Journal of Multidisciplinary Engineering Science and Technology (JMEST)
ISSN: 2458-9403
Vol. 9 Issue 3, March - 2022

Factors Affecting Rail Passengers' Satisfaction In South West Nigeria

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***Abstract*—Declining passenger patronage, dwindling revenue and insignificant contribution of the rail mode in land transportation has been evident with the South West Nigeria Mass Transit trains. This study thus was tailored to investigate passenger satisfaction and analysethe rail service qualitydimensions that influence passengers' satisfaction and patronage of the South West Mass Transit Train, Nigeria. A sample size of 384 Likert scale questionnaire using the purposeful random sampling technique was administered to respondents. Data from valid 380 questionnaires returned wereanalysed using descriptive statistics, factor, correlation and multiple regression analyses. Results identified Tangible, Responsiveness, Reliability and Assurance as critical factors that impact passenger satisfaction. They accounted for 92.1% of the total percentage variance explained. All 4 identified factors have positive correlation with passenger satisfaction and were statistically significant at 0.05 alpha level. They explained 95.8% of passenger satisfaction in the model and impacted passenger satisfactionin descending order of magnitude of Assurance, Tangible, Reliability and Responsiveness. The passengers' satisfaction model revealed was valid at 0.05 alpha level. The study concludes that improvement in the identified service quality dimensions will improve passenger satisfaction and patronage of the South West Mass Transit Trains, Nigeria. The use of the revealed model for planned efforts towards increased passenger satisfaction is recommended.**

Keywords: Passengers' Satisfaction, Service Quality

I. INTRODUCTION

Efficient railway transportation is not only cost effective, reliable, affordable, hauls large freight, environmentally friendly, creates employment and generates revenue but also curtails the overuse of the road, air and marine transport, thereby limiting the depletion of infrastructure in other transport sectors of the economy (Adepoju, 2019). According toJackel (1997), an efficient Nigerian railway will act as an aid to the development of other sectors, such as agriculture, mineral resources, tourism and manufacturing through the effective transportation of people and goods throughout the country to and from the seaports and linking companies with the outside world.The Nigerian railway sector has fallen short of these benefits owing to declining passenger patronage over the years. Odeleye (2000) observed a downward trend in passenger volumes and revenue of the Nigerian Railway corporationfrom 15.11million passengers generating above #29million in 1983 to 1.5million passengers, generating less than #15million in 1993.

The National Bureau of Statistics, Rail Transport Data (2021), indicated a 34.40% and 43.13% decline in passenger and freight volumes respectively between Q1 2020 and Q4 2021. According to the National Bureau of Statistics, Rail Transport Data (2017), Passenger traffic for the 3 functional South Western Trains, declined from 565,642 in Q2 2016 to 427,760 in Q2 2017 on the Lagos Mass Transit Train (Lagos –Ogun). Similarly, on the Lagos -Ilorin Train Services, it recorded a decline from 8,585 in Q3 2016 to 2,663 in Q2 2017 and a decline from 7,118 in Q2 2016 to 3,189 in Q2 2017 for the Osun State Government Chattered train services routing from Lagos to Osogbo.To ameliorate this problem, the Federal Government of Nigeria through the Nigerian Railway Corporation (NRC) had made concerted efforts through the contract with Rail India Technical and Economic Services (RITES) 1978-82 and the China Civil Engineering Construction Corporation(CCECC) 1995-99 to rehabilitate the existing cape gauge rail network, recover and maintain obsolete and disabled rolling stock, supply locomotives, coaches, wagons, rail buses and render technical training for the NRC staff. This effort resulted in the resumption of rail services on the Lagos-Ogun Mass Transit Train, Lagos-Ilorin express train and the Lagos-Osogbo train services-the 3 functional cape gauge rail services currently serving South West Nigeria amongst the 11 functional rail lines developed nationwide, which hitherto had been neglected and rickety (Odeleye, 2000; National Bureau of Statistics, Rail Transport Data, 2021). The improved operational results due to Government efforts to improve the rail transportsector had been negligible and short-lived and failed to meet commuter expectations and need.

A superior service quality enhances customer satisfaction, loyalty, increased market share, productivity and performance of any organization. Quality initiatives in the service sector has resulted to many service organizations gaining sustainable competitive advantage over the others and many researchers and public decision makers alike have suggested the provision of attractive rail transport service as an alternative to road transportation in many cities (Rajeswari, & Kumara, 2014;Oye, Shubber & Koenigsberger, 2016). However, to retain, attract and appeal to more passengers, rail transport service must be of high service quality so as to meet and fulfill a wide range of different customer's needs (Prasad & Shekhar 2010a; Anable, 2005).It is imperative therefore to have insight into and recognize what drives passenger satisfaction in rail transport in order to be able to provide an attractive and marketable rail transport. This is the focus of this study on Passenger satisfaction with the South West Mass Transit trains, Nigeria.No doubt there has been many researches onpassenger satisfaction with railways services in most

regions of the world. However; there has been a dearth of such research in South West, Nigeria.

There has been a progressive decline in the performance of the Nigeria railway system since 1960. Revenue has continued to decline. The share of export commodities in the railway goods traffic has fallen from 53 percent in 1968/1969 to 13 percent in 1973/1974 and less than 2 percent in 1982 (Onokola&Olajide 2020). Passenger volume and revenue had declined from 15.11million passengers, generating above #29million in 1983 to 1.5million passengers, generating less than #15million in 1993 (Odeleye 2000). TheNational Bureau of Statistics, Rail Transport data reports considerable decline in passenger traffic and freight volumes for the national trains and the 3 South West Mass transit trains for the period Q2 2016 to Q4 2021.The decline has been attributed to rail infrastructural deficit, moribund traffic, poorly motivated staff and deterioration in service quality which has become very slow, unreliable and grossly inadequate due to years of political propaganda leading to underfunding and failure to attend to systemic problems of the Nigerian railway (Akwara, Udaw & Ezirim 2014).

Consequently,the South Western Nigeria population have depended largely on road transport for all their transportation needs,thus over-stretching the road transport infrastructure and the reason for the numerous road accidents, long waiting hours, traffic congestion, gridlocks, high cost of transportation and increased travel times currently observed in South Western cities of Lagos, Ibadan, Abeokuta, Oshogbo., Akure, Ado-Ekiti and other parts of the South Western States.

Huge Government investments to rehabilitate and upgrade the existing cape gauge rail network, haspresented negligible and very short-lived improvement results.The contribution of the rail mode in land transport in South Western States of Nigeria has thus remained insignificant (Oni & Okalanwon, 2012). Earlier studies have focused more on the entrenched rail networks. In the aftermath very little attention has been accorded to the Determinants ofpassengers' satisfaction and patronage of the South West Nigeria Trains which this study delves into. It is against this backdrop that this present study seeks to examine the factors affecting rail passenger satisfaction in South West Nigeria.

1) LITERATURE REVIEW

A customer's contentment with a product purchased or a service rendering is termed satisfaction. Customers satisfaction is a measurement of service quality. Mauri, Minazzi&Muccio (2013) defined service quality as "a multidimensional concept, assessed and perceived byconsumers…". Service quality is thus a customers' phenomenon; it measures the degree to which customers are happy or satisfied with the value they derive from a service encounter.

With roots in the dis-confirmation paradigm Parasuraman, Zeithaml, & Berry (1985) proposed the gap model for the measurement of service quality. The gap model asserts that customer satisfaction is a function of the size and direction of dis-confirmation of a customer's service experience as against prior expectations. Good service quality therefore is tantamount to meeting or exceeding consumers' expectations. Parasuraman, Zeithmal & Berry (1988) based on their empirical studies refined the earlier model of 10 determinants of service quality reducing it to five. Namely; reliability, responsiveness, assurance, tangibles, and empathy and identified twenty-two corresponding service specific criteria or attributes. They called the refined service quality model SERVQUAL.The strongest challenge against the concept and operationalization of the SERVQUAL scale came from Cronin and Taylor (1992). Whereas they agreed with the five SERVQUAL service quality dimensions, they argued and disputed that the SERVQUAL dis-confirmation paradigm for measuring service quality is ambiguous, confusing with service satisfaction and thus theoretically and empirically incompetent to measure service quality. They maintained that customers' judgement or perceived performance of the service by the customer after a service encounter is the only measurement for service quality. This led to the performance only paradigm of SERVPERF. They conducted an empirical comparative study on four alternative models; the importance-weighted SERVQUAL scale, the original SERVQUAL scale -dis-confirmation paradigm, the importance weighted SERVPERF scale and the SERVPERF scale- performance only paradigm on four different service firms. Their findings indicated that SERVPERF measurement of service quality was more accurate than that of SERVQUAL (Cronin & Taylor, 1994; Seth et al., 2005). However, researchers all over the world have continued to use both models in analyzing service quality.

Agarwal & Boora (2018)studied the effects of service quality on customer satisfaction in the Saudi Arabia's mobile Telecom industry. They investigated the five components of the SERVQUAL scale on customer satisfaction. Data obtained was analysed with the aid of Microsoft excel data sheet and SPSS software. The Principal Component Analysis was used to identify the underlying latent variables that significantly influence customer satisfaction in Saudi Arabia Telecom sector. The results show that the five service quality dimensions of SERVQUAL (tangible, reliability, responsibility, assurance, empathy) have significant effect on customer satisfaction. Yonas (2017) examined the effect of service quality on Customer satisfaction in the Ethiopian airline industry. The five service quality dimensions of the AIRQUAL model (airline tangible, terminal tangible, image, personnel and empathy) was used for the study. Descriptive statistics, correlation and regression analysis, were employed in data analysis. The result showed that all the dimensions of AIRQUAL except empathy and personnel have a positive and significant impact on customer satisfaction. Customer satisfaction was predicted by AIRQUAL five dimensions of service quality by 63.3%.

Adesola &Badiora, (2017) assessed customer's satisfaction with public transport operations in Ibadan Nigeria. Four underlying factors from principal component analysis were found to significantly impact on customer satisfaction with buses in Ibadan city, namely; comfort, service reliability, security and accessibility. These factors explained 57.03 percent of the total variance of principal component analysis. Results from regression analysis indicate that accessibility (β=0.620), most significantly impacts on customer's satisfaction followed by service reliability (β=0.341), security (β=0.106) and comfort (β=0.061) in that

order of importance. This study thus concluded that the quality of service provided by public bus transport operators significantly impacts on user's satisfaction.

Nwachukwu (2014) examined passenger satisfaction with the service quality attributes of public bus transport services in Abuja, Nigeria. Descriptive statistics, correlation, principal component and regression analyses were used to analyse data obtained. Four underlying variables that significantly impact passenger satisfaction with public transport were extracted through Principal Component Analysis (PCA). Namely comfort, accessibility, adequacy of bus capacity and bus stop facilities. The four variable explained 83.87 percent of the cumulative variance of PCA, while 16.32 percent of the total variance remained unexplained. Results from regression analysis further indicated that comfort, followed by accessibility, adequacy of bus capacity and bus stop facilities in the order of relative importance significantly impact on passenger satisfaction of public bus transport services in the city of Abuja.

Rajeswari & kumara (2014) investigated passengers' satisfaction regarding the service quality of rail transport system provided by Indian Railways on nonstop trains operated from Delhi to other big cities such as, Mumbai, Kolkata, Chennai, Bangalore and Hyderabad. The modified SERVQUAL instrument of eight service quality dimensions: Reliability, tangibles, assurance, Punctuality, responsiveness, empathy, safety and Catering were used. Data obtained from survey were analysed using confirmatory factor analysis, structural equation mode-ling (SEM) and regression analysis. Regression results indicate that the eight service quality dimensions explained 60.5% of the customer satisfaction regarding Indian railways service quality. It also indicated that responsiveness has the strongest impact on customer satisfaction (β=0.264, $p<0.01$), followed by Catering (β=0.226, $p<0.01$), Tangibility (β=0.203, $p<0.01$) and Assurance (β=0.181, $p<0.05$) whereas Safety, Empathy, reliability, and punctuality were found to have insignificant effect on passenger satisfaction.

Chandrakumara & Pathmini (2015) studied using the SERVQUAL model the impact of identified service quality variables on passenger satisfaction in Sri Lanka railway transport service (SLRTS) with special reference to Anuradhapura railway station. Five dimensions; tangibility, reliability, responsiveness, empathy and assurance were used in this study. Data obtained was analysed using factor analysis, descriptive statistics, regression and correlation analysis. Results show that all service quality dimensions were significantly and positively correlated with customer satisfaction and that reliability and assurance were the most significant service quality factors, whereas tangibility, responsiveness and empathy were less significant.

Perera & Bandar (2016) assessed the impact of railway transport quality on passenger's satisfaction with emphasis on the Kandy railway station Sri-Lanka using the SERVQUAL model. Data obtained was analysed using descriptive statistics, multiple regression and Karl Pearson's correlation analysis. Findings showed empathy with the greatest impact on passengers' satisfaction and tangibles the least.All service quality determinants had positive and significant impact on customers' satisfaction among local travelers.

Pius, Nwaogbe & Ogwude (2018) examined rail service quality and passenger satisfaction of the north central (Abuja-kaduna and Minna –Kaduna) rail network, Nigeria. They adopted a modified SERQUAL instrument of six service quality dimensions in their study. Data generated was analysed using the SERVQUAL analytical tool, descriptive statistics, SPSS, JABS software and Microsoft excel. Results reveal low overall service quality and zero passenger satisfaction. Also, the relevance of the six service quality dimensions in descending order of magnitude of impact on customer satisfaction as product service, responsiveness, empathy, assurance, reliability and tangibility.

Thanaraju, Khan, Sivanathan & Juhari (2019) reviewed and examined passengers' satisfaction towards railway facilities (RAILQUAL) in the central region of Malaysia. The study identified the various rail service quality dimensions' antecedent to passenger satisfaction. Data obtained was analysed using descriptive statistics, coefficient of correlation and multiple regression analysis. Findings show Assurance, Empathy, Comfort, Convenience, Connections and Responsiveness to be significantly related to passenger satisfaction while Tangible and Reliability dimensions indicate no significant relationship.

a) METHODOLOGY

The cross-sectional survey design method was used for this study. The survey was conducted with the aid of 384 five point Likert type structured questionnaire rated as Highly dissatisfied (1), Dissatisfied (2), Somewhat dissatisfied (3) Satisfied (4) and Highly satisfied (5), administered to passengers across 11 major departure and arrival stations of the 3 functional South West Mass Transit Trains, Nigeria. The purposeful random sampling technique was employed. Data collected from 380valid questionnaires was analysed with the aid of the Statistical Package for Social Research (SPSS) software. Descriptive statistics was used to analyse sample profile and passenger satisfaction responses. Factor analysis was used to identify latent service quality dimensions critical to passenger satisfaction. Pearson's' correlation statistics was applied to determine the correlation between service quality variables and passenger satisfaction. Multiple regression analysis was used to develop the passenger satisfaction model and to ascertain the impact of service quality variables on passenger satisfaction. The validity of the passenger satisfaction model was ascertained using Analysis of variance (ANOVA).

This study applied the Industry-specific model by modifying and complementing the generic SERVQUAL/ SERVPERF five service quality dimensions; Tangible, Responsiveness, Reliability, Assurance and Empathy with 2 rail industry-specific dimensions (comfort and convenience) and 36 rail industry- specific attributes to adequately, accurately and effectively evaluate rail industry service quality (RAILQUAL) and passenger satisfaction with the South West Mass Transit Train, Nigeria.

RESULTS AND DISCUSSION

Table 1: Demographic profile of respondents

Character	Category	Frequency	Percentage (%)
Gender	Male	223	58.7
	Female	157	41.3
Age	<30years	68	17.9
	30-45years	146	38.4
	46-60years	135	35.5
	61years and above	31	8.2
Education	Up to secondary school	149	39.2
	Undergraduate/ Graduate	132	34.7
	Postgraduate	84	22.1
	Professional qualification	15	3.9
Employment	Salaried employee	124	32.6
	Self employed	184	48.4
	Professional/technical consultant	25	6.6
	Retired	18	4.7
	Housewife	29	7.6
Monthly income	<#25,000.00	44	11.6
	#26,000.00-#50,000.00	142	37.4
	#51,000.00-#75,000.00	89	23.4
	#76,000.00-#100,000.00	82	21.6
	#101,000.00 and above	23	6.1
Frequency of travel	Daily	285	75
	Once or twice a week	27	7.1
	3-4 days a week	57	15
	Fourth nightly	11	2.9

Source: Field data 2021

The total number of respondents were 380. The male (58.75%) slightly outnumbered the female (41.3%) Table1. Majority of the respondents fall between the age bracket of 30-45years (38.4%) and 40-60years (35.5%). Respondents with education up to secondary school (39.2%) outnumber the undergraduate and graduate (34.7%). The self-employed (48.4%) were more than the salaried employees (32.6%). The highest (37.4%) of the population earned between N26,000.00-N50,000.00/month, 23.4% earned N51,000.00-N75,000.00/month, and 21.6% earned between N76,000.00-N100,000.00/month. A total of 75% of the sample population traveled daily with the South West Mass Transit Trains, Nigeria.

4.2 Level of passenger Satisfaction with the South West Nigeria Train Services and test of hypothesis:

The level of passenger satisfaction with the South West Nigeria Trains is indicated by the Grand mean of passenger satisfaction responses (2.992) Table 2- applying the SERVPERF performance only paradigm.

Table: 2: Means of Passenger Satisfaction responses

Factors	Mean
Tangible	2.795
Responsiveness	2.626
Reliability	2.42
Assurance	3.419
Emparthy	3.301
Comfort	3.038
Convinience	3.346
Grand Mean	2.992

Source: Field data 2021

Test of Hypothesis

The Grand Mean score of passengers' satisfaction response value (level of satisfaction-2.992) was compared with the mean value of the 5 point Likert scale questionnaire rating of Highly dissatisfied (1), Dissatisfied (2), Somewhat dissatisfied (3) Satisfied (4) and Highly Satisfied (5) to test the null hypothesis. The mean value of the 5 point Likert scale rating is calculated from the formula

$Q = \sum X/N$

Where; Q = Mean of 5 point Likert scale rating,

$\sum$= Summation of Likert scale nominal response categories,

X = Likert scale nominal response categories (1,2,3,4,5),

N = Number of Likert scale response categories (5).

$Q = \sum X/N = 15/5 = 3.0$

A grand mean value of responses above 3.0 indicates passengers' satisfaction with the services rendered and below 3.0 indicates passengers' dissatisfaction. An average mean of exactly 3.0 indicates undecidedness on satisfaction level.

The Grand mean 2.992 is below the mean of Likert scale rating 3.0. Therefore, the null hypothesis is not rejected.The passengers of the South West Nigeria Trains are not satisfied with the quality of services provided.

Factor analysis

Four service quality dimensions were identified from factor analysis to have significant impacton passengers' satisfaction and patronage Table 4. They are; Tangible (with factor loading 0.93155 and Eigen value 2.69910), Responsiveness (with factor loading 0.94836 and Eigen value 1.59663), Reliability (with factor loading 0.84076 and Eigen value 1.11687), and Assurance (with factor loading 0.85760 and Eigen value 1.03008). The identified variables accounted for 92.1% of the total percentage variance explained. The important service quality variables were identified based on their meeting the criteria of having both factor loading of 0.7 and Eigen value 0f 1.0 and above.

Table 3: Factor Component Analysis

Factors	Number of attributes	Factor Loadings	Eigen values	Percentage Variatoin %	% Variation of selected Variables
Tangible	8	0.93155	2.6991	38.6	38.6
Responsiveness	3	0.94836	1.59663	22.8	22.8
Reliability	5	0.84076	1.11687	16	16
Assurance	7	0.8576	1.03008	14.7	14.7
Emparthy	5	0.79497	0.28635	4.1	
Comfort	5	0.78402	0.18313	2.6	
Convinience	3	0.63546	0.08784	1.3	
Total percentage variance					92.1

Source: Field data 2021

Pearson's, correlation. From table 4 all the four identified service quality dimensions Tangible, Responsiveness, Reliability and Assurance have positive correlation with passenger satisfaction. Responsiveness and Tangible (r=0.89267 and p=0.0000) have the strongest positive correlation with passenger satisfaction, followed by Assurance and Tangible (r=0.47363 and pv=0.0000), Assurance and Responsiveness (r=0.33487 and pv=0.0000). These demonstrate moderate and positive correlation with passengers' satisfaction. While Reliability and Tangible (r=0.15535 and pv=0.0012), Reliability and Responsiveness (r=0.21634 and pv=0.00001), Assurance and Reliability (r=0.18005 and pv =0.00021) exhibit small but positive correlation with passengers' satisfaction

Table 4: Pearson's' Correlation Matrix 0f Selected Variables

		Tangible	Responsivenes	Reliability	Assurance
Tangible.	Pearson correlation	1			
	Sig. (1 Tailed)				
	N	380			
Responsiveness.	Pearsons correllation	0.89267	1		
	Sig. (1 Tailed)	0			
	N	380	380		
Reliability.	Pearsons correllation	0.15535	0.21634	1	
	Sig. (1 Tailed)	0.0012	0.00001		
	N	380	380	380	
Assurance.	Pearsons correllation	0.47363	0.33487	0.18005	1
	Sig. (1 Tailed)	0	0	0.00021	
	N	380	380	380	380

Source: Field data 2021

Test of hypothesis. All the four identified service quality dimensions in the Pearson's correlation matrix Table 5, have probability values (p-values) less than the alpha level of 0.05. Therefore, the null Hypothesis was rejected. The identified service quality dimensions of the South West Nigeria Trains are statistically significant.

4.4 Passengers Satisfaction Model for the South West Nigeria Train Servicesand impact of identified service quality dimensions on passenger satisfaction.

The passenger Satisfaction Model (predictive equation) for the South West Nigeria Train Services is; $\mathbf{Y}$=10.33 + $1.08X_1$+ $0.29X_2$+ $2.13X_3$ + $1.81X_4$+ e

The constant is positive with the value 10.33. (Table 6). The un-standardized coefficients indicate Tangible to be (1.082434), Responsiveness (0.288367), Reliability (2.126964) and Assurance (1.812864). The R^2 or coefficient of determination of the passenger satisfaction model is 0.95812 (95.8%) Table 7. The independent variables used in the model, Tangible, Responsiveness, Reliability and Assurance thus explained 95.8% variation of passenger satisfaction of the services of the South West Nigeria Trains.

Table 5: Multiple Regression Statistics

Model	Un-Standardized coefficients		Standardized coefficients	T	P-Value
	B	Std error	Beta(β)		
Constant	10.328852	1.524334		6.776	0
Tangible	1.082434	0.062716	0.448913	17.259	0
Responsiveness	0.288367	0.16183	0.043804	1.782	0
Reliability	2.126964	0.061492	0.38117	34.589	0.0075
Assurance	1.812864	0.047175	0.479623	38.428	0

Source: Field data 2021

Table 6: Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. error of estimate
1	0.97884	0.95812	0.95768	3.24043

Predictors are: constant, Tangible, Responsiveness, Reliability and Assurance

Source: Field data 2021

Impact of identified service quality dimensions on passenger satisfaction

Assurance service quality dimension with the highest standardized regression coefficient (β =0.479623) Table 6, has the greatest impact on passengers' satisfaction, followed by Tangible (β =0.448913), Reliability (β =0.38117) and Responsiveness (β =0.043804) having the smallest impact.

Validity of passenger satisfaction model. The developed passenger satisfaction model for the South West Nigeria Trains is valid.

Results from Table 4.13, indicates F= 2145.022 and P-value = 0.0000. The Probability value is less than alpha level of 0.05(5%).Thus the model is statistically significant at 5% and depicts that at least one of the four explanatory variables (Tangible, Responsiveness, Reliability and Assurance) explained or contributed to the dependent variable (passenger satisfaction). Therefore, the null hypothesis H_4 was rejected. The developed passenger satisfaction model for the South West Nigeria Trains is valid.

Table 7: Analysis of Variance (ANOVA)

Model	Sum of Squares	DF	Mean square	F	P-Value
Regression	90093.97449	4	22523.4936	2145.022	0
Resisual	3937.6334	375	10.50036		
Total	94031.60789		22533.994		

Predictors are: constant, Tangible, Responsiveness, Reliability and Assurance

Source: Field data 2021

CONCLUSION AND RECOMMENDATIONS

This study concludes that there exists a significant correlation between service quality variables and passenger satisfaction and patronage and that there is a declining of passenger patronage of the South West Mass Transit Trains. The loss of market shares in in-land transport sector and dwindling revenue of the sector is due to passenger dissatisfaction with the services provided. Hence, the passenger satisfaction model developed is an assessment

and improvement guideline for planned efforts towards increased passenger satisfaction of the South West Mass Transit Trains. The study also adds that the concept of service quality and passenger satisfaction are essential success ingredients for organizations that seek competitiveness, development and growth in the market place. The study observed too that passengers of the South West Transit Train, Nigeria, were not satisfied with the quality of services provided. Four Service quality dimensions: Tangible, Responsiveness, Reliability and Assurance were identified as critical to passenger satisfaction. They accounted for 92% of the total percentage variance of passenger satisfaction. All four identified service quality dimensions have positive correlation with passenger satisfaction and are all statistically significant at 0.05 alpha level. The passenger Satisfaction Model for the South West Nigeria Train Services is; $Y=10.33 + 1.08X_1+ 0.29X_2+ 2.13X_3 + 1.81X_4+ e$. For these reasons, the study recommended that provisions be made for dependable and sincere handling of passenger service problems and queries. Also that there be adequate and sufficient interface with security services, police and other law enforcement agencies to effect safety of passengers and their luggage both at the rail stations and onboard train in transit.

References

Adepoju, I. & Babatunde, O. (2019). Efficiency of Railway Transport as a Sustainable Mode of Transport in Nigeria: A Study of Rail Mass Transit in Lagos and its Environs. *Electronic Research Journal of Social Sciences and Humanities* Vol 1: Issue I. Retrieved from https://www.eresearchjournal.com/

Adesola, C. W. & Badiora, A. I (2017). Users' Satisfaction with Public Transport Operations in Ibadan, Nigeria. *The Journal of Social Sciences Research* ISSN(e): 2411-9458, ISSN(p):2413-6670 Vol. 3, No. 9, pp: 88-96, 2017. Retrieved from https://ideas.repec.org/a/arp/tjssrr/2017p88-96.htm

Agarwal, J. & Boora, R. K. (2018).Effects of Service Quality on ss's Satisfaction with special reference to Saudi Arabia's Mobile Telecommunications industry. VSRD *International Journal of Business and Management Research*, Vol. VIII Issue X October 2018 / 305 e-ISSN: 2231-248X, p-ISSN: 2319-2194: Retrieved from http://www.vsrdjournals.com/

Akwara, A.F., Udaw, J. E & Ezirim, G. E. (2014). Adapting Colonial Legacy to Modernism: A focus on Rail Transport Development in Nigeria. *Mediterranean Journal of Social Sciences*. Vol 5. No 6. April. ISSN 20392117. DOI: 10.5901/mjss. 2014.v5n6p465

Anable, J. (2005). Complacent car addicts' or 'aspiring environmentalist? Identifying travel behavior segments using attitude theory. *Transport Policy*, 12 (1), 65-78.Retrieved from https://econpapers.repec.org/article/eeetrapol/v_3a12_3ay_3a2005_3ai_3a1_3ap_3a65-78.htm

Chandrakumara, G.S.A &Pathmini, M.G.S (2015) Service Quality (SQ) and its Impact on Passenger Satisfaction in Sri Lanka Railway Transport Service (SLRTS); Special Reference to Anuradhapura Railway Station. *International Research Symposium Rajarata University of Sri Lanka*IRSyRUSl 2015. Retrieved from https://www.researchgate.net/publication/295103142_Service_Quality_

Cronin, J. J. & Taylor, S. A., (1992). Measuring Service Quality: A Re-examination and Extension. *Journal of Marketing*, Vol. 56., pp 55-68.https://doi.org/10.2307/1252296

Cronin J.J. & Taylor S.A. (1994). SERVPERF Versus SERVQUAL: Reconciling Performance-Based and Perceptions-Minus-Expectations Measurement of Service Quality. *Journal of Marketing*, 58, 125-131.DOI: 10.1177/002224299405800110

Jaekel F (1997). *History of the Nigerian Railway* (Vol.2). [africanbookscollective.com]. Retrieved from https://www.africanbookscollective.com/books/the-history-of-nigerian-railway.-vol-2

Mauri, A.G., Minazzi, R. &Muccio, S. (2013). A Review of Literature on the Gaps Model on Service Quality: A 3-Decades Period: 1985-2013. *International Business Research, 6: 134-144.*DOI: 10.5539/ibr.v6n12p134

Nwachukwu A. A (2014) Assessment of Passenger Satisfaction with Intra-City Public Bus Transport Services in Abuja, Nigeria. *Journal of Public Transportation*, Vol. 17, No. 1, 2014. DOI: 10.5038/2375-0901.17.1.5

Odeleye, J.A (2000) Public –private participation to rescue railway development in Nigeria. *Japan railway and transport review* 23. March 2000.Retrieved from https://www.ejrcf.or.jp/jrtr/jrtr23/pdf/F42_Odeleye.pdf

Oni, S. I. &Okanlawon, K. R. (2012) An Assessment of the Usage of the Lagos Mass Transit Trains. *IJR International Journal of Railway* Vol. 5, No. 1 / March 2012, pp. 29-37.https://doi.org/10.7782/IJR.2012.5.1.029

Onokola, P.C. &Olajide, C.J (2020). Problems and Challenges Facing the Nigerian Transportation System which affect their contribution to the economic development of the country in the 21st century. *Transportation Research Procedia 48 (2020) 2945–2962*. DOI:10.1016/j.trpro.2020.08.189

Oye, A.,Shubber, K., &Koenigsberger, J. (2016) Evaluating the role and impact of railway transport in the Nigerian economy, options and choices: Case of Nigerian Railway Corporation. *AshEse Journal of Economics* Vol. 2(4), pp. 103-113, October, 2016. Retrieved from http://www.ashese.co.uk/ajec-v2-issue-4/evaluating-the-role-and-impact-of-railway-transport-in-the-nigerian-economy-options-and-choices-case-of-nigerian-railway-corporation

Parasuraman A, Berry L, Zeithmal V (1985) A Conceptual Model of Service quality and Its Implications for Future Research. (SERVQUAL). *Journal of Marketing* 49: 41-50. Retrieved from DOI: 10.2307/1251430

Parasuraman, A., Berry, L., Zeithmal, V., & Berry, L.L. (1988) SERVQUAL: A Multi-Item Scale for Measuring Consumer Perceptions of SQ. *Journal of Retailing* 64: 12-40. Retrieved from https://www.researchgate.net/profile/Valarie-Zeithaml 2/publication/225083802

Perera, R.A.S.A & Bandar, A.B.D.M (2016). The impact of railway transport service quality on passengers' satisfaction; A study based on kandy railway station. *Proceeding of International Conference on Contemporary Management* - 2016 (ICCM-2016), pp 678-692. Retrieved from https://www.researchgate.net/publication/334596352_the_impact_of_railway_transport_service_quality_on_passengers'_satisfaction_a_study_based_on_kandy_railway_station

Pius, A., Nwaogbe, O. & Ogwude, I. (2018). An investigation into the Nigerian rail transport quality of service: from the passengers' perspective. *Presented at the 53rd Annual Meetings of the Canadian Transportation Research Forum*, June 3-6, 2018 at Gatineau, Quebec. Retrieved from https://www.researchgate.net/publication/329840212_CTRF_Conf_2018_Paper

Prasad, M.D &Shekhar, B.R. (2010a) Development of Railqual: A Service Quality Scale for Measuring Indian Railway Passenger Services. *Management science and engineering* Vol. 4, No. 3, 2010, pp. 87-94. http://dx.doi.org/10.3968/j.mse.1913035X20100403.009

Rail Transport Data (2017, November). *National Bureau of Statistics*. Retrieved from https://www.proshareng.com/report/Nigerian%20Economy/Rail-Transportation-Data-Q1-2016-Q2-2017/10782

Rail Transportation Data (2021, June). *National Bureau of Statistics*. Retrieved from https://www.nigerianstat.gov.ng/pdfuploads/Rail_Transportation_Data_-_Q1%202019%20-%20Q1%202021.pdf

Rajeswari, V. & kumara, K. (2014). Satisfaction and Service Quality in Indian Railways - A Study on Passenger Perspective. IOSR Journal of Economics and Finance (IOSR-JEF) e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 4, Issue 1. (May-Jun. 2014), PP 58-66. DOI: 10.9790/5933-0415866

Seth, N., Deshmukh, S. G., &Vrat, P. (2005). Service quality models: A review. *International Journal of Quality & Reliability Management*, 22(9), 913-949. doi: 10.1108/02656710510625211

Thanaraju, P., Khan, M.P., Sivanathan, S. &Juhar, N. H. (2019). Passengers' Satisfaction towards Railway Facilities (RAILQUAL) in the Central Region. *International Journal of Recent Technology and Engineering (IJRTE*) ISSN: 2277-3878, Volume-8 Issue-2S, July 2019. I.2284. Retrieved from https://www.ijrte.org/wp-content/uploads/papers/v8i2S/B10860782S19.pdf

Yonas, Y. (2017). *The Effect of Service Quality on Customer Satisfaction in the Aviation Industry: The Case of Ethiopian Airlines*. (Master's Thesis. Addis Ababa University). Retrieved from http://etd.aau.edu.et/bitstream/handle/123456789/13220/YOSEPH%20YONAS.pdf?sequence=1&isAllowed=y