Chapter - VI

Summary and Findings
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SUMMARY AND FINDINGS

Children with learning disabilities are found in every classroom. Unless their problems are recognized and treated, these students are destined to become educational discards. The education for all and universalisation of elementary education will only be a dream which cannot be fulfilled. The condition of learning disabilities is perplexing because each individual has a unique combination of talents and characteristics. Children with Learning Disabilities are not blind yet may do not see as their peers do; they are not deaf, but many do not listen or hear normally; they are not retarded in cognitive development, but they learn in a different way. Many also exhibit behaviours that make them disturbing in the classroom and vexing at home, such children are the concern of this study. In this study the investigator has tried out seven techniques which will prove beneficial for the Children with Learning Disability. These techniques will help the Children with Learning Disability to organize information to make learning more effective along with kindling interest for learning.

6.1. STATEMENT OF THE PROBLEM

The Government of India has launched Sarva Shiksha Abhiyan for Universalization of Elementary Education. The programme aims at providing useful and relevant elementary education in the age group of 6-14 years by 2010. The 86th Constitutional Amendment, which has made free and compulsory education a right of all children from 6-14 years of age, has given further thrust to the goal of UEE. The objective of UEE cannot be achieved without including children with special needs under the ambit of elementary education.

One of the focus areas of SSA is to increase access, enrolment, retention of all children and to reduce school drop outs. The emphasis of SSA is also on providing quality education to all children. Rarely has it been considered that the special educational needs of these children could be met by providing adequate
resource support to them in regular schools and giving them an opportunity to receive education in the most appropriate environment. Hence, education of children with special needs is considered an important area in SSA. Children with Learning Disability come under the umbrella of the children with special needs (CWSN). The challenges that we face with respect to remediation and management of Children with Learning Disability are daunting. Our educational system with its overwhelming emphasis on knowing rather than learning, theory rather than application, is ill-suited for the child with LD. Many researchers have noted the need for instruction in specific strategies to help children who are both gifted and Children with Learning Disability to compensate for their disability in order to become more independent learners (Baum et al., 2001; Coleman, 2001; Dole, 2000; Ferri & Gregg, 1997; Fetzer, 2000; McEachern & Bornot, 2001; Robinson, 1999; Weinfeld et al., 2002).

There are number of Methods and Techniques to teach science concepts. Teachers make use of these in their instruction depending upon the nature of concepts, children and their level of understanding. The Children with Learning Disability have difficulty to comprehend the concept due to poor listening and reading skills. Children with Learning Disabilities (LDs) face enormous challenges learning to read. Many never reach a level of reading proficiency that allows them to build knowledge, acquire information, feed their interests, or enrich their lives. In some cases, their attempts to read result in such a degree of discouragement and frustration that reading subtract rather than add to their lives. For children with LDs, their early struggles in learning to read are a harbinger of dismal educational outcomes. Overall, children with learning disabilities leave elementary school with severely deficient reading and writing skills (deBettencourt, Zigmond, & Thornton, 1989; Deshler, Schumaker, Alley, Warner, & Clark, 1982) and leave secondary school with little or no improvement in these areas (Zigmond, 1990),
Comprehension is the immediate goal of reading. The most salient characteristic of these children is difficulty in acquiring efficient word-level reading skill. Accurate word reading is critical to reading comprehension because the meanings that readers construct from text come via the words. No words, no meaning. If individuals cannot read words accurately, their comprehension suffers. Children with this disability have trouble remembering things they have heard and find it difficult to express themselves verbally. Hence the teacher is hard pressed to use visuals and visualization for better understanding. This may influence Achievement in science.

As the District Institute of Education and Training (DIET) is a Government institute providing academic and resource support at the grass root level for the success of various programmes being undertaken in the area of Elementary Education. (DIET Guidelines 1989) and as the investigator happens to be the senior lecturer of Inservice branch (DIET Trichy) he has been motivated to take up the study titled: “EFFECTIVENESS OF THE SELECT TECHNIQUES IN ENHANCING THE ACHIEVEMENT IN SCIENCE AMONG THE CHILDREN WITH LEARNING DISABILITY”

6.2. DEFINITION OF THE KEY TERMS

The important terms in the study are Select Techniques, Achievement in Science, and Children with Learning Disability, definitions of which are given below:

a. Select Techniques:

In the Oxford advance learners dictionary the word select when used as an adjective (only before a noun) means carefully chosen as the best out of a larger group of people or things. In the present study select techniques mean the following techniques which the investigator considers to be beneficial in enhancing the achievement of the Children with Learning Disability in Science:

a. Visualization
b. Chunking
c. Webbing
d. Idea Map
e. Concept Map
f. Story Telling
g. Puppetry (finger Puppets)

b. Achievement in Science.
Achievement in Science refers to the achievement of the children in the IV std. Science text book prescribed by the Government of TamilNadu.

c. Children with Learning Disability.
Webster’s Dictionary (1979) states learning as ‘an acquired knowledge or skill, especially, much knowledge in a special subject; erudition’.

‘Learning Disability’ is the common usage in American and ‘Learning Difficulty’ is the normal usage in European culture. Both the terms refer to the difficulties in learning. In Indian context, Learning Disabilities and Learning difficulties are synonymously used to express the difficulties that may arise due to significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities.

Krick (1963), who coined the term ‘Learning Disabilities’, defines Learning disability as retardation, disorder or delayed development in one or more of the processes of speech, language reading, writing, arithmetic or other schools subjects resulting from psychological handicap caused by a possible cerebral dysfunction and / or emotional or behavioural disturbances. It is not the result of mental retardation, sensory deprivation or cultural and instruction factors.

The National joint Committee for Learning Disabilities (1981) defines ‘Learning Disabilities as a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central
nervous system dysfunction. Even though a Learning Disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient / inappropriate instruction, psychogenic factors), it is not the direct result of those conditions or influences (Hammill, Leigh, McNutt & Larson, 1981, p336).

These definitions of Learning Disabilities explain that Learning Disability is a disorder in the processes of speech, language, reading, writing, spelling, arithmetic and other school subjects. This disability is a result of Psychological, Neurological, Emotional, Behavioural and Cultural Abnormalities of children.

In the present study the term Learning Disabilities refers to the difficulties experienced by the children in one or more of the basic psychological processes involved in understanding or to read, write and spell or to do mathematical calculations. The present study is concerned it concentrates on the primary school children studying in IV standard with learning disability.

6.3. VARIABLES UNDER THE STUDY

The dependent variable of the study is "Teaching of Science to the Children with Learning Disability" and the independent variable is “Application of Select Techniques” in teaching selected units in IV std. science to the Children with Learning Disability.

6.4. SIGNIFICANCE OF THE STUDY

This study may direct teachers in organizing classroom activities, giving opportunity to make the children learn not by rote but doing and experiencing which leads to better understanding. This techniques may Give opportunity to the Children with Learning Disability to learn at their own pace and according to their own style of learning. It also gives opportunities to experiment discover create and construct their own knowledge, which will develop a more sustained interest...
in learning and strengthen their learning. This in turn will enhance their academic achievement.

Each child has his own distinct potentials and limitations; the final extent of realization of his possibilities depends on the richness of the child's environment. The variety and scope of a child's achievement depend upon both the quality and kind of his experience. The training provided by the investigator will enable the teacher to guide the children through a variety of selected experience towards the attainment of the minimum level of competencies set by the National Policy on Education (NPE) thus promoting learner development. This will provide equal opportunities for all the children in every educational setting. The study will be helpful in fulfilling the dream of achieving Universalisation of Elementary Education (UEE), at the same time realizing the goals of Sarva Shiksha Abhiyan (SSA) combining quality with equality, which is the top concern of the Indian educationists today. The study will be a valuable contribution to District Institute of Education and Training (DIET) in improving the quality of Teacher training especially for its in-service branch in providing scope for empowering Elementary teachers, to reduce dropout and stagnation and thereby achieving the target of SSA. It will also give an exposure to the primary teachers about the current Inclusive Education for Disabled (IED) approach emphasized in National Policy on Education (NPE).

6.5. OBJECTIVES OF THE STUDY

The study has been specifically directed towards examining the following objectives:

1. To identify the Children with Learning Disability.
2. To construct and validate Achievement test in Science for forth standard Children with Learning Disability.
3. To select the techniques beneficial in enhancing the achievement of the Children with Learning Disability in Science.
4. To design a training programme in select techniques.
5. To find the effectiveness of the select techniques in enhancing the academic achievement in science of the Children with Learning Disability.

6. To find out the significant difference in achievement if any between the Control and the Experimental Groups.

7. To compare the effectiveness of the select techniques in the achievement in Science among Experimental and Control Groups with respect to the learning objectives (such as Knowledge, Understanding, Application and Skill) Sex, Educational Qualification of the Teacher, Experience of the Teacher, Parental Income, Parental Education, Parental Profession, Type of Management and Type of School.

6.6. DESIGN OF THE STUDY:

Research design is the blue print of the procedure that enables the investigator to test the hypothesis for reaching valid conclusion about relationships between independent and dependent variables. Selection of a particular design is based on the purpose of the study the types of the variables to be studied and the controlled variables under which experiment is to be conducted.

The present research was an Experimental Research. The design of the experiment was pre-post tests equivalent groups design. (Best and Kahn 1995). The independent variable was teaching of Science through Selected Techniques to the Children with Learning Disability of IV standard children. The dependent variable was the achievement in Science. The Children with Learning Disability were screened with the help of the SSA check list for identification of Children with Learning Disability. If the answer to any of the 3-5 statements is positive, then the child was carefully assessed with the help of Holy cross rating scale for assessing the Children with Learning Disability. With the help of their academic achievement in science in the quarterly examination the sample was selected and divided into control and Experimental Group. The sample selected for the Control and Experimental Groups was 42 children and 35 children from four
schools each. The control group consists of 42 Children with Learning Disability from IV standard of PUMS Edamalaipattipudur, PUMS Panjappur, Kalaimagal Elementary School, Edamalaipatti and PUMS Panjappur of Trichy District. The Experimental Group consists of 35 Children with Learning Disability of IV std from PUES Olaiyur, PUMS KK Nagar, Social Aided Elementary School, Trichy and Periyar Elementary school, Sundar Nagar. The duration of the experiment was one month that was January 2007. The teachers of the Experimental Group were given three days training in the awareness on Learning disability, Characteristics of the Children with Learning Disability and the techniques selected by the investigator to enhance the achievement in the subject of Science among the Children with Learning Disability. The teachers of the Experimental Group used the Selected Techniques in their regular classes and also in remedial teaching after the training. The researcher visited the schools randomly to ensure, the use of the select techniques and clarified the doubts of the teachers in using the select techniques. After collecting the data analysis was made using T test.

The Experimental Research is a Pre test Post test Equivalent groups Design. The Independent Variables are Teaching of Science, Training the teachers and Use of Select Techniques the Dependent variable is Achievement. The tools used in this experiment are the (i) Achievement Test in Science (ATS) for measuring the Achievement of the sample groups, which is constructed and validated by the investigator, (ii) SSA Checklist for Screening the Children with Learning Disabilities and (iii) Holy Cross Service Society Rating Scale Assessment Tool for assessing Children with Learning Disability. Thirty five Children with Learning Disability were selected form the PUES Olaiyur, PUMS KK Nagar, Periyar Elementary School Sundarnagar and Social Aided Elementary School Trichy for the Experimental Group. The Control Group consists of forty two Children with Learning Disability from PUMS Panjappur, PUMS Edamalai patti Pudur, Kalimagal Elementary School Edamalaipatti and Infant Jesus Elementary School Kajamalai colony. The time taken for the experiment was
one month Mean, Correlation, and ‘t’ test for independent variables and test were used as Satostoca; Techniques.

Table 6.1
The Schematic Presentation of Experimental Research

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type</th>
<th>Source</th>
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<tbody>
<tr>
<td>1</td>
<td>Nature of experiment</td>
<td>Pre test Post test Equivalent groups Design.</td>
</tr>
<tr>
<td>2</td>
<td>Variables</td>
<td>I Independent Variable Teaching of Science Training Use of select techniques</td>
</tr>
<tr>
<td>3</td>
<td>Tool used</td>
<td>Achievement Test in Science (ATS) for measuring the Achievement of the sample groups (constructed and validated by the investigator)</td>
</tr>
<tr>
<td></td>
<td>A standardized tools:</td>
<td>SSA Checklist for Screening the Children with Learning Disabilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Holy Cross Service Society Rating Scale Assessment Tool for assessing Children with Learning Disability</td>
</tr>
<tr>
<td>4</td>
<td>Sample Selected for the experiment</td>
<td>35 Children with Learning Disability were selected form the following schools:</td>
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<tr>
<td></td>
<td></td>
<td>1. PUES Olaiyur</td>
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<td>2. PUMS KK Nagar</td>
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<td></td>
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<td>3. Periyar Elementary school, Sundarnagar</td>
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<td>4. Social Aided Elementary School, Trichy 8</td>
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<td></td>
<td>Sample Selected for</td>
<td>42 Children with Learning Disability form the following schools:</td>
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<tr>
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<td>the experiment</td>
<td>1. PUMS Panjappur</td>
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<td>2. PUMS Edamalaipatti Pudur</td>
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<td></td>
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<td>3. Kalimagal Elementary school, Edamalaipatti</td>
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<td></td>
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<td>4. Infant Jesus Elementary school, Kajamalai Colony.</td>
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<tr>
<td>5</td>
<td>Duration of experiment</td>
<td>One month</td>
</tr>
<tr>
<td>6</td>
<td>Statistical Techniques</td>
<td>Mean, Correlation, ‘t’ test for independent variables</td>
</tr>
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</table>
6.7. TOOLS USED IN THE STUDY

Achievement test in science was the tool used for measuring the achievement of the sample groups constructed and validated by the investigator and standardized tools were also used in the present study to identify the Children with Learning Disability. Since there was no suitable test readily available the investigator had to develop an achievement test in science to measure the dependent variable taken up for the study. The units in science include katru vanga povoma (sea breeze and land breeze) and vindaiyandirangal (various systems of the human body). The standardized tools used were (1) SSA checklist for screening and identifying children with learning disabilities (2) Holy cross service society rating scale for assessing Children with Learning Disability

6.7.1. Achievement Test in Science (ATS)

To measure the Achievement of the Children with Learning Disability in Science the investigator constructed a test which consisted of four cognition levels namely, Knowledge, Comprehension, Application and skill. (Bloom 1956).

6.7.2. Check List for Screening Children with Learning Disability

The checklist for identification of children with learning disabilities used by SSA consists of nine items. The first two items deal with attention of the children. The third and fourth items are connected with reading the fifth and sixth are about numbers and calculation. The seventh and Eighth are about copying the text and spacing in writing and ninth is about comprehension level of the child. If the answer for three statements in the checklist is positive it is assumed that the child may have Learning Disability. This tool was used by the investigator and the teacher to screen the children for primary assessment of the children. If the child gets yes for three items then he is assessed for learning disability using Holy cross service society rating scale assessment tool for assessing Children with Learning Disability
6.7.3. Holy Cross Service Society Rating Scale

Holy cross service society rating scale assessment tool for assessing Children with Learning Disability consists of 35 point rating scale to help teachers identify children with learning disabilities in their class. Teachers rate the 35 points on a 3-point scale (with 0 for never, 1 for occasionally and 2 for frequently). The highest possible score is 70 (35X2). The score of the children identified as having learning disabilities was 36. Teacher’s judgments of children characteristics are useful for identifying children with learning disabilities, and rating scale help in this process.

The Holy cross service society rating scale assessment tool for assessing Children with Learning Disability tool consists of 35 items. The first nine items deal with attention, memory and sequencing ability. Item number 1 and 2 deal with attention problems. Item number 3, 4, 5 and 6 deal with memory while item number 7, 8, and 9 concentrate on sequencing ability. Item number 10 refers to verbal and non verbal comprehension and Item number 11 refers to spatial ability and the ability to follow direction.

Items 12 to 23 deal with the problems of writing. Item 12 refers to the interest in writing, item 13, 14, 15 and 16 refer to coping from blackboard changing the shape of the letters, replacing the letters of the same word and replacing the letters in the words respectively. Item numbers 17 and 18 deal with inversion of letters, item number 18 deals with changing word order.

Item 19 to 25 deal with the way of writing. Item number 19 refers to the inability to write the letters on the line and 20 refers to the grip of the pencil or pen. Item number 21 and 23 deal with illegibility and 22 deal with the shape of the letters and 23 with overwriting while 24 deals with the space between the words respectively. Item number 25 refers to spelling errors occurring while taking notes.
Item number 26 to 30 refers to the attitude towards reading. Item number 26 refers to the attitude towards reading. Item number 27 refers to omission and repeating. Item number 28 and 29 refers to the words to words reading and guessing from the first letter. 31 and 32 deals with home work and answering the questions respectively. 33 to 35 deals with the arithmetic 33 deals solving the problem from left to right instead of right to left 34 deals with using his fingers for counting and 35 deals with the subtraction.

6.8. STATISTICAL TECHNIQUES USED

Different statistical techniques were used in the study for validating the ATS and analyzing the data. The summary of the various statistical techniques used in this study is briefed as follows: (i) descriptive analysis – mean, percentage and standard deviation. (ii) relation analysis – Pearson product-moment coefficient or correlation to find out the relation between the two groups and (iii) inferential analysis – ‘t’-test, to analyze the differential hypothesis in relation to two different.

6.9 FINDINGS OF THE STUDY

Below are the findings of the present study:

1) The two sample groups (Control and Experimental) did not show any significant difference in their achievement before treatment.

2) The two sample groups did not show any significant difference in their achievement before the treatment with regard to the learning objectives namely Knowledge, Comprehension, Application and Skill.

3) The two sample groups did not show any significant difference in the Pre test irrespective of the Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parent's Education, Parents' Profession, Parents' Income, Type of Management and Type of Schools.
4) The Experimental group which received the treatment with the Select Techniques scored significantly higher in their Post test than the Control group.

5) The Experimental group achieved significantly higher score in the Post test with regard to the Learning Objectives Viz Knowledge, Comprehension, Application and Skill than the Control group.

6) The Experimental Group scored significantly higher in the Post test irrespective of their Sex, Educational Qualification of the Teachers, Experience of the Teachers, Parent's Education, Parents' Profession, Parents' Income, Type of Management and Type of School.

7) The Control Group which received the conventional method of teaching scored significantly higher in the Post test than the Pre test.

8) The Control group achieved significantly higher in the Post test than the Pre test with regard to the learning objectives Viz Knowledge, Comprehension, Application and Skill.

9) The Control group showed significantly higher score in the Post test than the Pre test irrespective of their Sex, Educational Qualification of the Teachers, Experience of the Teachers, Parent's Education, Parents' Profession, Parents' Income, Type of Management and Type of Schools.

10) The Experimental group which received the treatment with the Select Techniques scored significantly higher in the Post test than the Pre test.

11) The Experimental group achieved significantly higher in the Post test than the Pre test with regard to the learning objectives Viz Knowledge, Comprehension, Application and Skill.
12) The Experimental group showed significantly higher score in the Post test than the Pre test irrespective of their Sex, Educational Qualification of the Teacher, Experience of the Teacher, Parent's Education, Parents' Profession, Parents' Income Type of Management and Type of Schools.

13) The Experimental Group showed significantly higher gain score in the achievement than the Control group.

14) The Experimental group showed significantly higher gain score than the Control Group with regard to the Learning Objectives - Knowledge, Comprehension, Application and Skill.

15) The gain in the total scores of boys of Experimental Group is significantly greater than the Control group.

16) The gain scores of the boys in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application. In the Skill the gain score of the boys of the Experimental group is not significantly greater than the Boys of the Control group.

17) The gain in the total scores of Girls of Experimental Group is significantly greater than the Control group.

18) The gain scores of Girls in the Experimental group are significantly higher than the Control group in the Learning Objectives - Knowledge, Comprehension, Application and Skill.

19) The gain in the total scores of Students of Experimental Group taught by the teachers who possess the minimum qualification (Higher Secondary and Diploma in teacher Education) is significantly greater than the Control group.
20) The gain scores of the students in the Experimental group taught by the teachers who possess the minimum qualification (Higher Secondary and Diploma in teacher Education) are significantly higher than the Control group in the Knowledge, Comprehension and Application. In the Skill the gain score of the students of the Experimental group is not significantly greater than the students of the Control group taught by the teachers who possess the minimum qualification (Higher Secondary and Diploma in teacher Education).

21) The gain in the total scores of Students of Experimental Group is significantly greater than the Control group taught by the teachers possessing higher qualification.

22) The gain scores of the students in the Experimental group are significantly higher than the Control group in the Knowledge, Comprehension and Application taught by the teachers possessing higher qualification. In the Skill the gain score of the students of the Experimental group is not significantly greater than the students of the Control group taught by the teachers possessing higher qualification.

23) The gain in the total scores of Students of Experimental Group is significantly greater than the Control group taught by the teachers possessing less than 10 years of service.

24) The gain scores of Students in the Experimental group is significantly higher than the Control group in the Learning Objectives - Knowledge, Comprehension, Application and Skill taught by the teachers possessing less than 10 years of service.

25) The gain in the total scores of Students of Experimental Group is significantly greater than the Control group whose teachers possess more than ten years of experience.
26) The gain scores of Students in the Experimental group is significantly higher than the Control group in the Learning Objectives - Knowledge, Comprehension, Application and Skill whose teachers possess more than ten years of experience.

27) The gain in the total scores of Experimental Group is significantly greater than the Control group whose Parent's Education is up to primary school.

28) The gain scores of the students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application whose Parent's Education is up to primary. In the Skill the gain score students of the Experimental group is not significantly greater than the students of the Control group whose Parent's Education is up to primary.

29) The gain in the total scores of Experimental Group is significantly greater than the Control group whose parents have more than primary education.

30) The gain scores of the Students in the Experimental group is significantly higher than the Control group whose Parent's Education is more than primary in the Learning Objectives - Knowledge, Comprehension, Application and Skill.

31) The gain scores of Experimental Group are significantly greater than the Control group whose parents are employed.

32) The gain scores of the students in the Experimental group are significantly higher than the Control group in the Knowledge, Comprehension and Application whose parents are employed. In the Skill the gain score of students of the Experimental group is not significantly greater than the students of the Control group whose parents are employed.
33) The gain in the total scores of Experimental Group is significantly greater than the Control group whose parents are self-employed.

34) The gain scores of the Students in the Experimental group is significantly higher than the Control group whose Parent's Education is more than primary in the Learning Objectives - Knowledge, Comprehension, Application and Skill.

35) The gain in the total scores of Experimental Group is significantly greater than the Control group whose Parents' Income in less than Rs.12,000/- per annum.

36) The gain scores of the students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application whose parents are employed. In the Skill the gain score students of the Experimental group is not significantly greater than the students of the Control group whose Parents' Income in less than Rs.12,000/- per annum.

37) The gain in the total scores of Experimental Group is significantly greater than the Control group whose Parents' Income is more than Rs.12,000/- per annum.

38) The gain scores of the students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application whose Parents' Income in more than Rs. 12,000/- per annum. In the Skill the gain score of the students in the Experimental group is not significantly greater than the students of the Control group whose Parents' Income in more than Rs. 12,000/- per annum.

39) The gain in the total scores of Panchayat Union school students of Experimental Group is significantly greater than the Control group.
40) The gain scores of the Panchayat Union School students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension, Application and Skill.

41) The gain in the total scores of Aided school students of Experimental Group is significantly greater than the Control group.

42) The gain scores of the Aided School students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application. In the Skill the gain score of the Aided students in the Experimental group is not significantly greater than the students of the Control group.

43) The gain in the total scores of primary school students of Experimental Group is significantly greater than the Control group.

44) The gain scores of the Primary School students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application. In the Skill the gain score of the Primary school students in the Experimental group is not significantly greater than the students of the Control group.

45) The gain in the total scores of primary school students of Experimental Group is significantly greater than the Control group.

46) The gain scores of the Primary School students in the Experimental group is significantly higher than the Control group in the Knowledge, Comprehension and Application. In the Skill the gain score of the Primary school students in the Experimental group is not significantly greater than the students of the Control group.

47) There is significant correlation between the Pretest and Post test scores of the Control group students in their achievement.
48) There is significant correlation between the Pre test and Post test scores in achievement of the Control group students with regard to the learning objectives- Knowledge, Comprehension, Application and Skill.

49) There is significant correlation between the Pre test and Post test scores in achievement of the Control group students irrespective of Sex, Educational Qualification of the Teachers, Experience of the Teachers, Parent’s Education, Parents’ Profession, Parents’ Income, Type of Management and Type of School.

50) There is no significant correlation between the Pre test and Post test scores in achievement of the Experimental group.

51) There is significant correlation between the Pre test and the Post test scores in achievement of the Experimental group students with respect to the Learning Objectives Comprehension and Skill, but not in Knowledge and Application.

52) There is significant correlation between the Pre test and Post test scores in achievement of the Experimental group students with respect to their Educational Qualification of the Teachers, Whose Parent’s education is up to primary education, whose parents are employed, Whose Parents’ Income is below Rs.12,000/- Per annum, students studying in Aided schools and who are studying in Primary schools. But there is no significant correlation between the Pre test and Post test scores in achievement of the Experimental group students of both the Sex, Whose Parent’s Education is above primary education, whose parents are self employed, whose Parents’ Income in above Rs.12,000/- per annum and who are studying in the Panchayat Union Schools, and studying in Middle schools and irrespective of the Experience of the Teacher.
6.10. DISCUSSION AND CONCLUSION

Pre test was conducted for both the Control and Experimental Groups and no significant difference was found between them in the achievement of the learning objectives like Knowledge, Comprehension, Application and Skill irrespective of their of the Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parents’ Education, Parents’ Profession, Parents’ Income, Type of Management and Type of Schools.

Then the Control group was given conventional method of teaching and the Experimental Group was given the treatment of using the Select Techniques. After the treatment, Post test was conducted for both the Control and the Experimental Groups. It was found that Post test score of the Control group was significantly higher than the pretest score with regard to the learning objectives – Knowledge, Comprehension, Application and Skill. Similarly for the Experimental group also, Post test score was significantly higher than the Pre test score with regard to the learning objectives - Knowledge, Comprehension, Application and Skill irrespective of their of the Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parent’s Education, Parents’ Profession, Parents’ Income, Type of Management and Type of Schools.

However, the Experimental group scored significantly higher than the Control group in the Post test. As for the Learning objectives - Knowledge, Comprehension, Application and Skill the Experimental group achieved significantly higher than the Control group in the Post test irrespective of their Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parent’s Education, Parents’ Profession, Parents’ Income, Type of Management and Type of Schools.

The total Gain score of the Experimental group was also found significantly higher than that of the Control group, irrespective of their Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers,
Gain score of the Experimental group was also found significantly higher than that of the Control group with reference to the learning objectives - Knowledge, Comprehension and Application, irrespective of their Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parent's Education, Parents' Profession, Parents' Income, Type of Management and Type of Schools. In the Skill the Gain score of the Experimental group was also found significantly higher than that of the Control group Girls, and among the children whose Parent's Education is higher than primary level, along with the children whose parents are self employed irrespective of their teachers' experience. But in the Skill the Gain score of the Experimental group was found not significantly higher than that of the Control group among the children whose Parent's Education is only upto primary level, and the children whose parents are Employed, along with the children studying in Aided schools, and the children of the Primary Schools, irrespective of the teachers Educational Qualification and Parents' Income.

There is significant correlation between the Pre test and Post test of the Control Group, They also show significant correlation in terms of the Learning Objectives – Knowledge, Comprehension, Application and Skills irrespective of their Sex, Educational Qualification of the Teacher, Experience of the Teachers, Parent's Education, Parents' Profession, Parents' Income, Type of Management and Type of School.

There is no significant correlation between the Pre test and Post test scores in achievement of the Experimental group in the total scores. There is significant correlation between the Pre test and the Post test scores in achievement of the Experimental group students with respect to the Learning Objectives Comprehension and Skill, but not in Knowledge and Application.
There is significant correlation between the Pre test and Post test scores in achievement of the Experimental group students with respect to the Educational Qualification of the Teachers, whose Parent’s Education is up to Primary Education, whose Parents are Employed, whose Parents' Income is below Rs.12,000/- Per annum, students studying in Aided Schools and who are studying in Primary Schools. But there is no significant correlation between the Pre test and Post test scores in Achievement of the Experimental Group students of both the Sex, whose Parent's Education is above Primary Education, whose parents are Self Employed, whose Parents' Income is above Rs.12,000/- per annum and who are studying in the Panchayat Union Schools, and studying in Middle Schools and irrespective of the Experience of the Teacher.


On the basis of the findings of the present study, a brief discussion and the conclusion are presented below.

There were no significant variations on Pre test achievement between the two sample groups, in the learning objectives such as Knowledge, Comprehension, Application and Skill irrespective of their Sex, Educational Qualification of the Teacher, Years of Experience of the Teachers, Parent’s Education, Parents’ Profession, Parents’ Income, Type of Management and Type of Schools. It indicated that both the Control and the Experimental groups were
equivalent; hence the investigator could find the actual effectiveness of the Select Techniques.

Post test scores of both the sample groups were found to be significantly higher than the Pre test scores, irrespective of their sex, Educational qualification of the teachers, Experience of the teachers, Parent's Education, Parents' Profession, Parents' Income, Type of management of the school and type of School. It shows that the treatment with Select Techniques enhanced the Knowledge, Comprehension, Application and Skill in Science of the IV standard (grade) Children with Learning Disability.


It is observed that achievement gain score of the Experimental Group was significantly higher than that of the Control Group with reference to the Learning Objectives – Knowledge, Comprehension, Application and Skill irrespective of the experience of the teacher, among Girls, Children with Learning Disability whose Parent's Educational qualification is upto primary, whose parents are self employed, and among the Children with Learning Disability studying in...
Panchayat Union Primary schools. Achievement gain score of the Experimental Group was significantly higher than that of the Control Group with reference to the Learning Objectives – Knowledge, Comprehension, Application irrespective of their Parent’s Income, Teachers Qualification and type of the school whether it is primary of Middle and also among the Boys, children whose Parent’s Education in higher than primary, whose patents are employed, and who are study in Aided Schools. No significant difference was observed among the above children in Skill this may be due to the shortage of time and Children with Learning disability need prolonged regular and repeated practice for the improvement of Skill.

Children with Learning Disability are the most vulnerable group. The potential of Children with Learning Disability is hidden; the teachers should make an effort to uncover it. According to the United Nations convention on child rights, the child has the right to full development. Though Tamil Nadu held the second place in school enrolment according to the Annual Status Educational Report, it lagged behind Bihar in educational achievement. In Tamil Nadu, 53 per cent of the children could not read and write. Fifty seven per cent of them could not do basic mathematics, according to the report. (The Hindu, Sep 20, 2007). “Teachers have the ability to convert an ordinary Child into an extra ordinary individual,” by teaching the Children with Learning Disability with innovative methods and techniques they can convert these children into good learners. The teachers should identify and mould the future of their students. They should create an empathetic environment in the classroom. The field of learning disability is largely neglected. Even the teacher training programmes do not include any material on specific learning disorders. There is an absolute need for sensitisation of teachers on the problems faced by certain children in the learning process and there is an acquit need for the teachers to be trained in the methods and technology to handle the Children with Learning Disability and help them to become good learners (S.Karmegam, Chief Education Officer, The Hindu 20 September 2007). The study is an attempt in this direction. As it was attempted in

Elementary school science instruction in inclusive classroom must reflect the Application and implementation of educational research. Elementary school science programs are improved when—teachers keep abreast of appropriate science education research and innovative practices to suite the needs of the children in the inclusive educational set up which comprises 10% of Children with Learning Disability.

Teachers in inclusive classrooms regularly face the difficult task of having to modify the curriculum to reach all of their children, many of whom have special needs. Children with disabilities, whether physical, emotional, or cognitive in nature, respond to the curriculum differently from other children. For example, depending on the disability itself and other factors affecting their ability to succeed academically, children may need modifications such as advance and graphic organizers, instructional scaffolding, additional practice and time to complete assignments, and/or alternative media (e.g., large-print materials, audiotapes, or electronic materials). Without specific modifications, the standard curricular materials can be inadequate for these children, and too frequently they can find themselves blocked from access to essential aspects of the curriculum. Teachers must adjust the materials or their presentation to break down the barriers and assist these children in learning.
Although the teachers use methods and techniques while teaching, a survey conducted by the national center for the education statistics found only 20% of the current public school teachers feel comfortable using technology (Rosenthal 1999) and they are not aware of the larger implications of using innovative methods (Reichman 1996) in their classrooms. When it comes to Children with Learning Disability the teachers are totally in darkness. Teacher preparation and professional development must provide experiences that will enable teachers to use hands-on activities to promote Skill development, selecting content methods appropriate for their students, and for design of classroom environments that promote positive attitudes toward science and technology. Continuous inservice programs based on current educational researches that encompass content, Skills, techniques, and useful materials must be made mandatory.

According to National Policy on Education (1986) Learning Science develops certain desirable values like sprit of inquiry, Creativity, objectivity, openness towards new ideas etc.. According to Kalra (1994) learning science leads to new ways of thinking internationalizing such values and stimulating the thought process. Elementary school students especially Children with Learning Disability value science best when a variety of presentation modes are used to accommodate their learning styles and the visual presentation helps the Children with Learning Disability to learn better.

This can be achieved if the teacher adopts appropriate methods for teaching. The teacher has to perform pivotal role in fulfilling the actual objectives of teaching science. So the teacher has to be equipped with necessary techniques to guide the Children with Learning Disability tactfully. A variety of techniques involving visual presentation arouses interest and makes abstractions concrete. In this way it may be concluded that the Select Techniques aim to provide sufficient Knowledge and Skills to an individual (teacher or learner) use of relevant techniques helpful in providing experiences through one’s senses of sight and hearing.
The Control group who received the treatment in the conventional method on teaching showed higher achievement in the post test scores than the pre test scores. Similarly the Experimental group who received the treatment with Select Techniques also showed higher achievement in the post test scores than the pre test scores. This shows that both groups were benefited irrespective of the treatment given to them. The reason might be due to the fact that the teachers were very cautious that they are being watched and also aware that the test scores are accountable. This may also be due to the interest and involvement of the teachers, and their attempts to keep up the interest and the attention of Children with Learning Disability in the class. The Experimental group which received the treatment with Select Techniques showed higher achievement in the post test scores than the Control group. This clearly proves that the influence of using Select Techniques in disseminating the instruction has increased the achievement of the Children with Learning Disability.

6.11. EDUCATIONAL IMPLICATIONS

This study may direct the teachers in organizing classroom activities, giving opportunity to make the children learn not by rote but doing and experiencing which leads to better understanding. These techniques may give opportunity to the Children with Learning Disability to learn at their own pace and according to their own style of learning. It may also give opportunities to experiment discover create and construct their own knowledge, which will develop a more sustained interest in learning and strengthen their learning. This in turn will enhance their academic achievement.

Each child has his own distinct potentials and limitations; the final extent of realization of his possibilities depends on the richness of the child's environment. The variety and scope of a child’s achievement depend upon both the quality and kind of his experience. The training provided by the investigator will enable the teacher to guide the children through a variety of selected experience towards the attainment of the minimum level of competencies set by the National Policy
on Education (NPE) thus promoting learner development. This will provide equal opportunities for all the children. Not everyone is fortunate to study in affluent schools. And the best schools in India do not always produce the best of students”.

The study will be helpful in fulfilling the dream of achieving Universalisation of Elementary Education (UEE), at the same time realizing the goals of Sarva Shiksha Abhiyan (SSA) quality in equality, which is the top concern of the Indian educationists today. The study will be a valuable contribution to District Institute of Education and Training (DIET) in improving the quality of Teacher training especially for its in-service branch in providing scope for empowering Elementary teachers, to reduce dropout and stagnation and thereby achieving the target of S.S.A. It will also give an exposure to the primary teachers about the current Inclusive Education for Disabled (IED) approach emphasized in National Policy on Education (NPE).

6.12. SUGGESTION FOR FURTHER RESEARCH

Since the present study was limited only to a small group of Children with Learning Disability students, an effective study on large group of Children with Learning Disability will be an immense help to the learning disabled.

1. Further researches may be taken up on the line of this study by changing the sample and subject.
2. A study can be undertaken to improve on other abilities of the Children with Learning Disability such as writing, computing maths etc.
3. A similar research may be carried by selecting some other techniques.
4. An analytic study on intervention strategies will be of much useful for the teachers who handle the Children with Learning Disability.
5. A correlation study can be undertaken to assess whether there is any relationship between Science learning and other subjects.