1.1 INTRODUCTION

Developing countries like India are aware of the fact that factors such as economic development, education, employment and standard of living are important criteria based on which a country may be adjudged as a ‘developed nation’. Such growth, be it economic or social, is comprehensible only if the country has adequate infrastructure facilities like transport, power, water and the like. India is also directing all her efforts towards becoming a ‘developed nation’. These efforts include measures to improve the infrastructure facilities such as road transport. The importance of rural road transport can be fathomed from the fact that two thirds of the Indian population lives in villages. An efficient transport system is essential for the movement of both men and materials, which would help in the spread of knowledge and technology into areas including rural locations. The cost of transport and convenience of the people in terms of time and carrying goods to the market are some of the factors considered in choosing the mode of transport.

1.2 NATURE OF SERVICE INDUSTRIES

It is the duty of the state governments to develop an efficient and easily available public transportation service to the public. One of the major differences between the public and the private services is how individual customers’ preferences are reflected in the service category differences. The combination of individual customers’ preferences and service category differences is illustrated in Figure 1.1.
In the first quadrant, customers have different preferences which form the basis for segmenting the market. Suppliers, however, have not reflected this potential in their efforts to the market. Under these circumstances, one would expect a low degree of customer satisfaction because of the mismatch between preferences and category differences. Most of the public transportation services fall into this category.

In the second quadrant, customers’ individual preferences have been reflected in the category offer, i.e., suppliers have developed different service offers targeted at different preferences. This is in line with good marketing practice and one would expect a high degree of customer satisfaction. The competitive service industries like hotel, airline and the like fall into this category. In quadrant three, there is a good match between preferences and category differences, and one would expect a high degree of customer satisfaction. Utility companies fall into this category, i.e., their services are generic. There is no option in the fourth quadrant.
1.2.1 Passengers’ Preferences

The passengers’ preferences are assumed to be reflected in their expectations and perceptions of service quality. If the service-offer within the public transportation industry is homogeneous or heterogeneous, this is assumed to be reflected in expectations and the subsequent perception of service quality. These industry related issues are further assumed to be reflected in the overall customers’ satisfaction score for the industry, i.e., a high degree of congruence is expected to give a significantly higher satisfaction score than a low degree of congruence. It is presented in Figure 1.2.

**FIGURE 1.2**

1.2.2 Public Transportation Services

In those days, the public transportation services were offered by the public transport to the people as generic services, i.e., as homogeneous services, to meet the homogeneous passengers’ preferences. Whereas, today, in the modern world, due to the development of transport and communication on one side and the liberalization, privatization and globalization on another side have changed the scenario of the
passengers’ preferences from homogeneous to heterogeneous. The people are willing to have a comfortable journey even though the cost is higher. But it is not common among all people. A section of people always rest on the economy service. This situation is properly read by the public transport corporations. They are supplying homogeneous services to the passengers who need heterogeneous services. It generates a lot of problems.

1.2.3 Public Transport System in Dindigul District

Public transport system plays a vital role in the overall development of a state. In Tamilnadu, the State Transport Undertakings play a vital role in this task by providing an economic and efficient system through a variety of services namely town, mofussil and the like. There are eight State Transport Undertakings functioning under the administrative control of Transport Department. One of the administrative set up of the public transport in the state of Tamil Nadu is Tamil Nadu State Transport Corporation, Dindigul. The fleet position in the Dindigul region as on 30.09.2011 is given in Table 1.1.
TABLE 1.1
Fleet Positions in Dindigul Region as on 30.09.2011

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Branch Name</th>
<th>Number of Fleets in</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Town</strong></td>
<td><strong>Mofussil</strong></td>
</tr>
<tr>
<td>1</td>
<td>Dindigul–1</td>
<td>7</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>Dindigul–2</td>
<td>35</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>Dindigul–3</td>
<td>42</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>Natham</td>
<td>11</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>Vedasandur</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>Palani</td>
<td>39</td>
<td>55</td>
</tr>
<tr>
<td>7</td>
<td>Oddanchatram</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>8</td>
<td>Batlagundu</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>Periyakulam</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td>10</td>
<td>Theni</td>
<td>33</td>
<td>82</td>
</tr>
<tr>
<td>11</td>
<td>Bodi</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>Thevaram</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>13</td>
<td>Cumbum–1</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>14</td>
<td>Cumbum–2</td>
<td>32</td>
<td>53</td>
</tr>
<tr>
<td>15</td>
<td>Kumuly</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>350</td>
<td>581</td>
</tr>
</tbody>
</table>

Source: TNSTC, Madurai.
In total, there are 931 fleets in Dindigul district. Out of which, 62.41 percent belongs to mofussil whereas the remaining 37.59 percent belongs to town buses. As a maximum, 115 fleets are operating at Theni. It is followed by Palani and Cumbum–2 branches with 94 and 85 fleets. The minimum fleets are seen in Thevaram and Kumuly with 23 and 18 fleets respectively.

**Age-wise Fleets Strength in Dindigul District**

The age wise public transport fleets in Dindigul district as on 30.09.2011 has been collected from the office. By age, they are classified into less than one year, 1 to 2; 2 to 3; 3 to 4; 4 to 5; 5 to 6; 6 to 7; 7 to 8; 8 to 9; 9 to 10; 10 to 11; 11 to 12; 12 to 13; 13 to 14 and above 14 years. The distribution of fleets on the basis of their age is given in table 1.2.
### TABLE 1.2
Age-wise Fleet Strength in Dindigul District

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Age (in years)</th>
<th>Number of Fleets in</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Town</td>
<td>Mofussil</td>
</tr>
<tr>
<td>1</td>
<td>Less than 1 year</td>
<td>10</td>
<td>228</td>
</tr>
<tr>
<td>2</td>
<td>1.00 – 2.00</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>2.00 – 3.00</td>
<td>21</td>
<td>162</td>
</tr>
<tr>
<td>4</td>
<td>3.01 – 4.00</td>
<td>39</td>
<td>92</td>
</tr>
<tr>
<td>5</td>
<td>4.01 – 5.00</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>6</td>
<td>5.01 – 6.00</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>6.01 – 7.00</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>7.01 – 8.00</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>8.01 – 9.00</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>9.01 – 10.00</td>
<td>75</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>10.01 – 11.00</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>11.01 – 12.00</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>12.01 – 13.00</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>13.01 – 14.00</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Above 14.00 years</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>350</td>
<td>581</td>
</tr>
</tbody>
</table>

Source: TNSTC (Madurai) Ltd., Madurai.

As a maximum of 25.56 percent of the fleets are having an age of less than 1 year. It is followed by the fleets with the age of 2.00 to 3.00 and 3.00 to 4.00 which constitute 19.66 and 14.07 percent of the total respectively. Among the town buses, the important
age groups are 9.01 to 10.00 and 4.01 to 5.00 which constitute 21.42 and 20.00 percent of its total respectively. Among the mofussil buses, the important age groups are less than 1 year and 2.00 to 3.00 which constitute 39.24 and 27.88 percent of its total respectively.

**Number of Drivers and Conductors Working in TNSTC, Dindigul**

The category of workers in the TNSTC is divided into regular, daily wage and reserve crew. The number of drivers and conductors who belong to the above mentioned categories in the TNSTC, Dindigul is given in table 1.3.

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Category</th>
<th>Number of Drivers</th>
<th>Number of Conductors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regular</td>
<td>1971</td>
<td>1980</td>
<td>3951</td>
</tr>
<tr>
<td>2</td>
<td>Daily Wage</td>
<td>134</td>
<td>99</td>
<td>233</td>
</tr>
<tr>
<td>3</td>
<td>Reserve Crew</td>
<td>43</td>
<td>181</td>
<td>224</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>2148</strong></td>
<td><strong>2260</strong></td>
<td><strong>4408</strong></td>
</tr>
</tbody>
</table>

Source: TNSTC, Dindigul.

From the above table, it is known that the number of drivers and conductors working in the TNSTC, Dindigul is 4408. Out of which 51.27 percent are conductors whereas the remaining 48.73 are drivers. Out of the 4408 employees, 89.63 percent belong to regular group whereas 5.28 percent belong to daily wage group. The analysis reveals that the regular employees form the major category.
1.3 NEED FOR THE STUDY

The public transport was introduced to maintain the welfare of the people. In order to provide the basic amenities to the public, the state government introduced the public transport system at their states. Due to rapid increase in the transport and communication and the level of education among the public, the passengers’ expectations on the transport services are increasing at a faster rate. Even though the monopoly power of the public transport is maintained by the state governments, many public transport corporations are incurring heavy loss. It is not a loss to the government but to the public. Both the service provider (Government) and service receivers (Passengers) are facing a lot of dissatisfaction on the public transport. The visible reason for their dissatisfaction among the service provider is non-viable public transport system whereas among the public, it is not passengers’ centric service. Hence, both of these two aspects should be properly studied to make the corporation more viable. Hence, the present study has made an attempt on only the passengers’ side view on the public transportation services availed by them.

1.4 STATEMENT OF THE PROBLEM

Public services offered to the public may be categorized as a function of exposure to competition, i.e., from pure monopoly to true competition. Independent of the positioning on this continuum, the goal for all the public services must be to maximize the citizens’ utility. When users have real alternative service offers, increased user retention based on satisfaction with the public service will be critical to the agents’ success. In most of the countries, public players are losing relative market share to
private alternatives. A relative reduction in real or perceived service quality compared to private alternatives is one explanation of this development. A player will improve his / her performance if he / she manages to:

a) Attract new customers into the market;

b) Direct new customers to the agents;

c) Convince customers to shift agents;

d) Reduce customers market exit; and

e) Influence the purchase frequency.

In the public transport, the players are operating their buses just for the sake of operation. They are not bothering about their customers’ needs and wants. Even though, it may give better result today, it will not be good for future. The public players will hand over their vehicles and services to private players because of their mismanagement of all resources and also the poor focus on customers. Now the public transports are facing hectic financial problems. It may be aggravated if the customers search for some alternatives. Now it is the right time to think of reshaping their service strategies and increase their customers’ focus.

1.5 RELATED REVIEWS OF PREVIOUS STUDIES

Dhingra et al., (1986)\(^1\) revealed that the accessibility, travel – time ratio, waiting time, bus density, occurrence of accidents and breakdowns, frequency and crew behaviour are the most significant and vital parameters of quality of transport services.

Umrigar et al., (1988)\(^2\) have evaluated the service on the basis of service variables namely cost, quantity and quality and operational variables namely travel, time and reliability to evaluate the urban bus services. They revealed that the private sector performance scores are better on certain quality dimensions than the performance of the public sector services.

Anand Swaroop (1993)\(^3\) identified the improvable areas in service levels of city buses at Hyderabad–Secunderabad. The important identified areas for improvement are the reliability, responsiveness, assurance and empathy of the services.

Pullen (1993)\(^4\) defined quality of service for local public transport industry as a concept that involves “those attributes of the service which affect its fitness for purpose” and the attributes, and indeed fitness for purpose, require detailed definition in relation to local objectives and circumstances.

Panduranga Murthy (1995)\(^5\) evaluated the customer service in bus passenger transportation. He identified the importance of price, quality, product features to increase the customer satisfaction in bus services. The important features identified by him are punctuality, safety, reliability, regularity and customer service.

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Tor Wallin Andreassen (1995)\textsuperscript{6} revealed that the public transportation industry offers low utility because of the low degree of congruence between customer preferences and service category differences. Privatization and deregulation are two solutions which have proved successful with regard to increasing expected utility.

Hood (1995)\textsuperscript{7} identified seven dimensions that need to be addressed if change is to be brought in the delivery of public services. These are: a shift towards greater competition; an increased stress on private – sector style of management; a greater stress on discipline and frugality in the use of resources; a shift towards disaggregation; more emphasis on visible “hands-on” management; an increased use of measurable standard of performance; and a greater emphasis on output controls.

Donmelly et al., (1995)\textsuperscript{8} stated that the public sector caters for two types of customers namely those who pay for the provision of a service and those who do not pay for the provision of service.

Lovelock (1996)\textsuperscript{9} pointed out that the critical incidents always involve in the interactions between service customers and service contact employees. Since service delivery involves all aspects of the service organization and the environment with which the customer interacts, other objects and people may lead to critical incidents as well.

\begin{enumerate}
\end{enumerate}
The identified four main elements in the service delivery system are service personnel, service facilities and equipment, non-personal communication and other people.

Vijayaraghavan (1997)\textsuperscript{10} analyzed the service quality perceptions of transport services of road transport undertakings. In total, the perceptions on service quality of road transport are not up to their level of expectations. The service quality of private bus operators is better than the service quality of the public transport operators.

John Disney (1998)\textsuperscript{11} identified the top requirements of bus services to compete in the transport services. These are reliability / frequency of services, friendliness of service, clean interiors of the buses, comfort of vehicles, value for money, easy access, reasonable fares and easy to understand and remember time tables.

Kadir et al., (2000)\textsuperscript{12} identified three important types of service qualities in the public sector namely customer quality (what the customer wants from the service); professional quality (the processes used to meet customer needs); and management quality (the use of resources to meet customer needs).


Bindhu and Sathiskumar (2001)\textsuperscript{13} tried to quantify the subjective evaluation of the abstract attributes. Several abstract attributes like comfort, reliability, safety feeling, and economy are involved in users’ decision making process to prefer the bus as a mode of transport.

Vijayalakshmi Nambiar (2001)\textsuperscript{14} showed that in a seven point scale, there is a gap of – 1.45 between the perception score of 4.00 and passengers’ expectation of 5.45. The highest gap of – 2.32 was found in responsiveness, while the lowest gap was intangibles. Passengers gave first importance to the reliability dimension, followed by responsiveness while assurance was given least importance.

Ramamoorthy and Ponnuraj (2001)\textsuperscript{15} highlighted the fact that the passengers’ perception relating to physical comfort, time and punctuality, safety, behaviour of the crew and social responsible are the significant factors lading to customers’ satisfaction on the road transport. They also mentioned that comfortable seating arrangement, journey time, normal speed of bus, the politeness of the crew and cheaper rates when compared to train travel have high factor loading, which influence greatly the passengers’ perceptions regarding omnibus services.

\section*{References}
\begin{itemize}
\end{itemize}
Tripp and Drea (2002)\textsuperscript{16} used a survey of four track passengers to assess the direct and indirect relationship between pre–core/peripheral and core service performance components and their impact on the likelihood of repeat purchase. They found that core experiences on-board that determined the customers’ attitude to the service provider and subsequently their intention to use the train again. These attributes included announcements, seat comfort, ride, cleanliness of seating area, courtesy of on-board staff, rest rooms and café car conditions.

Lagrosen and Lagrosen (2003)\textsuperscript{17} identified the improvement of service quality in public sector services in the competitive world. These improvements were restricted to private services initially but it is becoming apparent in the public sector.

Robinson (2003)\textsuperscript{18} mentioned that the public services that change are more likely to be in competition with services offered in the commercial sector, thereby offering the customer a choice. The relevance of service quality in this situation is clearly evident.


Roy and Datta (2005)\textsuperscript{19} analyzed the perception on various public transport modes. They identified that the bus service is preferred because of travel speed and comfort. The transit network and fares in the bus transport are better than the other transports. The feeling of safety inside the vehicle is a function of engine condition, body condition, drivers’ capability and the interaction between the vehicle and the other vehicles on the road.

Carvana et al., (2007)\textsuperscript{20} identified the importance of developing zones of tolerance for managing passenger rail service quality. The areas for zones of tolerance are assurance, responsiveness, empathy, comfort, reliability, tangibles, convenience and connection.

Perez et al., (2007)\textsuperscript{21} confirmed the significant positive impact of tangibles, reliability, reactivity, assurance and empathy on the purchase intention in the public sector transport.

\begin{flushleft}


\end{flushleft}
Arawati et al., (2007)\textsuperscript{22} revealed a strong correlation between service quality dimensions, service performance and customer satisfaction. In particular, service providers classified as excellent were rated most favourably in terms of responsiveness, access and credibility.

Even though there are some studies related to the service quality of bus transport, there is no exclusive study on the passengers’ attitude towards the public transport in Tamil Nadu especially in the Dindigul District. Hence the present study attempts to fill up the research gap with proposed research model.

**Proposed Research Model**

The proposed research model is given in figure 1.3.

![Figure 1.3](image)

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1.6 OBJECTIVES OF THE STUDY

Based on the proposed research model, the objectives of the study are:

1. To exhibit the background of the respondents and their travel behavior.
2. To study the various types of service quality of public transport services availed by the respondents.
3. To analyze the passengers’ satisfaction on transport.
4. To examine the various antecedents of passengers’ satisfaction.
5. To evaluate the impact of service quality of public transport on passengers’ satisfaction and their service loyalty.
6. To identify the discriminant aspects among the rural and the urban respondents in public transport and
7. To study the various ways to enrich the service quality of the public transport.

1.7 RESEARCH METHODOLOGY

Research Methodology is the way of systematically and scientifically solving a research problem. It is a blueprint of the way in which the research is going to be conducted. Research methodology enlightens the methods to be followed in research activities starting from problem identification to presentation of research report. It includes research design, locale of research, sampling framework, sources of data, collection of data, framework of analysis and limitation.
1.8 RESEARCH DESIGN OF THE STUDY

A research design is the overall plan or programme of research. It includes an outline of what the investigator will do from writing the hypotheses and their operational implications to the final analysis of data. The research design of the present study is descriptive in nature.

Since the present study describes the profile of the passengers in the public transport, service quality in the public transport, the level of perception on service quality factor in the public transport, the passengers’ satisfaction, antecedents of passengers’ satisfaction and service loyalty, the impact of service quality in the public transport on the passengers’ satisfaction and service loyalty among the rural and the urban respondents and their views on way to enrich service quality in the public transport, it is descriptive in nature. Apart from this, the present study is confined to pre-determined objectives and also depends upon pre-planned methodology to fulfill the objectives of the study, and so it is descriptive in nature.

1.9 LOCALE OF RESEARCH

While studying the service quality of the public transport, it is imperative to select a public transport corporation in the state of Tamilnadu. In the present study, it is decided to include the public transport operating at various areas or blocks in the Dindigul district including Dindigul, the district headquarters and other towns.
1.10 SELECTION OF THE STUDY AREA

The researcher selected the Dindigul district as the study area for the following reasons:

1. There was no recent exclusive study on the service quality in the Public Transport at the Dindigul District.
2. The Dindigul district consists of urban, semi-urban and rural areas. Hence, the passengers belonging to these areas may reveal their opinions on service quality which are versatile in nature.
3. The researcher is very familiar with the culture, local dialect and infrastructure facilities of this district. The researcher has a good rapport with the passengers which is highly essential for the response on the interview schedule; and
4. The researcher is working at an educational institution located in this district.

1.11 SCOPE OF THE STUDY

The scope of the study is confined only to the service quality in public transport and also the passengers' attitude towards it at Dindigul district. The passengers are classified into two important groups on the basis of their nativity namely rural and urban respondents.

1.12 POPULATION OF THE STUDY AREA

The number of blocks in the Dindigul district is 14. These are Dindigul, Athoor, Reddiarchathram, Shanarpatti, Natham, Nilakottai, Batalagundu, Palani, Oddanchatram, Thoppampatti, Vedasandur, Vadamadurai, Gujiliamparai and Kodaikanal. The male and female populations in the above said 14 blocks are given in Table 1.4.
### TABLE 1.4
**Population in Dindigul District**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Blocks</th>
<th>Population</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Dindigul</td>
<td>175105</td>
<td>173031</td>
</tr>
<tr>
<td>2</td>
<td>Athoor</td>
<td>72916</td>
<td>73223</td>
</tr>
<tr>
<td>3</td>
<td>Reddiyarchatram</td>
<td>56612</td>
<td>56298</td>
</tr>
<tr>
<td>4</td>
<td>Shanarpatti</td>
<td>54231</td>
<td>53589</td>
</tr>
<tr>
<td>5</td>
<td>Natham</td>
<td>67422</td>
<td>66786</td>
</tr>
<tr>
<td>6</td>
<td>Nilakottai</td>
<td>74191</td>
<td>72141</td>
</tr>
<tr>
<td>7</td>
<td>Batalagundu</td>
<td>53347</td>
<td>51055</td>
</tr>
<tr>
<td>8</td>
<td>Palani</td>
<td>101432</td>
<td>100124</td>
</tr>
<tr>
<td>9</td>
<td>Oddanchatram</td>
<td>61895</td>
<td>62002</td>
</tr>
<tr>
<td>10</td>
<td>Thoppampatti</td>
<td>54732</td>
<td>53880</td>
</tr>
<tr>
<td>11</td>
<td>Vedasandur</td>
<td>51752</td>
<td>51897</td>
</tr>
<tr>
<td>12</td>
<td>Vadamadurai</td>
<td>49771</td>
<td>48788</td>
</tr>
<tr>
<td>13</td>
<td>Gujiliamparai</td>
<td>43393</td>
<td>42756</td>
</tr>
<tr>
<td>14</td>
<td>Kodaikanal</td>
<td>51338</td>
<td>49307</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>968137</td>
<td>954877</td>
</tr>
</tbody>
</table>

Source: Annual Credit Plan, Dindigul District, 2010–11, p.17.

The total population of the district is 19,23,014. Out of which, 50.34 percent are male whereas the remaining 49.66 percent are female. A maximum of 3,48,316 population are seen in Dindigul block. It is followed by Palani and Nilakkottai blocks with the population of 2,01,556 and 1,34,208 respectively. The lesser population is seen
in Gujiliamparai block with 86,149. The higher number of male population is identified in Dindigul and Palani blocks with the population of 1.75 lakhs and 1.01 lakhs respectively. The female population is also identified as higher of 1.73 and 1.00 lakhs respectively in the above said two blocks.

1.13 SAMPLING FRAMEWORK OF THE STUDY

In order to get the equal representation of male and female passengers in all the 14 blocks at the Dindigul District, the present study has applied the purposive sampling technique. From each block, 40 male and 40 female passengers were purposively selected as a sample for the present study. The total sample size included for the present study came to 1120 passengers (560 male and 560 female passengers).

1.14 COLLECTION OF DATA

The present study is based on both primary and secondary data. The secondary data related to the public transport has been collected from the public transport corporation at Dindigul. Majority of the data were collected from the primary source. Special care was taken to design the interview schedule to collect the primary data.

The schedule was classified into four important parts. The first part includes the background of the respondents and their travel behaviour whereas the second part covers the various service quality of public transport. The third part of the schedule covers the passengers’ satisfaction, its antecedents and consequences whereas the fourth part includes the ways for service enrichment in public transport. The relevant variables related to the concepts have been drawn from the review of previous studies. A pre test was conducted among 50 male and 50 female respondents at Dindigul city. Based on the
feedback of the pre test, certain modifications, additions and deletions were carried out. The final draft of the schedule was prepared to collect the primary data.

The response on the interview schedule among the sampled passengers at various blocks in Dindigul district is given in Table 1.5.
### TABLE 1.5
Distribution of Sample Respondents

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Blocks</th>
<th>Number of Respondents</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Dindigul</td>
<td>31</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Athoor</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Reddiyarchatram</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>Shanarpatti</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Natham</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>Nilakottai</td>
<td>29</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Batalagundu</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>Palani</td>
<td>27</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>Oddanchatram</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>10</td>
<td>Thoppampatti</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>11</td>
<td>Vedasandur</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>Vadadamurai</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>13</td>
<td>Gujiliamparai</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>Kodaikanal</td>
<td>28</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>343</td>
<td>269</td>
</tr>
</tbody>
</table>

Source: Primary Data.

The overall response rate on the interview schedule among the respondents is 54.64 percent to the total. The response rates among the male and female respondents are 61.25 and 48.04 percent to the total respectively. The response rates in Dindigul, Palani and Oddanchatram blocks are 68.75, 61.25 and 62.25 percent to the total sample. The
lesser response rate is noticed in Thoppampatti and Gujiliamparai blocks since their response rates are 42.50 and 45.00 percent to the total sample respectively.

1.15 FRAMEWORK OF ANALYSIS

The collected primary data were processed with the help of appropriate statistical tools. The selection of statistical tools rest on the nature of scale of data and objectives of the study focused. The details of statistical tools and their usage in this study are summarized below.

1.15.1 Exploratory Factor Analysis

Exploratory Factor Analysis identifies common dimensions of factors from the observed variables that link together the seemingly unrelated variables and provides insight into the underlying structure of the data. Varimax rotation is one of the most popular methods used in the study to simplify the factor structure by maximizing the variance of a column of the pattern matrix. The common factors themselves are expressed as linear combinations of the observed variables (Nalini, 2006)\textsuperscript{23}.

Factor Model

\[
\text{Factor Score} = W_{i1} X_1 + W_{i2} X_2 + \ldots \ldots + W_{ik} X_k
\]

Whereas

\begin{align*}
F_i &= \text{Estimate of the } i^{th} \text{ factor} \\
W_i &= \text{Weight of factor score co-efficient} \\
X_i &= \text{Variables included} \\
K &= \text{Number of Variables included}
\end{align*}

In the study, factor analysis has been applied to narrate the important market tool to enrich the service quality in public transport.

1.15.2 Confirmatory Factor Analysis (CFA)

The Confirmatory Factor Analysis has been used to analyze the reliability and validity of the variables included in each factor. The convergent validity of the factor was assessed by three measures: Item Reliability, Construct (Composite) Reliability and Average Variance Extracted (AVE) (Fornell and Larcker, 1981)\(^4\). Item Validity was evaluated by the size of the standardized factor loading of the variables on their corresponding factors. The loading should be at least 0.60 and ideally at 0.7 or above (Chin, 1998)\(^5\).

Composite Reliability was assessed on the basis of internal consistency. It is similar to Cronbach’s Alpha. The minimum acceptable level of composite reliability is 0.5 (Gerbing and Anderson, 1988)\(^6\). The convergent validity was assessed with the help of AVE which is at least 0.50 (Fornell and Larcker, 1981)\(^7\).


In the present study, the CFA has been used to analyze the validity and reliability of variables included in core, value added and critical service quality factors, passengers’ satisfaction, service loyalty, antecedents of passengers’ satisfaction and the various ways for service enrichment in public transport.

1.15.3 Two Group Discriminant Analysis

Discriminant analysis is a technique for analyzing data when the dependent variable is categorical and the independent variables are interval in nature. When the dependent variable has two categories, the technique is known a two-group discriminant analysis. When three or more categories are involved, the technique is referred to as multiple discriminant analysis (Malhotra, 2003).

The discriminant analysis model involves linear combinations of the following form:

\[ Z = b_0 + b_1 X_1 + b_2 X_2 + \ldots + b_n X_n \]

Where,

- \( Z \) = Discriminant Score
- \( b_1, b_2, \ldots, b_n \) = Discriminant Coefficients or Weights
- \( X_1, X_2, \ldots, X_n \) = Discriminant Variables
- \( b_0 \) = Constant

The Wilks Lambda was calculated as a multi variant measure of group difference over discriminating variables (Shajahan, 2005)


The relative discriminating power of the variables were calculated by

\[ I_j = K_j (X_{j1} - X_{j2}) \]

Where,

- \( I_j \) = The important value of the \( j^{th} \) variable
- \( K_j \) = Unstandardized discriminant coefficient for the \( j^{th} \) variable
- \( X_{jk} \) = Mean of the \( j^{th} \) variable for the \( k^{th} \) group

The relative importance of a variable \( R_j \) is given by

\[ R_j = \frac{I_j}{\sum_{j=1}^{n} I_j} \]

In the study, two group discriminant analysis was used to find out the important discriminant service quality factors, the antecedents of passengers’ satisfaction and the ways for service enrichment among the rural and the urban respondents.

1.1.5.4 Multiple Regression Analysis

When there is a variable which is dependent on more than one independent variables, then there is no one analysis will reveal the relationship. For this purpose, the multiple regression analysis was administered. The cause and effect relationship between dependent and independent variables are carried out by the multiple regression analysis.

The general form of the regression model is:

\[ Y = a + b_1 X_1 + b_2 X_2 + \ldots \ldots + b_n X_n + e \]

Where,

- \( Y \) = Dependent Variable
- \( X_1, X_2, \ldots, X_n \) = Independent Variables
- \( b_1, b_2, \ldots, b_n \) = Regression Coefficient of independent variables
a = Constant; and
e = Error Term.

In the study, the multiple regression analysis has been used to find out:

i) The impact of perception on the various service quality factors on the passengers’ satisfaction among the rural and the urban respondents.

ii) The impact of perception on the antecedents of passengers’ satisfaction on the passengers’ satisfaction among the rural and the urban respondents.

iii) The impact of service quality factors on service among the respondents; and

iv) The impact of the antecedents of the passengers’ satisfaction on the service loyalty among the respondents.

1.15.5 T–Test

The ‘t’ test is used to find out the significant difference between the two group of samples regarding any intention variable which is interval scale. The ‘t’ statistics is calculated by

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1 - 1) \sigma_1^2 + (n_2 - 1) \sigma_2^2}{n_1 + n_2 - 2} + \frac{1}{n_1} + \frac{1}{n_2}}}$$

with degree of freedom = (n_1+n_2-2)

Whereas

$t$ – t-statistics

$\bar{X}_1$ – Mean of the first sample

$\bar{X}_2$ – Mean of the second sample
\( \sigma_1^2 \) – Variance in the first sample

\( \sigma_2^2 \) – Variance in the second sample

\( n_1 \) – Number of samples in first groups

\( n_2 \) – Number of samples in second groups

In order to find out the significant difference among the two means in two different samples, the ‘t’ test is applied.

In the study, the ‘t’ test has been used to find out the significant difference between the rural and the urban respondents regarding their views on the various service quality factors in the public transport and the antecedents of passengers’ satisfaction.

**1.15.6 Analysis of Variance (ANOVA)**

Analysis of Variance is used for examining the differences in the mean values of the dependent variable associated with the effect of the controlled independent variables, after taking into account the influence of the uncontrolled independent variables. One-way analysis of variance involves only one dependent variable or a single factor. The null hypothesis may be tested by the F statistic based on the ration between these two estimates.

\[
F = \frac{SS_x/(c - 1)}{SS_{error}/(N - c)} = \frac{MS_x}{MS_{error}}
\]

Where

\[
SS_x = \sum_{j=1}^{c} n(\bar{Y}_j - \bar{Y})^2
\]

where

\[
SS_{error} = \sum_{j=1}^{c} \sum_{i=1}^{n} (\bar{Y}_j - \bar{Y})^2
\]
\[ Y_i \] – Individual Observation
\[ \bar{Y}_i \] – Mean for Category (j)
\[ \bar{Y} \] – Mean for the whole sample, or grand mean
\[ Y_{ij} \] – \( i^{th} \) observation in the \( j^{th} \) category
\[ C \] – Number of Independent variables or groups
\[ N = \text{Total Sample Size (n X c)} \]

The ‘F’ statistics follows the F distribution, with \((c - 1)\) and \((N - c)\) degree of freedom.

In the present study, the one way analysis of variance has been used to find out the association between the profile of the respondents and their views on the various types of service quality, antecedents of passengers’ satisfaction and the important market tool to enrich the service quality of the public transport.

1.16 LIMITATIONS OF THE STUDY

The present study is subjected to the following limitations.

1. The variables related to each concept included in the present study are drawn from the review of previous studies.

2. The scope of the study is confined to passengers using only public transport services at Dindigul district.

3. No scientific sampling procedure has been applied since the public transport corporations are not having any records of the passengers.

4. The linear relationship between the dependent and independent variables have been assumed and
5. The passengers are grouped on the basis of their nativity namely rural and urban passengers for the whole study.

1.17 CHAPTERIZATION

The present study is classified into seven chapters for neat and clear presentation.

Chapter I gives the introduction, need for the study, statement of the problem, related reviews, research gap, research methodology, limitations and chapterization.

Chapter II encompasses the conceptual framework of the study. It explains the meaning, definitions, measurements and variables included to measure the concept generated in this study. The concepts are factors leading to choose the public transport, core service quality, valued added service quality, critical service quality, passengers’ satisfaction, the antecedents of passengers’ satisfaction, service loyalty and ways to enrich the service quality in public transport.

Chapter III presents the background of the respondents and their travel behaviour.

Chapter IV discusses the passengers’ perception on core, value-added and critical service quality of public transport, discriminant service quality factors among the rural and urban respondents and the association between the profile of the respondents and their perception on various service quality factors in public transport.

Chapter V examines the passengers’ satisfaction, various antecedents of passengers’ satisfaction, service loyalty, discriminant antecedents of passengers’ satisfaction among the rural and urban respondents, impact of service quality on passengers’ satisfaction and service loyalty.
Chapter VI explains the ways to enrich the service quality of the public transport, association between the profile of the respondents and their levels of expectation on the various ways for service enrichment and the discriminant service enrichment measures among the rural and the urban respondents.

Chapter VII shows the summary of findings, conclusions, policy implications and scope for future research.