfaction. Data were analysed using descriptive, correlation, factor and regression analysis. One main finding reported that customer is not satisfied yet with public transport service (M=2.5, SD=0.9). The correlation analysis reported frequency (r=.50,p=.001), comfort travel by bus (r=.49,p=.001), on board security (r=.48,p=.001),and travel time (r=.48,p=.001), are top four factors that positively correlate with overall satisfaction. Factor analysis grouped fourteen specific service quality attributes into two factors, functional and soft factor. Both the functional quality factor and soft quality factor demonstrated significant effect on overall customer satisfaction with public transport in Indonesia. The standardized regression coefficient reported that functional quality factors (β=.393, p=.001) that consist of frequency, price, punctuality and travel time, plays stronger influence on overall customer satisfaction than soft factor (β=.288, p=.001). It is highly recommended to pay more attention on functional factor in order to improve and develop attractive and marketable public transport. From regression analysis suggested that two factor that were measure only have low influence on overall customer satisfaction, and it is interesting to investigates another original factor from Indonesia perspectives that also has influence in overall satisfaction. To enrich and give the perspective in local level, data analysis also carried out for both cities; Jakarta and Jogjakarta. The results suggested similar result with the main finding. This means that so far, the condition is remains similar because customer in both cities evaluates that public bus transport were not satisfied. Imam (2014) studied measuring public transport satisfaction from user surveys noted that customer

satisfaction has been considered one of the most important factors in any industry or service due to its direct relation to customer retention. A user survey was developed to explore the satisfaction of bus users, minibus users and jitney users. Bus users were found to be the most satisfied. However, the overall average of satisfaction reflects that generally all users are not sufficiently satisfied with the transit system. Transport planners and decision makers could utilize the results and findings of this study, to focus on the attributes that are important for public transport users. The outcomes also direct the attention of transit authorities and operators towards the attributes that scored low in satisfaction, consequently requiring improvement. Malachy and Nwobi (2014) studied the political economy of mass transit Programme in Nigeria: an evaluation of government post-petroleum subsidy intervention. This paper investigated the political economy of mass transit programme in Nigeria using federal government post-petroleum subsidy removal intervention as a case study. With the aid of secondary and primary sources of data collection, the paper observed that contrary to its original aim, the mass transit programme now pursues elites' economic interest. It further observed that the programme became an instrument of political settlement and a capitalist programme for profit maximisation because all the government owned mass transit companies have been commercialised. It observed also that the intervention has no positive impact on the socioeconomic and mobility hardship of the people. Enimola, Egwu, and Nafiu (2021) research was a descriptive analysis of Public Transport Service Quality and Satisfaction of Customers in Kogi State. The study ascertained the differences between the perceived PTS and the expected PTS by Customers in Kogi State. Survey research design was used based on the quantitative nature of the study. Kogi State was the focused area relative to PTSQ. The study selected the sample of three hundred and sixty- two (362). The technique adopted is multi-stage. The analysis of data was achieved using descriptive statistics. Paired-samples t test was also used. Findings showed that expected reliability in public transportation service is more than the perceived reliability in public transportation service; the perceived frequency of PTS fall short of the expected frequency of PTS (that is, the perceived service frequency is low compared to the expectation of the Customers on the public transport service in Kogi State); perceived fare level is higher than the expected fare level of PTS in Kogi State; and that perceived safety in PTS is low compared to the expected safety in PTS. Randheer, AL-Motawa, and Vijay (2011) studied Measuring Commuters' Perception on Service Quality Using SERVQUAL in Public Transportation noting that in the current scenario of globalization, public transportation services (PTS) need to introspect sensitivity towards the quality of services offered. In this context, this study examined the commuters' perception on service quality offered by the public transport services of twin cities of Hyderabad and Secunderabad, India. The SERVQUAL scale is administered to measure the commuter's perception on service quality. A survey was conducted among the commuters who were regularly availing public transport services for travelling. A random sample of 534 respondents were taken for data collection, among them 512 were finalized for final analysis. The study concluded that the service quality delivery meets the perception of commuters. In general, people of twin cities of Hyderabad and Secunderabad are benefited with the service quality delivery by public transport services. Mudenda and Guga (2017) conducted a study on An Assessment of the Relationship between Service Quality and Customer Satisfaction-A Case of a Public Passenger Road Transportation Company in Zambia. Consequently, the study used a descriptive and explanatory study design involving 390 respondents picked randomly over five-week period. The data collected was analysed using descriptive statistics and multiple regression analysis since service quality was found to have five relevant dimensions. The study found that customers of the case service provider were satisfied with the service and that reliability, assurance and tangibility were the most significant variables leading to customer satisfaction. Yaya, Fortia, Canals, and Marimon (2014) conducted a study on service quality assessment of public transport and the implication role of demographic characteristics. This paper first proposes scales to evaluate customers' perceived service quality in public transport then identifies the demographic characteristic factors that may influence customer perceived service quality, as well as identifies any customer perception differences between the subcategories. The manager interview and random sampling method were used to survey 288 consumers of public transport buses. Exploratory and confirmatory factor analyses were used to confirm the scale validity. Thereafter, structural equation modelling, Mann–Whitney U and Kruskal– Wallis tests were used to assess the causal paths and service quality perceptions differences among the subgroups. The results also showed that younger commuters appear to have lower perceptions of service quality compared to adults. Chocholac, Sommerauerova, Hyrslova, Kucera, Hruska and Machalik (2020) studied service quality of the urban public transport companies and sustainable city logistics. The issue of sustainable city logistics has steadily been developed over the last decades. Urban public transport companies can make a significant contribution to the concept of sustainable city logistics. The customers' perception and satisfaction regarding urban public transport companies can be associated with the increased use of their services. The preference for urban public transport reduces the use of individual car transport, which is linked to the environmental pillar of sustainability. For the customers, the level of the provided service is very important. The article is focused on the evaluation of the outcomes from the primary research concerning the service quality performed by the urban public transport companies in the Hradec-Pardubice residential agglomeration. The goal lies in identifying gaps in service quality. The method used in this article is representative primary research. The primary research was carried out in the form of structured personal interviews with a representative sample of respondents. Selected statistical methods were used to evaluate the data. The results are discussed in the context of published research studies. Research in this article found that respondents are more satisfied with the quality of services performed by the urban public transport companies, but the perception of individual service quality factors varies from one user group to another. The research also confirms different perceptions regarding customer care and comfort by different age groups of respondents. The article implies that public transport companies should pay attention to setting fare prices for different groups of passengers.

METHODOLOGY

Research design

For the purpose of this study, survey research design is associated with quantitative methods/designs and is directly and specifically related to the descriptive, diagnostic and hypothesis-testing research studies. Survey involves asking questions and recording responses on a defined research problem using a specified instrument usually the questionnaire (Okeke, Olise & Eze, 2014). This research design was adopted because it allows testing of hypothesized relationships between the independent variables and the dependent variables.

Population of the Study

The population for this study was all citizens and the commuting public in the three states selected for the study in South-south states, namely; Edo State, Delta State and Bayelsa State. the persons were identified by on-the-spot assessment at the various parks. Furthermore, the choice of this kind of population (infinite) was adopted due to absence of database of active mass transit passengers and commuters in these three states.

Sampling Technique

Since the population of this study is infinite due to the absence of a sampling frame, the non-probability sampling technique was preferred for this study. The type of non-probability sampling method that was adopted in this study is the quota sampling. Quota sampling is another non-probability sampling method almost similar to stratified sampling.

Sample Size Determination

Sample size is the determined whole number of sampling units (elements that are available for selection during the sampling process) needed to be the representative of the defined population (Hair et al., 2000). It is also the total number of element (animate or inanimate) that has to be added into a drawn sample to ensure appropriate representative of the defined target population.

Given that the universe of the present study is infinite, the sample size was calculated using an appropriate formula for sample size estimation where the population is infinite (uncertain). Accordingly, this study adopted a formula used in finding a sample size given a confidence interval and error margin for an unknown population standard deviation. The formula used to determine the sample size for our study is the Cochran formula for unknown population as follows.

$$n = \frac{Z^2 \cdot P.Q}{e^2}$$

where n = sample size

Z = the Z value corresponding to the desired confidence level or standard normal deviation based on the desired confidence level at 5% which is 1.96.

P = is the proportion success or those returning positive response

Q = is the proportion of success or (1-P).

e = error term = 5% or 0.05

The value of P can either be obtained from previous studies or from pilot survey. For this study however, the value for the P or proportion of success was obtained from a pilot survey with a purposive sample of 20 respondents in which only 11 representing 55% returned positive response while 9 or 45% gave negative responses. With this we compute the sample thus:

$$n = \frac{1.96 * .55 * .45}{0.05^2} = 380.3184$$

Thus, the sample size for this study was approximated to 400 respondents.

Sources of Data/Information

The information used in this study was sourced from two points, hence there are of two types; primary and secondary sources of data. Secondary sources are already existing information and these were sourced from text books, journals, conference proceedings, newspapers, periodicals and magazines. On the other hand, primary sources of information/data are first-hand information and were collected through structured questionnaire administered to the target respondents/participants. The questionnaire contains multiple-choice questions and 5-point Likert scale questions: very strongly agree, strongly agree, agree, disagree, strongly disagree and very strongly disagree. Eight variables were chosen / adopted for this study comprising six predictor variables with one dependent/outcome variable and one moderator variable. These variables as garnered from the literature are accessibility (ACCE), comfort (COMF), and customer satisfaction (CS) was the DV. The questionnaire was administered to the respondents in the three states of south-south geopolitical zone of Nigeria. Five socio-demographics: gender, age bracket, educational qualification, occupation and monthly income were added among the constructs.

Method of Data Analysis

This study is a hypothesis-testing study and based on this we employed Factor analysis in checking for internal reliability as already discussed. After this the items left were subjected to scale summation and multiple linear regression (MLR) was used to test the hypotheses and the

moderation analysis earlier formulated for the study. Regression analysis is one of the most frequently used analysis techniques in market research. It allows researchers to analyse the relationships between dependent variables and independent variables.

Conducting regression analysis follows a defined and specified procedure as outlined in many marketing research and research methodology texts and which was followed in analysing our data in this research as follows:

- **Check the Regression Analysis Data Requirements.**

Various data requirements must be taken into consideration before we undertake a regression analysis. These include the: sample size, variables need to vary, scale type of the dependent variable, and collinearity.

- **Specify and Estimate the Regression Model.**

We need to select the variables we want to include and decide how to estimate the model to conduct a regression analysis. We specify that customer satisfaction is a function of the following predictor variables thus:

CS = f(ACCE, COMF, AVAI, RELI, SB, SiaR, and PCoS).

The Regression model is formulated thus:

$CS = \alpha + \beta_1 ACCE + \beta_2 COMF + \beta_3 AVAI + \beta_4 RELI + \beta_5 SB + \beta_6 SiaR + ei$

With the moderating variable the model is:

$CS = \alpha + \beta_1 ACCE*PCoS + \beta_2 COMF*PCoS + \beta_3 AVAI*PCoS + \beta_4 RELI*PCoS + \beta_5 SB*PCoS*PCoS + \beta_6 SiaR*PCoS + ei$

Where: β_1 - β_5 are the coefficients, and

ei is the error term.

3. Test the Regression Analysis Assumptions.

If a regression analysis fails to meet its assumptions, it can provide invalid results. Four regression analysis assumptions are required to provide valid results: the regression model can be expressed linearly, the regression model's expected mean error is zero, the errors' variance is constant (homoscedasticity), the errors are independent (no autocorrelation).

RESULTS AND DISCUSSIONS

Data Analysis

Table 1: Responses to the accessibility items

Items		Count	Column N %	Mean	Standard Deviation
accessibility1	1.00	9	3.0%		
	2.00	46	15.1%		
	3.00	24	7.9%		
	4.00	144	47.2%		
	5.00	82	26.9%	3.8000	1.08640
accessibility2	1.00	26	8.5%		
	2.00	18	5.9%		
	3.00	23	7.5%		
	4.00	94	30.8%		
	5.00	144	47.2%	4.0230	1.24715
accessibility3	2.00	23	7.5%		
	3.00	8	2.6%		
	4.00	141	46.2%		
	5.00	133	43.6%	4.2590	.83614
accessibility4	1.00	5	1.6%		
	2.00	32	10.5%		
	3.00	49	16.1%		
	4.00	150	49.2%	3.8066	.95901
	5.00	69	22.6%		

Table 1 shows that accessibility1 has Mean = 3.800 and Standard Deviation = 1.0864; accessibility2 has Mean = 4.023 and Standard Deviation = 1.24715; accessibility3 has Mean = 4.259 and Standard Deviation = .83614; while accessibility4 has Mean = 3.8066 and Standard Deviation

= .95901. This implies that the respondents are reasonably in agreement with this dimension of our research model. The next is on comfort items in table 2.

Table 2: Responses to the comfort items

Items		Count	Column N %	Mean	Standard Deviation
comfort1	2.00	27	8.9%		
	3.00	23	7.5%		
	4.00	172	56.4%		
	5.00	83	27.2%	4.0197	.83878
comfort2	2.00	8	2.6%		
	3.00	13	4.3%		
	4.00	158	51.8%		
	5.00	126	41.3%	4.3180	.67899
comfort3	1.00	8	2.6%		
	2.00	5	1.6%		
	4.00	50	16.4%		
	5.00	242	79.3%	4.6820	.79503
comfort4	1.00	5	1.6%		
	2.00	14	4.6%		
	3.00	20	6.6%		
	4.00	139	45.6%		
	5.00	127	41.6%	4.2098	.87842
comfort5	1.00	4	1.3%		
	2.00	13	4.3%		
	3.00	42	13.8%		
	4.00	114	37.4%		
	5.00	132	43.3%	4.1705	.91251

Table 2 shows that comfort1 has Mean = 4.0197 and Standard Deviation = .83878; comfort 2 has Mean = 4.3180 and Standard Deviation = .67899; comfort3 has Mean = 4.6820 and Standard Deviation = .79503; comfort4 has Mean = 4.2098 and Standard Deviation = .87842; while comfort item5 has Mean = 4.1705 and Standard Deviation = .91251. This implies that the respondents are very much in agreement with this dimension of our research model.

Table 3: Responses to the customer satisfaction items

Items		Count	Column N %	Mean	Standard Deviation
customersat1	2.00	35	11.5%		
	3.00	54	17.7%		
	4.00	167	54.8%		
	5.00	49	16.1%	3.7541	.85946
customersat2	2.00	49	16.1%		
	3.00	104	34.1%		
	4.00	142	46.6%		
	5.00	10	3.3%	3.3705	.78877
customersat3	2.00	39	12.8%		
	3.00	92	30.2%		
	4.00	129	42.3%		
	5.00	45	14.8%	3.5902	.89179
customersat4	2.00	54	17.7%		
	3.00	66	21.6%		
	4.00	159	52.1%		
	5.00	26	8.5%	3.5148	.88143

Table 3 shows that customer satisfaction1 has Mean = 3.7541 and Standard Deviation = .85946; customer satisfaction2 has Mean = 3.3705 and Standard Deviation = .78877; customer satisfaction3 has Mean = 3.5902 and Standard Deviation = .89179; customer satisfaction4 has Mean = 3.5148 and Standard Deviation = .88143. This implies that the respondents are very much in agreement with this dimension of our research model.

Descriptive Statistics

Descriptive statistics are used to check the behaviour of data and this is necessary as the researcher or the analyst needs to understand this behaviour before embarking on running the inferential statistics. Some of the descriptive statistics used in this study are the mean, standard deviation, range, minimum, maximum.

Table 4: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
accessibility1	305	4.00	1.00	5.00	3.8000	1.08640
accessibility2	305	4.00	1.00	5.00	4.0230	1.24715
accessibility3	305	3.00	2.00	5.00	4.2590	.83614
accessibility4	305	4.00	1.00	5.00	3.8066	.95901
comfort1	305	3.00	2.00	5.00	4.0197	.83878
comfort2	305	3.00	2.00	5.00	4.3180	.67899
comfort3	305	4.00	1.00	5.00	4.6820	.79503
comfort4	305	4.00	1.00	5.00	4.2098	.87842
comfort5	305	4.00	1.00	5.00	4.1705	.91251
customersat1	305	3.00	2.00	5.00	3.7541	.85946
customersat2	305	3.00	2.00	5.00	3.3705	.78877
customersat3	305	3.00	2.00	5.00	3.5902	.89179
customersat4	305	3.00	2.00	5.00	3.5148	.88143
Valid N (listwise)	305					

Table 4 shows the descriptive statistics, we have utilised mean and standard deviation presenting our data as given in the data presentation tables. Other descriptive statistics used are maximum, minimum, range in addition to mean and standard deviation already discussed. Information in table 4 shows that the maximum is majorly 5 while the minimum is largely 1. This is an indication that the instrument which is the questionnaire was designed using five-point likert scale with one as minimum and 5 as maximum in the options. The range is 4 and this represents maximum response minus minimum responses for each item as used in the instrument. The captive sample for this study is 305 respondents, which is quite large. Pallant (2016) stated that violation of normality is normal with large sample.

Hypotheses Testing

Having validated the global statistics from the multiple linear regression analysis, we now proceed to use the coefficients to analyse and validate the hypotheses earlier formulated for the study as stated in the first chapter of this study. The coefficients we use are from the model with the moderator variable since our hypotheses involves direct and interaction hypotheses.

Table 5: Assessment of the structural model

Paths	**Coefficients**	**Effect sizes**	**SE**	**t-values**	**p-values**	**Decision**
ACC -> CS	0.059	0.023	0.057	1.036	0.151	Not Supported
COM -> CS	0.150	0.065	0.056	2.689	0.004	Supported
PCoS*ACC -> CS	0.069	0.032	0.057	1.209	0.114	Not Supported
PCoS*COM -> CS	0.099	0.048	0.056	1.755	0.040	Supported

Hypothesis One:

H_{1a}: There is a significant positive relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies.

H_{1b}: Personal characteristics of mass transit customers moderate the relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies.

Accessibility (ACCE->CS) coefficient t-value = 1.036 and p-value = 0.151 which well above the 0.05 margin of error hence we reject hypothesis H_{1a} and conclude that there is no significant positive relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies.

Accessibility (PCoS*ACCE->CS) coefficient t-value = 1.209 and p-value = 0.114 which is well above the 0.05 margin of error hence we reject hypothesis H_{1b}: and conclude that personal characteristics of mass transit customers does not moderate the relationship between accessibility and customer satisfaction with mass transportation services quality of mass transit companies.

Hypothesis Two:

H_{2a}: There is a significant positive relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies.

H_{2b}: Personal characteristics of mass transit staff moderate the relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies.

Comfort (COM->CS) coefficient t-value = 2.689 and p-value = 0.004 which well below the 0.05 margin of error hence we accept hypothesis H_{2a} and conclude that there is a significant positive relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies.

Comfort (PCoS*COM->CS) coefficient t-value = 1.755 and p-value = 0.040 which is well below the 0.05 margin of error hence we accept hypothesis H_{2b}: and conclude that personal characteristics of mass transit staff moderate the relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies.

Discussion of Findings

This study found out that accessibility has no significant positive relationship with customer satisfaction with transportation service quality of mass transit companies in South-south Nigeria. The finding disagree with (Chocholac et al. 2020) and Vallejo (2010) that the punctuality and regularity of the service would need to improved and also the travellers are informed onboard, at the stops, by messages and by website of the journey times, frequencies, schedules and departures as well as waiting times. The study found out that there is a significant positive relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies. This agree with (Le-Klähn, Hall & Gerike 2014), authors who examined selected variables that are considered important in describing the service quality and orienting users' preferences in public transport, like comfort, cleanliness. It also agrees with Budiono (2009) study on the travellers' perception and customer satisfaction in public bus transport in Indonesia.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Public bus transport should become the solution for sustainable transport in the future, which is the reason to increase customer satisfaction. High quality public bus transport not only keep customer to continue using public bus transport to fulfil their travel demand but also attract potential customer. Service quality factors have strong influence on customer satisfaction and need a higher attention to improve customer satisfaction. Accessibility, availability, reliability, staff behaviour comfort of the passengers and commuters of mass transit buses and service information about routes are the crucial factors responsible for higher level of satisfaction. This study found out that accessibility has no significant positive relationship with customer satisfaction with transportation service quality of mass transit companies in South-south Nigeria, while the study found out that there is a significant positive relationship between comfort and customer satisfaction with mass transportation services quality of mass transit companies.

Recommendations

In order to improve customer satisfaction with mass transport, operators and providers of mass transit services need to improve service quality in public bus transport.

The service attributes could be improved as single attributes or as the factor.

Accessibility is important as it implies that bus services operate in close proximity to all areas of need and that the vehicle internally offers the passengers reasonably wide space convenience and comfort. The mass transportation service should aim at not only transporting the passengers to their destinations, but also to do it in a fast and convenient way, and definitely without discriminating anybody with physical problems or residents of areas with narrow streets.

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