

A STUDY ON PASSENGER LEVEL OF SATISFACTION ON THE AMENITIES PROVIDED IN TIRUCHIRAPPALLI JUNCTION BY SOUTHERN RAILWAYS

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Abstract: Indian Railways is one of the largest railway systems in the world under a single management. In 1952, the Railways, for the very first time issued a set of guidelines with regard to passenger amenities. Two broad categories were defined under passenger amenities, viz. “basic amenities” and “additional amenities”. Therefore, improving amenities available at platforms plays a vital role in enhancing the performance of the service provider in meeting passenger expectations from an entire trip. This study is empirical in nature based on survey method. Convenience sampling technique is used and the findings revealed that the passengers are satisfied with the amenities provided in Tiruchirappalli junction. The study concludes that if all the suggestions offered are carried out, the Southern Railways will definitely achieve its success soon with the help of the user public and their support and co-operation.

Keywords - Desirable amenities, Minimum essential amenities, Recommended amenities, Southern Railways.

1.1 INTRODUCTION

Indian railway is a gigantic pillar which is managed under single system in the world. It functions as a vertically integrated organization providing both passenger and freight service. Its network not only develops the integrated market but also helps in binding the entire nation in meeting the transportation need. It carries approximately 25 million passengers and hauls 2.5 million tones of freight over 64,410 route kilometres. In 1952, the Railways, for the very first time issued a set of guidelines with regard to passenger amenities. Two broad categories were defined under passenger amenities, viz. “basic amenities” and “additional amenities”. Basic amenities were those which were necessarily required by passengers at any station, where as the Additional amenities were provided at various stations as per requirements which are over and above these basic facilities. In 1995, these guidelines were reviewed for the first time. Due to certain inherent deficiencies and lacunae, the guidelines were revised during 1999, 2003 and finally in 2007. Currently, facilities/amenities at stations have been broadly classified into 3 main categories, namely Minimum Essential Amenities, Recommended Amenities and Desirable Amenities.

1.2 STATEMENT OF THE PROBLEM

Indian Railways is one of the largest railway systems in the world under a single management. It touches the lives of people in both tiny villages and urban metropolises and assists the evolution of social forces like urbanisation and inclusive development. As a customer-oriented organisation, Indian Railways is concerned in providing outstanding customer care and service. There are two main components of rail travel— the passengers stay on a platform for boarding and the stay in trains. Therefore, improving amenities available at platforms plays a vital role in enhancing the performance of the service provider in meeting passenger expectations from an entire trip. Hence, the focus in this study was on determining passenger satisfaction levels with various amenities at platforms.

1.3 CONCEPTUAL FRAMEWORK

Amenities at station have been broadly classified into three main categories namely minimum essential amenities, recommended amenities and desirable amenities.

1. Minimum essential amenities

When a station is constructed certain minimum amenities should be provided at all the categories of stations “A-1 and A to E” category and halts if train stops at night. These were termed as ‘Minimum essential amenities’. Availability of these amenities at the prescribed scale at all stations will have to be ensured.

2. Recommended amenities

After the Minimum Essential Amenities are provided at stations, further augmentation to be done based on the volume of passengers handled as per norms, is known as Recommended Amenities. Recommended amenities are the amenities which the Railways attempt to provide as per the laid down scale keeping in view the availability of funds and relative priority of works. The recommended amenities are based on the category of the stations and also the number of passengers dealt with at any time during peak hours, including the inward and outward passengers (excluding Mela Traffic).

3. Desirable amenities

The amenities, which are considered desirable to improve customer satisfaction and interface process at the station, are called 'desirable amenities'. The quantum of these amenities would depend upon the category of the station. To provide the desirable amenities, the railways need not wait for provision of all the recommended amenities. These amenities should be provided based on the need and relative importance of the station.

1.4 REVIEW OF RELATED LITERATURE

Several studies on railways have been attempted to measure the passenger satisfaction level with amenities available at platform.

1. **Vijay Durga Prasad. V (2007)** in his study made an investigation on passenger amenities at station and on board in Guntur division of South Central Railways. The survey was conducted to two fifty passengers of express and passengers' trains travelling through Sleeper class; I class AC, AC II tier, AC III tier and AC Chair car randomly. The findings of the study reveals that seventy percent of the respondents' were satisfied with the amenities provide and more over author suggested some measures regarding drinking water facility, quality of fast food and refreshment facility, first aid boxes in the compartments, seating arrangement in AC Chair car, window shutters (Glass panes), toilet facility etc.
2. **Geetika and Shefali Nandan (2010)** in their study observed the service quality in the context of railway platform service as a determinant of customer satisfaction. The study is based on empirical research and a survey of 700 passengers was conducted at Allahabad junction which consists of twelve platforms. Questionnaire was designed with sixteen variables with five point likert scale and convenient sampling technique was used. The authors have used factor analysis and the finding up spotted five factors namely refreshments, behaviour, information system efficiency, basic facilities and security as the most significant factors of customer satisfaction with service quality. Of which behavioural and refreshment factors were considered as most important by the passengers.
3. **Srinibash Dash, Sri Sisir Rajan Dash, Sri Subrat Kumar (2012)** in their article measured the effect of satisfaction on the perceived service quality of railway platforms of east-coast railways. Their survey was carried out in seven major platforms namely Balasore, Bargarh, Bhubaneswar, Berhampur, Bolangir, Jharsuguda and Sambalpur with sample respondents of 337 using convenient sampling technique. The result of the study revealed that four factor such as basic facilities, refreshments, information system efficiency and security for and behaviour passengers were considered to be significant by the passengers for achieving satisfaction with railway platforms.
4. **Belayet Hossain, Mohammad Sirajul Islam (2013)** in their article examined the factors influencing the customer satisfaction in Bangladesh particularly in Chittagong and Dhaka railway platforms. The result of the study found 6 factors namely behaviour, security, refreshment, lighting, information and basic facility play a significant role on the satisfaction of passengers in Bangladesh platforms.
5. **Mohamed Ilyas, Ashik Ahamed (2015)** conducted a study to find out the service quality of railways with special reference to Jolarpettai junction and also to identify the level of passengers' satisfaction on the service provided. The findings of the study discovered that there is relationship between marital status and level of passenger satisfaction. The author concludes that more than half of the respondents are satisfied with the service offered at jolarpettai junction and also the author suggested to improve the number of ticket, facility for disabled person and parking facility.
6. **Geetika, Piyali Ghosh, Mohit Kumar Ojha, Sumit Kumar (2016)** made an empirical study which assessed the level of importance and satisfaction perceived by the passengers with respect to amenities on platform of Allahabad junction. A total of 32 amenities were examined using exploratory factor analysis. Moreover the author developed a service quality performance matrix to analyze importance- satisfaction gap and also calculated customer satisfaction index to prioritize amenities for improvement. Finally author concluded that improvement is required related to cleanliness, security of self and luggage, police assistance booths, refreshment quality and affordability and availability of escalators.
7. **Maheswari, Dinesh Kumar (2016)** in their article analysed the effect of satisfaction on the facilities/ amenities provided during the travel and as well as at the station. Their study was confined to Coimbatore

junction only with a sample of 200 respondents. The result of the study reveals that age, marital status, occupation and monthly income had a significant relationship with the satisfaction level towards the facilities provided.

1.5 SCOPE OF THE STUDY

The Indian Railways is one of the largest transporters of passenger traffic in the world. To celebrate the completion of 150th years of existence of Indian Railway services, the Government declared the year 2002-2003 as the 'Passenger Amenities Year'. This study mainly deals with services rendered by Indian Railways and specifically focussed towards the facilities provided by Indian Railways in Tiruchirappalli Division alone.

1.6 OBJECTIVES OF THE STUDY

1. To analyse the demographic profile of the respondent
2. To measure the passengers' satisfaction towards the amenities provided by Indian Railways at stations particularly Tiruchirappalli junction of Southern Railway Zone
3. To suggest measures for improvement in the condition of service particularly to Tiruchirappalli junction, if necessarily needed.

1.7 RESEARCH METHODOLOGY

Research Methodology is a scientific and systematic way of studying how the research is done. In words of Green et al. (2008) Research design is defined as "the methods and procedures for acquiring the information needed". This study is empirical in nature based on survey method. Sample refers to subset of the population and sampling design refers to the process of selecting the samples from a population. This is one of the central tasks in carrying out the survey. In this research, convenience sampling technique was adopted to obtain information quickly and inexpensively. The area of the study is Tiruchirappalli Junction railway station which is a junction station in Tiruchirappalli and also serves as the headquarters for Tiruchirappalli Railway division of the Southern Railway Zone. The Station code is TPJ which is used of official purpose. This study covered the period from December 2018 to May 2019. In the present study both the primary and secondary data are used. The primary data collected using well structured questionnaire from 100 passengers in Tiruchirappalli junction. The required secondary data are collected through annual reports of Ministry of Railways, various journals and websites. SPSS (20.0 version) package were used for data analysis and various statistical tools such as simple percentage test, chi-square test and factor analysis were employed for the analysis of data.

1.8 FINDINGS OF THE STUDY

table 1: demographic profile of the respondents

s.no	demographic factors	no. of respondents	percent %	
1.	age	up to 25	11	22
		26-35	4	8
		36-45	15	30
		46-55	13	26
		above 55	7	14
2.	gender	male	38	76
		female	12	24
3.	occupation	student	2	4
		employed	23	46
		business	12	24
		professional	6	12
		others	7	14
4.	educational qualification	s.s.l.c/h.s.c	11	22
		iti/diploma	7	14
		ug/pg	26	52
		professional	6	12
5.	annual income	below Rs. 1,00,000	19	38
		Rs. 1,00,001- Rs. 5,00,000	25	50
		above Rs. 5,00,001	6	12

source: primary data

a. Age: 30 percent of the passengers are in the age group of 36-45 years, 26 percent of the passengers are in the age group of 45-55 years, 22 percent of the passengers constitute up to 25 years of age group, 14 percent of the passengers represent the age group of above 55 years and remaining 8 percent of the passengers fall in the age group of 26-35 years.

b. Gender: 38 railway passengers belong to male category with 76 percent and 12 passengers belong to female category with 24 percent.

c. Occupation: Maximum of 46 percent of the respondent are employed either in Government or private sector. Subsequently, 24 percent of the passengers belong to business 14 percent of the passengers are coming under the purview of "other" category and 12 percent of the passengers constitute the professional category.

d. Educational Qualification: 52 percent of the respondent have qualified with under or post graduation which is followed by S.S.L.C/ H.S.C qualification with 22 percent of the respondent. 14 percent of the passengers have qualification with ITI/Diploma and remaining 12 percent of the passengers are professionally qualified.

e. Annual Income: 50 percent of the respondent earn between Rs.1,00,001- 5,00,000, 38 percent of the respondent earn below Rs. 1,00,000 and remaining 12 percent earn above Rs. 5,00,000.

2.ANOVA TEST

Null hypothesis (H₀): There is no significant difference between age of the respondent and CCTV for announcement and security.

Alternative hypothesis (H_a): There is a significant difference between age of the respondent and CCTV for announcement and security.

table 2: anova test for cctv for announcement and security

		sum of squares	df	mean square	f	sig.
cctv for announcement and security	between groups	3.524	1	3.524	8.253	0.006
	within groups	20.496	48	.427		
	total	24.020	49			

source: primary data

Since P value is less than 0.01, null hypothesis is rejected at 1% level with regard to CCTV for announcement and security and age of the respondents. Hence we accept the alternative hypothesis at 1% level of the significance and hence it is concluded that there is a significant difference between age of the respondent and CCTV for announcement and security.

3. FACTOR ANALYSIS

Factor analysis is used to resolve a large set of measured variables/ statements in terms of relatively new categories, known as factors. This technique allows to group variables/ statements into factors and the factors so derived may be treated as new variables (latent variables) and their value is derived by summing the values of the original variables which have been grouped into the factor. Thus, Factor Analysis helps to reduce the complexity of large number of observed variables into new (latent) variables which summarise the commonality of all the variables.

table 3: Kaiser-Meyer-Olkin and bartlett's test

kaiser-meyer-olkin measure of sampling adequacy.		.438
approx. chi-square		1261.701
bartlett's test of sphericity	df	435
	sig.	.000

source: primary data

In the present study, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett's test of Sphericity were applied to verify the adequacy or appropriateness of data for factor analysis. The test is based on a chi square transformation of the correlation matrix. In this study, the value of KMO for overall matrix was found to be good (0.438) and Bartlett's test of Sphericity was highly significant ($p < 0.05$). A higher value of Kaiser-Meyer-Olkin statistics indicates that the sample is adequate to explain the correlation between the pairs of variables with the other variables and the Bartlett's Sphericity test was effective, as the chi-

square value draws significance at five per cent level. The results thus indicated that the sample taken was appropriate to proceed with a factor analysis procedure. Besides the Bartlett's Test of Sphericity and the KMO Measure of sampling Adequacy, Communalities values of all variables were also observed.

table : 4 communalities

variables	initial	extraction values
drinking water	1.000	.825
fan and lighting	1.000	.769
water cooler and vending machine	1.000	.749
urinals and latrines	1.000	.788
seating arrangement and platform shelter	1.000	.914
parking area with lights	1.000	.838
foot over bridge	1.000	.767
escalators	1.000	.813
other modes of transport facility	1.000	.695
accessibility of station on foot	1.000	.695
enquiry counter	1.000	.733
booking counter	1.000	.815
touch screen enquiry system	1.000	.797
ivrs	1.000	.865
public address system	1.000	.806
cctv for announcement and security	1.000	.801
atm	1.000	.887
public phone booth	1.000	.850
wifi facility	1.000	.744
mobile charging facility	1.000	.746
battery operated car	1.000	.762
book stall and other catering stall	1.000	.879
waiting hall	1.000	.894
retiring room	1.000	.856
cloak room	1.000	.851
time table display	1.000	.744
clock display	1.000	.764
electronic indicator board	1.000	.711
signage	1.000	.807
porter facility	1.000	.753

extraction method: principal component analysis

source: primary data

In order to provide a more parsimonious interpretation of the results, 30-item scale as then Factor analyzed using the Principal Component method with Varimax rotation. The amount of variance a variable share with all other variables included in the analysis can be inferred from the communalities table. Variable with higher extraction values show higher association with other variables. Variable such as seating arrangement and platform shelter (0.914), waiting hall (0.894) share high variance with other variable which reflects that they can be easily associated with other factors. Variables such as other modes of transport facility (0.695) and accessibility of station on foot (0.695) show very low extraction value which show low correlation value.

table : 5 total variance explained

comp onent	initial eigenvalues			extraction sums of squared loadings			rotation sums of squared loadings		
	total	% of variance	cumulative %	total	% of variance	cumulative %	total	% of variance	cumulative %
1	7.441	24.804	24.804	7.441	24.804	24.804	4.017	13.391	13.391
2	4.498	14.992	39.796	4.498	14.992	39.796	3.980	13.265	26.656
3	3.184	10.612	50.408	3.184	10.612	50.408	2.678	8.927	35.582
4	1.930	6.434	56.843	1.930	6.434	56.843	2.589	8.629	44.211
5	1.753	5.844	62.686	1.753	5.844	62.686	2.548	8.492	52.703
6	1.571	5.235	67.921	1.571	5.235	67.921	2.231	7.438	60.141
7	1.272	4.240	72.161	1.272	4.240	72.161	2.227	7.424	67.565
8	1.206	4.018	76.180	1.206	4.018	76.180	1.902	6.340	73.905
9	1.065	3.550	79.730	1.065	3.550	79.730	1.748	5.825	79.730
10	.898	2.992	82.722						

11	.798	2.659	85.381						
12	.682	2.273	87.654						
13	.554	1.847	89.501						
14	.515	1.716	91.217						
15	.461	1.538	92.755						
16	.381	1.270	94.026						
17	.322	1.073	95.098						
18	.294	.980	96.079						
19	.273	.911	96.989						
20	.222	.740	97.729						
21	.180	.601	98.330						
22	.135	.450	98.780						
23	.102	.340	99.120						
24	.084	.281	99.401						
25	.076	.252	99.653						
26	.032	.107	99.760						
27	.031	.104	99.865						
28	.019	.065	99.930						
29	.012	.041	99.970						
30	.009	.030	100.000						

extraction method: principal component analysis.

source: primary data

table 6: rotated component matrix^a

	component								
	1	2	3	4	5	6	7	8	9
retiring room	.880	.108	.202					-.108	
clock display	.833		.114		.101	.105		.130	
waiting hall	.817	.144	.284		-.189			.295	
accessibility of station on foot	.685		-.140	.338		.187	.172	.157	
signage	.534	-.112	.431		.285	.450	.127		.141
ivrs	.153	.832			.294			-.185	.135
public phone booth		.755	.108			.184	-.127	.276	-.350
touch screen enquiry system		.702	.500	.112	.170				
battery operated car	.153	.661	.178	.196	-.437	.120		.128	
wifi facility		.648		.353	-.103		.127		.403
booking counter		.631		.284	.244	-.147		.439	.228
book stall and other catering stall	.240		.797		-.243	.177	-.126		-.267
cloak room	.163	.220	.654		.168		.246	.492	.111
time table display	.436	.321	.632		-.175	.107			
urinals and latrines	-.171	.220	.113	.763	.288			.155	
enquiry counter		.335	-.133	.732		.134	.115		.149
foot over bridge	.309		.459	.621		.153	-.128		.162
other modes of transport facility		.331	-.118	.529		.234	.149	.449	
cctv for announcement and security				.156	.855			-.111	
porter facility				.145	.652	.206	.476	.160	
fan and lighting	-.126	.254		.269	.652	.142		.305	.265
seating arrangement and platform shelter		.176		.169		.918			
escalators	.191	.113	.361			.671	-.163	.281	.271

drinking water	.519	-.204	.158		-.262	.568	.300		
water cooler and vending machine	.128						.817		-.212
parking area with lights	.296		-.238	.368	.314		.648		.177
public address system		.310	.282	.253	-.221	.200	.553	-.170	.378
electronic indicator board	.392	.471				.121	.485	.214	.173
mobile charging facility	.258			.134				.800	.130
atm				.151		.132		.175	.892

extraction method: principal component analysis.

rotation method: varimax with kaiser normalization.

a. rotation converged in 11 iterations.

source: primary data

While conducting exploratory factor analysis, principal component analysis with varimax rotation was used. The rotated component matrix reduced the selected 30 variables into 11 iterations grouped under 9 factors, accounting for 79.730 of the total variance.

table : 7 clustering of stimulating facot in passenger satisfaction on amenities in indian railways

factor	particulars	rotated factor loadings
i.	v1- retiring room	.880
	v2- clock display	.833
	v3- waiting hall	.817
	v4- accessibility of station on foot	.685
	v5- signage	.534
ii.	v6- ivrs	.832
	v7- public phone booth	.755
	v8- touch screen enquiry system	.702
	v9- battery operated car	.661
	v10- wifi facility	.648
	v11- booking counter	.631
iii.	v12- book stall and other catering stall	.797
	v13- cloak room	.654
	v14- time table display	.632
iv.	v15- urinals and latrines	.763
	v16- enquiry counter	.732
	v17- foot over bridge	.621
	v18- other modes of transport facility	.529
v.	v19- cctv for announcement and security	.855
	v20- porter facility	.652
	v21- fan and lighting	.652
vi.	v22- seating arrangement and platform shelter	.918
	v23- escalators	.671
	v24- drinking water	.568
vii.	v25- water cooler and vending machine	.817
	v26- parking area with lights	.648
	v27- public address system	.553
	v28- electronic indicator board	.485
viii.	v29- mobile charging facility	.800
ix.	v30- atm	.890

source: primary data

The above table 5 depicts that clustering of stimulating factor of passenger satisfaction on amenities provided by Indian railways. The table shows that variables V1 – V5 are clustered together as factor I and it named as “ease of use”. The next variables V6 – V11 are constituted as factor II and it named as “accessibility”. The next variables V12 – V14 are constituted as factor III and it named as “user-friendliness approach”. The next variables V15 – V18 are constituted as factor IV and it named as “ease of convenience”. The next variables V19 – V21 are constituted as

factor V and it named as “basic facility”. The next variables V22 – V24 are constituted as factor VI and it named as “undemanding availability”. The next variables V25 – V28 are constituted as factor VII and it named as “hygiene and clarity”. The next variables V29 and V30 can be grouped under a common name as “other amenities”.

1.9 SUGGESTIONS

1. Sometimes urinals and latrines in trains and as well as in waiting hall is not maintained properly.
2. The battery operated car can be provided at free service for elderly persons.
3. Electronic indicator board are at times blinking due to shortage of electricity power.
4. Passengers request to keep more plug point in station premises and also in train for charging their mobiles.
5. Booking counters can be increased so that passengers waiting in long queue can be segregated and minimize their waiting time.

1.10 CONCLUSION

There are various amenities provided by the Southern railways to Tiruchirappalli junction railway station. All these amenities help in development of the railway station to next level of category as specified by the Railways. But it depends upon the annual passenger earning of the station which is reviewed every five years. This result relies only on the satisfaction of the passengers. The researcher concludes that if all the suggestions offered are carried out, the Southern Railways will definitely achieve its success soon with the help of the user public and their support and co-operation.

1.11 REFERENCES

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