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A Study On Measuring Service Quality Of Ac Trains In Mumbai Region

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ABSTRACT

Mumbai local train is the lifeline of Mumbai and it's the cheapest and fastest mode of transport. The purpose of the study is to examine passenger satisfaction towards AC trains in Mumbai region. Parametric t-test is applied to evaluate gap between perceived and expected score. It is seen that passengers are satisfied in all the dimensions of the service quality. Further studies can be conducted building a structural equation model and evaluating impact of service quality on passengers' satisfaction.

KEYWORDS: Passenger Satisfaction, AC Trains, Service Quality.

INTRODUCTION

Railway Transport being referred to as also train transportation is a defined source of transportation for transferring goods and passengers from one place to their desired destination with help of wheeled vehicles running on rails which are placed on tracks. This helps in covering short as well as longer distances carrying both passengers and goods. The network of rails is spread out on a wider scale across the country which helps to connect the remote regions with the urban and semi-urban cities. **A greater proportion of the population travel by rail network on a day-to-day basis.** (Kotavaara, O., et.al, 2011)

The **Western Railways** of the **Mumbai Suburban Railway** works as a crucial computer for public transportation serving the needs of the residents and each day commuters of the Mumbai Metropolitan Region in Maharashtra. The Western line of the rail network of Mumbai consists of 37 stations from Dahanu Road to Churchgate railway stations. This rail community is being managed and managed by skill of the Western Railways (WR).

The news from all Indian train news has confirmed that the Indian Railways **brought the AC trains in Mumbai vicinity in the 2016.** They manufactured the first nearby educate for the passengers to **combat the heat and humid season of summer**. The rake is being manufactured in Chennai at the Integral Coach Factory. These AC trains encompass carious new facilities like cushioned seats, linked vestibules, and doors that slide open. This runs between Virar to Churchgate and Thane to Vashi/Panvel. The AC trains are speedy local trains that began walking on December 25, 2017, on the Western traces and from January 30, 2020, on the Trans-Harbour Line.l

SERVICE QUALITY MODEL PARSURAMAN (5 DIMENSIONS)

The **SERVQUAL scale** is required for the investigation of the service quality which is being given to the customer by the service provider. Many scales related to service quality are being prepared with the help of the SERVQUAL model. The concept of the SERVQUAL scale is being created and developed by **Parasuraman et al. (1985, 1988)**. The main objective behind the creation of model of SERVQUAL was measuring the quality of service of that particular service among a wider

scope of categories of services. SERVQUAL model is widely used and is based and developed on basis of 5 crucial dimensions. The **5 dimensions of the SERVQUAL model** are as follows:

(1) Tangibles: In this dimension, it amplifies the **appearance of the physical aspects** related to the services such as equipment's, premises, personnel, and tool for communication.

(2) Reliability: In this dimension, it is defined as the ability of the organization in **delivering the services which they have promised** to the customers concerning providing accuracy in services.

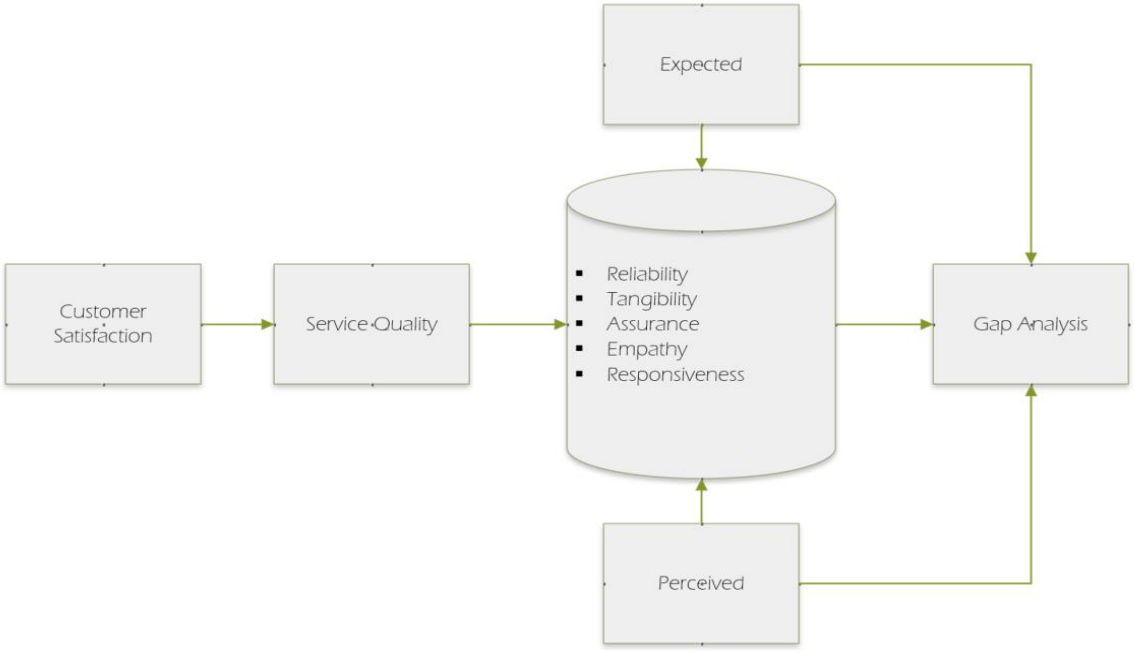
(3) Assurance: In this dimension, it is defined as the capability of the employees of the firm to **build trust as well as confidence among the consumers** by the use of their good etiquettes and knowledge.

(4) Empathy: In this dimension, it is defined as the **attention being provided to the customers by the company**. This refers to the concert and the care being shown to the customers.

(5) Responsiveness: In this dimension, it is defined as the **readiness** being shown by the company **towards their customers regarding their queries or any complaints** and thus providing them with quick **solution**.

REVIEW OF LITERATURE

Literature review in this research study is based on research framework model 1.1



1. Chowdhary, N. et al (2007) analyzed in the lookup find out about that the major aim of the learn about is to **analyze the importance of the providing high-quality services** and its distinct dimensions. The carrier provider firms are no longer always certain about the quantity of the proper mix of all the dimensions which are **assurance, empathy, reliability, tangibility, and responsiveness** in enhancing the typical fine of the firm. For the conduct of this study, two-stage investigations were once done. Firstly, provides excellent inputs related to sixteen services across 4 carrier types were being performed to test if any chances of correlation had been possible. After that, the two-step cluster analysis was once accomplished for revealing natural grouping amongst a set of data. It was discovered out that generalization of all of the dimensions of services may want to no longer be feasible in all of the offerings if together taken.

2. Ghotbabadi, A. et al (2015) highlighted in their study the **overview of the research based on the measurements of the service quality model.** The study analyses the advantages as well as the disadvantages of this service model and highlights the most effective, efficient as

well as useful measurement of the model. The service model is being used by the various firms to calculate the degree of calculating the impact of the service model on the qualitative aspect of the firm.

3. Hadiuzzaman, M. et al (2019) described in their research paper about **analyzing the Service Quality with customer satisfaction** which was being analyzed on **1037 passengers of intercity teach services in Bangladesh** used to be being examined with the aid of making use of Structural Equation Modeling for explaining the whole Service Quality of the intercity educate services. The lookup gives two **Structural Equation Models** for revealing the influences of the variables that are discovered in the service quality. Of the two models, the nice one is being chosen on groundwork of statistical parameters and resemblance with real-life expectations. The lookup is based totally on **18 found variables** amongst which 5 are being referred to as endogenous variables and the relaxation are being referred to as exogenous variables. The latent variables which are used in models are confirmed through factor analysis. Of the 18 observed variables, **Female harassment, Overall security, conditions of the Waiting Place, and compartment fitness are the predominant variables that influences Service Quality**. The impact of heterogeneity in the users on their performances of best models is being found.

4. Mogaji, E. et al (2019) conducted a research paper about the **experiences of the customers** that are deemed very important concerning the varying service aspects which are being designed through the quality of services provided. The research carries **3 analyses related to brand based on Twitter conversations** to explore the attitudes of the consumers and the experience of the company which is operating trains. Python was applied initially for mining tweets and **Sentiment Analysis** for investigating polarity among commuters' opinions. After that, tweets were analyzed Thematically and thus grouped for understanding the experiences of the consumers based on service quality. At last, on tweets **Content Analysis** was done for identifying Service Quality variations. The research indicates total positive experiences of the customers. But there are slight variations concerning different train groups, highlighting the requirement for improving the quality of services at various touchpoints, specifically the tangible feature and availability of emphatic and responsive staff.

5. Mowrin, A. et al (2019) pointed out in the research paper about **assessing the perceptions of the passengers related to the services of commuter trains** that run-in region near **Dhaka city**. For evaluation of the Service Quality of commuter trains, the model of the **Adaptive Neuro-Fuzzy Inference System** was being developed. The research applied the data of a field survey that was being conducted among **802 respondents** that traveled regularly by commuter train. Among those, **12 attributes** were selected for the development of the model. The model of ANFIS was being developed through training and was tested through 80% and 20% of overall samples respectively. The evaluation of model performance was done through (i) **Root Mean Square Error**, and (ii) **Confusion Matrix,** and thus the attributes were ranked on their significance. ANFIS model had **61.50% of accuracy related to training** as well as in **testing it was 47.80%.** Through thorough analysis, it was found that Cleanliness, conditions of the bogies, staff behavior, toilet facilities, and measures for female harassment were among the important attributes. The researchers think that some important measures could be taken on an immediate basis for recovering from the impact of such attributes to improve the quality of Service of a commuter's trains.

6. Nandan, S. (2010) examined the research paper about **identifying the various Aspects of Service Quality of the Indian Railways** at the railway platforms. The lookup locates out about done is exploratory and applies **Factor Analysis** for identifying the quintessential factors accountable for the pleasure of clients regarding Service Quality. The research survey included passengers and the empirical research methodology is implied. The conclusions show **five important factors** which are considered crucial to determine satisfaction related to railway platforms, of which behavioral and refreshment factors are important. Theoretical and managerial implications have been drawn from the study and analyzed in the research.

7. Sanyal, J. et al (2018) examined in the research paper **investigation of the perceptions of the passengers related to the service quality**

of the Railway Transportation System in the North Eastern areas of India citing special references towards **Assam**, which has an important number of railway line in this area. This current study focussed on having in consideration broader objectives which were on collecting the opinions of the passengers of the railways about services of the Indian Railways and analyzing the same. Customer satisfaction is major crucial determinant to measuring quality of service & the quality of the product and thus analyzing the performance of the Railways. Customers nowadays **desire** to have superior quality services.

8. Seth, N. et al (2005) mentioned in this research study to **analyze the different service quality models** and also to find out the **difficulties** that may come in future research. This paper studies **19 various service quality models** in this study. This important analysis of various models related to quality of service done for deriving the link between them and highlighting the main area of research. The conclusion derived from the reviews of models related to quality of service reveals output & measurement of the model depends on various factors such as situation, setting, need, and time as well as the expectations of the customers.

9. Sharma, M. et al (2016) surveyed the research paper for **assessing performances of the services of rail transportation** through include of railway perspective of service delivery and looking at wider approach to delivery of services. This parameter of service quality are being selected on basis of constraints imposed through data availability & **Data Envelopment Analysis**. These parameters related to Service Quality includes safety levels, customer satisfaction, and punctuality. Through this, evaluation of **16 zones** of the Indian Railways is being measured on efficiency and thus identify exemplar areas. The conclusions are derived by serving as targets for performances in performance scorecards, systems for control, and, rewards.

10. Yarimoglu, E. (2014) identified the study about various models of quality of services. The main aim to conducting study was for **reviewing the current service quality models** in a definite chronological sequence. It was found that three main groups were obtained through the study. And these groups were attached to the three main element of **Marketing Mix (7Ps)** that were people, process, and physical environment. It was suggested that attention was needed to be given to these aspects for increasing the quality.

OBJECTIVE

1. To measure passenger satisfaction towards AC train in Mumbai region

HYPOTHESES

Hypothesis 1

Ho: expected mean score reliability = perceived mean score reliability

H1: expected mean score reliability ≠ perceived mean score reliability

Hypothesis 2

Ho: expected mean score assurance = perceived mean score assurance

H1: expected mean score assurance ≠ perceived mean score assurance

Hypothesis 3

Ho: expected mean score empathy = perceived mean score empathy

H1: expected mean score empathy ≠ perceived mean score empathy

Hypothesis 4

Ho: expected mean score responsiveness = perceived mean score responsiveness

H1: expected mean score responsiveness ≠ perceived mean score responsiveness

Hypothesis 5

Ho: expected mean score tangibility = perceived mean score tangibility

H1: expected mean score tangibility ≠ perceived mean score tangibility

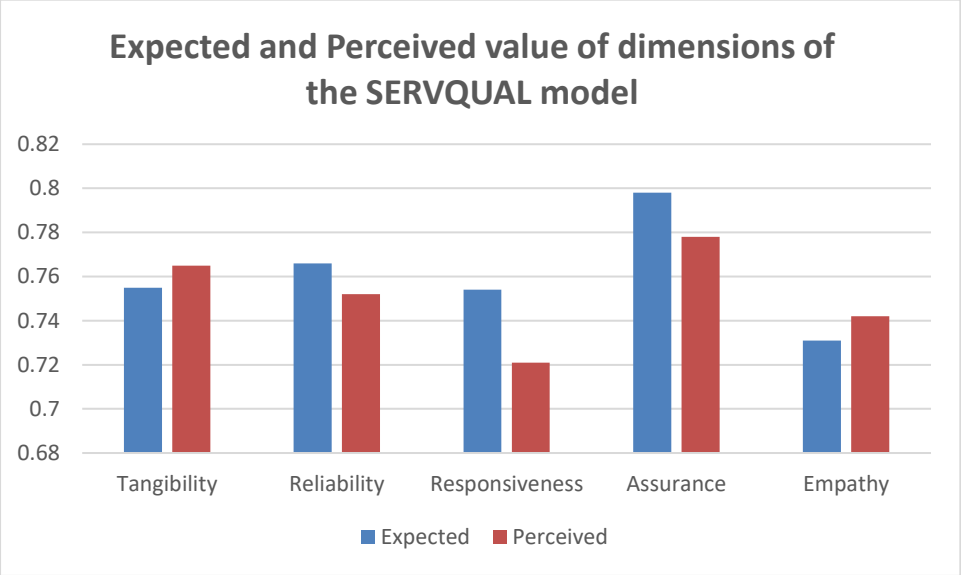
MATERIAL AND METHODS

The Current study is based on descriptive research design. Both the Primary and secondary sources of data collection have been used in the current research. 120 passengers of Ac local train have been selected for the current study. (As per Faul,f.et al (2009) At 0.5 effect size, $\alpha = 0.05$, $1-\beta = 0.95$ the minimum required sample size to apply pair t-test is 54) non-Probability purposive sampling (Users having

AC pass have been selected for the current study). The tool used for the current study is SPSS 26 and the techniques used for the current study is student t-test.

RESULT AND DATA ANALYSIS

Graph No: 1 Reliability analysis



All the values of the Cronbach's Alpha as stated above are more than 0.70 which indicates high level of reliability.

Table No: 1 Gap Analysis Tangibility

	Expected		**Actual**		**GAP**	**t- Value**	**p-Value**
Service quality	Mean	SD	Mean	SD	(Perceived Mean- Expected Mean)		
The working of the AC	3.26	0.70	5.53	1.11	2.27	-12.32	0.000
The facilities and conditions inside the train	2.78	0.71	5.85	1.00	3.07	-23.22	0.000
Trains are visually appealing	2.45	0.76	6.28	0.64	3.83	-26.45	0.000
Overall	**8.50**	**1.04**	**17.66**	**1.32**	**9.16**	**-49.31**	0.000

Table No: 2 Gap Analysis Reliability

	Expected		Actual		GAP	t- Value	p-Value
Service quality	Mean	SD	Mean	SD	(Perceived Mean- Expected Mean)		
Arrival time	2.75	0.93	5.38	0.88	2.63	-19.59	0.000
Departure time	2.60	0.84	5.95	0.89	3.35	-22.05	0.000
journey	2.56	0.98	6.03	0.80	3.47	-20.33	0.000
Overall	**7.91**	**1.25**	**17.36**	**1.62**	**9.45**	**-33.79**	0.000

Table No: 3 Gap Analysis Responsiveness

	Expected		Actual		GAP	t- Value	p-Value
Service quality	Mean	SD	Mean	SD	(Perceived Mean- Expected Mean)		
Willingness to help the passengers	2.71	0.73	6.03	0.68	3.32	-30.82	0.000
Prompt services to the passengers	3.10	0.75	6.50	0.50	3.4	-30.35	0.000
Readiness to responds to passengers' queries	2.31	1.03	6.40	0.52	4.09	-27.76	0.000
Overall	**8.13**	**1.63**	**18.93**	**0.93**	**10.8**	**-52.53**	0.000

Table No: 4 Gap Analysis Assurance

	Expected		Actual		GAP	t- Value	p-Value
Service quality	Mean	SD	Mean	SD	(Perceived Mean- Expected Mean)		
Railway staff are courteous	3.31	0.65	6.06	0.97	2.75	-17.51	0.000
Staff instill confidence in passengers	3.36	0.48	6.18	0.59	2.82	-29.18	0.000
Safety of the passengers	2.70	0.92	6.26	0.75	3.56	-21.35	0.000
Overall	**9.38**	**1.55**	**18.51**	**1.42**	**9.13**	**-29.78**	0.000

Table No: 5 Gap Analysis Empathy

	Expected		Actual		GAP	t- Value	p-Value
Service quality	Mean	SD	Mean	SD	(Perceived Mean- Expected Mean)		
Individual attention	2.96	0.86	5.60	0.94	2.64	-13.64	0.000
Convenient operation of AC train	2.96	0.93	5.41	1.10	2.45	-12.94	0.000
Staff deal with passengers in caring fashion	2.61	0.73	5.58	1.09	2.97	-19.99	0.000
Overall	**8.55**	**1.53**	**16.60**	**1.38**	**8.05**	**-28.89**	0.000

FINDINGS

As the p value is less than level of significance 0.05 for all the dimension of the service quality of local AC train and as the gap is positive for each case. Thus, the Ho is rejected and H1 is accepted. Therefore, the passengers are satisfied in all the parameters of the service quality of local AC train in Mumbai region.

CONCLUSION

Proper maintenance of AC trains, regular cleaning, stringent action on sticking poster and pamphlets, increasing frequency of trains, toll free support and e-ticketing booking options should be made available. Support of Artificial intelligence to reach on time both at the time of arrival and departure etc are making train services more efficient. It facilitate in maintaining the same service quality of local AC train and make customers delighted. This study can be significant for Train administrators and management to employ the level of quality in their services.

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