Chapter-V

SUMMARY and CONCLUSION
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5.1 Introduction

The term learning disability was used to describe children who have average or above average intelligence but have problem in one or several academic areas. Due to lack of clear definition of the term, many a times children with minimum learning problems are been labelled as learning disabled. The disorder manifests itself in difference between their ability and academic achievement.

U.S. Department of Education (2010) twenty ninth annual report to Congress cited that one-third of children who receive special education have learning disability. In India it is estimated that twenty million of children have specific learning disability. These children are often remain unrecognized until they enter for their formal education as they are not physically handicapped or mentally retarded or emotionally disturbed, but their difficulty in maintaining normal progress in schools alarms teachers and parents.

However good the classroom teaching, these are always two or three children who have learning problems. Reading, writing and arithmetic are common academic areas where learning disabled children face difficulty. Pothos and Kirk (2004) ; Spafford, Grosser and Dautrich (2005) studies revealed ‘the most common area for children with a learning disability is reading, especially phonologically skills, which involve being able to understand how sounds and match-up to make words’. Reading skills include two main aspects – word-recognition and comprehension. Failure in the skills affects the either areas of school learning. National Institute of Neurological Disorders and stroke views that children with reading disorder have difficulty with spelling, phonological processing and rapid visual verbal responding. Reading disorder affects the writing skills. Due to inability to match-up letters and sounds affects learning disabled children by hampering their writing skills; where their handwriting becomes very slow with numerous spelling errors and illegible handwriting. Writing is a complex activity, and learning disabled children are often have great difficulty in mastering it. Arithmetic is another academic skill where
learning disabled children have difficulty (Micallef and Prior, 2004). While solving problems learning disabled children with disability in mathematics make an abundance of computational error by using insufficient or wrong strategies.

These disorders hampers the child, by increasing poor academic performance, and drop-out level. Patton, Smith and Buck (1977) study reveals that communication and emotional behavioural disorders occurs with learning disability.

Learning disability can be life-long if not its cured. Even modest improvement in learning disabled children is regarded as challenging task which requires intensive intervention. (Santrock, 2006). Studies have revealed that early intervention through special education helps in remediating and developing the academic skills. Lyon et al (2001) study press ‘a key to more effective responses to learning difficulties in general education and lowered LD prevalence will be policies that do not simply change, the criteria for identifying LD, but that truly improve the capacity of teachers and schools to implement sound early intervention with the necessary fidelity.

Early intervention with simple strategies can help the teacher to improve learning disabled children from going drop-out and helps in developing academic achievement. The investigator conducted the study to measure the effectiveness of strategies used for developing academic skills of learning disabled children. Hence the problem was framed as follows ‘Effect of special strategies of teaching on Reading, Writing and Arithmetic skills on Learning Disabled Children of Class-III’.

5.2 Objectives :

The study was designed with the purpose to attain the following objectives:

1. To identify learning disable children in class -III level.
2. To identify specific learning difficulties among learning disable children.
3. To develop reading skills of learning disable children through the strategies.
4. To develop writing skills of learning disable children through the strategies.
5. To develop arithmetic skills of learning disable children through the strategies.
6. To measure effect of these special strategies on reading, writing and arithmetic skills of learning disable children.

5.3 Hypothesis:

Following are the hypothesis designed for the present study:
1. There exists difference in mean academic achievement of learning disable and normal children.
2. Fading strategy will have effect on word recognition ability of learning disable children of class-III.
3. Active voice strategy will have effect on fluency of learning disable children of class-III.
4. Cursive strategy will have effect on handwriting ability of learning disable children of class-III.
5. Multi-sensory strategy will have effect on spelling ability of learning disable children of class-III.
6. Computer assisted strategy will have effect on recognition of the numerical symbols on learning disable children of class-III.
7. Computer assisted strategy will have effect on use of the numerical symbols on learning disable children of class-III.

5.4 Delimitation:
1. The three main areas (Cachar, Karimganj, Hailakandi) of Barak Valley are selected for the study.
2. The study includes only class-III children of government schools in Barak Valley.
3. No standardized test will be used to collect data for academic achievement of the students; it will be collected from the school records,
while poor achievers will be given the treatment, whereas control group will be given routine method.

5.5 Sample:

Purposive of sampling was used for selection of the governmental schools of Barak valley. The study included twelve Bengali-medium schools and one-twenty learning disabled children was selected from the three districts of the valley through the tools and randomization. The sample was divided into two groups (experimental group - sixty and control group - sixty).

5.6 Tools:

The following tools were used for the purpose of data collection:

1. Intelligence test.
2. Questionnaire for Identification of Learning Disabled Children.
5. School records for academic achievement.
6. Fading strategy for word-recognization.
7. Active-voice strategy for fluency.
8. Cursive strategy for handwriting.
5.7 Design:

For the purpose of investigation, pre-test and post-test design was used. Traditional method of teaching was followed by special strategies for teaching experimental group and the control group remain undisturbed. The effect of the treatment was studied on three skills (reading, writing and arithmetic).

5.8 Procedure:

The study comprised of the three main stages:

- Firstly, Selection of Learning Disabled Children.
- Secondly, Practice session, for experimental group.
- Thirdly, post-test given to both the experimental and control group.

- Selection of Learning Disabled Children

With due permission from the headmasters or headmistress twelve Bengali medium schools were selected from Barak valley. Four schools were selected from each districts of the valley. In order to select sample, respondent were given the questionaries, these are:

* Intelligence test.
* Questionnaire for Identification of Learning Disabled Children.
* Questionnaire for Identification of Specific Learning Disabled Children.
* While directly school records were taken for academic achievement of children.
- **Practice session**

  This practice session was given only to experimental group during zero hour through special strategies while control group was left aside. Practice session continued for three weeks.

- **Post test**

  On the fourth week after practice session, final test was conducted for both the groups (experimental and control).

### 5.9 Major findings

The summary of the results of the study has been presented below:

1. **Children identified as learning disabled in class III level**
   - The data revealed that in Cachar district the average learning disabled children was 61.5 approximately.
   - The data indicated that in Karimganj district approximately average of 69.41 learning disabled children were found.
   - The revealed that learning disabled children in Hailakandi was an average of 70.17 approximately.
   - Comparing the overall data indicated that Hailakandi district had more learning disabled children than Cachar and Karimganj districts.

2. **Specific learning disabled children of class-III.**
   - The results of data are been sorted in increasing manner indicating specific learning disability: where Hailakandi district has highest learning disabled children as an average of 52.77.
   - Karimganj district has an average of 48.97 specific learning disabled children.
• Cachar district has an average of 48.75 specific learning disabled children.

**H1 “There exists difference in mean academic achievement of learning disable and normal children.”**

• Table 4.2 shows the difference in academic achievement of both normal and learning disabled children of all the districts. It reveals that there is wide range of difference in the two groups and it accepts the hypothesis.

• Table 4.3 reveals that mean scores of both the groups did not affect through treatment variable nor did area variable and both the variables act independently suggesting that later increase of means post-test in group would be result of strategies.

3. **Effect of strategies treatment on the reading skill of learning disabled children.**

• The observed data revealed that the strategies had significant affect on learning disabled children in improving their reading skill.

• An overall observation of the result reflects that reading skill had affected learning disabled children of all the three districts (Cachar, Karimganj and Hailakandi).

**H2 “Fading strategy will have effect on word recognition ability of learning disable children of class-III”**.

• Table 4.4 shows data on t-value for difference in scores of experimental and control group of Cachar district. The result shows that the strategy was highly significant.
• Table 4.5 reveals the data of Karimganj district, showing the scores of experimental and control group in fading strategy. The data indicates that strategy was highly significant in this district.

• Table 4.6 indicating data of experimental and control group scores of Hailakandi district, the t-value shows that the strategy was highly significant.

• In order to verify the hypothesis, t-test was used. The overall view of the tables 4.4, 4.5 and 4.6 reveals that the strategy was highly significant and thus accepts the hypothesis.

H3 “Active voice strategy affect the fluency skill of learning disable children of class-III”.

• Table 4.7 depicts the differences in scores of experimental and control group of Cachar district in regards to active voice strategy, the t-value shows its highly significant in the district in improving fluency of learning disabled children.

• Table 4.8 reveals the data of Karimganj district, showing the scores of experimental and control group in active voice strategy. t-value shows that active voice strategy was highly significant.

• Table 4.9 of Hailakandi district indicating the difference of t-value scores of experimental and control groups reveals that the strategy was highly affective for learning disabled children.

• Table 4.7, 4.8 and 4.9 totally accepts the hypothesis of active voice strategy.

Effect of strategies on writing skill of learning disabled children.

- The observed data indicated that the strategies had affect on learning disabled children of Karimganj and Haliakandi district significantly. The data revealed that the strategy was no significant in Cachar district.

H4 “Cursive strategy will have effect on handwriting ability of learning disable children of class-III”.

- Table 4.11 revealed that cursive strategy had significant effect on handwriting skill of learning disabled children of Cachar district which was indicated by t-value.
- Table 4.12 shows data on the difference in scores of experimental and control groups in cursive strategy. The t-value of the table revealed that there was no significant effect of strategy on handwriting skill of learning disabled children of Karimganj district.
- T-value reveals that there was no significant effect of strategy on handwriting skill of learning disabled children of Hailakandi district which reflects on Table 4.13.
- Table 4.11 accept the hypothesis while table 4.12 and 4.13 rejects the hypothesis.

H5 “Multi-sensory strategy will have effect on spelling ability of learning disable children of class-III”.

- Difference between the scores of experimental and control group through t-value reveals that multi-sensory strategy had significant effect on learning disabled children of Cachar district shows table 4.14.
Table 4.15 shows the differences in scores of experimental and control group through t-value, revealing that multi-sensory strategy had significant effect on spelling skill of learning disabled children of Karimganj district.

16th table shows the differences in scores of experimental and control group of Hailakandi district and it reveals that multi-sensory strategy had no significant effect on learning disabled children.

Table 4.14 and 4.15 accepts the hypothesis, while Table 4.16 rejected the hypothesis.

Walker(1990); Cole(1992) studies revealed that performance of the children increases with suitable strategies used for them in writing.

5. Effect of strategies treatment on the arithmetic skill of the learning disabled children.

An overall observation of the result indicated that Table 4.18 – 4.23 shows that arithmetic skill had significant effect on disabled children of class-III of Cachar and Karimganj districts but the strategies did not affect the arithmetic skill of Hailakandi district.

Behrend(1994); Shih(2005); Ota(2008); studies revealed that instructional approaches helps the learning disabled children in learning the task, such as solving mathematical problems

H6 “Computer assisted strategy will have effect on recognition of the numerical symbol on learning disabled children of class-III”.

Table 4.18 shows the t-value scores of experimental and control group of Cachar district and reveals that computer assisted strategy is highly significant for learning disabled children in arithmetic skill.
Table 4.19 result showed difference in scores of experimental and control group through t-value and indicates that computer assisted strategy has significant affect on arithmetic skill of learning disabled children of Karimganj district.

The t-value reveals that there was significant affect of computer assisted strategy on learning disabled children of Hailakandi district as presented in Table 4.20.

In order to verify this hypothesis, t-value reveals that Table 4.18, 4.19 and 4.20 significantly accepts the hypothesis.

H7 “Computer assisted strategy will have effect on the use of the numerical symbol on learning disabled children of class-III”.

Table 4.21 shows the comparison of scores between experimental and control group indicating that computer assisted strategy had significant affect on using numerical symbols by learning disabled children of Cachar district.

Table 4.22 result indicates that computer assisted strategy was highly significant on using of numerical symbols by learning disabled of Karimganj district.

Table 4.23 shows that scores of t-value was not significant, and it reveals that computer assisted strategy did not affect the learning disabled children of Hailakandi district.

The hypothesis was accepted in Cachar and Karimganj districts as it depicts in Table 4.21 and 4.22 while Hailakandi district (Table 4.23) rejects the hypothesis.

Chen(1994); Seo(2008); Zunker(2008) studies supported on using of computer in solving mathematical problems.

- Table 25 depicts the effects of strategies on learning disabled children but in area-wise there was no significance.
- Table 26 data reveals mean gained score of experimental group higher than control group in skills and shows that arithmetic skills to be more effective in experimental group than other skills.
- Table 27 depicts affect of strategies in each skill and shows that arithmetic strategy having much effect on children compare to other strategies.
- In Table 4.29 ANOVA analyses was used to verify the hypothesis. The result showed the differences in post test means scores between experimental and control groups’ related strategies and area. The result depicts that experimental means in post-test were higher than the control group means after used of strategies. While group mean in case of area (Cachar, Karimganj and Hailakandi) was not significant at specified level. The data also suggest that variables strategies and area slightly interact with each other with the respect to the post-test.

Cline(1990); Tripathi, Tripathi and Srivastava(1991); Preston(1993); Macdonald(1994) studies revealed that early intervention and organized instructional strategies increases academic achievement of learning disabled children.

5.10 Educational Implication

Sarva Shiksha Abhijan has come forth for universalization of primary education. ‘Education for all’ does not mean universal enrollment only, instead it symbolizes universal achievement for school going children. At the time of
experiment, it was observed by investigator that five to eight children were unable to read the alphabets and even they were unable to write their name properly; which indeed is a signal that needs serious attention.

Learning disability is a hidden disability which hampers the academic performance of the children. Learning disabled children requires special teaching and educational facilities for their development, but many a times these disabled children go undiagnosed as consequence it increases their emotional problems along with academic failure.

School achievement plays an important role in a child’s academic development. Disorders in reading, writing and arithmetic skills affect the child in every step of their life. Yet, these children are left apart as they look normal without any physical or mental disorder.

Early diagnose of learning disabled children help parents and teachers to provide remedial measures though proper psychological guidance and tutoring which helps the child develop in scholastic achievement. Early identification of learning disabled children during this stage is suitable period for intensive through remedial strategies.

In this area, where mostly the population belongs to lower-middle class, with minimum literacy, parents of these learning disabled children fail to understand their disorder. While school keeps neglecting these children as failure. The result shows that children taught with these special strategies improve in their academic skill.

Providing knowledge to the parents of the learning disabled children through meeting, seminar, workshops helps them to understand the problems of their child, and giving information about the ways to remediate disorder through early intervention.

Teachers with well-versed effective teaching strategies can improve the teaching-learning process for learning disabled children. School environment can be controlled according to need of the students.

The result obtained from the present study can help the parents, teachers and educators in improving education for these children. The cornerstone of treatment of specific learning disabilities is remedial education which should ideally begin early
when the child is in lower level of schooling. The remedial strategies helps the child attain maximum educational potential knowledge obtained from this study can help the teacher and parents in changing themselves in order to ensure better growth and healthy development of learning disabled children.

5.11 Conclusion:

Everyone has a difficulty in one area or the other. Most of time, it does not interfere with day to day functioning. However, when the area of difficulty is in the cognitive region, it impedes academic learning, which is largely pegged on the 3R’s (reading, writing and arithmetic) in the current educational system.

Learning disabled are those children who have normal characteristics as their peer group but lack in their academic skills, and thus they are left aside as referring them as troublesome children. It is estimated that five to fifteen school-going children are affected by learning disorder. Diagnosis of learning disabled children can help parents and teachers to provide early intervation and support services. Arhebamen (2011) study indicated that reading scores were significant predictor in determine learning disabled in reading at third grade level. Swanson and Hoskyn (1998) suggested that learning disabled children improves in their academic skill through strategically instruction.

Learning disability is been recognised as new developing area in the field of special education. Among the recognised disabled categories by IDEA (2004) learning disability is one of it. Studies have shown that learning disabled children are in alarming condition that needs help.

Learning disability may continue life-long, if not cured early. Teachers, parents, school administrators, community members, resource persons and special educators with effective modules and strategies, taking into account strength and weakness of the children help in their identification and remediation programmes.

The result proved that strategies used by the investigator can be helpful for teaching the learning disabled children of elementary stage to a certain extent so as to improve their reading, writing and arithmetic skill.
5.12 Suggestion for further research:

- Development of strategies in vernacular languages for screening of learning disabled children in school with vernacular medium of instruction.
- Diagnosis of learning disabilities through a battery of tests.
- Comparison of learning disabled children in private and governmental schools.
- Impact of early identification of learning disabled children.
- Learning disability as a factor for increasing drop-out.