CHAPTER - III

METHODOLOGY
3.0 INTRODUCTION

This chapter presents details on the methodology employed in carrying out the research. Since the investigator attempted to study the effectiveness of innovative practices on various life skills as mentioned in chapter 1. The detailed profiles of the selected schools have been developed for getting some understanding for the qualitative analysis. The quantitative analysis has been done by using Descriptive Statistics, Correlation and One way Analysis of Variance (ANOVA).

3.1 HYPOTHESES

The hypotheses given in the introduction chapter have been verified by using above mentioned statistical techniques.

3.2 METHOD

This is a survey type research, attempted to find out the effectiveness of innovative practices on academic achievement and various life skills, selected both quantitatively and qualitatively. The investigator, after selecting the problem, surveyed the innovativeness of various schools at elementary level in Kerala. After the survey investigator collected information on each innovative school selected-through questionnaire and interview schedules for the incharge the Principal/Director of their schools along with academic achievement scores of the students studying.

3.3 SAMPLE

After surveying the innovative schools in Kerala, which follow innovative practices at least for a minimum of five years and have some component of innovativeness for educational practices were selected for the study on the basis of
purposive sampling. To do comparative study conventional schools which have been matched with the innovative schools in terms of curriculum, medium of instruction and physical infrastructure were selected for the study. The detailed information on selected schools is given.

Details of selected schools for the study

- Innovative CBSE school following CBSE curriculum and English as the medium of instruction.

- Innovative State School following State Board of Education curriculum and Malayalam as the medium of instruction.

- Innovative flexible curriculum school

- Conventional CBSE school following CBSE curriculum and English as the medium of instruction.

- Conventional State School following State Board of Education curriculum and Malayalam as the medium of instruction.

(The names of the schools are kept confidential due to administrative reasons)
As the third innovative school with flexible curriculum does not follow any specific curriculum matching conventional school. Since no conventional school could not match with this school due to nature of its innovativeness.

The students selected from this school were based on age factor i.e. students who were in the age group of 12-13 years were selected. As this school does not follow any grade system, hence to match the students falling in the age group 12-13 years were selected.

The number of students from each of the selected schools are given in the table 3.2
Table 3.1 Number of students selected from each school

<table>
<thead>
<tr>
<th>Name of school</th>
<th>No of students</th>
<th></th>
<th>Name of school</th>
<th>No of students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Male</td>
</tr>
<tr>
<td>Innovative CBSE School</td>
<td>21</td>
<td>25</td>
<td>46</td>
<td>Conventional CBSE School</td>
</tr>
<tr>
<td>Innovative State School</td>
<td>18</td>
<td>16</td>
<td>34</td>
<td>Conventional State School</td>
</tr>
<tr>
<td>Innovative flexible Curriculum School</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>43</td>
<td>85</td>
<td>Total</td>
</tr>
<tr>
<td>Total no. of students from Innovative schools</td>
<td>85</td>
<td></td>
<td></td>
<td>Total no. of students from Conventional schools</td>
</tr>
</tbody>
</table>

Total No. of student selected = 154.
3.4 DESCRIPTION OF THE TOOLS AND TECHNIQUES EMPLOYED

The following tools and techniques were used for data collection for doing qualitative and quantitative analysis.

3.4.1 Qualitative Data Collection Techniques:

Qualitative data collection techniques suggested by Patton(1990) have been adopted inorder to realize the first and second objectives of the study. Hence the data have been gathered by observation, interview, document analysis and opinionaire.

An observation schedule was prepared by the investigator to gather data on Physical facilities available and the Educational practice followed in the school.

A semi structured interview schedule for teachers was prepared to gather data on teaching learning practice followed in the school. This covers the areas of methodology followed in each school, teacher-pupil relationships, co-curricular activities offered, parent teacher relations, parents’ aspirations and expectations from the school.

To study about the participation of students in co-curricular activities, the investigator prepared a structured interview schedule for the students.

The investigator has done interview with the Director / Head of the selected schools with high flexibility in order to gather in-depth information which helps in the investigation. The interview covered areas of philosophy followed, administration, training procedure given to the teachers, interaction with parents, interaction with pupils, teaching-learning principles followed, future visions and difficulties facing in the implementation of innovative ideas.
The researcher has gone through the various documents in the selected schools in order to gather data. This include records, reports, printed forms, prospectus, school calendars, autobiographies, diaries, books, periodicals, bulletins, syllabi, pictures, audio and video cassettes, films, websites, published articles of the school in newspapers and magazines, and manuscript articles prepared by children.

An opinionnaire have been developed by the researcher based on the innovative practices followed in the selected innovative schools after having a first hand information about the various innovative practices. This was done to assess the attitude of the teachers towards innovative practices used in the selected schools. It consists of 20 statements based on the innovative practices which was given to them to give their opinion on innovative practices whether they agree or disagree.

3.4.2 Quantitative Data Collection Techniques.

Quantitative data collection techniques have been used for analyzing the results through various tools, such as tools for assessing communication skills, creative thinking and interpersonal relationship of students studying in the selected school.

3.4.2.1 Academic Achievement- School Records

The investigator collected academic marks of the students selected for the study from cumulative record available in schools. The average of 3examinations scores of total collected through school records was calculated to get better index of academic achievement. But for the innovative school with flexible curriculum, the academic achievement marks were not available as they do not believe in conducting examination for assessment of the child.
3.4.2.2 Communication Skills Test

Effective communication as life skill has been recommended by W.H.O (1994) as effective communication is essential for quality living and better academic success. As stated effective communication means being able to express opinions and desires, but also needs and fears. And it may mean being able to ask for advice and help in time of need.

The investigator for assessing the effective communication skills adopted a test, developed by Jerabek (1996). The revised version (2001) was used for the present study. It is a standardized self-administered online tool (www.psychtests.com, www.queendom.com). Thirty four statements are given each followed by five possible responses. Twenty six statements are followed by almost never, rarely, sometime, quite often, and most of the time. The rest of the eight statements are followed by almost never true, rarely true, sometimes true, quite often true and most of the time true. The subjects are meant to read each statement carefully and choose the one, which seems to be the most appropriate response among the five possible responses for a particular situation.

The test measures how well the person communicates in different types of situations. The six sub skills under this communication skills test are listening i.e. ability to listen actively rather than passively; the ability to get the message across i.e. skills necessary for delivering a clear message to others, insight to the communication process i.e. understanding of how communication works and ability to “read” others; Emotional management in the communication process i.e. ability to express emotions and deal with emotions of others; assertive communication i.e. ability to express assertively in spite of disagreement in opinions and stand up for oneself; and good
communication habits ie practicing the habits of effective communication and overcoming barriers. The total score is 100. The scoring could be done through online only. More score indicates high communication skill and low score indicates poor communication skill.

The test translated and was adopted in Malayalam by the investigator and standardised with experts’ suggestions.

Administration Procedure

The English version of the test was administered to the English medium students of the selected schools. The Malayalam version of the test was administered to the Malayalam medium students. Both versions were tried out and adapted to the Indian (Kerala) population.

After establishing a rapport with the students the investigator explained the instructions properly. After the instructions were clarified, they were asked to go through the statements given in each set of the test for ticking the most appropriate response. Since there was a time limit as they have to complete within 20 minutes so this was followed strictly.

3.4.2.3 Creative Thinking Test Battery

Creative thinking test battery has verbal and non verbal two tests for assessing creating thinking process. (Mehdi, Baquer 1985). According to Guilford (1975) four abilities, viz, fluency, flexibility, originality and elaboration, characterize creative thinking. Creative thinking is a multi-dimensional attribute, distributed differently among the individuals, and it includes chiefly the abilities of fluency, flexibility, originality and elaboration.
Riston and Smith (1975) have defined these abilities in the following manner.

Fluency; It is the ability of the individual who expresses in a constant stream of communication.

Flexibility: It is the ability “to jump readily from one idea to another” (Creation of categories of responses).

Originality: It is related to statically infrequent responses made regarding a stimulus object and

Elaboration; It is related “to embellish or expand on idea”.

Creative thinking test battery (Mehdi, Baquer 1985) was used for the present study, as this battery was meant to assess the major four abilities of creative thinking, viz, fluency flexibility, originality and elaboration. The creative thinking test battery consists of both verbal and non-verbal tests. The verbal test of creative thinking is meant to measure the verbal creative ability of the students. The fluency, flexibility and originality are the variables which have been assessed in this study using this test. The non verbal test of creative thinking is meant to measure the individuals ability to deal with figural content in a creative way. The originality and elaboration are the variables, which are being assessed in this study using this test.

Verbal Test of Creative Thinking

The verbal test of creative thinking includes four subsets, namely, consequences test, unusual uses test, similarity test and product improvement test.
i. Consequence Test: The consequences test consists of three hypothetical situations:

(a) What would happen if man could fly like birds?

(b) What would happen if our schools had wheels? And

(c) What would happen if man does not have any need for food?

The subject is required to think as many consequences of these situations as he can, and write them under each situation in the space provided. The situations being hypothetical minimize the effect of experience and also provide the subject with an unlimited opportunity to make responses. The test encourages free play of imagination and originality. An example is given on the test booklet to acquaint the subjects with the nature of the test. The time allowed for the three problems is 4 minutes each.

ii. Unusual uses test: This test presents the subject with the names of three common objects a piece of stone, a wooden stick, and water and requires him to write as many novel, interesting and unusual uses of these objects as he may think of. The example given on the test booklet properly acquaints the subjects with the nature of the task. This test measures the subject's ability to retrieve items of information from his personal information in storage. Evidently, it measures also the subject's ability to shift frames of reference to use the environment an original manner. The time allowed for the three tasks is 5 minutes each.

iii. The Similarity Test: This test presents the subject with three pairs of words apparently different tree and house, chair and ladder, air and water, and requires him to think and write as many novel relationships as possible between the two objects of
each pair in the space provided. The test provides an opportunity for the free play of imagination and originality. The time allowed for each pair of words is 5 minutes.

iv. Product Improvement Test: In this test the subject is asked to think of a simple wooden toy of a horse and suggest addition of new things to it to make it more interesting for the children to play. The time allowed is 6 minutes.

Administration Procedure

The test required approximately 50 minutes. The English version of the test adapted to Malayalam language by Shibu, K.J. (2001). Students to attempt the test were instructed to finish the test in time. In order to facilitate the understanding of the students, the instructions, examples were explained properly by the investigator.

Scoring

Scoring was done based on test manual for fluency, flexibility, and originality for Verbal test of creative thinking developed by Baqer Mehdi.

(i) Fluency: Fluency has scores based on number of relevant and unrepeated responses of the students (testees).

(ii) Flexibility: Flexibility was represented by a students’ ability to produce ideas with differed approach. All ideas which fall under one category of approach or thought trend were treated as one for purposes of flexibility scoring. Thus if five ideas were produced and all belong to only one category or approach, then the score for flexibility was considered only one, but if all the five ideas were based on five different approaches or thoughts then the flexibility score was only five. There could be intermediate scores
for flexibility depending on the number of categories of thought or trends to which the responses belonged.

(iii) *Originality:* Originality was represented by uncommonness of a given response. Responses given by less than 5% of the group were treated as original. If a response had been given by 0.1 % to 0.99% of the testees, then the responses would get an originality weight of 5; if a response had been given by 1% to 1.99 % of the testees, then the response would get an originality weight of 4; if a response had been given by 2% to 2.99% of the testees, then the response would get an originality weight of 3; if a response had been given by 3% to 3.99% of the testees, then the response would get an originality weight of 2; and if response had been given by 4% to 4.99 of the testees, then the response would get an originality weight of 1. Responses given by 5% or more of the testees would get an originality weight of zero.

The total fluency, flexibility and originality scores had been taken and the raw scores were converted into standard score and the composite verbal creative thinking scores were found out.

**Non Verbal Test of Creative Thinking**

The non-verbal test of creative thinking was intended to measure the student’s ability to deal with figural content in a creative manner. Three types of activities were used for this purpose viz., picture construction, picture completion and triangles and ellipses.
1. *Picture Construction Activity*

This activity presents the subject with two simple geometrical figures, a semi-circle and a rhombus, and subjects are required to construct an elaborate picture using each figure as an integral part. The subjects were allowed to turn the page to use the figure in any way they liked for making the picture. Emphasis was put on originality and elaboration. Originality was emphasized by the instruction that the subjects should try to make as novel a picture as possible such that no one else would be able to produce. Elaboration was emphasized by the instruction that the subjects may add as many details as they think necessary in order to make the picture tell as complete and as interesting a story as possible. Ten minutes were allowed for the two tasks. The pictures were scored for elaboration and originality.

2. *Incomplete Figures Activity*

This activity consists of 10 line drawings which could be made into meaningful pictures of different objects. The subject was asked to make a picture which no one else in the group would be able to think of.

3. *Triangles and Ellipses Activity*

In this activity the subjects were provided with 7 triangles and 7 ellipses and they were required to construct different meaningful pictures based on the two given stimuli. The stimuli were scored for elaboration and originality. A total time of 10 minutes was allowed for this activity.
The three activities taken together provided ample opportunity to the subject to use his/her imagination with different types of figural tasks and to come out with some novel ideas.

**Administration procedure**

The total time required for administering the test was 35 minutes. After establishing a rapport with the students, proper instructions were given to them. In order to facilitate the understanding of the students the explanation of the examples given in the activities were done so that they come out with new ideas.

**Scoring**

Each item was to be scored for elaboration and originality according to the scoring guide provided in the manual for non-verbal test of creative thinking by Baqer Mehdi.

*Elaboration:* Elaboration was represented by a students’ ability to add pertinent details (more ideas) to the minimum and primary response to the stimulus figure. The minimum and the primary response to the stimulus figure was that response which gave essential meaning to the picture. The response title often told what exactly the testee was trying to make. However, responses, which could be reasonably interpreted and identified, should be scored. In some cases, the test booklets had to be turned around or rotated in order to know exactly what the testee has drawn. Sometimes the response represented some abstract idea instead of a thing and so it had got to scored.

In determining what would be the minimum and primary response, especially in the case of human figure, birds, animals and several other objects, it was recommended, as a general rule, the primary and minimum response was what was
most essential for identifying the response; in other words, only those parts would be considered most essential without which a figure could not be identified what it was meant to be, thus in a human head, eyes and an indication of nose and mouth would be enough to identify it as head and so all other parts like hair, ear, neck, etc. were considered as elaboration.

*Originality:* Originality was represented by uncommonness of a given response. Responses given only by less than 5 percent of the group were considered, and were given differential weights. If a response had been given by 0.1 per cent to 0.99 percent of the testees, the response would get an originality weight of 5; if a response had been given by 1 per cent to 1.99 per cent of the testees, then the response would get an originality score of 4; if a response had been given by 2 percent to 2.99 percent of the testees, then the response would get an originality score of 3, if a response had been given by 3 per cent to 3.99 percent of the testees, then the response would get an originality weight of 2; if the response had been given by 4 per cent to 4.99 per cent of the testee, then the response would get an originality weight of 1. Responses given by 5 per cent or more of the testees would get an originality weight of zero.

The total elaboration and originality score of the activities had been taken and the raw scores were converted into standard score and the composite nonverbal creative thinking score was found out.

The total creative thinking score of the subject had been taken as the sum of the composite verbal and nonverbal creative thinking scores.
3.4.2.4 Sociometric Test of Measuring Interpersonal Relationship

Interpersonal skills help students to relate in positive ways with the people we interact with. This may mean being able to make and keep friendly relationships, which can be of great importance to our mental and social well-being. It may mean keeping good relations with family members, which are an important source of social support. It may also mean being able to end relationships constructively (W.H.O. 1994)

The tool adopted by the investigator for assessing the interpersonal relationship of the students among themselves and between students and teachers was the sociometric test of measuring interpersonal relationship developed by Moreno, J.L. (1937). The test was adapted and standardized by the investigator.

This test is meant to know the extent of friendliness amongst the classmates and with teachers. On the left side of the page the names of the class mates and teachers were written and against each name five response categories were indicated, ie most friendly, friendly, just friendly, less friendly and indifferent. Each student was required to rate each other student and their teachers under these categories.

Administration Procedure

After giving instructions to the students about the test, they were asked to write the names of their classmates, both male and female and the names of their teachers. Then they were asked to tick mark against each name in the appropriate column based on their friendliness with the friends and teachers.
Scoring

A score of 5 would be given if the student selects the category, most friendly, 4 would be given for friendly, 3 would be given for just friendly, 2 would be given for less friendly and 1 for indifferent. The mean of the scores got for each student by the same gender and by the opposite gender were taken. The mean of the scores got for each teacher by the male and female students were considered.

3.5 COLLECTION OF DATA

The data was collected in three phases

3.5.1 Phase I – Survey and visits to Innovative School in Kerala

In the first phase of data collection, the investigator have done analysis of document regarding the innovative schools in Kerala. The next step was visiting of the innovative schools and spending a day in each schools to get a first hand experience. The investigator had discussions with the heads/directors of the innovative schools and had an observation of the various activities.

3.5.2 Phase II – Development of Institutional Profiles

After the selection of the schools, the investigator stayed in the selected schools for a week each. During this time the investigator administered the qualitative techniques such as interview with the Directors, teachers, students and parents and observation on various aspects of the institutions and tools inorder to gather data regarding the institutional profiles and innovative practices followed. The investigator took photographs of the various innovative functions of the schools.
3.5.3 Phase III – Administering Research Tools

After developing institutional profiles the investigator again spent 3 days each in the selected schools and administered the standardized tests selected for this study.

The data gathered have been analysed.

The results of the study are discussed in the next chapter.