CHAPTER -IV
METHODOLOGY OF THE STUDY

4.1.  INTRODUCTION

Research is a systematic process in which one can make a deliberate attempt to answer for a meaningful question it needs careful enquiry and appropriate procedure in order to fetch more adequate solution of a problem. According to best (1992), research is a formal, systematic and intensive process of carrying on a scientific method of analysis. The scientific method of analysis in research needs appropriate design. In this aspect, research design is considered as a heart of any type of research. The methodological perspective of research provides a specific direction to the researchers to perform the research process in a successful way. The success of research mainly depends on designing the entire preceding of the research. Since the powerhouse of survey research has been lying on the designing of methodological aspects. The investigator carefully selected suitable techniques for studying the present problem. The research processes of the present study is presented in this chapter.

4.2. OBJECTIVES OF THE STUDY

1. To identify the problems of SC/ST higher secondary student’s studying in Adi-Dravidar Welfare schools located in rural areas of Tamil Nadu.
2. To find out the extent of intensity of problems of SC/ST higher secondary students in Adi-Dravidar Welfare schools.
3. To find out the significant difference if any between different groups of demographic variables such as Sex, Students Education, Parental Education, Parental Occupation, Parental Income, Nature of family in problems of SC/ST students in Adi-Dravidar Welfare schools.
4. To identify the association if any between the Sex, Students Education, Parental Education, Parental Occupation, Parental Income, Nature of family
and various dimension of the problems of SC/ST students in Adi-Dravidar Welfare schools.

5. To offer recommendation and solution to solve the problems of SC/ST higher secondary students in Adi-Dravidar Welfare schools located on rural areas of Tamil Nadu state.

4.3. HYPOTHESES OF THE STUDY

The following hypotheses were formulated to give proper direction to the present study.

1. There are many numbers of problems faced by the adolescent SC/ST higher secondary students of Adi-Dravidar Welfare schools in various dimensions.
2. The responses of adolescent students in different problems varies in environmental, economical, familial, social and scholastic dimensions.
3. The adolescent SC/ST students problems are at higher secondary education level are at high level.
4. There exist significant difference between different groups of students with respect to their biographical variables such as sex, students education, parental education, parental occupation, parental income, nature of family in facing various problems in getting higher secondary education at Adi-Dravidar Welfare schools.
5. There is significant association between sex, student’s education, parental education, parental occupation, parental income, nature of family and problems of SC/ST adolescent students in various dimensions such as environmental, economical, familial, social and schools.

4.4. RESEARCH PROCESS

Stage – I: In this stage, the investigator visited few schools and identify the Adi-Dravidar Welfare Adolescent students problems.
Stage – II: In the second stage, the investigator classified the problems in various Dimensions such as environmental, economical, familial, social and scholastic aspects.

Stage – III: In the third stage, the investigator preferred a suitable research method to study the intensity of the problems of adolescent SC/ST Higher secondary students studying in Adi-Dravidar Welfare schools located in rural areas of Tamil Nadu.

Stage – IV: In the fourth stage, the investigator developed a research tool by seeking information from teacher and parents of rural areas. The investigator also consulted few experts to select valid items through judgmental analysis for the present study.

Stage – V: In the fifth stage, the investigator used item analysis to select valid items through empirical analysis for the present study. The investigator also used few reliability methods such as split half method and rational equivalence method (KR 20) to select reliable items and few validity measures such as content validity, face utility and intrinsic validity are preferred to establish reliability and validity for the research tool which is used in the present study.

Stage – VI: The investigator identified few rural based Adi-Dravidar Welfare schools based on the students backwardness, poor economic status and undeveloped SC/ST areas to collect data. The investigator also selected only one Adi-Dravidar Welfare school in each district and collected samples in a distributive way.

Stage – VII: In this stage, the investigator identified SC/ST adolescent, Higher secondary students as Target population. Because, higher secondary stage which is
deciding their future studies and status. Therefore, the investigator gives much attention towards higher secondary students in collecting response from them.

**Stage – VIII:** This stage reveal the process of collecting data from the respondents. While collecting data, few measures have been taken into consideration for controlling response errors and errors in random selection in order to get adequate data and to get absolute satisfaction on the part of the investigator in sample collection.

**Stage – IX:** In this stage, the investigator has taken few measures to collect objective data.

**Stage – X:** In this stage, the investigator used appropriate statistical techniques Such as percentage analysis test of significance and chi-square test for analysis and interpretation the data.

**Stage – XI:** In the last stage, findings are summarized by the investigator and presented.

### 4.5. TITLE OF THE PRESENT STUDY

The précised title in the present research study is given below:

Problems encountered by the SC/ST adolescent students in pursuing higher secondary education in Adi-Dravidar Welfare Schools located in rural areas of Tamil Nadu state.

### 4.6. OPERATIONAL DEFINITION OF THE KEY TERMS:

**PROBLEMS**

It is an obstacle (or) state of difficulties that are faced by SC/ST higher secondary students studying in Adi-Dravidar Welfare Schools.
ENCOUNTERED

It is an unpleasant experience experienced by SC/ST higher secondary students in unfavorable environment of Adi-Dravidar Welfare schools.

SC/ST ADOLESCENT STUDENTS

It is a specific downtrodden communal groups of young persons who are developing into an adult and pursuing their higher secondary education in Adi-Dravidar Welfare Schools of rural areas in Tamil Nadu.

HIGHER SECONDARY EDUCATION

It is a level of education comes after secondary education but before tertiary education.

ADI-DRAVIDAR WELFARE SCHOOL

It is a special school run by Tamil Nadu government for the welfare and to give education for the specific downtrodden communal groups of scheduled caste and scheduled tribes.

RURAL AREA

The areas located in the panchayat limits are called rural areas.

4.7. RESEARCH APPROACH

There are several paradigms for identifying the problems and their reasons. Among the two paradigms rationalistic paradigms, is preferred, because it is a dominant one in studying, the problems related to SC/ST students and their relevant practices and programmes. In the present study, the rationalistic approach which incorporates quantitative and hypotheses testing approach was preferred.

4.8. RESEARCH METHOD

The present study aims at identifying and understanding the problems of the SC/ST adolescent’s students. To study the present problems, the normative
survey method was employed. Questionnaire is the major tool used to collect relevant data from the students of Adi-Dravidar Welfare schools located in rural areas of Tamil Nadu state. Among two major types of survey methods, the cross sectional survey method was selected to study the problems of SC/ST students.

4.9. RESEARCH TOOLS: QUESTIONNAIRE

In the present study, questionnaire was employed as tools to collect the data from the respondents. The questionnaire is the most effective tool in survey method. Questionnaires enable the researcher to collect both quantitative and qualitative information. It is constructed in an earliest way and less expensive for administration. The person administering the questionnaires has an opportunity to establish rapport, with SC/ST students to explain the meaning of items. It is possible to administer a large number of questionnaires among the respondents and it is fairly easy to tabulate and analyse the data. Because of these reasons, questionnaires were considered as appropriate tool for the present study.

4.10. QUESTIONNAIRE USED IN THE PRESENT STUDY

The questionnaire employed to collect relevant data from the respondents in the present study is given below. A questionnaire on “identification of problems encountered by the SC/ST adolescent students in pursuing higher secondary education in Adi-Dravidar Welfare schools” (SURESH, 2011).

4.11. REASONS FOR SELECTING THE QUESTIONNAIRE

The following are few important reasons for select in the questionnaire in this method.

(1) Establishing rapport

The investigator fetch an opportunity to develop good rapport with a respondent. This rapport may induce respondents to respond all the statements in the questionnaire in an interest way.
(2) **Getting uniform response**

Questionnaire may help the researcher to obtain uniform responses through uniform items that are respondent through standardize inspection.

(3) **Reveal the purpose**

The investigator gets an opportunity to reveal the purpose of the study that makes respondents to respond objectively.

(4) **Nature of understanding**

While answering respondents cannot be in position to understand the real meaning of the item that are given in the questionnaire in this juncture the investigator may remove the problems of students and get clarity its mind above the concept.

(5) **Economical**

In survey research, using of questionnaire will help investigator in saving time, money and manpower by covering a large number of respondents within a stipulated time.

(6) **Getting proper response**

Questionnaire in survey research may demand the respondents to give immediate response to the items of the questionnaire and at the same time, it reduces the burden of the respondents.
4.12. STEPS INVOLVED IN THE CONSTRUCTION OF THE RESEARCH TOOL.

- Start
- Identifying the problems
- Classifying the different aspects of the problems
- Pooling items
- Items Selection
- Pilot Study
- Selection of reliable and valid items
- Establishing the reliability and validity measures
- Readiness of questionnaire for administration
- Stop
4.13. STAGES INVOLVED IN THE DEVELOPMENT OF QUESTIONNAIRE

The following stages are used to develop the questionnaire

(i) Pre – pilot stage
(ii) Pilot stage
(iii) Final stage

PRE-PILOT STAGE

The pre-pilot stage is primarily concerned with two important aspects:

I) Locating the sources for pooling of items and
II) Pooling of items under each questionnaire

The following sources were consulted to gather items for the questionnaire:

(a) Related books
(b) Encyclopedias
I) Journals and periodicals
II) Publications of national institution
III) Consultation with expert in the field and
IV) Consultation with SC/ST adolescent students.

While developing the tool, utmost care was taken for the refinement of items. Each item was checked for significance and lack of ambiguity. Long sentences were significantly reduced into small and specific ones. Only simple words were used to write the sentences. Statements having double negatives were avoided. Further, ambiguous and vague statements were eliminated. Statements that have unwarranted assumptions were deliberately avoided. Attempts were made to phrase the items suitable to all respondents. An honest was made to select those items which were interested to the respondents and avoided such items
which indicated the past. The items that were complex in nature were also avoided.

Thus items under each environmental, economical, familial, social and scholastic variables were pooled. Then the pilot stage was followed.

PILOT STAGE

The pilot stage is concerned with refining the items collected during the pre-pilot stage on the basis of the opinion of the jury council. For this purpose, a jury council was formed consisting of six academic experts. The collected items were presented before the jurists with a request to offer their considered opinion regarding the suitability, objectivity, clarity and relevancy of the statements collected from different sources. The opinions of the jury council were taken into consideration to refine the items. On the basis of the remark and suggestions made by members of the jury council, some items were reworded, some were discarded and some slightly modified. The following table explains the number of items collected during the pre-pilot stage and the number of items retained at the end of the pilot stage.

Table 4.1: PRE AND POST PILOT STAGE ITEMS

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name of the tools</th>
<th>Pre-pilot stage items</th>
<th>Post pilot stage items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Environment aspects</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Economic aspects</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Familial aspects</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>Social aspects</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>School aspects</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td><strong>Total number of items</strong></td>
<td><strong>91</strong></td>
<td><strong>87</strong></td>
</tr>
</tbody>
</table>
FINAL STAGE

Once the pilot stage is over, the next stage is to distribute the items in the questionnaires. The final items were randomly distributed in the questionnaires.

4.14. DESCRIPTION OF RESEARCH TOOL AND SCORING PROCEDURE

The research tool used in this study has 87 items and these items were classified in five dimensions. The first dimension is environmental related problems in which six problems were selected. The second dimension is economic related problems in which eight problems were selected. The third dimension is family related school problems in which twenty six problems were selected. The fourth dimension is social dimension in which nineteen problems were selected. The last dimension of problems inside the school in which twenty eight problems were selected.

The intensity of the problems are measured by five point scale in which scaling points are given as not at all, very little extent, little extent, some extent, greater extent, and the score are given as 1,2,3,4,5.

4.15. VALIDATION OF RESEARCH TOOL

The investigator used two measures of validations. They are reliability and validity. To find out reliability, the investigator used two techniques. The first one is split half method and the second one is rational equivalence method.

(1) Reliability

In the present study, the investigator selected a total of sixty sample in a random way and applied the above two methods of reliability.
(i) **Split Half Method**

This method was employed by the investigator to identify the reliability co-efficient for the research tool of SC/ST students problems in rural Adi-Dravidar welfare schools this method is prepared by the investigator as a best method. Because the reliability value can be identifying by single short approach and there is no possibility of committing errors, mistake of repetition, wastage of time and wastage of money. While uses in this method the investigator gave scores for all the sixty sample. The scores of each and every sample was divided into halves only for the purpose of scoring.

The scores were divided on the basis of selecting add and even items the two sets of add and even item scores were totaled for each sample and the two sets of total scores of the each sample of sixty respondents were taken for computing correlation co-efficient value. After calculating the correlation co-efficient values, the investigator applied the spearman brown prophecy formula to estimate the reliability co-efficient value.

The spearman brown prophecy formula for estimating the reliability is given below:

\[
r = \frac{60 \times 548492 - 9464 \times 9169}{\sqrt{[60 \times 1600390 - (9464)^2][60 \times 1512987 - (9169)^2]}} = .9321
\]

\[
r = \frac{2 \times .9321}{1 \times .9321} = .9649
\]

The reliability value in split half method is found to be 0.9649 which is highly reliable.
(1.2). Rational Equivalence Method

The investigator also applied the second technique which is called as rational equivalence method. In this method the investigator identified inter-correlation between items and correlation of the item within the test as whole in the present study, the investigator employed Kuder-Richardson formula (20). The method of calculation is given below:

\[ r = \frac{87 \times 17.6^2 - 69.7(87 - 69.7)}{17.6^2(87 - 1)} \]

\[ r = 0.9664 \]

The above reliability co-efficient of 0.9664 indicate that the questionnaire on problems of SC/ST students in rural Adi-Dravidar Welfare schools and its items are found to be reliable for the present study.

(2) Validity

Validity is a measure which deals about the content purposive ness and common factor variance of the test. The American psychological association (1966) identified many types of validity measures appeared in the field of research methodology. But later on these measures are reduced in to three general forms of content, construct and criterion-related validity in the present study, the investigator used content, face and intrinsic validity.

(2.1) Content validity

It is a kind of validity which is also called as rational or logical validity based on the comparison of the analysis of test content with a analysis of course of content and objectives Aggarwal (1986).

According to nunnally (1978) content validity is based on two important considerations, they are one representativeness in collection of items and a method of construction of tool.
The investigator followed the above two important considerations in the process construction of research tool. Based on using above procedures the investigator confidently says that the tool has sufficient content validity.

(2.2) **Face validity**

It is a measure which is used to create reasonableness of what researcher thinks in his mind about the questionnaire. The validity also identify the relevancy of the test items is concerned with age experience and other demographic variables the judgment of face validity has utilitarian value which helps researchers to decide whether the item of the questionnaire are relevant to respondents and their situation. The relevancy of items makes respondents to have high level of motivation in testing condition in the present study, the research questionnaire developed investigator aiming at what he has thought in mind therefore it’s decided that the items in the questionnaire posses face validity.

(2.3) **Intrinsic validity or index of reliability**

This kind of validity makes practical sense when the test measures have a single common factor and when its communality is as great as reliability. Since this validity is very close to reliability, sometimes the reliability may affect the intrinsic validity also. Therefore intrinsic validity reveals how well the obtain scores measure the true score components.

Actually the intrinsic validity is indicated by the square root of its reliability. The reliability and intrinsic validity of the research tool given in the table.
Table 4.2: Reliability and intrinsic validity co-efficient of SC/ST adolescent students problems in pursuing higher secondary education at rural Adi-Dravidar welfare school.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Tool</th>
<th>Method</th>
<th>Reliability co-efficient</th>
<th>Intrinsic validity co-efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A tool on problems encountered by the SC/ST adolescent students in pursuing higher secondary education in Adi-Dravidar Welfare Schools.</td>
<td>Split half method</td>
<td>0.9649</td>
<td>0.9823</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Rational equivalence method</td>
<td>0.9664</td>
<td>0.98306</td>
</tr>
</tbody>
</table>

From the above table, it is found that all the computed correlation co-efficient values are highly valid and therefore it is concluded that the research tool developed by the investigator in the present study is highly valid and reliable. Once a tool is validated, the next logical step is to focus collection of samples from the population. The next subsection deals with population and sample.

4.16. POPULATION AND SAMPLE

The present study covers the learning SC/ST Adolescent Higher secondary students. Who are pursuing their studies at First year and second year levels in the Adi-Dravidar Welfare schools located in and around Tamil Nadu state. The total samples selected for this study is 803 and these samples were selected from 18 rural Adi-Dravidar Welfare schools by purposive sampling technique.
4.17. DISTRIBUTION OF SAMPLE: GOVERNMENT ADI-DRAVIDAR WELFARE HIGHER SECONDARY SCHOOLS

Table 4.3: Schools selected for the study:

<table>
<thead>
<tr>
<th>S.No</th>
<th>List of schools</th>
<th>Number of students respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (ARIYALUR, District)</td>
<td>49</td>
</tr>
<tr>
<td>2</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (VILLUPURAM, District)</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (NAGAPATTINAM, District)</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (KANCHIPURAM, District)</td>
<td>49</td>
</tr>
<tr>
<td>5</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (SIVAGANGAI, District)</td>
<td>49</td>
</tr>
<tr>
<td>7</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (THENI, District)</td>
<td>49</td>
</tr>
<tr>
<td>8</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (KARUR, District)</td>
<td>52</td>
</tr>
<tr>
<td>9</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (MADURAI, District)</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (KADALUR, District)</td>
<td>33</td>
</tr>
<tr>
<td>11</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (SALEM, District)</td>
<td>49</td>
</tr>
<tr>
<td>12</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (VIRUTHUNAGAR, District)</td>
<td>49</td>
</tr>
<tr>
<td>13</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (THIRUVALLUR, District)</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (NAMAKKAL, District)</td>
<td>38</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td>15</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (TIRUNELVELI, District)</td>
<td>33</td>
</tr>
<tr>
<td>16</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (VELLORE, District)</td>
<td>43</td>
</tr>
<tr>
<td>17</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (TANJAVUR, District)</td>
<td>49</td>
</tr>
<tr>
<td>18</td>
<td>Government Adi-Dravidar Welfare Higher Secondary Schools, (PUDUKKOTTAI, District)</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>803</td>
</tr>
</tbody>
</table>

### 4.18. DATA COLLECTION

The Data collection process was obtained by getting necessary permission from the authorities and data were collected. Before Administrating the research tool to the students, to the purpose of the study was explained to them and then the objective data were collected from the students. The investigator gave assurance to the students that the collected data will be kept in at most confidential and these data will be used for only research purpose. No time limits was given and attempt was made to Identify the threats to internal validity and appropriated meaning were taken to ensure objectivity also.
4.19. CONTROLLING THE RESPONSE ERRORS IN DATA COLLECTION:

I) CHARACTERISTICS OF DATA COLLECTORS

It is pointed out that certain personal characteristic of data collectors would contribute to measurement errors. It is maintained that sex, students Education, parental Education, parental occupation, parental income and nature of family of the data collectors would influence the response of the subject. In the present study, the validated questionnaires were administered to the subjects by the investigator himself and no outsiders were employed for the collection of data. All the questionnaires were administered with good temperament and in a jovial manner.

II) LACK OF KNOWLEDGE ON THE CONCEPT

In certain occasions, the researchers may not understand the concept chosen for investigation. A lack of knowledge on the concept will definitely lead to response errors. In the present study, a separate chapter is devoted to conceptualize the variable under investigation. The term SC/ST adolescent’s problems has been thoroughly analyzed in different perspectives in order to gain a thorough understanding of the concept. The books and journals have been consulted to gain a clear understanding of the concept.

III) SUPPLY OF BACKGROUND VARIABLES

It is pointed out that asking the respondent to furnish with their names and other confidential background variables may lead to errors during the data collection process. In normal terms, the respondents do not want to indicate their names either in the questionnaires or in the response sheets. In the present study, the names of the respondents were not insisted and only those background variables which were harmless to the respondents along were collected in order to collect accurate data from the respondents.
IV) **FEAR PSYCHOSIS OF RESPONDENTS**

Sometimes, certain controversial problems may create unnecessary fear among the respondents to respond the questionnaire. This may affect the objective collection of data. In the present study, utmost care was taken to induce confidence among the students about the present investigation. Therefore, the respondents responded all the items without any fear.

V) **DATA COLLECTION BY THIRD PERSON**

Sometime, it may not be practical for the researcher to collect the data by himself and he may employ some data collectors. Since the data collectors differ in terms of their personality, temperament, mode of relationship with the respondents, there are possibilities for obtaining inaccurate data. In the present study, no third person was employed to collect data from the respondents. The researcher himself personally met the respondents and collected data.

VI) **INTEREST OF THE SUBJECT**

Researchers advocate that the subject must be motivated to respond the items in the questionnaires. If the respondents do not have the interest in responding the items they may casually respond the items and those measurement errors come into surface. In the present study, utmost care was taken to create interest among the subjects. The close rapport was established with the respondents. The investigator moved with the subjects in a jovial manner. Whenever opportunities arose, small discussions were conducted with the respondents about the problems its effect on SC/ST adolescent students. Moreover, no time limit was prescribed for responding the items. Thus a good climate was created for the respondents to respond the items with utmost interest.
VII) DATA COLLECTED FROM DIFFERENT TYPE OF RESPONDENTS

It is maintained that data collected from different type of persons may lead to less accuracy of data. In the present case, the data were collected only from the students group and hence and the errors were eliminated.

VIII) ITEM PATTERN

The standardized sequences of items, uniform pattern of items and standardized instruction would largely help in collecting uniform response from the respondents. In the present study, the uniformity of the structure of the items was maintained for accurate collection of data.

IX) ITEM STRUCTURE

Irregular structure of items leads to response errors. If the questionnaires are in the open ended form there is more proneness to response errors. Open ended form leads to the collection of irrelevant, non-uniform and voluminous data which are difficult to quantify and analyze. In the present case, only the closed form of questionnaires was used. Hence, the questions of measurement errors do not arise.

X) DIRECTION

Researchers state that less clarity of directions in responding that questionnaire would lead to inaccurate collection of data. In the present study, clear directions are given about the way of responding the items. Moreover, the data were obtained in the face to face situations. Whenever doubts were raised by the respondents while the responding the items, the investigator clarified their doubts then and there in order avoid response errors.

XI) LOCATIONS OF QUESTIONNAIRE ADMINISTRATION

The place where questionnaires are administered largely affected the objectivity of data. The questionnaires in an unknown place to the subjects may
largely affect the accuracy of the data. In the present study, the questionnaire were administered in the respective places of the learner which were more conducive for them to respond in an objective manner.

XII) TIME

Time is an important factor that contributes to response errors. It is said that prescribing the time limit to the problems like the present one may lead to errors. Compelling them to respond the items in the questionnaires within the time specified would lead to inaccuracy in responding the items. Hence, in the present study, no time limit was fixed for the respondents in responding the items. They were encouraged to respond the items in a free time, whenever they have interest and motivation.

4.20. THREATS TO INTERNAL VALIDITY AND THEIR CONTROL

The most important activity in any type of research is to control the variables that affect the study. Such variables must be controlled otherwise they may lead to alternative interpretation in the present study, those threats to the validity of the study, were identified and appropriate measures were taken to control them.

I) TESTING

Testing is an important threat to internal validity which is enough to change the subject. Best (1977) notes that a test may sensitize the subjects by making them more aware of concealed purpose of the researchers and may serve the stimulus to change. In the present study, the concept of scheduled community problems were not new to the subjects. They already gained knowledge about the concept. Thus, the test was not a novel one to respond in a different way.
II) MORTALITY

The loss of subjects from the study is known as mortality. In the present study, all the identified subjects were included in the study. No one had left in the middle of the research preceding. The subjects were met in their schools and in their respective home in order to collect the data. Adequate time was given to responding questionnaires. Thus efforts were made to retain all the subjects.

III) LOCATION

The location from which data collected, may have some influence on the results of the study. In other words, the particular location in which data are collected may create alternative explanations for results. If the questionnaires were administered to the subjects, in the noise or poorly lighted rooms, the location might affect the response of the subjects. In the present study, the questionnaires were administered to the learners in the places which were suitable to them and a noise free atmosphere and a good source of light and other facilities were provided to the subjects while responding the tools.

IV) HISTORY

It is maintained that certain historical events may affect the internal validity of the study. Historical events usually uncontrollable, especially those occur out that the unexpected death of Kennedy John in USA affected many experiments and survey research in those times. During the research period, no specific events that were capable of affecting the present study took place.

V) MATURATION

It is maintained that the time period that elapses during the study may produce certain changes in the subjects. The maturational changes like tiredness, becoming hungry and boredom may affect the result. As has been pointed out earlier, the data were collected in a congenial atmosphere. Attempts were made to enhance the interest and motivation of learners in responding the items in the
questionnaires. The respondents responded the questionnaires according to their own convenience and thus tiredness and boredom were eliminated.

VI) RESEARCH BIAS

Research bias called as contamination which is a type of bias introduced when the researcher has some previous knowledge about the subjects involved in a study. This type of bias is reflected in differential treatment of subject. In the present study, this threat was controlled by providing equal treatment to the all the subjects without any partiality. No favour or special treatment was given to any subject. While collecting the data using questionnaire, all the subjects were treatment equally with love and affection.

VII) INSTRUMENTATION

Instrumentation is a threat to internal validity in which changes in the instrument affect the results. Particularly unreliable instruments may pose threats to internal validity of a study. Instrumentation includes (I) Unstable instrumentation (II) Instrument decay (III) Data collector characteristics and (IV) Data collector bias.

It is said that the unreliable tool may affect the individual validity of a study. In the present study, all the tools employed were highly reliable and valid. While developing some tools a systematic procedure was employed. Thus the stability of the instruments was ensured.

Instrument decays is a major problem when the nature of instrument (scoring procedure) is changing in some way or other. This is often the case when the tools is of a type that permit different interpretation of result (as in essay type) or is especially long or difficult to score thereby resulting in the fatigue of the scorer. In the present study, closed type and open ended form of questionnaires were avoided. The scoring was done in an uniform way. Scoring was done by the
researcher himself and sufficient time gap was given while scoring the items in order to reduce the fatigue.

Data collector characteristic is an important threat to the internal validity. This problem comes into existence when other data collectors are employed who differ in terms of sex and qualification pattern. In the present study, this problem did not arise as the investigator himself conducted the study, collected the data and scored the data.

Data collector bias comes into being when the data collectors and scores distort the data in such a way to make certain outcomes in support of hypotheses. In this study no outsider was appointed to collect the data and the researcher himself collected the required data from the subjects with utmost honesty and integrity. No unethical attempt was made to manipulate the data in support of any hypothesis of data. Objectivity was established in perfect terms in all stages of the study.

VIII) STATISTICAL CONCLUSION

Statistical conclusion is a threat to internal validity due to inappropriate application of statistical techniques. It is pointed out that wrong application of statistics may lead to invalid conclusion and interpretations. In the present study, experts and statisticians were consulted for the suitable selection of statistical techniques.

IX) REPRESENTATIVENESS

It is argued that generation is limited to the subjects in sample if the subjects are not drawn from the representative population. In the present study, the subjects were identified with the help of teachers and heads, social workers and village headman. The selected subjects were the representative group of the population that is the students of SC/ST caste.
X) INTERACTION EFFECTS

Certain interaction between the variables may affect the confidentiality of the data. In the present study, this threat did not create any problems due to the following reasons.

i. The learners have same characteristics such as social and economic background.

ii. The curriculum pattern is common to all schools.

iii. Commonality of teacher characteristics such as equal workload in connection with curriculum transaction.

4.21. DATA ANALYSIS

Data analysis is a process in which different statistical measures are employed to interpret the numerical data. A better analysis of data largely depends upon the extent to which maximum accuracy is ensured in the data collection process. In this study, the investigator identified and controlled the response errors and statistical errors during the collection of the data in various stages of data collection process. Further, the statistical techniques were carefully employed by the investigator to get the reliable statistical inference. The application of statistical techniques is given below.

4.22. APPLICATION OF STATISTICAL TECHNIQUES

The following statistical techniques were employed for the analyses and interpretation of the collected data.

i) Percentages

The percentage measure was used to identify the intensity of problems of SC/ST adolescent student’s studying at higher secondary level in Adi-Dravidar welfare schools.
ii) **Mean and Standard Deviation**

Mean and Standard Deviation values were computed to indicate the level of problems and they are also used in ‘t’ test.

iii) **Test of Significance (’T’) Test**

The test of significance (’t’) was used to find out the significant mean difference between the groups.

iv) **Chi-Square Test**

In order to find out the association between the biographical variables and different aspects of SC/ST students problems in Adi-Dravidar welfare schools.

### 4.23. DELIMITATION OF THE STUDY

This study is confined to the rural areas of Tamil Nadu.

1) The samples are collected in Rural 18 Adi-Dravidar Welfare schools for the present study.

2) Only five dimensions are selected. They are environmental, economical, familial, social and school dimensions.

3) 803 samples were collected from First year and Second year Higher Secondary students studying in Adi-Dravidar Welfare schools of rural areas.

### 4.24. CONCLUSION

In this chapter, the detailed methodological procedures adopted for studying the present problems is outlined. The next chapter deals with the analysis and interpretation of data.