CHAPTER – V

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CHAPTER-V

SUMMARY OF THE FINDINGS AND SUGGESTIONS

5.1 INTRODUCTION

Education aims at preparing a child for adult life. It must develop such abilities and capacities which make a child competent enough to deal with various challenges of life. In recent times there is increased demand for education to be life skills based because traditional mechanisms for passing these skills may no longer adequate.

A paradigm shift has been witnessed in the roles played by the schools in equipping them selves to face the futuristic challenges in the global school educational perspective. Now schools are expected to import skills that are needed for the socialization of young people and to prepare them for a productive and prosperous life. The present study find the importing these skills through the life skills activities. Mean while to check the effectiveness of these life skills activities on the attitude towards mathematics and self concept. Much scope was given to the problem solving abilities of the students.

Life Skills approach models are exactly opposite to traditional method of teaching, it provides much opportunity for the students to express their
views and provoke them to think in different views. In regular mathematics class rooms are boredom for the students to use some formulae to solve some problems.

Many researches showed that, the students having good attitude towards the particular subject, and also shown good achievement. Those who had better self concept showed the better achievement.

It is well established fact that education ultimately aims at formation of a complete man, which is not possible without exposing students to various life skills. Education is one of the potent instruments in the development process if it is geared property for the purpose.

5.2 NEED AND IMPORTANCE OF THE STUDY

Educationists have tried a number of learning approaches to enhance learning of students and some of them have been more effective than others. Among the learning approaches used were, individual learning, peer tutoring, paired learning, collaborative learning, mastery learning and co-operative learning.

Forman (1989) found that children could take an active role in discovering and applying mathematical concepts in his study. Butler and Winne (1995) found that self regulated students are aware of guidelines of their own Knowledge, beliefs, motivation and cognitive processing.
In traditional approach teacher teaches students through a method of lecturing, and ask the students to perform various activities in accordance with the requirement of subject. The most prevalent practice in classroom is to make students passive participants and rarely do they get opportunities to express their feelings. Students are not encouraged to ask questions and they have to listen to what the teacher says. Teachers ask students to memorise the answers to the questions from books and write them down on their note books.

As a result of this practice, learning becomes boring and students study for the sake of passing examination than learning the subjects. Passive learning makes it difficult for student to develop necessary competencies that are expected of them. Teacher dominates the classrooms and there is no opportunity for the development of creative and critical thinking among students.

Another feature of traditional learning approach is that it promotes learning of bright students only and students with learning difficulties, sensory handicaps and physically challenged cannot learn in the regular classroom and their presence in the classroom would hamper the learning of other students.

Lim, Engleheng(2002) studied the extended effects of an instructional program designed to enhance scheme development by using non goal specific problems in the teaching of geometry to high school student in need of
remedial situation found greater improvement in solving problems faster, more efficiently and accurately.

Wong, Regina M.E, Lawson et al(2002) studied the performance of a group of mathematical student trained to use self explanation procedure during study of a new theorems in geometry was compared with traditional method of teaching,

Montague, Majoric et al(1986) investigates the effect of an 8-step cognitive strategy on verbal math problem solving performance and found that cognitive strategy training to improve the verbal math problem solving.


It has been recognized that all students can learn if classrooms are suitably modified and the appropriate learning approaches are used. The classroom environment must cater to learning needs of all students and it should promote values like friendship, co operation, sharing experiences, learning to live together, tolerance, compassion, equality etc...So the researcher felt that, providing more opportunities to students to participate in
learning process and make learning more effective Life Skills Education is the next option.

So the Life Skills Education (LSE) approach has in built mechanism in promoting this kind of environment. A new learning approach that contains principles of encouraging students to take initiative, explore freely and take responsibility for their own learning. The purpose of the study was to compare the effectiveness of Life Skills Education on Attitude towards Mathematics their Self Concept and their Problem Solving Ability of students of 9th standard.

Over the years, the problem of effectiveness teaching and learning of mathematics at various levels of education has been a matter of great concern and has been investigated by prominent mathematicians. Such problems include lack of professionally qualified teachers and attitudes of students towards mathematics....

The National Curriculum Framework 2005, recommends that the children life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school and community. NCF signifies an attempt to implement the idea of discourage the rote learning and the maintenance of sharp boundaries between different
subject areas. Teacher must take to encourage children to reflect on their own learning and to pursue of imaginative activities and questions which links with the real life situations.

5.3 STATEMENT OF THE PROBLEM

The problem of the present study is stated as

“A study of the effectiveness of the Life Skills Education on Attitude, Self Concept and Problem solving ability in Mathematics among secondary school students”.

5.4 REVIEW OF RELATED LITERATURE

Review of related studies has been classified broadly into the following groups. They are:

1. Studies related to models of teaching mathematics.
2. Studies related to Problem Solving Ability in mathematics.
3. Studies related to Students attitude towards mathematics.
4. Studies related to Self concept of the students with other variables.
5. Studies related to Life Skills Education.

5.4.1 INSIGHTS OF THE REVIEW

Educational research in general and research in the field of models of teaching and different approaches in particular, are of recent origin. It is hopeful sign that research on models of teaching and different approaches is generally receiving due importance.
The overview of the researches related to models of teaching, to measure attitude of student towards mathematics, self concept and their problem solving ability. Some of the issues and observations that may help in framing hypotheses, selection of tools for collecting data, sampling techniques, adopting experimental design and employing statistical techniques for analysis of data for the present study. It was observed that studies on models of teaching were by and large based on experimental design. The most of the experiments have been carried out in actual class room settings and the quasi experimental design. The experiment Design selected to find the effectiveness of a Life skills education in real conditions on problem solving ability of the students. It was also observed that problem solving ability of the students could be enhanced by disciplined procedures like using modules of life skills education.

From the review it was found that there were very few studies conducted on Life Skills Education. Those which were available are rarely related with our study.

5.5 OBJECTIVES OF THE STUDY

The study has been undertaken keeping the following objectives in view.

1. To measure the attitude of students towards Mathematics

2. To assess Self Concept of the students.

3. To measure the PSA of secondary school students.
4. To adopt the Life skill programme to study the effectiveness of Life Skills Education on Attitude, Self Concept and problem Solving Ability of students of 9th standard.

5. To study the effectiveness of Life Skill Education on Attitude, Self Concept and problem Solving Ability of students of 9th standard.

6. To find the difference if any between the effect of Life Skills Education on 9th standard boys and girls, on their Attitude, Self Concept and problem Solving Ability.

5.6 VARIABLES OF THE STUDY

Variables considered in the study were classified into two types:

(1) Independent variables:

An independent variable is a factor which is measured manipulated observed and selected by the investigator for the purpose of determining its effects to an observed phenomena. The independent variables considered by the researcher in the present study are:

1. Life Skills Education Module.
2. Types of Institution.
3. Sex/Gender.

(2) Dependent variables:

A dependent variable is the one which is measured and observed by the researcher to determine the effect of independent variable on it. The dependent variables considered by the researcher in the present study are:
1. Attitude towards Mathematics.

2. Self Concept.


5.7 HYPOTHESES TESTED:

1. There is no significant difference between the mean scores of pretest of experimental and control groups in respect of the Attitude towards Mathematics among students of 9th standard.

2. There is no significant difference between the mean scores of pretest of experimental and control groups in respect of their Self Concept among students of 9th standard.

3. There is no significant difference between the mean scores of pretest of experimental and control groups in respect of their Problem solving ability in Mathematics among students of 9th standard.

4. There is no significant difference between the mean scores of post test of experimental and control groups in respect of their Attitude towards Mathematics among students of 9th standard.

5. There is no significant difference between the mean scores of post test of experimental and control groups in respect of their Self Concept among students of 9th standard.
6. There is no significant difference between the mean scores of post test of experimental and control groups in respect of their Problem solving ability in Mathematics among students of 9th standard.

7. There is no significant difference between the mean scores of post test and pre test of control group in respect of their Attitude towards Mathematics among students of 9th standard.

8. There is no significant difference between the mean scores of post test and pre test of control group in respect of their Self concept among students of 9th standard.

9. There is no significant difference between the mean scores of post test and pre test of control group in respect of their Problem solving ability in Mathematics among students of 9th standard.

10. There is no significant difference between the mean scores of post test and pre test of experimental group in respect of their Attitude towards Mathematics among students of 9th standard.

11. There is no significant difference between the mean scores of post test and pre test of experimental group in respect of their Self concept among students of 9th standard.

12. There is no significant difference between the mean scores of post test and pre test of experimental group in respect of their Problem solving ability in Mathematics among students of 9th standard.
13. There is no significant difference between mean scores of post test of experimental group boys and girls in respect of their Attitude towards Mathematics among students of 9th standard.

14. There is no significant difference between the mean scores of pre test and post test of experimental group boys and girls in respect of their Self concept among students of 9th standard.

15. There is no significant difference between the mean scores of pre test and post test of experimental group boys and girls in respect of their Problem solving ability in Mathematics among students of 9th standard.

5.8 DESIGN OF THE EXPERIMENT

Researcher prefers Randomized Pre test and post test design for his study. This design is one of the simplest, yet one of the most powerful of all experimental designs. It requires two groups of subjects and the subjects are assigned to the experimental and control groups by random methods and are given pre test on the dependent variables. The treatment is introduced only to the experimental subjects for a specified time, after which the two groups are measured on the dependent variable. The average differences between the pre test and post test is found for each group and then the average difference scores are compared in order to ascertain whether the experimental treatment produced a greater change than the control situation.
Although the control group does not receive the experimental treatment this means they are generally taught by the traditional or usual procedure.

**Test Design**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre test</th>
<th>Independent variable</th>
<th>Post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>Y</td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>Control</td>
<td>Y</td>
<td>-</td>
<td>Y</td>
</tr>
</tbody>
</table>

After administering the pre test for both groups the treatment was given to experimental groups by conducting 20 life skills activities in 20 days (duration of each session is about 45 minutes) once the treatment was given Post test was administered to both the groups.

**5.9 SAMPLING PROCEDURE**

The researcher used Stratified random sampling procedure to pick his samples from the population. An advantage of the stratified sampling is that the researcher can determine to what extent each stratum in the population is represented in the sample and it provides more representative sample than the simple random sampling.

The major advantage of stratified sampling is that it guarantees representation of defined groups in the population.
The present study sample consists of 150 students studying in 9th standard were drawn from the six schools of government, private aided and private unaided schools of Bangalore city.

To draw the above sample first researcher collected the list of secondary schools of Bangalore city from the office of Department of public instruction. In the first stage the universe of high schools was stratified on the basis of geographic sub divisions such as Bangalore north and Bangalore south.

Table showing the number of High schools in Bangalore city

<table>
<thead>
<tr>
<th>Districts</th>
<th>Government</th>
<th>Aided</th>
<th>Un aided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangalore North</td>
<td>49</td>
<td>124</td>
<td>392</td>
</tr>
<tr>
<td>Bangalore South</td>
<td>53</td>
<td>92</td>
<td>514</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>216</td>
<td>906</td>
</tr>
</tbody>
</table>

At the second stage, the two Government, Aided and Un Aided secondary schools have been drawn randomly by using the lots from both Bangalore North and south districts. Later the selected schools were assigned randomly for both experimental and control groups by using lots.

At the third stage, researcher selected 25 students from each institution randomly by using lots with the help of students list provided by the institutions.
The sample was considered to be fairly true representative of the population since it included both boys and girls studying in both government, aided and unaided schools. Hence it is understood that these students from secondary schools in the each group chosen for the study.

5.10 TOOLS USED FOR THE COLLECTION OF DATA

In order to collect the information on the variables considered in the study, the following tools were constructed, validated and used by the researcher.

They are

1) Attitude towards Mathematics (ATM) Scale developed by researcher.
2) Problem Solving Ability Tool (PSAT) developed by researcher.
3) Self-Concept Questionnaire (SCQ) developed by R.K.Saraswat was used.
4) Life Skills Education Module

5.11 STATISTICAL TECHNIQUES EMPLOYED

The researcher has used the following statistical techniques for the analysis of data.

1. The coefficient of correlation was used to establish reliability of Scores of Attitude towards Mathematics Scale and Problem solving ability tool.
2. Single classification analysis of variance (one way ANOVA) was used to test the hypotheses.
3. 2X3 factorial Analysis of Variance was also used to test the hypotheses.
4. t-test was used to know whether the experimental and control groups differ on the dependent variable initially i.e. before applying the treatment.

5.12 MAJOR FINDINGS OF THE STUDY:

The following are the major findings of the study:

1. There is no significant difference between mean scores of pre test of experimental and control groups in respect of the attitude towards Mathematics of secondary school students of 9th standard.

2. There is no significant difference between the mean scores of pre test of experimental and control groups in respect of the self concept of secondary school students of 9th standard.

3. There is no significant difference between the mean scores of pre test of experimental and control groups in respect of the Problem solving ability of secondary school students of 9th standard.

4. There is a significant difference between the Post test scores of experimental and control groups in respect of the attitude scores of secondary school students of 9th standard.

5. There is a significant difference between the Post test scores of experimental control groups in respect of the self concept scores of secondary school 9th standard students.

6. There is a significant difference between the Post test scores of experimental and control groups in respect of the Problem solving ability scores of secondary school 9th standard students.
7. There is no significant difference between the mean scores of Post test and pre test of control groups in respect of the attitude towards Mathematics of secondary school students of 9th standard.

8. There is no significant difference between the mean scores of Post test and pre test of control groups in respect of the self concept of secondary school students of 9th standard.

9. There is no significant difference between the mean scores of Post test and pre test of control group in respect of the PSA of secondary school students of 9th standard.

10. There is a significant difference between the mean scores of Post test and pre test scores of experimental group in respect of the attitude towards Mathematics of secondary school students of 9th standard.

11. There is a significant difference between the Post test and pre test scores of experimental group in respect of the Self concept scores of secondary school students of 9th standard.

12. There is a significant difference between the Post test and pre test scores of experimental group in respect of the problem solving ability scores of secondary school students of 9th standard.

13. There is significant difference between attitude scores of Government, Aided and Unaided secondary school students of 9th standard in the post test.

14. There is significant difference between attitude scores of Boys and Girls of secondary school students of 9th standard in the post test.
15. There is no significant interaction effect between attitude scores of Boys and Girls of Government, Aided and Unaided secondary school students of 9th standard in the post test.

16. There is significant difference between Self Concept scores of Government, Aided and Unaided secondary school students of 9th standard in the post test.

17. There is significant difference between Self Concept scores of Boys and Girls of secondary school students of 9th standard in the post test.

18. There is no significant interaction effect between Self Concept scores of Boys and Girls of Government, Aided and Unaided secondary school students of 9th standard in the post test.

19. There is significant difference between PSA scores of Government, Aided and Unaided secondary school students of 9th standard in the post test.

20. There is significant difference between PSA scores of Boys and Girls of secondary school students of 9th standard in the post test.

21. There is no significant interaction effect between PSA scores of Boys and Girls of Government, Aided and Unaided secondary school students of 9th standard in the post test.

22. There is significant difference between Attitude scores of Government, Aided and Unaided secondary school 9th standard students in the post test.
23. There is a significant difference between Attitude scores of Government and Private Aided secondary school students of 9th standard in the post test.

24. There is no significant difference between the mean scores of Self Concept of Government and Private Unaided secondary school students of 9th standard in the post test.

25. There is a significant difference between Attitude scores of Private Aided and Private Un Aided secondary school students of 9th standard in the post test.

26. There is no significant difference between mean scores of Self Concept of Government, Aided and Unaided secondary school students of 9th standard in the post test.

27. There is significant difference between PSA scores of Government, Aided and Unaided secondary school 9th standard students in the post test.

28. There is no significant difference between the mean scores of PSA of Government and Private Aided secondary school students of 9th standard in the post test.

29. There is a significant difference between PSA scores of Government and Private Un Aided secondary school students of 9th standard in the post test.

30. There is significant difference between PSA scores of Private Aided and Private Un Aided secondary school students of 9th standard in the post test.
5.13 CONCLUSIONS:

The following are the conclusions drawn based on the findings of the study:

• The Life Skills education has positive effect on the students Attitude, Self Concept and Problem Solving Ability in Mathematics of experimental group students.

• Students of Private Aided schools showed better attitude towards Mathematics compared to students of Government and Private Unaided schools.

• Students of Private Aided schools are having better Self Concept compared to students of Government and Private Unaided schools.

• Students of Private Aided schools are having better Problem Solving Ability in Mathematics compared to students of Government and Private Unaided schools.

• Boys are having better attitude towards Mathematics than Girls.

• Girls are having better Self Concept than Boys.

• Boys are having better Problem Solving Ability in Mathematics than Girls.

5.14 EDUCATIONAL IMPLICATIONS OF THE STUDY

Education is the process of human enlightenment and empowerment for the achievement of a better quality of life. To achieve these goals, positive
attitude towards Mathematics be developed among the students which in turn motivates the students to develop higher level of mathematical skills.

To make each individual as an active participant in the learning process one should possess the positive self concept, once when this is gained then they can overcome any hurdles while learning. Need of developing problem solving ability to such an extent that solutions come naturally to students, intuitionally rather than after a great deal of deliberation and analytic thinking.

So the need of the hour is to put the child in actual learning situation, so that a congenial environment can be created and also provide more opportunities to the learner by giving Life Skills Education. So the authorities should take Life Skills Education as compulsory period to access the interest and attitude of the student and to develop the positive self concept. Activities will create the virtual situation for the students to take part in decision making and problem solving and also to develop better communication skills.

Quality improvement of Mathematics education is the major need of our education system. So Life Skills Education plays a major role to achieve this. Life Skills Education approach is mainly used regarding issues related to health in order to protect our younger generation from the risky behaviors.

Life Skills Education provides ample opportunity for the students to participate in the learning process, so that the learning becomes more joyful.
In order to make this programme sustainable, an intensive training program must be developed for the teachers and maintained meaningfully. So that the teachers can develop these skills at ease in classroom situation and to make the learning process more joyful and rewarding.

The above can be done by

1) Reorienting Mathematics teachers for classroom teaching.

2) Adopting suitable instructional strategies.

3) Fostering aptitudes and attitudes of students for the subject to relate them to their classroom.

5.15 IMPORTANCE OF IMPLEMENTING LIFE SKILL EDUCATION:

Researcher felt there is an acute need of implementing the life skill education which are necessarily require for both students and teachers to enhance the learning abilities of children and also to make the classroom environment more learning friendly. Many approaches were tried in this regard to transfer the needed things through life skill education approach. UNICEF, WHO & NCERT tried to provide health education, HIV/AIDS education through life skill approaches. That was not reached to most of the corners of the education system. So, there is a need of implementing LSE either by curricular or co-curricular method is required.
In this context the following steps may be functional:

(i) School syllabi and textbooks of all the subjects have to be reviewed to identify the scope of integration of elements of life skill education and also the relevant entry points in each subject;

(ii) Needed materials for facilitating effective integration may have to be prepared;

(iii) Intensive orientation of curriculum framers, textbook writers, teacher educators and other concerned educational functionaries will make great contribution;

(iv) The life skill education contents may then be suitably incorporated in the syllabi and textbooks when they are revised; and

(v) These elements and the needed transactional methods may be integrated in the teacher education courses.

5.16 SUGGESTIONS FOR FURTHER RESEARCH

Based on the present study, the researcher felt the need for undertaking the following studies in the field:

1. A study to find the effectiveness of Life Skills Education on the overall achievement of students in academic areas and also in co curricular activities.

2. Similar study could be conducted with larger samples.

3. Similar study could be conducted on students of different classes.

4. Similar study could be conducted on students of PU classes.
5. A long term experimental study (at least one year academic duration) may be planned on the same lines of design, to study the effectiveness of Life Skills Education.

6. Comparative study could be conducted on students of CBSE, ICSE and State Syllabus Students.

7. The sample considered for the present study was only the urban. The experiment can be tried on rural sample too.

8. Studies may be conducted to investigate the duration of treatment needed for the development of problem solving ability in above average, average and below average students.

9. Similar studies could be undertaken to investigate the effectiveness of Life Skills Education on the achievement of other subjects like Science and Social Science.

10. A study to investigate the interaction effects of different Life Skills Education on dependent variables such as personality factors, achievement motivation, etc., could be undertaken.

