Assessing The Service Quality of Public Transportation System of Amravati City

Gauri Narendra Ambhore
Dept of Civil Engineering
G.H.RAISONI UNIVERSITY AMRAVATI

Abstract- *Public transport systems face the challenge of attracting users to fight the lost in market share, mostly due to the increasing use of private cars. Therefore, the concepts of 'quality' and 'customer' must change and the focus must be on meeting people's needs. At the same time, transport systems should be flexible enough to respond to changes in people's requirements and needs. Thus, the aim for public transport must be enhancing quality of the service. This requires a clear understanding of travel behavior and consumer needs and expectations. Accordingly, there is an increasing awareness of the importance of including service quality indicators and quality specifications in contracts between operators and public transport authorities. The development of quality measures in the designing of contracts for public transport raises important aspects that must be considered. This paper examines issues concerning the definition of service quality measures for public transport. This will give a better understanding of pertinent questions and of improvement strategies open to public transport management. Next, it outlines some critical aspects that must be considered when including such measures in contracts between operators and public transport authorities.*

Keywords*:* ***service quality, public transport, car, travel behaviour, market segmentation, contracts***

I. INTRODUCTION

1.1 INTRODUCTION

Public transport is one of the main factors of sustainable transportation. To make an increase in the use of public transport systems and a decrease in private car usage are one of the main purposes of decision makers in many countries. Usage of public transport system has a strong relation with the quality of service. Service quality includes many parameters such as comfort, frequency, information system etc. Fare is another important parameter on demand for public transport systems. All of these parameters are varied by users' perceptions.

In recent years, there has been a growing awareness of the need to use public transportation resources more efficiently. As a result, it has become very important for public transit systems to evaluate carefully all services so as to provide the most efficient and desirable transit services to the communities that they serve. Public transit customer surveys can play an important role in the evaluation of current and planned public transit services. When a public transit system decides to evaluate current or planned services via the use of a customer survey, there are a number of important issues that needed to be addressed to facilitate the data collection process and to ensure that reliable and high quality data are collected, analysed, and responsibly reported. In some cases, however, the collection of important information about public transit customers and the resulting evaluation has not been supported by comprehensive and methodologically valid surveying techniques. Despite the time and cost associated with such surveying efforts, the results obtained from surveys of public transit customers can be extremely useful to a public transit system's planning and operations functions, as well as to governmental boards, commissions, and councils. Therefore, it is in the best interest of public transit systems to conduct annual periodic surveys of its customers and to make sure that its surveying process is appropriate and correct to meet the desired information needs. The archiving of historical databases should be initiated and used for yearly comparisons of changes in customer demographics, travel patterns, and overall satisfaction with services provided, at a minimum.

1.2 QUALITY OF SERVICE

The increasing prominence of the service sector in the economies of much of the industrialised world towards the end of the twentieth century provided impetus for an improved appreciation for what quality in service provision is This attention was primarily driven by marketing sciences, aimed at understanding how the desires of customers could be better catered for through the application of management processes. This understanding was considered to represent an important issue in developing policies to improve customer satisfaction and retention and to implement strategies aimed at producing a competitive advantage in service delivery. Efforts to generate such an understanding of quality of service tended to focus on how this concept is perceived by customers, with these perceptions covering both the functional delivery of the

service, such as interactions with service personnel, and the technical outcomes of the service, such as transit times in the transport sector.

1.3 MEASUREMENT AND EVALUATION

One of the necessary steps to take in order to construct policies and strategies through which improvements in service quality can be pursued is to first evaluate the current level of quality in the service provision. To this end, developing techniques which allow quality of service to be measured represents an issue which has attracted significant academic attention.

1.4 TRANSPORT APPLICATIONS

Transport in India consists of transport by land, water and air. Public transport is the primary mode of road transport for most of the Indian citizens, and India's public transport systems are among the most heavily used in the world. The provision of personal mobility by transport service providers represents a substantial aspect of the transport sector, covering such modes as bus, train, air and vehicle hire schemes. Understanding the perceptions of transit customers to quality of service can be of use to service providers in both retaining existing customers and attracting new customers from other providers or transport modes. Consequently, it is unsurprising to observe that a large body of research exists concerning quality of service in the transport sector

1.5 STATE TRANSPORT.

Among the public transport organisations the State Transport could be mentioned as one. The State Transport undertaking has been catering to the needs of passenger transport on an increasing scale. The undertaking is owned and managed by the Government of Maharashtra as a public utility concern run on commercial lines. The parent body, the Maharashtra State Road Transport Corporation is a statutory public corporation.

1.6 AIM

Service quality standards are processed to use the providers (carriers) to present and monitor their services. The aim is tocreate conditions for ensuring a high proportion of public transport in the modal split.

1.7 OBJECTIVES

The overall objective of the study is to assess customer service quality management in public transport. The specific objectives of the study were:

1. To examine the customer service satisfaction
2. To assess quality management systems
3. To determine the problems facing rail transport customers

II. LITERATURE REVIEW

Yingling Fan, "Perception of Waiting Time at Transit Stops and Stations"

Waiting and transferring in transit travel are often perceived negatively and can be significant obstacles to mode shifts between automobile to transit. High-amenity stations, transit centers served by multiple routes and multimodal hubs are becoming increasingly popular as strategies for mitigating transit users' aversion to waiting and transferring. However, beyond recent evidence that realtime departure information reduces perceived waiting time, there is limited empirical evidence as to which other specific station and stop amenities can effectively influence user perceptions of waiting time. To address this knowledge gap, the authors conducted a passenger survey and video-recorded waiting passengers at different types of transit stops and stations to investigate the impacts of various station characteristics on transit users' perceptions of waiting and transferring time, controlling for weather and time of day. The authors employ regression analysis to explain the variation in riders' waiting time estimates as a function of their objectively observed waiting times, as well as station and stop amenities, while controlling for weather, time of day, self-reported and observed socio-demographic characteristics and trip characteristics. Based on the results, waits at stops with no amenities are perceived as twice as long or longer than they actually are. Benches, shelters and realtime departure information signs significantly reduce perceived waiting times. A complete package of all three nearly erases the time perception penalty of waiting. Women waiting in surroundings perceived to be insecure report waits as dramatically longer than they really are, and longer than do men and/or respondents in surroundings perceived to be secure. However, the provision of stop amenities significantly reduces this disparity. The authors recommend a focus on providing basic stop amenities as broadly as possible, continued exploration of methods for communicating arrival information and a particular focus on stops in less safe areas for improvements.

III. RESEARCH METHODOLOGY

In order to capture service quality perceptions of PT users in Amravati, the first task was to identify service attributes. An initial set of 18 service attributes were identified from the literature, post which focused group discussions with Amravati users were undertaken at Amravati stops. In these discussions, inputs on important travel attributes were sought

from different passenger groups, using which 15 attributes including qualitative and quantitative from the initial set of 18 were finalised (Refer Table 1):

Table 1. Service Quality Attributes identified

Quantitative	Qualitative
• Walk distance to and from bus stop • Waiting time at the bus stop • Travel time • Affordable fare throughout the system	• Availability of seats at bus stop • Cleanliness at the bus stop • Availability of bus route information • Safety at bus stop • Crowding levels on bus • Drive quality of bus ride • Cleanliness inside the bus • Safety on bus • Ease of transfers • Driver & conductor behaviour with passengers • Response to complaints & suggestions

To capture Amravati user perceptions, users were asked to rate service quality attributes on a Likert Scale of 1 to 5, in terms of their importance and performance perception. An on-board sampling while passengers were undertaking the journey was adopted to ensure respondents had sufficient response time. A route selection process was carried out to identify the sample routes for which on-board passenger surveys can be undertaken. To get a representative sample, users from different socioeconomic groups and different parts of the city were captured. A total of Amravati routes were selected based on the following route selection criteria routes having sufficient network coverage across different parts of the city; routes providing connectivity to major activity nodes in the city; routes with high passenger demand.

3.1 Data Analysis

- **Data Source**

In order to fully identify the many aspects of public transit customer surveying, it is important to examine, review, and summarize the various types of survey instruments (questionnaires) and final reports from as many sources as possible.We use google quaternaries for this survey.

The literature notes that all surveys have the following features in common, regardless of the group or topic being surveyed

Specific and clearly defined objectives,

• Method of data collection,
• Questionnaire construction
,• Appropriate level(s) of analysis,
• Accurate and truthful reporting of results

From this list of survey basics above, there are many interrelated steps involved in the design, planning, and administration of a survey of public transit customers. Before a survey can be conducted, important and sometimes subtle decisions must be made about the objectives and the purpose of the survey as well as its unique characteristics.

- **Data Preparation**

The final dataset used in the analysis reported in this paper was prepared in the following ways.

Firstly, only the data for respondents aged 16 and over was used as this providedPublic transport in Amaravati. With the help of different article book and varies sources we prepare a quaternaries.During the survey, passengers were asked to rate 15 bus service quality attributes on a scale of 1 to 5, with 1 being “Very poor performance” and 5 being “Very well performing”. They were also asked to rate the importance of the attributes with 1 being “Least important” to 5 being “Most important”.

- **Survey Location**

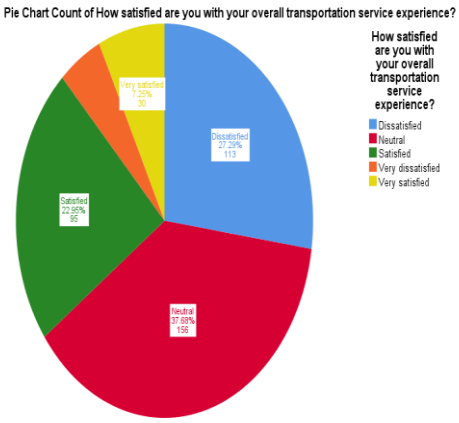
Survey studies are applied on the users who prefer the minibus systems and bus systems in urban trans-port. The locations of the sample are are determined regarding the survey content. Some samples for bus stops in Amravati are selected as survey areas and the surveys are carried out on the public transport users in these areas.

IV. DATA COLLECTION

- **Result**

After got responses we get do the pie chart as per following,

Pie chart

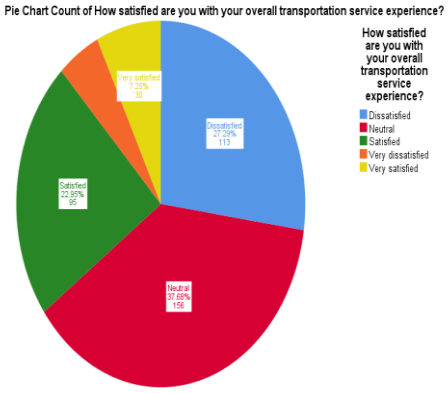


ANALYSIS

Above pie chart describes the analysis of overall transportation service experience.

INTERPRETATION

As per above graph, 22.95% shows for satisfied, 7.25% shows very satisfied, 27.29% shows dissatisfied and 37.685 shows for neutral.



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- **For SQSs1 * SQSf1**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SQSs1 SQSf1	*408	98.6%	6	1.4%	414	100.0%

ANALYSIS

Above table describes the case processing summary. It shows the valid results, case missing result and total result.

INTERPRETATION

According to above table, in valid result shows N value is 408 and percentage is 98.6%, in case missing N value is 6 and percentage is 1.4% as well as in total results, N value is 414 and 100.0% percentage.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2168.432[a]	840	.000
Likelihood Ratio	908.829	840	.049
Linear-by-Linear Association	247.038	1	.000
N of Valid Cases	408		

a. 899 cells (100.0%) have expected count less than 5. The minimum expected count is .00.

ANALYSIS

The above chi square test shows the pearson chi square, likelihood ratio, linear by linear association and N valid cases. The outcome in the format Asymptotic Significance)2-sided(of the test from the input value is 0.000, 0.049 and 0.000 which is less than 0.5, so it states which is clearly the case here.

INTREPRITATION

The test statistics of symmetric measures of chi-square test are worth 2168.432.The footnote of this statistic relates to the predicted cell count assumption: no cells had an anticipated count of fewer than 5, hence this assumption has been fulfilled. The value of the test statistics is 0.000.

Directional Measures

			Value	Asymptotic Standard Error[a]
Nominal by Nominal	Lambda	Symmetric	.214	.021
		SQSs1 Dependent	.216	.023
		SQSf1 Dependent	.213	.027
	Goodman and Kruskal tau	SQSs1 Dependent	.143	.010
		SQSf1 Dependent	.153	.011

ANALYSIS

above table describes about the directional measures. it shows the results of std. error and directional measures value.

INTREPRITATION

as per above table, maximum result value is 0.216 for SQSs1 Dependent and maximum Asymptotic Standard Error is 0.027 for SQSs1 Dependent

V. CONCLUSION

1. This study highlights the variables affecting public transport customers' opinions of service quality. The main attributes of PT quality service are (a) the cost of all trip legs – access, wait, on-board travel and (c) the quality attributes for comfort on-board, convenience of transfers and availability of route information – attributes based on user significance and performance judgments.
2. These attributes were shown to be linked with all travel legs of PT; this shows that it is important to evaluate the entire travel experience for service quality evaluation rather than just concentrating on part of the travel components.
3. This also refers to policy areas of intervention. In India, the government's public transportation spending is mostly aimed towards acquiring a new fleet but only enhance time and comfort on-board. Building on both on-board and off-board variables, the main service quality attributes required by users concentrate on attributes such as access time and waiting time, easy transfer is equally essential for user satisfaction.
4. Interventions like improving connecting to the last mile and reducing service leads may accomplish this. Service impression may also be improved by efforts to streamline routes and provide frequent services. Such measures would be especially important for AMTS bus services, where the typical maximum service headway is 30 minutes and where the bus route structure has not been changed in accordance with city structure changes.
5. Another important finding was that service experiences affect quality expectations and sensitivity. The quality of the PT service experienced by consumers tends to affect their expectations for various service attributes. Low quality of service leads to low user requirements, which reduces their perception of various service attributes.
6. This was observed in City Bus Services (AMTS), where CSI was poorly perceived at 55%. With regard to the different value values, it has turned out that 6 out of 15 service attributes are essential for users and they are higher than the mean value of 3. (on a scale of 1 to 5). On the other hand, BRTS customers with 75 percent higher CSI ratings ranked 13 of the 15 service attributes as significant (above the mid-value of 3).
7. At low service quality, user attention tends to concentrate on performing fundamental quality of service attributes (access, wait, driving time), cost and quality variables, such as overall time (crowding levels, ease of transfers). When the quality of service improves and performance of fundamental attributes is fulfilled, consumers begin to value higher order characteristics such as safety, cleanliness, customer service and so on.
8. As the quality of service increases, expectations of consumers increase and customers are increasingly sensitive to a wider range of attributes.

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