

Evaluation of Service Quality Attributes in Public Bus Transport Corporation Using Importance-Performance Map Analysis (IPMA)

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Abstract

The aim of this research paper is to evaluate how service quality attributes are important to predict the customer attitudinal loyalty using PLS-SEM (Partial Least square structural equation model). Data were collected from 631 long distance bus travellers using a cross-sectional survey. The research outcome of importance-performance map analysis (IPMA) revealed that the service quality attributes significantly important to increase the performance of customer attitudinal loyalty. Practitioners can be benefited using the present study findings and they may use the method adopted in the present study to evaluate the service performance of the bus transport.

Key words: importance-performance map analysis, service quality, bus transport

Introduction

Transportation services are the services which help goods and people to be carried from one place to another. "The transport industries which undertake nothing more than the mere movement of persons and things from one place to another, have constituted one of the most important activities of men in every stage of advanced civilization". It has become a very important instrument for the economic wellbeing of people. As cities grew and industrialization progressed, new and improved means of transportation had to be found to transport goods to factories and consumers. Modern means of transport, through their fast, safe and efficient services, have broken the distance frontiers and united the whole world into one thread. It brings ideas and inventions to the people and has considerably benefited the evolution of civilization. The road transport encompasses both the passenger and cargo segments. The passenger segment of road transport is the major source of self-employment to lakhs of people. At present, the demand for passenger road transport is met by both public and private sectors. Passenger road transport sector is dominated by publicly owned State Road Transport Corporations or Undertakings in some states like Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Karnataka, Maharashtra, and Gujarat, while in some other states like Kerala it is dominant only in certain areas of the state. About 80% of the passenger transport needs in India is met by the bus transport system (Kulkarni & Sharad, 2000).

Since, transport sector reinforce the infrastructure needs of all development, it carries an important role in all the sectors of the economy. Passenger transport services forms the basis of all commercial activities. Tamil Nadu is in the forefront in the country in providing an efficient transport service to the people. The state transport undertakings in Tamil Nadu continue their efforts to link the people of the State by providing them necessary transport facilities through a variety of services with the operational aspects of the nationalized bus transport system in the State. In Tamil Nadu, the public road transport services are owned by the state government. Some private players do operate transport services, but their share in terms of quantum of population that they cover is very marginal. Now, the Transport department has eight state transport undertakings under its administrative purview.

The public transport corporations in Tamil Nadu had been showing a better performance over the years in spite of the non-hiking of the bus fares commensurate with frequent hikes in Diesel prices in the past few years and as such, Tamil Nadu has been having comparatively lower bus fares. In addition, the Tamil Nadu transport corporation has received many awards issued by Association of State Road Transport Undertakings (ASRTU) on best performance in vehicle productivity and operational efficiency (1993, 1995, 2007, 2008, 2009, and 2012). All these awards are given on the basis of transport corporations' productivity, efficiency and financial performance. Surprisingly, the end customers who actually receive the services are not evaluated to know the satisfaction level and the quality of services delivered by the transport corporations.

Gap analysis

Differences or gaps between the customer's expectations and the perception of services actually experienced are the basis for the gap analysis methodology. The SERVQUAL model for measuring consumer perceptions of service quality is generally recognized as the predominate work in this field. The initial research conducted by (Parasuraman, Zeithaml, & Berry, 1985) for their SERVQUAL service quality model supported the hypothesis that service quality is an overall evaluation by the consumer. The service quality research literature shows that subsequent research has reached similar conclusions. The service quality research literature shows that subsequent research has reached similar conclusions. Kassim and Bojei (2002) discusses about the discrepancy between the customer's expectation and perception with respect to service quality in Malaysian telemarketing industry. The data is collected from 100 tele caller service users who are selected randomly. SERVQUAL instrument is used for measuring both expectations and perceptions. Further Gap analysis is done to find out the difference between expectations and perceptions. This Study reflects that there exists a gap between expectations and perceptions and highest is in the case of reliability followed by "Responsiveness", "Assurance", "Empathy" and "Tangibles". The results also showed that the gap scores and the rank orderings of dimensions are different, so there is a perceptual problem with respect to telemarketing experience.

Pakdil and Aydın (2007) measured the service quality in Turkish airlines. The data was collected from 385 passenger from three different routes based on cluster sampling. Passengers were asked to fill the questionnaire on both expectations and perceptions using SERVQUAL scores. The results for Factor analysis maintained that out of five dimensions "responsiveness" is rated as the most important dimension, followed by "Reliability and assurance". "Tangibility" was rated third, followed by "flight pattern" and "empathy" while "availability" is the least preferred one. Gap analysis was also done to understand the differences between the perceptions and expectations. The results also showed that passenger's educational qualification plays an important role in effecting their expectations and perceptions.

Chen, Chang, and Lai (2009), examined the Service quality from both the perspectives., One Service Quality gap between the two types of customers, and another related to employee statuses among the business customers. The data was collected from the customers (forwarder and shipper) selected from random samples from a list of an international line company of Taiwan. A total of 256 managers and 225 employees were asked to fill the service quality scale from shipper side. From the forwarder around 192 managers and 205 employees were asked to fill the questioner on service quality. Confirmatory Factor Analysis was done to check five factor model in shipping industries for both expectations and perceptions. The result showed that applicability of five factor model of Service quality in shipping industries is empirically rejected with respect to perceptions. Two hypothesized gaps were verified with MANOVA technique.

Arabatzis and Grigoroudis (2010), in his study conducted in Dadia–Lefkimi–Souflion national park, to measure the gap between satisfactions and perceptions of the victors. The data was collected from 230

visitors who visit the park over a period of one year. A questionnaire was developed for this purpose on various aspect of park like Personnel, Natural characteristics, Infrastructure, Recreation facilities and Information–Communication. Visitor were asked to rate the above facilities on a five point scale ranging from Satisfied to Dissatisfied on a voluntary basis and were also requested to give weights to the above factors which they feel most important to least important. The Gap analysis was done with the help of MUSA technique (Multi-criteria Satisfaction Analysis) and other software's. The results were plotted on a matrix form with four sides. Vertical side representing satisfaction and horizontal side representing the Importance level. Above factors were plotted on the matrix which reflected a clear image to the management in identifying the critical point (Recreation facility) which is effecting the satisfaction level of the visitors. The study conducted by Brown and Swartz (1989), explored the gap in service quality with respect to professional sector especially medical services. The author attempted to measure the concept of service quality for which data was collected from both the patients and the physicians. Around 1128 patients were asked to evaluate the questions on service quality and 30 physician were asked to answer the items the way they believed their patients would respond. Factor analysis was used to extract the factors from 65 questions on different aspects of medical services rendered to patients. Three factors were emerged from the analysis of Physician perception of patient expectations which were Professionalism, Auxiliary Communications, and Professional Responsibility. Six factors emerged from the patient side as Physician Interactions, Staff Interactions, Diagnostics, Professional Competence, Time Convenience and Location Convenience. Further the gap analysis was done to analyse the Gap difference between the client expectations to client experiences, client expectations to professional perceptions of client expectations and client experiences - professional perceptions of client experiences. The results showed that there existed a significant gap between the two groups and it has a high impact on satisfaction of the patients.

Method

Data collection

The survey was conducted at the central bus stand of the state capital Tamilnadu in India on both weekdays and weekends using the purposive sampling technique. Initially 800 questionnaires that were distributed and 631 were returned; that accounted a response rate of 78.88%.

Measures

Service quality (22 items) was measured in the context of public transport corporation by adopting the SERVQUAL scale (Parasuraman, Zeithaml, & Berry, 1988; C. H. Wen, L. Lan, & H. L. Cheng, 2005), corporate image (4 item) adopted from Brady and Cronin (2001), customer satisfaction (four items) measures were adopted from Brady and Cronin (2001) Perceived Value (3 Item) were adopted from Fornell, Johnson, Anderson, Cha, and Bryant (1996), customer trust (three item) was based on the scale proposed by Doney and Cannon (1997) and C. H. Wen, L. W. Lan, and H. L. Cheng (2005) with subsequent modification and Attitudinal loyalty (four items) was measured using behavioural intention of the respondents (Brady & Cronin, 2001)

Importance performance analysis

Importance-performance matrix analysis (IPMA) is useful in extending the findings of the basic PLS-SEM outcomes using the latent variable scores (Kristensen, Martensen, & Gronholdt, 2000; Ringle, Sarstedt, & Mooi, 2010; Völckner, Sattler, Hennig-Thurau, & Ringle, 2010). The results permit the identification of determinants with a relatively high importance and relatively low performance. These are major areas of improvement that can subsequently be addressed by marketing or management activities. In this study, the author intended to identify to what extent the importance and performance for each variables is provided in a research model. This analysis has become crucial to identify the critical factors that determine attitudinal loyalty.

Prior to the importance performance matrix analysis (IPMA), the measurement and structural model assessments should be carried out. Since the direct and indirect effect of the research model is already tested in the preceding sections, the study directly performed the IPMA using Smart PLS V3.0 and the results are presented in Table 37.

Table 1
Results of the importance performance analysis

	Importance	AL Performances
Bus services	3.52	41.93
Bus stand services	3.12	35.31
Empathy	3.95	49.09
Reliability	3.75	45.91
Staff behavior	3.78	46.38
Service quality	3.71	48.05
Corporate image	5.13	48.55
Perceived value	4.48	55.42
Customer trust	4.30	52.58
Customer satisfaction	5.37	50.06

Note: AL= attitudinal loyalty

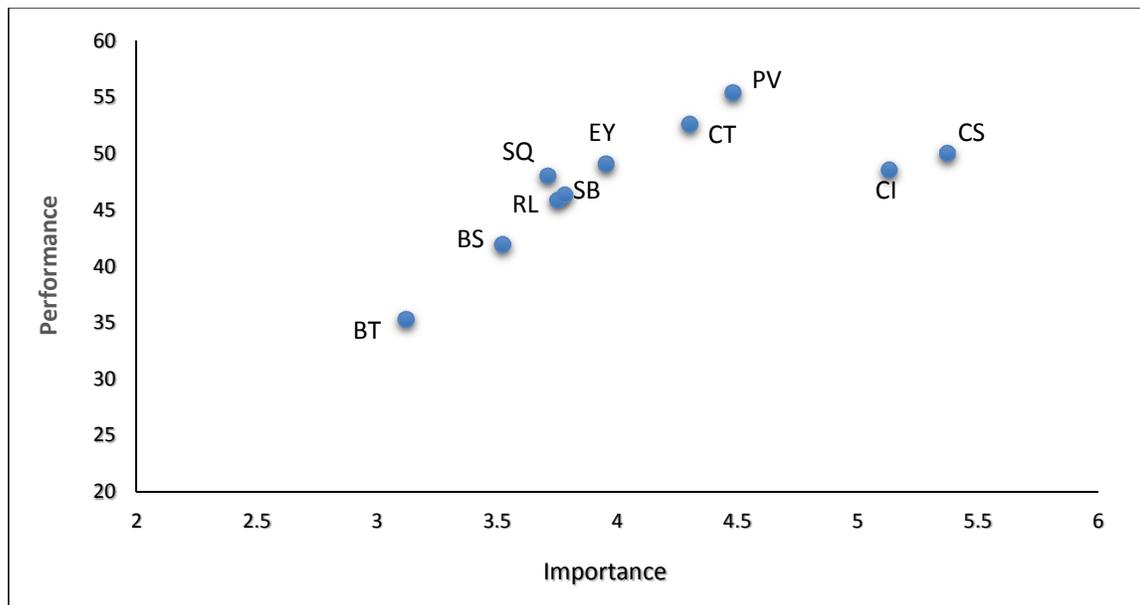


Figure 1 Graph of importance performance matrix representation of attitudinal loyalty

Note: SQ= service quality, CI=corporate image, CT=customer trust, PV=perceived value, CS= customer satisfaction

As shown in Table 1 and Figure 1, IPMA of the research model revealed that service quality perception is of primary importance for establishing attitudinal loyalty. However, its performance is slightly below average when compared to other constructs. The corporate image carried similar importance but has a considerably higher performance. Customer trust and service quality, on the other hand, have little relevance due to its low importance even though it has relatively high performance. Consequently, managerial activities to improve customer satisfaction should focus on the service quality and corporate

image construct. Managerial action may also focus on improving performance of the service quality construct on the basis of an IPMA of the construct's indicators.

Conclusion

Importance-performance matrix analysis (IPMA) showed that, bus stop quality and bus services are important factors to improve the satisfaction level of the customers and to retain them. The Tamil Nadu state and other countries transport authorities can be benefited using the present study findings and they may use the method adopted in the present study to evaluate the service performance of the bus transport.

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