

An Empirical study on Service Gap analysis with special reference to Northern Indian Railways

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ABSTRACT

Indian Railways like other service organizations are realizing the importance of customer-centered attitudes and are constantly focusing on quality management approaches in order to manage their services properly. Practically a less prominence has been given towards the satisfaction of passengers. In order to accomplish the organization success, proper service quality need to be highlighted to satisfy the passengers. The key purpose of the study is to empirically determine the service quality gap in Northern Indian Railway, based on the SERVQUAL scale. The study was performed by distributing the questionnaire and collecting the responses of passengers from the railway stations falling under the five divisions of Northern Indian Railway. The study performs the service gap analysis and results in considerable underperformance areas where the improvements are necessary.

Keywords: Service Quality, SERVQUAL, Northern Indian Railway.

1. Introduction

An act of performance that one party can offer to another that is essentially intangible and doesn't result in the ownership of anything is called service (Philip, 1994). Service quality can be measured by the SERVQUAL instrument. Services that customers believe to be provided and the actual service taken results in gap that is measured by SERVQUAL instrument (Parasuraman et al., 1988). There has been wide acceptance and applicability of SERVQUAL instrument in measuring service quality.

In spite of the growing influence and importance of service quality (Qualls and Rosa, 1995), it remains an abstract and elusive construct that is difficult to define and measure (Carman, 1990; Crosby, 1979; Gravin, 1983; Brown and Swartz, 1989; Parasuraman *et al.*, 1985, 1988; Rathmell, 1966). In the service quality literature, there are many alternative service quality models and instruments developed for measuring service quality in different sectors. SERVQUAL instrument developed by Parasuraman *et al.* (1988) is one of the most widely used instruments for measuring the service quality as perceived by the customers. Various scholars (Silvestroet *al.*, 1990; Ovretevit, 1993; Sinclair and Zairi, 1995; Yang, 2003) have highlighted the importance of service quality measurement, and recommended that SERVQUAL judges not only the external perceptions but also the real effectiveness of an organization's operation. Although, the service quality has been utilized in various empirical studies on different service sectors, yet very few studies have focused on the Indian Railways services context. This study has been conducted to assess the service gap in the Northern Indian Railway and the specific areas have been identified in which improvement of service quality is necessary.

2. Research Objectives

1. To study the difference between the expected and perceived service quality in northern Indian railways.
2. To identify the areas for improvements in northern Indian railways service quality.

3. Research Hypotheses

H₀: There is no significant difference between passenger expectation and passenger perception in context of services offered by Northern Indian Railways.

H₀₁: There is no significant difference between passenger expectations and perception about Tangibility.

H₀₂: There is no significant difference between passenger expectations and perception about Reliability.

H₀₃: There is no significant difference between passenger expectations and perception about Responsiveness.

H₀₄: There is no significant difference between passenger expectations and perception about Assurance.

H₀₅: There is no significant difference between passenger expectations and perception about Empathy.

4. Research Methodology

The study is based on the cross-sectional study and the Northern Indian Railways are the area of research. Expected and perceived service quality was determined and measured on the basis of 22 attributes. The attributes of the five dimensions: Reliability, Assurance, Tangibility, Empathy and Responsiveness were adapted from the Parasuraman et al., 1988 study. Likert five-point scale was used with "strongly disagree" as 1 and "strongly agree" as 5.

Primary data was collected through questionnaires that were distributed to passengers from the railway stations falling under the five divisions of Northern Indian Railway. Convenience sampling method was opted to collect the primary data. A total of 220 questionnaires were distributed resulting only in 185 valid questionnaires. In the present study, the sample size for the data collection was taken 220. But the valid questionnaires received and filtered resulted in 185 valid samples and 35 invalid samples. The response rate was 84.09%. It was based on: (a) the sample being spread across the five divisions of Northern Indian Railways (b) the no. of items in the questionnaire (44*5 = 220) as per Hair et al. (2010). Hair et al. (2010) suggested for 5 or 10 cases for per question or item in the study. Descriptive statistics and Paired sample t-test was used through statistical package SPSS 21.0 in order to analyse the data.

5. Research Findings

In order to find out the demographic characteristics, descriptive statistics was conducted on the demographic variables. The demographic characteristics depict that female customer respondents (42%) are less as compared to male customer respondents (58%). Most of the respondents are of age between 21-30 accounting to 52% and the frequently travelling respondents travel 2-3 times per week accounting 65%. The findings are shown in Table 1.

Table 1: Demographic Characteristics of Sampled passengers (n=185)

Items	Percentage	Items	Percentage
<u>Age</u>		<u>Gender</u>	
Upto 20 years	14.2	Male	58.3
21 - 30	51.8	Female	41.7
31 - 40	20	<u>Travel frequency</u>	
Above 40	14	2-3 times per week	65
		4-7 times per week	35

The findings of paired sample t-test are shown in Table 2. After careful comparison of railway passenger's expectations and perceptions relating to service quality, the passenger's expectations are higher than the customer perceptions as same as expected (Parasuraman et al., 1985, 1988). Levy and Weitz (2005) posit that customers are satisfied when the perceived service meets or exceeds their expectations. They are dissatisfied when they feel the service falls below their expectations. From Table 2, it is clear that negative gaps were found in all 22 items indicating that customers' expectations were in excess of their perceptions. The overall gap is -1.7567, indicating a high level of railways service quality gap. However, the 22 negative gaps indicate that there is much scope for improvement. There is a statistically significant variation in the mean responses in all dimensions based on the 22 items. All variables in the dimensions: reliability, assurance, tangibility, empathy and responsiveness are statistically significant.

By analysing the 'gaps', the Railways has the opportunity to take the appropriate actions to improve the quality of their services, giving priority to items with the largest gap scores.

Table 2 indicates that the maximum gap (-2.52) among all the items was found to be in item TA1 in the area of Railways have proper arrangement of lighting, seating, washrooms, etc. The next high gap (-2.36) existed in item RL1 in the area of 'Trains arrive and depart as per the schedule'. The third substantial gap (-2.32) existed in item TA2 in the area of Railways have up-to-date (modern) looking equipment like fans, etc. The fourth moderate gap (-2.30) was found in item EM2 in the area of 'Railway employees understand your specific need (requirement)'. The higher negative scores indicate that those attributes may not be available at neither in trains nor at stations or at the most be inadequate to passengers even if available in trains or at stations. Besides, these big gaps call for immediate attention and action by service provider to make improvements in these areas.

The lowest gap (-0.64) was found to be in item AS1 in the area of 'Railway employees have adequate knowledge regarding services'. The next low gap (-0.75) existed in item AS2 in the area of 'Railway employees are polite and well-mannered'. The third substantial lowest gap (-0.87) existed in item RN3 in the area of 'Railway employees respond to your requests'. The fourth low moderate gap (-0.89) was found in item RN2 in the area of 'Railway employees are always willing to help'. The attributes with lowest negative value can, however, in no way be ignored by railways. But, the Railways have to give top priority in filling the highest order gaps and then lower order gaps.

Table 2: Gap between Perceptions and Expectations (P-E) for passengers (n=185)

Factor codes	Expectations		Perceptions		Gap	t value
	^a Mean	SD	^b Mean	SD		
TA1	4.63	0.74	2.11	1.24	-2.52	39.359*
TA2	4.53	0.79	2.21	1.17	-2.32	37.129*
TA3	4.51	0.73	2.39	1.28	-2.13	31.688*
TA4	4.56	0.79	2.39	1.33	-2.16	31.222*
Mean Tangibles	4.56		2.27		-2.28	
RL1	4.60	0.68	2.25	1.24	-2.36	38.249*
RL2	4.51	0.68	2.39	1.31	-2.12	31.706*
RL3	4.50	0.64	2.46	1.33	-2.04	30.094*
RL4	4.54	0.71	2.32	1.22	-2.22	33.945*
RL5	4.42	0.75	2.17	1.19	-2.25	34.546*
Mean Reliability	4.51		2.32		-2.20	
RN1	4.51	0.76	3.43	1.42	-1.08	15.206*
RN2	4.44	0.77	3.55	1.35	-0.89	13.138*
RN3	4.44	0.81	3.57	1.32	-0.87	12.812*
RN4	4.52	0.71	2.30	1.28	-2.22	34.432*
Mean Responsiveness	4.48		3.21		-1.27	
AS1	4.39	0.79	3.75	1.28	-0.64	10.001*
AS2	4.43	0.70	3.68	1.31	-0.75	10.808*
AS3	4.38	0.81	3.24	1.53	-1.14	14.934*
AS4	4.35	0.88	3.36	1.50	-0.99	12.984*
Mean Assurance	4.39		3.51		-0.88	
EM1	4.40	0.78	2.30	1.25	-2.11	31.949*
EM2	4.43	0.77	2.13	1.20	-2.30	35.631*
EM3	4.36	0.80	2.17	1.17	-2.19	34.350*
EM4	4.42	0.78	2.36	1.27	-2.06	30.986*
EM5	4.30	0.89	2.16	1.19	-2.14	32.149*
Mean Empathy	4.38		2.22		-2.16	
Overall Mean (28 items)	4.4637		2.707		-1.7567	

Note: ^aExpectations Mean ranges from 1 to 5; ^bPerceptions Mean ranges from 1 to 5; SD - Standard Deviation; *t-test (2 tailed Sig.) p<0.05

Source: Author

The research findings of paired sample t-test determine:

- a. The significant differences between expectations and perceptions of railway passengers for the Tangibles attributes indicating that the Null hypothesis H_{01} is rejected, that means the alternate hypothesis: There is significant difference between passenger expectations and perception about Tangibility is accepted.
- b. The significant differences between expectations and perceptions of railway passengers for the Reliability attributes indicating that the Null hypothesis H_{02} is rejected, that means the alternate hypothesis: There is significant difference between passenger expectations and perception about Reliability is accepted.
- c. The significant differences between expectations and perceptions of railway passengers for the Responsiveness attributes indicating that the Null hypothesis H_{03} is rejected, that means the alternate hypothesis: There is significant difference between passenger expectations and perception about Responsiveness is accepted.
- d. The significant differences between expectations and perceptions of railway passengers for the Assurance attributes indicating that the Null hypothesis H_{04} is rejected, that means the alternate hypothesis: There is significant difference between passenger expectations and perception about Assurance is accepted.
- e. The significant differences between expectations and perceptions of railway passengers for the Empathy attributes indicating that the Null hypothesis H_{05} is rejected, that means the alternate hypothesis: There is significant difference between passenger expectations and perception about Empathy is accepted.

Thus, the significant differences between expectations and perceptions of railway passengers for all the attributes of five dimensions indicate that the Null hypothesis H_0 is rejected, that means the alternate hypothesis: There is significant difference between passenger expectation and passenger perception in context of services offered by Northern Indian Railways is accepted.

6. Conclusion

The research findings of the study contribute to the improvement of railways service quality and offer a deep understanding of the passenger's expectations and perceptions that is beneficial for the management of the Northern Indian Railways to act accordingly. The research findings of paired sample t-test indicate negative gaps in all items of service quality which revealed that expectations of customers were more than their perceptions. The negative gaps indicate that the service quality level was unsatisfactory. Accordingly, maximum gap was found in respect of tangibles dimension followed by reliability, empathy, responsiveness and assurance dimension. The highest negative scores have made it necessary for Northern Indian Railways to take corrective measures and focus on improvement of service quality to increase its effectiveness. Also, strategic studies on improvement of service quality can help to minimize the gaps. Conversely, failing to make improvement will widen the gaps and which will result in passenger dissatisfaction towards service quality of Northern Indian Railways. Further, more studies need to be conducted in order to extend the study range and use other research methodologies to determine the railways service quality.

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