

Chapter III

Design of the Study

The present chapter includes the selection of sample, tools adopted, procedure followed, and the statistical techniques used for analyzing the data. Precisely, they include :

- (i) The sampling procedure
- (ii) The instruments used for data collection
- (iii) The procedures of administering and scoring of tests.
- (iv) The statistical technique employed for analysing the data.

3.1 Sample

The most scientific technique for selecting the sample in the random sampling technique in which each individual has equal chance to be included in the sample. The sample for the present study was selected by using random sampling technique out of the two educational blocks of Bhopal district i.e., 'Fanda' and 'Berasia'. The researcher had decided to draw the sample from 'Fanda Block' as it had both the rural and urban schools. The list of all government schools of Fanda block was obtained from Block Education office, Bhopal. The schools were further classified as urban and rural area schools. From amongst these research had selected four government school randomly, two urban schools and two rural schools. From these schools 88 VII th class pupils were selected as sample. One section was included as sample. One section was included in study from all 4 schools. All students in the section were given all the three tests.

The schoolwise sample distribution is presented in the table

S.No.	Name of the School	Locality	No. of Students
1.	Government middle school, Malviya Nagar, Bhopal	Urban	24
2.	Chandrashekar Azad Middle School, Deshhera Maidan, Bhopal.	Urban	22
3.	Government Middle School, Ratibarah.	Rural	22
4.	Govt. Middle School, Neelbarh	Rural	
		Total	88

3.2 Tools And Technique

In the present study the investigator used three different tests for collecting data on three different variables. All the above three tools used were standardized. They are

- (i) To assess classroom environment "Rentoul and Frasers Individualized classroom environment Questionnaire (ICEQ) was used.
- (ii) Another variable of Study was achievement motivation, the information on which was gathered through Pratibha Deo & Asha Mohan's Achievement Motivation Scale.
- (iii) For measuring attitude towards mathematics, Inventory of affective aspects of schooling by Heladyana and Shaugnessy (1982) IAAS was used.

The long form of individualized classroom. Environment Questionnaire by Rental and Frasers was adapted in Hindi version for assessing classroom environment. The test contained 50 items. The items were further divided into

five categories. They were personalization, participation, independent. Investigation and differentiation.

Data on achievement motivation variable was collected through 3 point scale developed by Deo-Mohan, Achievement motivation (n-Ach) scale was administered. The scale was consisted of 50 items, amongst them 37 item were positive and 13 negative. These items were based on :

1. Academic factors
2. Factors of General Items
3. Factors of Social Interest.

Finally 50 items were chosen after careful scrutiny using the distribution as follows

Factors	No. of items
1. Academic motivation	4
2. Need of achievement	4
3. Academic challenge	4
4. Achievement Anxiety	1
5. Importance of Grades/marks	2
6. Meaning fullness of task	4
7. Relevance of school/ college of future goals	2
8. Attitude towards education	4
9. Work methods	5
10. Attitude towards teachers	3
11. Interpersonal relations	4
12. Individual Concern	2
13. General Interests	2
14. Dramatics	2
15. Sports etc.	5
Total	50

In the present study assessment of attitude towards mathematics was done through Inventory of Affective Aspects of Schooling (IAAS) developed by Heladyna and Shuagnessy (1982). The inventory was translated into hindi as the researcher used this inventory on VII grade students belonging to rural areas also.

3.3 Administration of Tests

After selecting the appropriate instruments, the task was to administer it to collect information regarding concerned variable. Before administering these tests, the concern of Principal was taken. According to time and dates allotted the researcher developed a detailed schedule for carrying out tests., The reseacher first administer attitude test as its was simple and easy to understand by subjects. The second intention was that all subjects take interests and present at the time of administering of other test also. The researcher with one his classmate and alongwith required number of tests copies reached the school on the day allotted. During first half attitude test was administered whereas achievement tests was administered in second half. The very next day thired test i.e., classroom environment test was taken. All the concerned teachers of schools had extended their full support while administering the test. The researcher first distributed test materials to all subjects and after making the subjects seated comfortably in the classroom rapport was established through a general discussion about the tasks. Brief explanation about this test inventory was given. The material in the form of IAAS was then distributed to each and every student of the class. Instructions printed as the tests were read by the researcher and the students were also asked to go through it silently. If these was any confusion regarding the instructions they asked the same by raising their hand. The doubts were clarified by the researcher. It was made clear to all that nothing is right or wrong as for as statements are concerned. No time limit was assigned but ordinarily the pupil took 15-20 minutes for completing the first test. After completion of tests the material was collected back by the researcher.

Same procedure was adopted for administering achievement motivation tests. The researcher asked all the pupils to be ready with pencil/pen after brief instructions. The students completed the tests in about 40-45 minutes duration. The researcher assured the students that their responses would always remain confidential and every effort was made to secure the sincere cooperation from the students.

The test to assess the classroom environment was administered the very next day of previous tests. The material was distributed to subjects and again the directions of the test were read out by the researcher clearly. The students were given full freedom to give their view in the form of responses.

They were asked to tick in a appropriate space for each item on the test student took approximately 40 minutes in completing the questions of booklet. The material was collected back after the subjects completed the task. This is how the sequence for collecting the data was followed in all the four schools selected for the study.

3.4 Scoring

The positive items of the attitude toward mathematics scale were assigned a weightage of 3,2 and 1 respectively for always, sometimes and never. In case of negative statements scores having 1,2 and were allocated respectively that are given above. The scores for attitude on all the 23 items of the scale for each student a total score on the scale can be obtained by summing his scores for the individual items. Thus maximum of 69 can be obtained by a subject the total scores.

The scoring of achievement motivation test was carried out with the help of scoring key prescribed alongwith the test. A positive item carried the weight of 3,2 and 1 respectively for the categories of 'Always' 'Sometimes' and 'Never'. The negative items were scored by allocating 1,2 and 3 marks respectively for the some categories that are given above.

The total scores was the summation of all the positive and negative items score the positive and negative items scores. The minimum score that could be obtained was 50 and the maximum scores would be the 150, other possible scores would range in between the above two extremes.

The ICEQ had two features which facilitated ready hand scoring. First, underlining of the number identified those item which needed to be scored in the reverse direction. Second items from the five scales were arranged in cycling order. So that all items from a particular scale were found in the same position in each block of five items. For example, the first item in every block belonged to the personalisation scale. The total score for the personalisation scale was obtained by adding the individual scores for items 1,6,11,16,21,26,31,36,41,46 and for participation scale, the total score was obtained for items 2,7,12,17,22,27,32,37,42,47. Item not underlined were scored by allocating the number circled (i.e. by scoring 1,2 and 3 respectively for the responses, almost, sometimes and very often underlined items were scored in the revers manner for the responses (i.e. by allocating 3,2, and 1 respectively).

Statistical Techniques

The following statistical techniques were used to analyse the data in this study to obtain answers to research questions.

1. Analysis of variance (ANOVA) was used to findout the differece between group means.
2. Coefficient of correlation was calculated to assess the relationship between
 - (i) Classroom environment & attitude towards mathematics.
 - (ii) Classroom environment and achievement motivation.
 - (iii) Achievement motivation & attitude towards mathematics.

3.5 Objective of the study

Following objectives have been formulated for the present study :

1. To compare the different categories of classroom environment in respect of attitude towards mathematics and achievement motivation.
2. To compare the different categories of attitude towards mathematics in respect of classroom environment and achievement motivation.
3. To compare the different categories of achievement motivation in respect of classroom environment and attitude towards mathematics.
4. To study the different of classroom environment, attitude towards mathematics and achievement motivation of the students of urban area and rural area.
5. To find out interrelationship between classroom environment achievement motivation and attitude towards mathematics.

3.6 Hypothesis

1. There will be on significant difference between different category of classroom environment in respect of attitude towards mathematics.
2. There will be no significant difference between, between different categories of classroom environment in respects of achievement motivation.
3. There will be no significant different between different categories of attitude towards mathematics in respect of achievement motivation.
4. There will be no significant difference between different categories of attitude towards mathematics in respect of classroom environment.

5. There will be no significant difference between different categories of achievement motivation in respect of classroom environment.
6. There will be no significant difference between different categories of achievement motivation in respect of attitude towards mathematics.
7. There will be no significant difference in classroom environment of urban area schools & rural area schools.
8. There will be no significant difference in attitude of towards mathematics of area schools & rural area schools & rural area schools.
9. There will be no significant difference in achievement motivation of urban area schools & rural area schools.
10. There will be no relationship between classroom environment and attitude towards mathematics.
11. There will be no relationship between classroom environment and achievement motivation.
12. There will be no relationship between attitude towards mathematics & achievement motivation.