CHAPTER IV

THE DIFFERENT TOOLS AND TECHNIQUES

The different tools and techniques used in the course of study were as follows:

1. Bhattia's Battery of performance test of intelligence was used for the control and experimental group to find out the mental differentiation. (A sample is given in the Appendix I).

2. Interviews has been made with the school teachers in-charge of games and sports, the school Head-master/Mistress, Assam.

3. The 'attitude measurement for physical education' of Giridhar Prasad Thakur and Manju Thakur (Psychology Department, Bihar University, Murzaffapur) was administered to a sample of one-hundred girls and boys to find out their individual opinions regarding participation in physical education. (A sample is given in the Appendix VII).

4. Case studies involving (i) Personal data, (ii) Family data, (iii) Health data, (iv) Educational data,
were made on fifty girls and boys (The case study questionnaire sample is given in the Appendix III).

5. A questionnaire was prepared for the Teachers in-charge of games and sports to know their opinions regarding compulsory participation of co-curricular activities by the girls and boys. (A sample is given in the Appendix IV).

6. Few guardians/parents, numbering twenty were contacted and interviews were taken to know their views regarding their girls and boys participation in games and sports and in some other mental and social activities.

7. A long questionnaire with questions like, the prevailing conditions of co-curricular activities in the secondary schools, the provision of games materials, gymnasiums, play-fields, store-rooms, swimming pools, the provision of co-curricular activities in the school routine, appointment of teachers for co-curricular activities, the position of fund etc. The questions were distributed to one-hundred and fifty secondary schools, out of which one hundred schools were selected on complete answers and data.

8. A questionnaire was constructed for girls and boys to find out the effect of participation in different co-curricular activities in their physical, social and emotional aspects. Girls and boys from class VIII to X, numbering one thousand was taken as the first sample, and the questionnaires
were distributed. The students were told to give the true answers and were explained why true answers are needed. They were told that the answers will be kept secret and only the investigator herself will handle the questionnaires.

The questionnaires on completion were collected and checked, and the incomplete and over-writing ones were eliminated. After a lapse of one month, another set of same questionnaires were applied to a sample of five hundred selected from the first sample. On completion, the questionnaires were checked and keen attention was paid to the answers given by students in their first and second time. Again, from this sample, the over-writing and giving different answers were eliminated, and a sample of two hundred students were selected on correct completion. This sample was grouped into two with the help of teachers and Principal. The students showing interest and participating in different co-curricular activities programme, both inside and outside the school were grouped under experimental. The students who lacks interest and does not participate in co-curricular activities programme were grouped as control group. From the studies made on these two groups, the effect of participation in their physical, emotional, and social aspects were found out by applying statistical procedure. The questionnaire constructed for this study was done with consultation with Mooney’s Problem Check-list.
9. Another set of five questions were applied by adopting the above procedure to find out the mental effect of participation in co-curricular activities. From the studies made, the results obtained and were analysed by applying same statistical procedure.

The Description of the Tests and Inventories

As intelligence is one of the factors of adjustment, the Bhattia's Battery of performance of test of intelligence was used. This test measures the intelligence of both literate and illiterate of the age group of 11-16 years. This test is standardised and constructed by Dr. C. M. Bhattia.

The battery consists of five tests. The test no. 1 is known as Koh's Block Design Test, which contains blocks and coloured cubes. The girl or boy concerned is asked to make different designs within a given time. There are ten items and the maximum score is 25.

The pass long test is the second test which consist of blocks in boxes. The boy or girl concerned should change the positions without lifting the blocks from the boxes. The maximum score is 20.

The pattern drawing test is the third sub-test. This test consist of patterns. The person concerned is to make
patterns within a given time without lifting the pencil and without over-writing. The maximum score is 20.

The fourth sub-test is immediate memory test. The person concerned is required to repeat the words after hearing the tester in the direct and reversed and it is continued till the failure is recorded. The maximum score in the direct is 9 and in the reverse is 6.

The picture construction test is the last test of the Battery. This test consists of different pieces which are to be put together to frame a picture within a given time. The score for whole battery is 95.

The tables for converting raw score to I.Q.'s are provided in the manual. This test gives reliable information about person's intelligence.

The Administration of Tests:

The investigator went to different schools and administered the tests to the selected sample. The scoring was done according to the instructions in the manual.

The statistical Procedure:

In order to analyze the results obtained, the following mentioned statistical procedures were adopted.

1. The calculation of separate means in each area of adjustment i.e., physical, emotional and social, for each
group of experimental and control.

2. The calculations of standard deviation in each area for each of control and experimental.

The calculations of standard error between the means in each area of adjustment.

The calculations of critical ratio in each area of adjustment, and finding out the level of significance.

The Statistical Procedure:

To find out the different areas of adjustment and the total for each group, the means were calculated separately and the following formulas were applied. To know the variability, the standard deviation for each group's area of adjustment the following formula, was used,

$$SD = \sqrt{\frac{1}{n} \sum (x_i - \bar{x})^2}$$

when the calculations of mean and SD's of both the groups in each area was done, the standard error was calculated with the following formula,

$$\sqrt{\frac{V_1^2}{N_1} + \frac{V_2^2}{N_2}}$$

The significance of differences for both the groups for each area of adjustment, the critical ratio was calculated with
the following formula —

$$
CR = \frac{D}{\sqrt{D}}
$$

for the level of significance of difference between the two groups, the data given by Garret\(^1\) and Guilford\(^2\) was consulted.

The result and discussions of this part is presented in chapter VI.

**Materials and Methods**

In this sub-chapter, it has proposed to describe the different tools and techniques used during investigation by the investigator.

1. To find out the existing pattern of co-curricular activities in the secondary schools of Assam, the normative survey method was employed. The requisite data and the various informations were collected by means of questionnaire method. The investigator collected the necessary data and information personally and also by postal method.

\(^1\) Garret, H.E.: *Statistics in psychology and Education* (Allied pacific) 2nd Indian Edition.

2. The sample in this study consisted of both boys and girls of the selected secondary schools of Assam.

3. Regarding the administration of the questionnaire, the following procedure was followed.

The investigator herself went to most of the secondary schools of the various districts of Assam, and along with the help of Head-master/Head-mistress/Principal and also with the help of a school Teacher collected the necessary data, information and answers of the questionnaires. The Teachers in-charge of games and sports, and also of physical education were contacted for interviews and needed answers. The investigator contacted the school authority beforehand to fix the appointments.

The schools which could not be visited by the investigator personally, arrangements were made to send the questionnaires by post with self-addressed envelopes.

4. The influence of co-curricular activities were tried to analyse by making studies on selected sample. The method of studies has been discussed in detail earlier in 'different tools and techniques'.

5. For the case study, a sample of fifty girls and boys were selected with the help of teachers, principals and parents as well. A questionnaire was constructed with technique followed after Wrighton, Justman and Robbins as
given in the 'evaluation in modern education', (Asia Publishing Limited, New Delhi, 1964) to be distributed to the sample. The sample selected for the case study consisted both normal and bodily defects ones. These girls and boys were individually interviewed. The investigator met the teachers and parents of these students and the following data were collected.

(i) Personal data, (ii) Family data, (iii) Health data, (iv) Educational data. The results of the case study is given in chapter VI and a sample of the questionnaire of case study is given in the appendix.

The Method of Sampling

6. For the purpose of analyzing the influence of co-curricular activities on the physical, social and emotional aspects of adolescent girls and boys, the following sampling procedure was followed:

A large sample consisting of one-thousand adolescent girls and boys, ranging from class VIII to class X was first selected. The constructed questionnaires were distributed to this sample. Before distribution, the purpose of such studies was explained to them clearly. They were asked to give right answers which required to give tick marks either in the true or false columns. They were also told that their
answers will be handled secretly only by the investigator herself.

On completion, the questionnaires were collected and checked, and the incomplete and over-writing ones were eliminated. After a lapse of one month another set of same questionnaires were applied to the sample selected by random sampling. This sample consisted of five hundred students. On completion, the questionnaires were checked and again the incomplete and over-writing ones were eliminated. Again from this sample, another two hundred were selected on ground of complete and correct answers and with the help of teachers, principals and parents this sample was classified into two groups — one experimental and the other control. The students showing interest and participating in different co-curricular activities formed the experimental group, and the students showing lack of interest and do not participate formed the control group.

7. **Intelligence Test**: The sample selected was also given an intelligence test. For this purpose, Bhattia's Battery of performance test of intelligence was used. The I.Q. of the students were generally from 95 to 110. (A sample is given in the appendix I).

8. Another sample consisting of one hundred girls and boys was made. This sample was selected from three hundred girls and boys of secondary stage of education. To these three
hundred students the test of 'The attitude measurement for physical education' of Giridhar Prasad and Manju Thakur, was given. Only one hundred were selected on ground of complete answers. The results analysed is given in chapter VI. (A sample of the attitude measurement is given in the appendix VII).

9. Mental Adjustment: Another set of questionnaire consisting of five statements was applied to a group of two hundred adolescent girls and boys, ranging from class VIII to class X. In order to classify this selected sample, and to study them, the same procedure was followed as in physical, emotional and social.