Service Gap analysis in the light of Southern Railways

R. SHUNMUGASELVI, Fulltime Ph.D Research scholar, PG & Research Department of Commerce, Rani Anna Government College for Women, Manonmaniam Sundaranar University, Tirunelveli,

Dr. V. DARLING SELVI, Assistant Professor of Commerce, Rani Anna Government College for Women,

Abstract

Indian Railways is the largest railway network in Asia. Oliver (1997) argues that service quality can be described as the result from customer comparisons between their expectations about the service they will use and their perceptions about the service company. The main objective of the study is to analyse the gap between passengers expectations and perceptions. Primary data were collected by interviewing **100** passengers of Rail transport in Southern Railway with a specially prepared interview schedule. The data were analysed by using the Statistical Package for the Social Science (SPSS) software package. The researcher has applied Simple Percentage analysis, Gap analysis, Factor analysis and Correlation analysis. The result shows that the Gap analysis is positive in all the dimensions in general and is prominent in the dimensions of reliability and comfort.

Keywords: Expectation, Gap, Passengers, Perception, Satisfaction, Service Quality,

Introduction

Indian Railways (IR) is a statutory body under the ownership of Ministry of Railways, Government of India that operates India's national railway system. It manages the fourth largest national railway system in the world. The history of Indian Railways dates back to over 160 years ago. On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, a distance of 34 km. It was operated by three locomotives, named Sahib, Sultan and Sindh, and had thirteen carriages railways virtually form the life-line of the Country, catering to its needs for large scale movement of traffic, both freight and passenger, thereby contributing to economic growth and also promoting national integration. In fact, railways constitute the backbone of surface transport system in India. (**https://artsandculture.google.com**). This study

aims to bring out the gap analysis of the service quality of Southern railways from the view point of 100 respondents from Tirunelveli District.

Southern Railway: The Southern Railway having the headquartered at Chennai, is one of the 18 zones of Indian Railways. It is the earliest of the 18 zones of the Indian Railways created in independent India. It was created on 14 April 1951 by merging three state railways, namely, the Madras and Southern Mahratta Railway, the South Indian Railway Company, and the Mysore State Railway. Southern Railway has its headquarters in Chennai and has the following six divisions such as Chennai railway division, Tiruchirappalli railway division, Madurai railway division, Palakkad railway division, Salem railway division and Trivandrum railway division. (**Southern Railway Wikipedia)**

Service Quality: Gibson (2005) put forward that satisfied customers are likely to become loyal customers and that means that they are also likely to spread positive word of mouth. Understanding which factors that influence customer satisfaction makes it easier to design and deliver service offers that corresponds to the market demands. **Philip Kotler (1997)** defined service as 'an action or an activity which can be offered by a party to another party, which is basically intangible and can not affect any ownership. Service may be related to tangible product or intangible product'

Dimensions of Service Quality: SERVQUAL Model

According to **A. Parasuraman, V.A.Zeithaml, and L.L.Berry**, it is during the service delivery that the quality of services is assessed and the contact with each customer implies as a chance to satisfy or dissatisfy the customer, a moment of truth. They defined customer satisfaction with regards to service as 'by comparing perceptions of service received with expectations of service desired. In addition**, Parasuraman, Zeithaml, and Berry (PZB's1988**) introduced five dimensions which led to the development of SETVQUAL, these dimensions are **tangibility, reliability, responsiveness, assurance and empathy.**

The SERVQUAL Instrument

The **SERVQUAL** instrument developed by **Parasuraman (1991)** has proved popular, being used in many studies of service quality. **Parasuraman (1985)** developed the gap model and the subsequent **SERVQUAL** instrument designed to identify and measure the gaps between customers' expectations and perceptions of the service received. Service quality from the consumer's perspective depends on the direction and degree of difference between the expected service and the perceived service. Thus by comparing customer's expected service with customer's perceived service, hotels, for example can determine whether its service standard is appropriate. The gap between expectations and perceptions of performance determines the level of service quality from a customer's perspective. The **SERVQUAL** Instrument measures the five dimensions of Service Quality. These five dimensions are

Reliability: The ability to perform the promised service dependably and accurately, **Assurance:** The knowledge and courtesy of employees and their ability to convey trust and confidence, **Tangibility:** The appearance of physical facilities, equipment, personnel and communication materials, **Empathy:** The provision of caring, individualized attention to customer, **Responsiveness:** The willingness to help customers and to provide prompt service

Service Quality Method

The Gap Model and Gap Analysis

The research and the service quality methods will shed light to the service provider's perspective since currently this area is largely unexplored. This statement is strengthen by Svensson (2004) who states that the existing models of service quality are frequently based on the interpretations of involving different actors in a service encounter but not the service provider's point of view. This model is developed by Parasuraman et al. (1985). It proposed that that service quality is a function of the differences between expectation and performance along the quality dimensions.

Review of Literature

Yuning Wang, Zhe Zhang, Mengyuan Zhu, and Hexian Wang (2020) concludes that Quality of service has a significant impact on customer satisfaction and service quality, and customer satisfaction has an impact on travelers' reuse thinking. Service quality can be conceived as a

combination of the four dimensions of operational service quality, technical service quality, comfort and cleanliness and service planning and reliability.

Bikramjit Singh Hundal and Vikas Kumar (2015) in their study the researchers suggests that timely management of trains and training of railway staff should be highly responsive to the need and demand of passengers. Safety measurements should be improved so that passengers feel safe while traveling. In other words, the missing human contact is much needed in the Northern Railway passenger services. The improvement of these features will help improve service quality gaps and ultimately improve the competitiveness of Indian Railways.

Sheeba and Kumuthadevi (2013) the researchers suggests that extensive effort to implement qualified services for customers. Implement an effective and remote service quality model. Focus on important service quality factors such as basic amenities, health and safety-safety, which are considered to be the most important factors for train passengers. Railways should pay more attention to provide such services as basic amenities and hygiene are important factors to determine customer satisfaction. The designed satisfaction model can be upgraded or modified, Qualified services and overall satisfaction for passengers on the train.

According to **Devi Prasad Maruvada and Raja Shekhar Bellamkonda (2010)** Creates an analytics framework that contains a vague measure of the S -I (satisfaction - importance) degree. The measurement of the S-I gap with the Fuzzy approach is to reduce the subjectivity and ambiguity of the passenger service quality judgment. Fuzzy logic helps to indicate the ambiguity of the evaluators' judgment. Using the SERVQAUL method, the optimal ambiguous interval of interval scores is determined for each object. The researcher indicates that a lot of work needs to be done by the Railway administration to achieve passenger satisfaction by improving service quality.

The previous studies explained five dimensions of service quality but this study explained eight dimensions of service Quality.

Methodology of the Study

The main objective of the study is to analyse the gap between passengers expectations and perceptions. Primary data were collected by interviewing **100** passengers of Rail transport in

Southern Railway with a specially prepared interview schedule. The data were analysed by using the Statistical Package for the Social Science (SPSS) software package. The researcher has applied Simple Percentage analysis, Gap analysis, Factor analysis and Correlation analysis.

Results and Discussion

Demographic profile of the respondents

The study shows that out of 100 respondents, 10 percent of the respondents are male the remaining 90 percent of the respondents are female In age group, just one percent of the respondents are below 20 years, 20-40 years (97%), and 40-60 years (2%), married (21%), 4 percentage of the respondents are having the qualification of Higher Secondary or School, Diploma (1%), Under Graduation (22%), Post Graduation (71%), and others (2%). With regards to the Monthly Income 40 percentage of the respondents has Below Rs. 10000, between Rs.10000 and Rs. 20000 (45%), between Rs.20000 and Rs. 30000 (6%), and Above Rs. 30000 (9%). Further it is known from the study that 74 percent of the respondents are students, Professionals (5%), proprietor (1%), Business persons (3%), and others (17%). Hence, the study discloses that the female respondents availed most of the services than the male respondents and most of the respondents 97 percent are middle aged people, and are unmarried and are well qualified.

Gap analysis for the Service Quality Measures

This model is developed by Parasuraman et al. (1985). It proposed that that service quality is a function of the differences between expectation and performance along the quality dimensions.

Cronbach's Alpha	No. of Items
.958	58

Source: Derived

The data reliability has been tested by using the statistic Cronbach alpha. The Cronbach's Alpha comes up to be .958. As per the standards, the value needs to be greater than 0.5. Hence it can be concluded that the data is adequate.

Table 2 Gap analysis between Expectations and Perceptions

Variables	Expectations	Perceptions	Gap (E-P)	% of Satisfactio
It is easy to find details regarding train schedule	4.08	3.93	0.15	96.32
Punctuality of train services	3.86	3.69	0.17	95.59
It is easy to find/ details regarding train fare	3.92	3.66	0.26	93.37
Passengers feel that government supports all categories of people	4.15	3.57	0.58	86.02
Railways supports some section of public with travel concessions	4.18	3.48	0.70	83.25
Railway staff are reliable	3.88	3.48	0.40	89.69
Updated information about status of train during travel	4.34	3.53	0.81	81.34
It is easy to book a ticket in train	4.31	3.53	0.78	81.90
Complaint Handling Systems Responsiveness	4.46	3.4	1.06	76.23
Availability of staff in handling requests (Dependability in handling your service problems)	4.39	3.26	1.13	74.26
Train tickets are available easily	4.34	3.99	0.35	91.94
Travelling by train saves travel time	4.24	3.51	0.73	82.78
It is safe to travel in train	4.40	3.95	0.45	89.77
Passengers prefer train journey before opting other travel modes through road or air	4.15	3.76	0.39	90.60
Providing you with information about any changers in ternary	4.23	3.62	0.61	85.58
Information regarding safety procedures are readily available	4.24	3.50	0.74	82.55
Train reservation and cancellation process is simple	4.30	3.51	0.79	81.63
Staff at the ticket office	4.42	3.51	0.91	79.41
Security personnel are easily approachable	4.62	3.56	1.06	77.06
Sufficient space and facilities are in the train for passengers	4.6	3.41	1.19	74.13
Facilities available in Railway station is sufficient	4.63	3.53	1.10	76.24
The good thing about train journey is it’s comfort	4.37	4.03	0.34	92.22
Passengers feel relaxed in a train journey	4.28	3.76	0.52	87.85
Railways help public in long distance travel	4.26	3.56	0.73	83.57

Ticket reservation system provides equal opportunities to all passengers	4.65	3.55	1.10	76.34
Medical facility in the train	4.61	3.49	1.12	75.70
Food facility in the train	4.2	3.23	0.97	76.90
Sufficient information is available regarding train schedule	4.58	3.46	1.12	75.55
Cleanliness of train	4.28	3.32	0.96	77.57
Modern appearance of station	4.22	3.21	1.01	76.07
Cleanliness of the station	4.61	3.24	1.37	70.28
Train time tables provide enough information to plan a journey	4.54	3.4	1.14	74.89
Train reservation system is user friendly	4.6	3.85	0.75	83.70
Railways has a good image among public	4.48	3.66	0.82	81.70
Railways are trustworthy means of transport	4.33	3.51	0.82	81.06
Easy and accessible complaint handling mechanism is in place	4.35	3.5	0.85	80.46
Assistance and information for disabled and elderly people is good	4.27	3.57	0.70	83.61
Concession for disabled and elderly people is good	4.29	3.52	0.77	82.05
Concession for students and children is good	4.61	3.58	1.03	77.66
Availability of Carriers (Coolie and trolley)	4.59	3.56	1.03	77.56
Railways treat passengers with utmost respect	4.27	3.67	0.60	85.95
Railway staff are approachable	4.53	3.93	0.60	86.75
Railway staff provide sufficient information when asked for details	4.28	3.48	0.80	81.31
The service in train is excellent	4.61	3.64	0.97	78.96
Information regarding change in train details are given proactively	4.55	3.33	1.22	73.19
Availability of seating in train	4.3	3.94	0.36	91.63
Comfortable seats in the train	4.54	3.68	0.86	81.06
Comfortable temperature in the train	4.24	3.65	0.59	86.08
Smoothness of ride of the train	4.52	3.63	0.89	80.31
Travelling time of the train	4.26	3.49	0.77	81.92
Adequacy of parking facilities	4.59	3.85	0.74	83.88
Ease of access to your home station	4.28	3.68	0.60	85.98
Ease of access to the nearest station at your working place	4.64	3.62	1.02	78.02

Frequency of trains that meet your needs	4.38	3.39	0.99	77.40
Trains running at suitable times for catching connecting transport	4.63	3.47	1.16	74.95
Ease of access of travel information	4.3	3.9	0.40	90.70
Ease of buying tickets	4.63	3.56	1.07	76.89
Convenient office hours at ticket office	4.61	3.51	1.10	76.14

Source: Primary Survey

The above table shows that Expectations and Perceptions of the respondents regarding different attributes like It is easy to find details regarding train schedule, Punctuality of train services, It is easy to find/ details regarding train fare, Passengers feel that government supports all categories of people and so on. Here the gap between Expectations and Perceptions has been calculated and percentage of satisfaction of different respondent regarding the above said attributes has also been calculated.

Table 3 Percentage of satisfaction in the Service Quality Dimensions

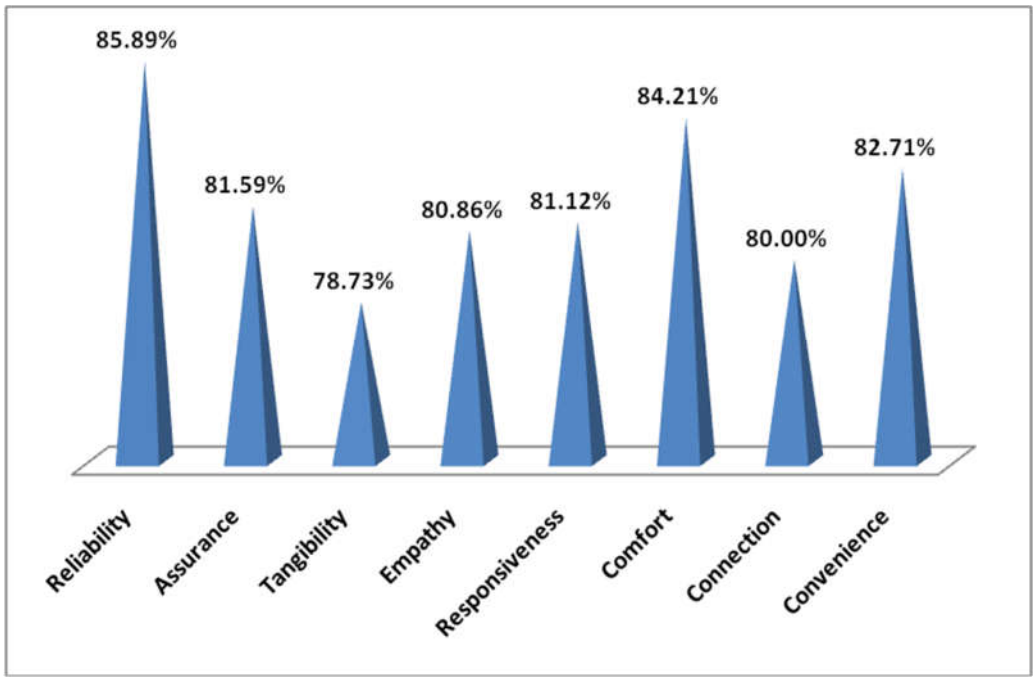
Dimensions	Expectations	Perceptions	Gap (E-P)	% of Satisfaction
Reliability	4.18	3.59	0.59	85.89
Assurance	4.40	3.59	0.80	81.59
Tangibility	4.42	3.48	0.94	78.73
Empathy	4.44	3.59	0.85	80.86
Responsiveness	4.45	3.61	0.84	81.12
Comfort	4.37	3.68	0.69	84.21
Connection	4.50	3.60	0.90	80.00
Convenience	4.51	3.73	0.86	82.71
Correlation	**0.21**			
Average Gap Score			**0.81**	**82.00**

Source: Primary Survey

The Gap score is more for the dimensions tangibility and Convenience and is low for Reliability and comfort. The correlation between the scores of Expectations and Perceptions is low to the extent of 0.21 whereas the average gap score is 0.81 and the percentage of overall

satisfaction is turned to be 82 percent. Hence it is noted that the percentage of satisfaction level is high among the sample respondents.

Chart 1 Percentage of satisfaction in the Service Quality Dimensions



Average Mean has been calculated for analysis of gap for the various dimensions namely Reliability, Assurance, Tangibility, Empathy, Responsiveness, Comfort, Connection and Convenience. For the present analysis, eight dimensions considered and it has been observed that Reliability dimension has lesser gap which involving it is easy to find details regarding train schedule, Punctuality of train services, It is easy to find/ details regarding train fare, Passengers feel that government supports all categories of people, Railways supports some section of public with travel concessions, Railway staff are reliable. The major gap has been found in Tangibility which involving The good thing about train journey is it's comfort, Passengers feel relaxed in a train journey , Railways help public in long distance travel, Ticket reservation system provides equal opportunities to all passengers, Medical facility in the train, Food facility in the train, Sufficient information is available regarding train schedule, Cleanliness of train, Modern appearance of station, Cleanliness of the station and Train time tables provide enough information to plan a journey.

Perception of the passengers towards Service Quality Measures

Perception of the passengers in the study area is discussed in this section, by applying Factor Analysis. **Factor Analysis** is a good way of resolving the confusion and identifying important variables. The technique of factor analysis is used to reduce the number of variables into smaller and manageable number combining related ones into factors. **Principal Component Analysis** method is used to extract factors in Eigen value of one or more. In order to assign variables **Rotated Factor Matrix** is used. In order to find out the appropriateness of this analysis Kaiser-Meyer-Olkin Measure of sampling Adequacy and Bartlett's Test of Sphericity are used and the results are shown below.

Table 4 Reliability Statistics

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.755**
Bartlett's Test of Sphericity	Approx. Chi-Square	4388.064
	Df	1653
	Sig.	.000

Source: Derived

Normally KMO is between 0 and 1, If KMO is 0.5, the sample is adequate. Here, KMO = 0.755 which indicates that the sample is adequate and we may proceed with the Factor Analysis. The KMO value is very high (0.755). Similarly, the Bartlett's Test rejects the null hypothesis, i.e, the variables are not related as the approximate chi-square value is 4388.064 at 1653 degrees of freedom which is significant at 5 percent. Thus factor analysis may be considered as an appropriate technique.

Table 5 Perception of the passengers towards Service Quality Measures

Perception	Infrastructure	Convenience	Performance	Hygienic
Sufficient space and facilities are in the train for passengers	**.691**	.118	.105	.113
Staff at the ticket office	**.682**	.118	.229	.248
Availability of Carriers (Coolie and trolley)	**.681**	.084	.018	.205
Concession for disabled and elderly people is good	**.633**	.245	-.042	.239
Passengers feel that government supports all categories of people	**.604**	.044	.050	.274
Passengers prefer train journey before opting other travel modes through road or air	**.577**	.223	.325	-.062
Punctuality of train services	**.562**	.245	.189	.022
Information regarding safety procedures are readily available	**.562**	.335	.327	.101
Smoothness of ride of the train	**.556**	.220	.136	.296
Passengers feel relaxed in a train journey	**.484**	.200	.106	.030
Railways has a good image among public	**.482**	.161	.276	.250
Sufficient information is available regarding train schedule	**.482**	.132	.263	.366
Medical facility in the train	**.410**	.198	.377	.177
It is easy to find/ details regarding train fare	**.409**	.380	.388	-.080
Railways supports some section of public with travel concessions	**.409**	.092	.263	.314
Ticket reservation system provides equal opportunities to all passengers	**.405**	.269	.366	.349
Railway staff are reliable	.183	**.657**	.025	.212
Travelling time of the train	.391	**.630**	-.154	.073
Ease of access to your home station	.269	**.600**	.085	.107
Ease of buying tickets	.345	**.590**	.277	.151

Concession for students and children is good	-.060	**.579**	.343	.321
Facilities available in Railway station is sufficient	.075	**.578**	.125	.112
Security personnel are easily approachable	.123	**.567**	.343	.316
Comfortable temperature in the train	.061	**.565**	.206	.054
It is easy to book a ticket in train	.368	**.551**	.120	.207
Railway staff provide sufficient information when asked for details	-.038	**.518**	.048	.380
Travelling by train saves travel time	.433	**.512**	.250	.095
Railways help public in long distance travel	.299	**.509**	.109	-.043
Availability of staff in handling requests (Dependability in handling your service problems)	.143	**.491**	.174	.347
Information regarding change in train details are given proactively	.228	**.471**	-.279	.411
Train reservation and cancellation process is simple	.086	**.448**	.325	.326
The good thing about train journey is it's comfort	.044	**.391**	.228	.004
Railways are trustworthy means of transport	.351	**.383**	.254	-.066
Train tickets are available easily	.036	.208	**.767**	.094
Train reservation system is user friendly	.119	.167	**.706**	.147
Ease of access of travel information	.245	.274	**.627**	.022
Availability of seating in train	-.001	.338	**.613**	.229
It is easy to find details regarding train schedule	.287	.223	**.607**	.030
It is safe to travel in train	.181	.026	**.607**	-.043
Railway staff are approachable	.160	-.063	**.606**	.404
Adequacy of parking facilities	.339	.347	**.531**	.030
Railways treat passengers with utmost respect	.029	.195	**.503**	.279
Complaint Handling Systems Responsiveness	.430	-.137	**.433**	.340
Updated information about status of train during travel	.395	.019	**.408**	.316
The service in train is excellent	.359	.037	**.392**	.351
Assistance and information for disabled and elderly people is good	.286	.266	**.310**	.265

Food facility in the train	-.172	.268	.237	**.609**
Cleanliness of train	.061	.161	.124	**.606**
Ease of access to the nearest station at your working place	.271	.199	-.137	**.579**
Convenient office hours at ticket office	.416	.076	.135	**.579**
Trains running at suitable times for catching connecting transport	.431	.056	.050	**.553**
Cleanliness of the station	.171	-.112	.332	**.539**
Comfortable seats in the train	.312	.286	.134	**.511**
Easy and accessible complaint handling mechanism is in place	.428	.294	-.024	**.466**
Train time tables provide enough information to plan a journey	.361	.396	.048	**.421**
Providing with information about any changers in ternary	.282	.219	.244	**.388**
Frequency of trains that meet the needs	.224	.248	.116	**.335**
Modern appearance of station	.273	.254	.181	**.323**
Eigen value	**17.54**	**3.33**	**3.044**	**2.49**
Percent Variation	**30.24**	**5.74**	**5.248**	**4.29**
Cumulative Percent	**30.24**	**35.98**	**41.23**	**45.5**

Source: Primary Survey

The above table clearly shows that in the first column the variables namely Sufficient space and facilities are in the train for passengers, Staff at the ticket office and so on have higher holdings .691, .682, .681, .633. .604, .577, .562, .562, .556., 484, .482, .482, .410, .409, .409 and .405 respectively and it is suggested that factor 1 is the combination of sixteen factors and have the variance 30.24 and it can be termed as Service Factor**.** From the second column it can be seen that the variables of Railway staff are reliable, Travelling time of the train and so on have holdings .657, .630, .600, .590, .579, .578, .567, .565, .551, .518, .512, .509, .491, .471, .448, .391 and .383 respectively and it is suggested that Factor 2 is the combination of these seventeen factors and have the variance of 5.74 percent and it can be termed as Convenience Factor**.**

The third column shows that the variables of Train tickets are available easily, Train reservation system is user friendly and so on have holdings .767, .706, .627, .613, .607, .607,

.606, .531, .503, .433, .408, .392 and .310 respectively and it is suggested that Factor 3 is the combination of these thirteen factors and have the variance of 5.248 percent and it can be termed as Performance Factor. The fourth column shows that the factors that Food facility in the train, Cleanliness of train, Ease of access to the nearest station at your working place and the like have holdings .609, .606, .579, .579, .553, .539, .511, .466, .421, .388, .335, .323 and it is suggested that Factor 4 is the combination of these twelve factors and have the variance of 4.29 percent and it can be termed as Hygienic Factor. Thus the 58 variables are reduced into 4 factors and are given different names by using factor analysis, accordingly Infrastructure Factor, Convenience Factor, Performance Factor and Hygienic Factor have been identified as the Perception of the employees.

Conclusion

The study discloses that the female respondents availed most of the services than the male respondents and most of the respondents 97 percent are 20-40 aged people, most of the respondents are unmarried. The survey reveals that most of the respondents (71%) are Post Graduates and most of the respondents (45%) are have Rs.10000-Rs. 20000 and most of the respondents are student. For the present analysis, Reliability, Assurance, Tangibility, Empathy, Responsiveness, Convenient, Comfort, Connection dimensions, the Gap score is more for the dimensions tangibility and Convenience and is low for Reliability and comfort. The 58 variables are reduced into 4 factors and are given different names by using factor analysis accordingly Infrastructure Factor, Convenience Factor, Performance Factor and Hygienic Factor have been identified as the Perception of the employees. Hence it is suggested that it is utmost under the purview of the Southern Railway to take great concern and care in the implementation of proper hygiene to retain the rail passengers with full satisfaction.

References:

1. Anisah Herdiyanti, Alitya Novianda Adityaputri, Hanim Maria Astuti (2017), "Understanding the Quality Gap of Information Technology Services from the Perspective of Service Provider and Consumer", 4th Information Systems International Conference 2017, ISICO 2017, 6-8 November 2017, Bali,Indonesia

2. Arash Shahin and Monireh Samea (2010), “Developing the Models of Service Quality Gaps: A Critical Discussion”, Business Management and Strategy, ISSN 2157-6068, 2010, Vol. 1, No. 1: E2, pp.1-11.
3. Bikramjit Singh Hundal and Vikas Kumar (2015), “Assessing the Service Quality of Northern Railway by using SERVQUAL Model”, Pacific Business Review International, 8(2), August 2015, pp.82-88.
4. Devi Prasad Maruvada and Raja Shekhar Bellamkonda (2010), “Analyzing the Passenger Service Quality of the Indian Railways using Railqual: Examining the Applicability of Fuzzy Logic”, International Journal of Innovation, Management and Technology ISSN: 2010-0248, 1(5), December 2010, pp.478-482.
5. Devi Prasad Maruvada and Raja Shekhar Bellamkonda (2012), “Effects of Individual Dimensions of Railway Service Quality: Findings from Indian Railway Passenger Services through Developing RAILQUAL”, International Journal of Innovation, Management and Technology, 3(1), February 2012.
6. E mel Kursunluoglu Yarimoglu (2014), “A Review on Dimensions of Service Quality Models”, Journal of Marketing Management ISSN: 2333-6080 (Print), 2333-6099 (Online), June 2014, 2(2), pp. 79-93.
7. Gibson, H., 2005b, “Towards an understanding of „why sport tourists do what they do”, Sport in Society Special Issue: Sport Tourism: Concepts and Theories, Volume 8 (2), P: 198–217
8. G. V. Mageshwarii, Dr. S. Vasanth (2020),” A Study On Satisfaction Of Passengers Towards Railway Service In Tiruchirappalli Junction”, International Journal of Scientific & Technology Research, ISSN 2277-8616, 9(01), January 2020, pp.2843-2847.
9. Hussain Alsaffar - GAP Model of Service Quality and Customer Relationships DOI: 10.13140/RG.2.2.27904.66561
10. Joyjit Sanyal, Sweta Roy and Lovely Kumari Gupta (2018), “A Study on Consumer Satisfaction with regards to Service Quality of Indian Railways”, Asian Journal of Management ISSN 2321-5763 (Online) 0976-495X (Print), 9(1), 2018.
11. Oliver, R.L, 1997, Satisfaction: A Behavioural Perspective on the Consumer, McGrawHill, New York

12. Oliver, R.L. (1981): Measurement and evaluation of satisfaction processes in retail settings. Journal of Retailing, 57, 25-48.
13. Parasuraman, A., Berry, L.L., and Zeithaml, V.A. (1991): Refinement and reassessment of the SERVQUAL scale. Journal of Retailing, 67, 420-450.
14. Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985): A conceptual model of service quality and its implications for future research. Journal of Marketing, 49, 41-50.
15. Parasuraman, A., Zeithaml, V.A., and Berry, L.L. (1988): SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality, Journal of Retailing, 64, 41-50
16. Puvaneswary Thanaraju, Puterri Ameera Mentaza Khan, Sheelah Sivanathan, Nur Hafizah Juhari (2019), "Passengers' Satisfaction towards Railway Facilities (RAILQUAL in the Central Region", International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, 8 (2S), Published by: Blue Eyes Intelligence Engineering & Sciences Publication July 2019, pp.561-571.
17. Sheeba. A. A and Dr. Kumuthadevi K (2013), Service Quality of South Indian Railway Determinants of Passenger Satisfaction in Trains", International Journal of Business and Management Invention ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X, 2(2), February. 2013, PP.49-54
18. Yuning Wang, Zhe Zhang, Mengyuan Zhu, and Hexian Wang (2020), The Impact of Service Quality and Customer Satisfaction on Reuse Intention in Urban Rail Transit in Tianjin, China, SAGE Open, January-March 2020, pp. 1–10.
19. https://artsandculture.google.com/story/a-history-of-indian-railways-national-rail-museum/cAVh7RwiKiTtKg?hl=en
20. https://courses.lumenlearning.com/boundless-marketing/chapter/service-quality/
21. https://www.diva-portal.org/smash/get/diva2:530565/FULLTEXT01.pdf
22. https://en.wikipedia.org/wiki/Southern_Railway_zone
23. https://www.ibef.org/industry/indian-railways/showcase
24. https://www.indeed.com/career-advice/career-development/service-quality
25. https://www.yourarticlelibrary.com/railways/indian-railways-development-factors-distribution-and-improvement-of-indian-railways/14134