

Analysis of service gap between passengers' expectation and perception in South Western Railway

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doi.org/10.64643/IJIRTV12I7-188933-459

Abstract—Railways are one of the major components of the Indian transport system. Indian Railways is a crucial component of India's economy, significantly contributing to GDP through transportation, employment, and economic linkages. It keeps coming up with new and innovative services in order to enhance the comfort of the passengers. The South Western Railway Zone is one of the vital parts of Indian Railways. Passengers' happiness and overall growth of railways are influenced by the quality of the services provided. So, service quality plays a main role in customer satisfaction and retention. Hence, there is a need to examine the gap between the passengers' expectation and perception of service quality in South Western Railway. Therefore, the present study was conducted to find the gap by using the SERVQUAL model with a sample of 114 respondents. The results of the study reveal that there is a higher gap between the expectation and perception of the 'assurance' dimension of the SERVQUAL model.

Index Terms—Passengers' Expectation, Passengers' Perception, Service, SERVQUAL Dimensions South Western Railway, Transport.

I. INTRODUCTION

India's transportation system is a complex and extensive network encompassing various modes and infrastructure that facilitate the movement of people and goods across the country. The Indian Railway is one of the world's largest railway networks and plays a crucial role in the transportation infrastructure of India. As a state-owned enterprise under the Ministry of Railways, it serves millions of passengers' daily, spanning diverse regions across the country. Indian Railways has significantly contributed to India's

GDP by enhancing trade and providing employment to millions of people.

Passengers expect huge services from the Indian Railway, but the railways provide few of the services that are of good quality, and many of the services are not good. When the Indian Railways is not fulfilling the passengers' expectations, they are switched over to other modes of transportation service (Priyadarshini 2016). The obligation of railways, as seen by the general public, is to serve people with low fares, as seen for all working-class and economically weaker sections of the country, despite the lesser profits.

Quality is one of the key parameters in order to measure the performance of the products or services Rajeswari (2014). Earlier, quality was considered only for the manufacturing sector, but during the last couple of decades, there has been a tremendous growth in the service sector around the globe, and the concept of quality has arisen in this sector. It is evident from the literature that the service sector has become one of the fastest-growing sectors in the global economy.

Providing good quality services is the only way to retain and increase customers in any market. In recent years, Indian Railways has offered quality services to its passengers, but few of them have satisfied the customers. In this backdrop, the present study is conducted to analyze the service gap between the expectation and perception of the passengers in South Western Railway.

II. REVIEW OF LITERATURE

Priyadarshini and Selladorai (2016) identified the socio-economic background of the passengers and analyzing the gap between the passengers' expectations and perceptions of service quality by using the SERVQUAL model. It is found that the reliability dimension has the highest gap and the assurance dimension has the lowest gap. They suggested that the reservation system and infrastructure facilities in both the train and station need to be improved. The helper or attendant can appoint for each coach and improve the security system towards the expectation of the passengers. Anbupriya and Subadra (2017) identified the problems faced by the passengers while traveling by train at stations and on board. The study disclosed that the late arrival of trains and poor maintenance of toilets are the major concerns expressed in their survey. Authors opined that Indian Railways need a lot to improve the overall services, including passenger safety, convenience, and running on time. Margaret and Nandinidevi (2020) studied the services provided by the Indian Railways along with its objectives to analyze the passengers' preferences, satisfaction, limitations, and perceptions towards the same. The research revealed that more focus on quality food items, basic facilities, hygiene, the installation of CCTV cameras in each compartment, and a safe environment has to be improvised in the station.

Ruolin et al. (2021) analyzed passenger service quality in Beijing West Railway Station. To achieve this, they used a questionnaire survey to collect data, and the SERVQUAL evaluation method is used to analyze the survey data, and it divides the passenger service into 5 attributes with 20 indicators. The authors found the smallest service quality value in terms of timeliness, which means this part needs the largest improvement. Also stated that, there is a lack of station security checks, ticketing efficiency, station identification accuracy, emergency processing of train delays, and the restroom environment, respectively.

Ameenudheen and Gafoor (2021) assessed the level of service quality provided by IRCTC and customer satisfaction in the Kanjikkode railway division. The results indicate that a larger gap has been found in the Tangibility and Responsiveness dimension of service

quality. The study suggests that IRCTC should provide better quality services in terms of tangibility and responsiveness.

Rajaram (2021) examined the perception and expectation level of the passengers towards the service provider in Trivandrum and Ernakulum districts and to identify the relative importance of service quality dimensions rated by the passengers. This study reveals that the majority of passengers are satisfied with the present services.

Salma et al. (2022) identified the significant factors among the service quality attributes of Kamalapur railway station by factor analysis using passengers' perception and how to improve the present condition of the identified factors for ensuring commuters satisfaction. Passengers expressed that there is a poor performance in medical facilities, cleanliness, and availability of porters.

Profile of South Western Railway

The South Western Railway Zone was created by amalgamating the reorganized Hubli division from the South Central Railway Zone and the Bangalore & Mysore divisions from the Southern Railway Zone. It has been operational from 1st April 2003, having the headquarters at Hubli in the state of Karnataka. The Zone comprises 03 divisions, viz. Hubli, Bangalore & Mysore, and primarily caters to Karnataka state with 84% of its jurisdiction located there. The remaining 16% of its route length falls in Andhra Pradesh, Tamil Nadu, Maharashtra, and Goa. As of 31-03-2025, 39,580 employees are working in the Zone, and it has a 3,692 km route with 389 stations (www.swr.com).

The Hubballi and Mysuru divisions of this zone are freight-oriented, whereas the Bengaluru division is passenger-oriented. Bengaluru is one of India's most well-known centers for information technology. Both Hubballi and Mysuru are popular tourist destinations. There are numerous world heritage sites along this railway. The Hubballi division of this railway is in charge of several popular tourist spots, including the Goa beaches, Pattadakal, Aihole, the Caves of Badami, and the ruins of Hampi. The world-renowned Dasara festivals and other historic sites, such as the monuments of the Hoyasala dynasty in Belur, Halebeedu, Somanathapura, and the well-known Jogfalls, are served by the Mysuru division.

Classification of stations over South Western Railway

NSG -1 Earnings above 500 crore & Passengers 20 Million								Total
Sl No	Stations	Code						
1	K. S. R. Bengaluru	SBC						01
NSG -2 Earnings Above 100 To 500 Crore & Passengers 10 To 20 Million								Total
Sl No	Stations	Code	Sl No	Stations	Code			
1	Yesvantpur	YPR	2	Mysuru	MYS			
NSG -3 Earnings above 20 to 100 crore & Passengers 05 to 10 Million								Total
Sl No	Stations	Code	Sl No	Stations	Code	Sl No	Stations	Code
1	Bengaluru Cant.	BNC	5	Mandy	MYA	9	Belagavi	BGM
2	Bangarpet	BWT	6	Davangere	DVG	10	Bellari	BAY
3	Kengeri	KGI	7	SSS Hubballi	UBL	11	Dharwar	DWR
4	Krishnarajapuram	KJM	8	Vasco-da-Gama	VSG			
NSG -4 Earnings above 10 to 20 crore & Passengers 02 to 05 Million								Total
Sl No	Stations	Code	Sl No	Stations	Code	Sl No	Stations	Code
1	Channapatna	CPT	9	Whitefield	WFD	17	SagarJambagaru	SRF
2	Hosur	HSRA	10	Yelahanka	YNK	18	Srirangapatna	S
3	Hindupur	HUP	11	Arsikere	ASK	19	ShivamoggaTown	SMET
4	Kuppam	KPN	12	Birur	RRB	20	SubramanyaRoad	SBHR
5	Malur	MLO	13	Chamarajanagar	CMNR	21	Hosapete	HPT
6	Ramanagaram	RMGM	14	Harihar	HRR	22	Vijayapura	BJP
7	SSP Nilayam	SSPN	15	Hassan	HAS	23	Gadag	GDG
8	Tumakuru	TK	16	Nanjangud Town	NTW	24	Londa	LD

Source : South Western Railway CMS Team Last Reviewed : 14-03-2024

III. STATEMENT OF THE PROBLEM

Indian Railways provides the most efficient and economical mode of transportation in India. But Indian Railways faces stiff competition from airways, luxury buses, public transport, and personalized transport. Though there are competitions from various modes of transport, Indian Railways has its unique features and provides more services to the passengers. Apart from that, the railway department of India is not focusing on its modern amenities for passengers properly and good service quality to meet changing customer requirements. But still a large section of Indian society depends on railways. So, the Indian Railway has to innovate itself to offer world-

class quality services to its passengers. Hence, there is a need to analyze the service gap between passengers' expectation and perception in Indian Railways in general and South Western Railway in particular.

The research has the following research question

- What is the gap between the passengers' expectation and perception of service quality?

Objectives of the Study

- To give a brief profile of South Western Railway.
- To analyze the gap between the passenger's expectation and perception of service quality.

Hypotheses

1. H_{01} : There is no significant difference between the expectation and perception of South Western railway passengers on the 'Tangibility' dimension of service quality.
2. H_{02} : There is no significant difference between the expectation and perception of South Western railway passengers on the 'Reliability' dimension of service quality.
3. H_{03} : There is no significant difference between the expectation and perception of South Western railway passengers on the 'Responsiveness' dimension of service quality.
4. H_{04} : There is no significant difference between the expectation and perception of South Western railway passengers on the 'Assurance' dimension of service quality.
5. H_{05} : There is no significant difference between the expectation and perception of South Western railway passengers on the 'Empathy' dimension of service quality.

IV. METHODOLOGY

V. RESULTS AND DISCUSSION

Table 1: "Tangibility" Dimension Gap Analysis

Sl No.	Tangibility Dimension	Mean Expectation (E)	Mean Perception (P)	Mean Gap Score (E-P)
1	The equipment of South Western Railway is functional and modern	4.304	4.132	0.172
2	The visual appeal of railway physical facilities is good.	4.134	3.816	0.318
3	Food facilities in the trains and stations are good	4.124	3.618	0.506
4	Railway department has good infrastructure at stations	4.123	3.863	0.26

Source: Primary Data

The above table-1 shows the gap analysis of the 'Tangibility' dimension. As the table depicts, there is evidence of a high score for all the responses in terms of both perception and expectations. There are four statements that have been used for the assessment of gap analysis. The first statement is 'The equipment of South Western Railway is functional and modern,' which has a gap of 0.172 score, which is the least among all four statements. This indicates that there is less gap between the expectation and perception of passengers in South Western Railways on the

Data

The data for the study has been collected from both primary and secondary sources. The primary data has been collected from a well-structured questionnaire; the SERVQUAL model has been used to collect the data about the passengers' expectation and perception. The reliability of the questionnaire had been examined before they had been administered. Whereas, the secondary data has been collected from published sources, such as journals, magazines, and websites.

Sampling and sample size

A convenient sampling technique has been followed in the present study. A total sample of 114 passengers of South Western Railway has been selected as the sample size for the study. The SPSS 20 version is used for the analysis of the results of the study. The SERVQUAL model has been used, and the mean scores are used for the gap analysis.

updating of equipment. However, the statement two is 'The visual appeal of railways physical facilities is good,' which is a gap score of 0.318; the third statement is 'Food facilities in the trains and stations are good.' This has a higher gap score, indicating that the sanitary and high-quality food facilities in the train and stations need to be improved. Where the fourth statement is 'The railway department has good infrastructure at stations,' that has a gap score of 0.26.

H_{01} : There is no significant difference between expectation and perception of South Western Railway passengers on 'Tangibility' dimension of service quality.

Table-1a: t-Test: Two-Sample Assuming Unequal Variances

	Expectation	Perception
Mean	4.17125	3.85725
Variance	0.007857	0.044821
Observations	114	114
Hypothesized Mean Difference	0	
df	112	
t Stat	2.736186	
P(T<=t) one-tail	0.026055	
t Critical one-tail	2.131847	
P(T<=t) two-tail	0.05211	
t Critical two-tail	2.776445	

In the above table-1a, the independent sample t-test results are present to examine the hypothesis. The results show that the t-value is 2.736 and the p-value is 0.0521, which is greater than 0.05. Hence, we accept the null hypothesis 'there is no significant difference between expectation and perception of the

tangibility dimension of South Western Railway. Therefore, it indicates there is no significant difference between the South Western Railway passengers' expectation and perception on the tangibility dimension.

Table 2: "Reliability" Dimension Gap Analysis

Sl. No	Reliability Dimension	Mean Expectation (E)	Mean Perception (P)	Mean Gap Score (E-P)
1.	Quick medical services in train and stations	4.231	3.643	0.588
2.	Punctuality of train	4.214	3.891	0.323
3.	Railway staff are reliable	3.866	3.783	0.083
4.	Updated information is available about the status of the train	4.2163	3.881	0.3353

Source: Primary Data

The above table-2 shows the results of the gap analysis of the SERQUAL dimension related to 'reliability'. There are four statements that have been used to assess the gap between expectation and perception in terms of reliability. The first, as the results show, is that there is a higher gap between expectation and perception in 'quick medical services in trains and stations (0.5880); this indicates that there is a need for improvement in the quick medical

services both in trains and stations. Further, the table also reveals that there is a least gap score for the statement 'Railway staff are reliable (0.083), indicating railways are more trustworthy.

H_{02} : There is no significant difference between expectation and perception of South Western Railway passengers on 'Reliability' dimension of service quality.

Table-2a: t-Test: Two-Sample Assuming Unequal Variances

	Expectations	Perceptions
Mean	4.131825	3.7995
Variance	0.031462	0.01326
Observations	114	114
Hypothesized Mean Difference	0	
df	112	
t Stat	3.142909	
P(T<=t) one-tail	0.012791	
t Critical one-tail	2.015048	
P(T<=t) two-tail	0.025582	
t Critical two-tail	2.570582	

In the above Table 2a, the independent sample t-test results are present to examine the hypothesis. The results show that the t-value is 3.1429 and the p-value is 0.02558, which is less than 0.05. Hence, we do not accept the null hypothesis 'there is no significant difference between expectation and perception of the

reliability dimension of South Western Railway'. Therefore, it indicates there is a significant difference between the South Western Railway passengers' expectation and perception on the 'reliability' dimension.

Table 3: "Responsiveness" Dimension Gap Analysis

Sl No.	Responsiveness Dimension	Mean Expectation (E)	Mean Perception (P)	Mean Gap Score (E-P)
1.	When there are delays or issues, South Western Railway provides prompt updates to passengers	3.889	3.613	0.276
2.	Staff handle complaints and issues efficiently and courteously	4.035	3.688	0.347
3	Railway staff treat passengers with utmost respect	3.683	3.344	0.339
4	Good response from enquiry counters	3.885	3.642	0.243

Source: Primary Data

The above Table 3 shows the gap analysis of the 'Responsiveness' dimension of the SERVQUAL model. As the table shows, the gap score is more of the statement 'Staff handles complaints and issues efficiently and courteously' (0.347). This indicates that there is a need for the quick and courteous complaint and issue handling mechanism in the railway department. However, the table also shows

that the gap score is least for the statement 'Good response from inquiry counters (0.243), indicating there is good response from staff of inquiry counters even when they are busy.

H03: There is no significant difference between expectation and perception of South Western Railway passengers on Responsiveness' dimension of service quality.

Table-3a: t-Test: Two-Sample Assuming Unequal Variances

	Expectations	Perceptions
Mean	3.873	3.57175
Variance	0.020915	0.024007

Observations	114	114
Hypothesized Mean Difference	0	
df	112	
t Stat	2.84269	
P(T<=t) one-tail	0.014731	
t Critical one-tail	1.94318	
P(T<=t) two-tail	0.029463	
t Critical two-tail	2.446912	

In the above table, 3a, the independent sample t-test results are present to examine the hypothesis. The results show that the t-value is 2.84269 and the p-value is 0.02946, which is less than 0.05. Hence, we do not accept the null hypothesis 'there is no significant difference between expectation and

perception of the Responsiveness dimension of South Western Railway'. Therefore, it indicates there is a significant difference between the South Western Railway passengers' expectation and perception on the Responsiveness' dimension.

Table 4: "Assurance" Dimension Gap Analysis

Sl No.	Assurance Dimension	Mean Expectation (E)	Mean Perception (P)	Mean Gap Score (E-P)
1.	Sufficient facilities are available to passengers in stations and train	4.123	3.422	0.701
2.	In their interactions with railway staff, passengers ought to feel secure.	3.892	3.639	0.253
3.	Railway staff ought to be courteous.	4.217	3.663	0.554
4.	The staff at South Western Railway are knowledgeable and provide accurate information to passengers	4.233	3.644	0.589

Source: Primary Data

The above Table 4 presented the results of the SERVQUAL model 'Assurance' dimension gap analysis. The table reveals that there is a higher gap score for the statement 'Sufficient facilities are available to passengers in stations and trains (0.701); whereas a higher score is also found for the statement 'The staff at South Western Railway are knowledgeable and provide accurate information to passengers (0.589). This indicates there is a need to provide sufficient facilities to passengers in stations

and trains, and also staff take care of providing accurate and timely information to the passengers. Whereas a similar score has been found for that statement, 'Railway staff ought to be courteous (0.554), indicating there is a need for courteous behavior of railway staff.

H04: There is no significant difference between expectation and perception of South Western Railway passengers on South Western railway passengers on 'Assurance' dimension of service quality.

Table-4a: t-Test: Two-Sample Assuming Unequal Variances

	Expectations	Perceptions
Mean	4.11625	3.617
Variance	0.024705	0.018585
Observations	114	114
Hypothesized Mean Difference	0	

df	112	
t Stat	4.799062	
P(T<=t) one-tail	0.001502	
t Critical one-tail	1.94318	
P(T<=t) two-tail	0.003004	
t Critical two-tail	2.446912	

In the above table-4a, the independent sample t-test results are present to examine the hypothesis. The results show that the t-value is 4.799 and the p-value is 0.003, which is less than 0.05. Hence, we do not accept the null hypothesis ‘there is no significant difference between expectation and perception of the

Assurance dimension of South Western Railways’. Therefore, it indicates there is a significant difference between the South Western Railway passengers’ expectation and perception on the ‘Assurance’ dimension.

Table 5: “Empathy” Dimension Gap Analysis

Sl No.	Empathy Dimension	Mean Expectation (E)	Mean Perception (P)	Mean Gap Score (E-P)
1.	Railways give individual attention to passengers	4.322	4.114	0.208
2.	South Western Railway staff understand the challenges passengers face during their journey	3.683	3.123	0.56
3.	Railway staff understand my needs when I make inquiries	3.696	3.234	0.462
4.	Concession for disabled and elderly people is good	3.563	3.122	0.441
5.	South Western Railway staff offer support in a manner that makes passengers feel valued	3.134	3.112	0.022

Source: Primary Data

The above table-5 shows the analysis of the ‘empathy’ dimension of the SERVQUAL model. As the table shows, the railway passengers have indicated a maximum score for the construct ‘South Western Railway staff understands the challenges passengers face during their journey’ (0.56). This indicates that there is a need for personal care and attention from the railway staff; hence, the railway staff shall focus on improving personal attention for providing assistance if passengers face any

Table-5a: t-Test: Two-Sample Assuming Unequal Variances

challenges during the journey. Whereas two other statements, such as ‘Railway staff understand my needs when I make inquiries (0.462), and ‘Concession for disabled and elderly people is good (0.441), also have higher scores.

H05: There is no significant difference between expectation and perception of South Western Railway passengers on South Western railway passengers on ‘Empathy’ dimension of service quality.

	Expectation	Perception
Mean	3.6796	3.341
Variance	0.181058	0.189226
Observations	114	114
Hypothesized Mean Difference	0	
df	112	

t Stat	1.24424	
P(T<=t) one-tail	0.124314	
t Critical one-tail	1.859548	
P(T<=t) two-tail	0.248628	
t Critical two-tail	2.306004	

In the above table-5a the independent sample t-test results are present to examine the hypothesis. The results show that the t-value is 1.2442 and the p-value is 0.2486, which is greater than 0.05. Hence, we do not reject the null hypothesis 'there is no significant difference between expectation and perception of the

Empathy dimension of South Western Railway'. Therefore, it indicates there is no significant difference between the South Western Railway passengers' expectation and perception on the empathy dimension'.

Table 6: Overall gap analysis of SERVQUAL scale dimension

Sl. No	Service Quality Dimensions	Perception	Expectation	Service Quality Gap
		Mean	Mean	
1.	Tangibility	4.17	3.86	0.31
2.	Reliability	4.13	3.80	0.33
3.	Responsiveness	3.87	3.57	0.30
4.	Assurance	4.08	3.59	0.49
5.	Empathy	3.68	3.34	0.34

Source: Primary Data

In the above table-6, the overall results of the mean score of perception and expectation of passengers in view of SERVQUAL dimensions like tangibility, reliability, responsiveness, assurance, and empathy. Based on the result, it is inferred that a large service quality gap is found with the "Assurance" dimension (0.49). Whereas the least service quality gap has been identified with 'Responsiveness (0.30)'.

VI. CONCLUSION

Service quality plays a key role in the customer satisfaction and overall growth of a company. Hence, there is a vital need to take care of service quality. Hence, there have been many service quality models in the literature. The SERVQUAL model is one of such models. The South Western Railway is one of the major contributors to the overall growth of the railway department. The present study made an attempt to examine the gap between the expectation and perception of various dimensions of the SERVQUAL model. The overall results of the study indicate the higher expectation and perception gap of 0.49 as been noticed in the "Assurance" dimension.

Least expectation and perception gap of 0.30 has been noticed in 'Responsiveness' dimension. This clearly states that the railway department has to focus on the improvement of 'Assurance' dimension.

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