CHAPTER - IV
METHODOLOGY
CHAPTER-IV
METHODOLOGY

4.1 Introduction

4.2 Research Methodology

4.3 Population and sample

4.4 Tools and techniques used

4.4.1 High School Adjustment Inventory

4.4.2 Attitude Scale Towards Education

4.4.3 Learning environment

4.4.4 Teacher Interview schedule (TIS)

4.4.5 Parent Interview schedule (PIS)

4.5 Collection of data

4.6 Scoring system

4.7 Statistical Techniques used
CHAPTER-IV
METHODOLOGY

4.1 Introduction

The term research consists of two words research ‘re’ means again and again and ‘search’ means to find out something new. Thus research is a process in which a person observe the phenomena again and again and collects the data and on the basis of that data he draws some conclusions.

Research is based on the fundamental assumption that invariant relationship exist between certain antecedents and certain consequents so that under a specific set of condition certain consequents can be expected to follow the introduction of given antecedents.

According to C.C. Crawford “Research in simply a systematic and refined technique of thinking, employing specialized tools, instruments and procedures in order to obtain a more adequate solution of a problem that would be possible under ordinary means. It starts with a problem, collects data or facts analyse these critically and reaches decisions based on the actual evidence it evolves original work instead of more exercise of genuine desire to know rather than a desire to prove something. It is quantitative, seeking to know not only what but how much and measurement is, therefore a central feature of it. Educational research is that activity which is directed towards the development of science of behavior in educational situation (Traverse). The final purpose of educational research is to ascertain principles and develop procedures is field of education (Monroe).

4.2 Research Methodology

Definitely a person has to be well acquainted with the problem before solving it therefore in educational research also the considerations has to be made for any incident, description and the relativity of subject. Before solving the problem related to any subject it will be appropriate to know its present condition. The success of any research depends upon the selection of appropriate method and the tools for study of the problem.
As per the above statement research study is practice of systematic laws on this basic George has directed the research methods into 3 basic types they are historical, survey and experiment method.

Since in the present research the study has to be made on learning environment, adjustment and attitude towards education of secondary school tribal and non tribal students of C.G. state. In which the implementation, problem and need of subject matter is to be studies. Therefore the selection of normative survey method for the above study seems to be appropriate.

This research study is about learning environment attitude and adjustment of tribal and non tribal secondary school students of Chhattisgarh the survey method is chosen to determine the relative position of variables in present research. The present study is largely based on the normative survey method. Wherever necessary a comparative survey study was also made to the two types of survey methods have been combined to carry out the present study.

**Normative survey method**

It is generally used to secure evidence concerning existing situation and to indentify the standards of norms with which comparisons in present condition can be made.

To ensures the test of the question of the present investigation comparative survey method has been used.

**Comparative survey method :**

It is used those researches where an experiment can not or should not be conducted. This method is suitable for researcher which concern the relationship between variable it has certain characteristics of descriptive corelational and experimental researches because contrasted groups are studied. According to fox “A comparative survey is that in which the research taken at least two entities now in existence and establishes a formal procedure for obtaining criterion data on the basis of which he can compare the entities, and come to some conditions as to which is best”. In the present study the boys and girls tribal and non tribal were compared to know which of these possess the most favorable attitude towards learning environment. The purpose was to investigate the adjustment and attitude towards
education of the male and female students of tribal and non-tribal. To achieve this objective comparative survey studies have been made.

**Table 4.1 Research Design**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Category</td>
<td>Learning Education</td>
</tr>
<tr>
<td></td>
<td>(a) Tribal</td>
<td>Adjustment</td>
</tr>
<tr>
<td></td>
<td>(b) Non Tribal</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Sex</td>
<td>Attitude towards Education</td>
</tr>
<tr>
<td></td>
<td>(a) Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Female</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 Population and Sample

Population or universe means the entire mass of observation which is the parent group from which a sample is to be formed. Universe is the part of whole to which researcher has reached with the facts. Universe means related with the place and persons to who are used for the purpose of research.

The population (universe) of the study includes the student of secondary school in the academic year 2010-11 run by the government of Chhattisgarh in Raipur, Durg and Bilaspur district. The school were situated in different blocks of these districts. The data of these schools were made available by “Rajiv Gandhi Shiksha Mission Office situated in capital city Raipur.

**Sample**

A statistical sample is a miniature picture of cross section of the entire group of aggregate from which the sample is taken (Young, 1949)

The Sample frame of the present study consist of one thousand four hundred and seven (1407) students from government secondary schools of Raipur, Durg and Bilaspur district, 40 teachers and 40 parents/guardians were interview for the same.

**Table 4.2 Sample**

<table>
<thead>
<tr>
<th>No.</th>
<th>District</th>
<th>Male Tribal Student</th>
<th>Male Non Tribal Students</th>
<th>Female Tribal Students</th>
<th>Female Non Tribal Students</th>
<th>Total no. of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Raipur</td>
<td>115</td>
<td>143</td>
<td>96</td>
<td>137</td>
<td>491</td>
</tr>
<tr>
<td>2</td>
<td>Durg</td>
<td>130</td>
<td>126</td>
<td>116</td>
<td>112</td>
<td>484</td>
</tr>
<tr>
<td>3</td>
<td>Bilaspur</td>
<td>132</td>
<td>103</td>
<td>100</td>
<td>97</td>
<td>432</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>377</td>
<td>372</td>
<td>312</td>
<td>346</td>
<td>1407</td>
</tr>
</tbody>
</table>
4.4 Tools and techniques used

In research process to solve the problem some hypothesis are made and often the problem of how to cover data and difficulty in selection of tools takes place. For this it is very necessary to analyze different tools and to know that which tool will be feasible and select it accordingly. If any test does not fulfill the need of the research then some changes are liable as a new tools is generated.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Tools</th>
<th>Place to Get</th>
<th>Made by</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High school adjustment inventory HSAI</td>
<td>National Psychological Corporation Agra</td>
<td>A.K. Singh A.Sen Gupta</td>
<td>To check the adjustment of students</td>
</tr>
<tr>
<td>2</td>
<td>Attitude scale towards education (ASTE)</td>
<td>National Psychological Corporation Agra</td>
<td>Dr. S.L. Chopra</td>
<td>To find the attitude of students towards education</td>
</tr>
<tr>
<td>3</td>
<td>Learning environment</td>
<td>Took help from earlier research work and expert advice</td>
<td>Self made</td>
<td>To find the learning environment of students</td>
</tr>
<tr>
<td>4</td>
<td>Interview schedule for teachers</td>
<td>Took help from earlier research work and expert advice</td>
<td>Self made</td>
<td>To find the needs of learning environment</td>
</tr>
<tr>
<td>5</td>
<td>Interview schedule for parents/guardians</td>
<td>Took help from earlier research work and expert advice</td>
<td>Self made</td>
<td>To find the needs of learning environment</td>
</tr>
</tbody>
</table>

4.4.1 High school adjustment inventory (HSAI)

This test is to find the adjustment of school students in various fields such as home, health, social, emotional and school. There are in all 150 question in the question booklet and answer sheet was separately given in which questions are to be answered by ticking in yes or no column there is nothing like right or wrong answer. It is only their view about different aspects. There is no time limit for the test. But generally the students take 40 to 45 minute’s time in completing the test. The students
were strictly not allowed to discuss or share their view about question during the test or else the purpose would be hindered.

4.4.2 Attitude scale towards education

This test is to find the attitude of students towards education. In this test there are 22 questions out of which 12 questions are of negative attitude towards education and rest 10 shows positive attitude towards education. Students have to answer by ticking their responses in given two columns of agree and disagree. There is no limit given in the manual. But generally the students took 10 to 15 minutes to complete the test, the students were strictly not allowed to discuss or share their view about questions during the test also the purpose would be hindered.

4.4.3 Learning environment

This test is to find the learning environment of students. In this test there are 53 questions related to school, facilities, home, friends, opportunities, modern-amenities and parents. The test is designed on likert technique. The students were asked to respond to them on a five point scale. Always, some time, very few, rarely and never. Out of 53 questions, 4 were negative question and rest were showing positive situation. The students were made sure that the answers will be kept secret so that they can give their correct view about school, teachers parents friends and opportunities given.

Construction of learning environment scale (LES)

For the construction of LES, the investigator followed likert scale method and considered the following steps.

Deciding the universe of content

The first step in the construction of a tool is always to decide about the contents to be measured. For this the research studied the available literature discussed in chapter II which helped the process of item generation. Freeman (1972) explained that environment is a powerful determinant of behavior. Belay (1975), Pace (1980), Stern (1980) said the poor educational environment is obstacle in the progress of individual. Karm (1984), Mohanty (1986) studied the educational problems. Gupta (1996) and others identified most important factors of learning environment,
METHODOLOGY

educational facilities, political influence, school building, library, laboratory, play ground and teaching methods

The investigator intended to attempt a study of the learning environment which could be specified out of the important area of concern for the students. To find the views about learning environment in the present context, the investigation has taken up two takes (a) first of all the investigator prepared, an interview schedule for twenty teachers twenty guardians and twenty students of different population. After analysis of the interview schedule few components were drawn out they were family atmosphere, teacher’s attitude, facilities given, peer groups, self interest and motivation. On the basis of the result of the interview and related finding of studies, the investigator prepared question. After due experts analysis of the questionnaires the investigator selected the components on which ninety percent of the experts agreed.

Construction of items

Based on the study a pool of 120 items were generated to develop a scale on learning environment keeping in view the norms mentioned by Likert (1932). They may be discussed under the following points.

1. Simple and direct language was used
2. Item based on single though were framed.
3. Simple sentences were preferred.
4. Irrelevant items were ignored.

Preparation of the first Draft of LES and its Tryout

As said earlier 120 items were generated to form a preliminary form of LES. The criteria for the construction of learning environment scale mentioned above were strictly followed.

It was then given to professionals in the field of teacher education and to given their opinion regarding the suitability of each item for measuring the relevant learning environment, the clarity of the language and the suggestions for improvement of the scale. Following their suggestions some items were rejected and some were modified.

Thus, the first draft was finally prepared containing 86 items. There after it was administered on 10 teachers to verify its practicability and readability.
Second  Draft of LES and first tryout

As per the result and analysis of the first tryout, 86 items were selected for. The second draft. It was then administered on 50 students and 20 teachers in real testing condition it was followed by an interview. Again some of the items containing difficult words were removed.

Third Draft of LES and its Tryout.

It contained 72 items about learning environment. The statements formed a Likert type scale (1932) with five possible responses and numerical value given to each statement. They are as under:

Table 4.4 Scoring Procedure for the Items

<table>
<thead>
<tr>
<th>Response</th>
<th>Positive/Favourable</th>
<th>Negative/Unfavourable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Some personal details of the student like name, class, age, date, sex, school, was included. The purpose was to elicit information about the respondents. Again each item of this draft was analyzed to see two things whether each item measured the learning environment. Whether an item is positive or negative this analysis was mainly performed to know whether this is a balance representation of the universe of contents or not.

Final Tryout and Item analysis.

The third draft of the LES was used for the final tryout. It was administered on the sample of study belonging to tribal and non tribal group the answer sheets were arranged in rank order accordingly with highest scores on top and the lowest scores at the bottom.

The value of it is a measure of the extent to which a given statement differentiate between the high and low groups.

As a crude and approximately rule of thumb, we may regard and t-value equal to or greater than 1.75 as indicating that the average response for (the high and low
groups) to a statement differ significantly, provided we have 25 or more subjects in the high group and also in the low groups. Nineteen items with the lowest t-values in the test were rejected in all 53 items were kept for final scoring purpose and for the analyses of the data hence in the final form of the test no item has a t value low than the critical value 1.75 as given by Edwards.

After eliminating 28 items the remaining items were renumbered. It formed the final form of the LES and new scoring key was also prepared.

Finally for LES 53 items were used. Reliability coefficients of the test was calculated to estimate the suitability of the test for final analysis. The result obtained are summarized below.

**Split half (odd-even) reliability**

- calculated for Spearman Brown formula = 0.762

The results show that the test has sufficiently high reliability. Hence it was used for the purpose of final analysis of the data.

**Standardization of Learning Environment Scale (LES)**

Standardization of the LES was done by calculating reliability coefficient and by estimating various types of validities. For this purpose data obtained from the total sample of respondents were taken into consideration.

**Reliability of LES**

Reliability is a measure of the test’s consistency. A useful test is consistency over time. A test has minimum errors of measurement when it has a high coefficient of reliability. Therefore, reliability in any test is indispensible. Generally, there are four methods to test the reliability viz. Split-half method, and Test-retest methods were used they are reliable in the field of research.

**Split half method**

In this method, the scale may be divided into two equal parts, then each part is taken as a whole and measurement is made separately. Thus, first the test scores were divided into odd and even halves. Data related to the test scores were collected and then coefficient of reliability was calculated using the Spearman Brown formula. (Guilford, 1982, P.378) The reported coefficient of correlation was found to be 0.762, which indicates high reliability.
Test-Retest Method

This method signified the correlation between the score obtained by the same group of respondents on two administrations of the test. The time interval between the two tests in this investigation was one month. Pearson’s product-moment coefficient of correlation was calculated. The value of ‘r’ was found to be 0.712 which is very high coefficient of stability.

Validity of the LES

Validity is a measure of test’s usefulness. A test measures whatever it is required to measure with accuracy. Four important methods of measuring validity are used in educational research viz. predictive validity, concurrent validity, content validity and construct validity. In the present investigation, the methods of face validity and content validity were employed.

Face Validity of LES

The instrument of LES has sufficient face validity because the very words of the statement and construction of sentences obviously refer to learning environment.

Content Validity of the LES

Content validity measures the objectives of the content. The instrument of LES had sufficient content validity. For defining the universe of content of LES subject expert’s opinion and suggestions were taken on a questionnaire. Available literature concerning the construction of the instrument was surveyed. Statements were framed on the basis of decided components.

Again the contents of the instrument were referred to the language expertise and subject experts. More so, the percentage of agreement between investigator and experts have been calculated, the average scoring of which is ranged between 90 to 100 percent. Hence, it may be said that the instrument of LES in this study has both face and content validity.

4.4.4 Teacher Interview Schedule (TIS)

In the interview schedule of teachers there were 10 questions indicating towards the learning environment, adjustment and attitude towards education of tribal and non-tribal students of secondary school. For this earlier research studies were
analyzed and suggestions were taken from experts. The answers were recorded for analysis of hypotheses.

4.4.5 Parents Interview Schedule (PIS)

In the interview schedule of parents/guardians there were 10 questions indicating towards the learning environment, adjustment and attitude towards education of tribal and non-tribal students of secondary school. For this earlier research studies were analyzed and suggestions were taken from experts. The answers were recorded for analysis of hypotheses.

4.5 Collection of data

First the information of number of students in secondary schools of Raipur, Durg, and Bilaspur was requested from board office (Madhyamik Shiksha Mandal). Then the information about name and location of schools were requested for the same from office of Rajiv Gandhi Shiksha Mission (RGSM). Then permission was taken from District Education Officer (D.E.O) and consulted for administration of tools on the students of different schools run by government in sample area, for this a letter was issued by DEO to Block Education Officer (B.E.O) to instruct all the schools of their area to cooperate for this study.

The school principals were contacted to seek their permission and cooperate to administer the tests. As it was to be administered on students we needed a working day, so day and time was fixed and notice to students was issued to inform about the purpose of the study. The students were requested to be presents and participate in the study.

As there were 3 tests to be administered HSAI, ASTE and LE, HSAI had 150 questions, ASTE had 22 questions and LE had 53 questions. To make students feel easy and comfortable first ASTE and LE was administered. After the break HSAI with 150 questions was administered. After the completion the booklets were collected. All the teachers and other staff cooperated well. The participant students, teachers and principal were thanked for this purpose.
4.6 Scoring system

**Scoring of HSAI**

The maximum possible score, of HSAI is 150 and minimum is 0. There were two columns, students has to put a tick for their response in any one column for every 150 question for 1 right answer 1 point was given and 0 for a wrong answer according to answer key provided with the booklet. Then totaling was done for all the 150 questions and final points were written in the column provided.

**Scoring for ASTE**

Each of the respondents is given a copy of the scale (without the scale values indicated thereon) and he or she is asked to put a tick in front of the statements with which he or she fully agrees and a cross in front of the statements with which he or she is not in full agreement. Each statement is thus to be either ticked or crossed. The attitude of the individual is denoted by the mean scale values of the statements with which he or she fully agrees.

**Scoring of LES**

There were 53 questions in this test framed according to likes scale scoring from 5, 4, 3, 2, 1 for their responses in each question. As response ‘always’ will get 5, ‘mostly’ will get 4, ‘sometimes’ will get 3, ‘rarely’ will get 2 and ‘never’ will get 1 for negative questions the marking will be just opposite i.e. 1, 2, 3, 4, 5 and then the sum total of all the points is done.

4.7 Statistical Techniques used

In the presents study for the analysis all the scores obtained on various measures, of variable for different stratified sample were recorded and analyzed the data to standardized scores (t- Scores ). Then following statistical techniques were used.

**Differential study** –The technique of analysis of variance (ANOVA) was applied to find out significant differences among various groups. The results had been presented in terms of F-values and interpreted accordingly.

**Correlation study** - Coefficient of correlation is needed to establish relationship between two variables the correlation coefficient might take on any value between plus and minus one (Stock Burger, 1996)
-1.00 > r > + 1.00

The sign ‘+’ defines positive and ‘-‘ defines negative direction of relationship

Details of the data analysis and interpretation are present in chapter V ahead.

************