CHAPTER – III

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3.1.0 Design and sample
The present study used a quasi-experimental design.
The study consisted of two parts.

Part – A
In this part pre-post test design was adopted in studying the impact of remedial teaching. There were two groups of participants.

Group-I : Experimental group-children with learning disability, those who are undergoing remedial intervention (n=10).

Group-II : Control group - children with learning disability, those who are not undergoing remedial intervention (n=10)

The pre intervention and post intervention performances of the experimental group on several tests were assessed and compared with that of control group.

Part – B
Consisted of compiling 10 case studies of the children in the experimental group, studied for a period of 2 academic years to assess intra-individual variations in behavioural and scholastic improvement.

Selection of sample: Children were selected for this study based on the following criteria:

Inclusion criteria
1. Intellectually normal or above normal as measured on RPM / RCPM.
2. Age is between 9-16 years.
3. At least two grades backward in academic achievement.
4. Medium of instruction at school is Kannada.
5. Has difficulty in learning as measured on screening tests.
6. At least lower middle class socio-economics status.
7. No significant emotional disturbance as measured on Rutter's proforma-B (Rutter, 1967).

**Exclusion criteria**
1. Mental retardation
2. Diagnosed mental illness of psychotic nature
3. Major neurological / medical conditions like cerebral palsy, epilepsy, meningitis etc.,
4. Other diagnosed psychiatric conditions such as infantile autism, hyper kinetic syndrome.
5. Identified hearing, visual and speech problems.

### 3.2.0. Sample Characteristics
The sample for the present study was characterized in terms of sex distribution, age, intelligence, oral reading, socio-economic status, emotional aspects as follows:

#### 1. Gender and age
Table – 3.1. Shows the distribution of subjects according to age and gender

<table>
<thead>
<tr>
<th></th>
<th>Experimental group Grades</th>
<th>Control group Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>III V VI VII IX</td>
<td>III V VI VII IX</td>
</tr>
<tr>
<td>Boys</td>
<td>1 1 3 3 2 1 1 3 3 2</td>
<td></td>
</tr>
<tr>
<td>Mean age</td>
<td>9 10 11 12.3 14.5 9 11 11 12.3 15</td>
<td></td>
</tr>
</tbody>
</table>

#### 2. Intelligence
The purpose of utilizing intelligence as one of the parameters in the sample selection was to screen them for mental retardation. The raw scores and percentiles as measured on RPM/RCPM are given in the Table - 3.3.
### Table – 3.2. Distribution of Raw scores and percentile points on RPM/RCPM

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1</th>
<th>2</th>
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<th>5</th>
<th>6</th>
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<th>10</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Experimental Group</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS</td>
<td>47</td>
<td>32</td>
<td>43</td>
<td>34</td>
<td>54</td>
<td>30</td>
<td>34</td>
<td>30</td>
<td>42</td>
<td>28</td>
<td>37.4</td>
<td>8.63</td>
</tr>
<tr>
<td>P</td>
<td>50</td>
<td>75</td>
<td>50</td>
<td>90</td>
<td>90</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>64.5</td>
<td>19.21</td>
</tr>
<tr>
<td>Control group</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS</td>
<td>48</td>
<td>29</td>
<td>42</td>
<td>34</td>
<td>48</td>
<td>28</td>
<td>42</td>
<td>29</td>
<td>37.6</td>
<td>8.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>50</td>
<td>50</td>
<td>90</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>54.00</td>
<td>12.65</td>
<td></td>
</tr>
</tbody>
</table>

RS = Raw score  
P = Percentile

### 3. Reading ability

The purpose of using this parameter was to assess the subjects in terms of their reading ability. The criterion of 2 SD below the grade norm was adopted in the present investigation to identify the children having reading disability.

#### Table – 3.3 Distribution of scores on oral reading test (Bai, 1957)

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>10</th>
<th>Mean</th>
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<td>Experimental Group</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>24</td>
<td>17</td>
<td>52</td>
<td>24</td>
<td>16</td>
<td>26</td>
<td>11</td>
<td>10</td>
<td>13</td>
<td>21.6</td>
<td>12.16</td>
<td></td>
</tr>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>24</td>
<td>20</td>
<td>41</td>
<td>34</td>
<td>12</td>
<td>27</td>
<td>18</td>
<td>12</td>
<td>10</td>
<td>22.3</td>
<td>10.03</td>
<td></td>
</tr>
</tbody>
</table>

S = Score

### 4. Emotional disturbance

One of the most important perpetuating factors of learning difficulty is emotional disturbance. In order to rule out this factor a screening test, Rutter’s proforma-B (Rutter, 1967) was administered.

#### Table – 3.4 Shows the distribution of individual values on Rutter’s proforma-B performance

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>8</td>
<td>5.70</td>
<td>1.70</td>
</tr>
<tr>
<td>Control group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>5.80</td>
<td>1.32</td>
</tr>
</tbody>
</table>
5. Socio-Economic Status

Another factor which influences the learning disability is socio-economic status. Hence, in the present investigation an attempt was made to screen out children below the lower middle class socio-economic status.

Table – 3.5 Shows distribution of scores on the socio-economic status scale.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>85</td>
<td>69</td>
<td>52</td>
<td>50</td>
<td>70</td>
<td>50</td>
<td>40</td>
<td>51</td>
<td>50</td>
<td>40</td>
<td>55.7</td>
<td>14.40</td>
</tr>
<tr>
<td>Control group</td>
<td>83</td>
<td>66</td>
<td>48</td>
<td>46</td>
<td>66</td>
<td>60</td>
<td>36</td>
<td>50</td>
<td>49</td>
<td>39</td>
<td>54.3</td>
<td>14.35</td>
</tr>
</tbody>
</table>

3.3.0. Tools used for the Screening / Selection of Sample

a. Rutter's Proforma-B for Teachers (Rutter, 1967)

A screening instrument to be completed by teachers. It is in the form of questionnaire, seeking descriptions of student's classroom behaviour.

It deals with behavioural problems of a psychological nature and consists of 26 items. The teacher has to indicate whether each description "does not apply", "applies somewhat" or "definitely applies" to the child in question.

Scoring

The ratings are 0, 1 and 2. The scores of each item are added together to make a total score. A cutoff score of 9 or more indicates presence of emotional disturbance.

b. Raven's coloured progressive matrices / Raven's standard progressive matrices (J.C. Raven, 1987)

This test was developed with the rationale that an individual's level of intellectual functioning could be assessed on the basis of his reasoning and thinking ability. The test does not involve verbal tasks.

Maximum score for RCPM: 36 and
Maximum score for RPM: 60
c. Oral Reading Test (Jaya Bai 1958)
This test consists of 150 Kannada words that cover all the possible characteristics of Kannada orthographic rules. Here, the task of the child has to read these words aloud as fast as possible for one minute.

Scoring – the total number of words read by the child within one minute will be the score. The test has the norms for grade II, III and IV. Scores below 2 SD from the respective grade norms were treated as cutoff scores to identify reading disability.

d. Socio-Economic Status Scale (Shah, 1987)
This socio-economic status measure is an improved scientific scale among the existing socio-economic status scales, because of the following reasons.
1. Identifies correct categories of social economic status.
2. More accurate measurement of social economic status is achieved with the help of 6 variables namely (a) Caste (b) Occupation (c) Education (d) Income (e) Profession (f) Social participation.
3. Occupational status is measured as the average score of two basic indicators of family occupation (Occupation of parents and main occupation of family).
4. Educational status of family is considered by taking the average scores of educational level of father, mother and sibling.
5. Economic status is measured by total income of family divided by family size. For this score, income tax and property tax payment are also considered.
6. Weightage for possession of different articles has been assigned according to the cost and quality of material.

Scoring
The total score from all the categories is then converted into stanine scores. The socio-economic status is classified into five categories Lower status...
e. General Information and Data Sheet
This was prepared by the investigator and included the information regarding
(a) Personal details such as name, age, and date of birth, class, address,
history of special coaching, mother tongue, and other languages being used
in the family. (b) Information regarding type of family: joint / nuclear, socio-
economic status, Parental and sibling history was also included. The
purpose of this sheet was to organize and record the relevant information
and the data individually.

3.3.1. Tools used for the main study
Since the main purpose of the study was to assess and compare the effect
of remedial teaching on children with learning disability across all the
relevant cognitive, linguistic and metalinguistic processing skills, tools were
selected accordingly.

a. Minnesota Percepto – Diagnostic Test (MPD) (Fuller & Laird, 1963)
This test consists of six gestalt designs, which the subject needs to copy.
The reproduced designs are scored for degrees of rotation. The test is a
culture free one. The MPD test provides a rapid and objective method of
identifying children with learning disability who suffer from perceptual
impairment.

The cutoff score for learning disability group was 25 to 55 degrees of
rotation. For the normals the cutoff score was 20 and below. In the present
study this test was used with the purpose of knowing whether children with
LD differ on visio-spatial perceptual ability.

The subject was provided with 8½ x 11 inch white paper, pencil and eraser.
After placing the sheet in front of the child, he was told, “I am going to show
you six cards, one at a time. Each card contains a figure; copy the figure on this paper. Number each figure as you draw it”.

Scoring
The scoring for the degrees of rotation was done with the help of a protractor and a ruler as described in the manual. Maximum score = 150.

b. Kannada Oral Reading Test (Prakash, 1999)
The purpose of using this parameter was to assess oral reading skills of children. The subject was provided an oral reading test form and he was instructed to read aloud as quickly as possible when given the start signal. The number of words read in one minute (total words read in 1 minute – wrongly read words), total words read and total time taken, and total wrongly read words were noted down.

c. Serial recall test (Jayaram, 1997)
This test was translated from Oriya (Das, 1982). This test consists of 12 sets of words, which begins with a four word series and progresses to six word series. There are four sets in each of the four, five and six word series.

The subject was instructed, “I am going to read a few words, listen carefully. After I read, you have to repeat the words in the same order”. There was no time limit. The purpose of using this test was to assess the subject’s short-term memory (verbal) through auditory mode.

Scoring
The number of words reproduced in correct order was scored. Each correct word carried one score. Maximum score = 60.

d. Visual Scanning test (Jayaram, 1997)
This test was administered for the assessment of attention and concentration. It consists of 3 sections.
A-1: Consists of numbers from 1-20 randomly arranged in a group.
A-2: Consists of number from 1-48 randomly arranged in a group.
A-3: Consists of numbers from 1-48 randomly arranged into two groups.

The subject was provided test form and instructed as followed.

A-1: "There are numbers spread over here and you have to circle all the numbers one by one in serial order". With these instructions, the subject was given a 'start' signal. Total time taken for the completion of task and correctly circled numbers were noted down.

A-2: The same procedure was followed as in A-1 section.

A-3: "The subject was instructed, there are two groups of numbers spread over here and you have to circle the numbers one by one in serial order, from both the groups". With these instructions the subject was allowed 1 minute with a start signal. Total correctly circled numbers were noted down.

Remarks: Behaviour such as anxiety, hyperactivity, missing of the sequences etc., was taken into account.

e. Kannada Linguistic Profile Test (Karanth et al., 1991)

This test was used for the assessment of language. It consists of eleven sub tests, namely, morphophonemic structures, plural forms, tenses, P.N.G. markers, case markers, transitive, intransitive and causatives, sentence types, predicates, conjunctions comparatives and quotatives, conditional clauses and participle constructions.

The subject was instructed that the following list of words and sentences contained both correct and incorrect forms. He was asked to listen carefully and indicate whether each item was correct or not. The investigator illustrated with examples if the subject found it difficult to understand. The investigator read the items one by one from the list and repeated a sentence if necessary. When subject failed to respond, the test items were given in
written form. The investigator accepted a correction once. The stimulus modality in which the subject responded was noted.

Scoring
Each accurate response carried 1 score. Total score = 74.

f. Battery of Metaphonological Tests (Karanth & Prakash, 1996)
The following battery of tests selected from previous studies (Karanth & Prakash, 1996), was administered.

i. Rhyme Recognition Test (RR)
The test material consisted of 12 pairs of stimulus words – 6 rhyming and 6 non-rhyming. Here the task of the child is to judge whether a given pair of words sound similar or not.

Example: Rhyming – Kagada – Tagada
         Non-rhyming – Kagada – Kelage

Instructions
“I am going to present some words in pairs. Listen carefully both the words in the pair. You have to tell me whether the two words in the pair rhyme or not”.

Scoring
Every right answer carried the score of one. Maximum score = 12.

ii. Phoneme Reversal Test
This is relatively a complex metalinguistic task. Here, the subject should have the knowledge of phonemes in Kannada and the rules of their usage to constitute a word.
The test consisted of 12 test items. Each item was made up of one vowel (first letter) and one C+V blend. The subject was required to reverse the order of phonemes and then say the resultant word.

Example: Iru – uri

**Instruction**

“I am going to present a word. Listen carefully. You are required to repeat the word in the reverse order of sounds”.

**Scoring**

Each correct word carried 1 score. Maximum score = 12.

iii. **Syllable Reversal Test**

The test consisted of 12 meaningful words. The subject was instructed, “I am going to present a word. Listen carefully, you are required to reverse the order of syllable in the word and tell me the results of word.

Example: Kavana – Navaka

**Scoring**

Each correct answer carried 1 score. Maximum score =12.

g. **Word writing and Non-word Reading Tests (Karanth & Prakash, 1996)**

These tests were administered for the assessment of lexical and non-lexical reading.

The word-writing test was selected from Kannada Oral Reading Test, (Prakash, 1999). It consisted of 30 words arranged in order of increasing difficulty.

The subject was instructed to write the words as the investigator dictated them one by one.
Non-word reading and writing test consisted of 15 cards. Each card had one non-word written on it. The subject was presented all the cards one by one in order of increasing difficulty. After each card was presented, the subject was asked to read aloud. Mispronounced words were noted down. After the reading test, the same non-words were dictated in the same order and the subject was asked to write the words.

**Scoring**
Each correctly read word and each non-word carried one score for reading and one for writing. Maximum score = 30+15+15=60.

**h. Shwa Test (Karanth & Prakash, 1996)**
This test was administered for the assessment of Kannada orthographic awareness. It consisted of 5 different symbols. Each symbol was used thrice, for each symbol the subject was to give / write secondary vowel form.

**Instructions**
I am going to give you a symbol on the name of one of the conjuncts and I will say one of the secondary vowel forms. You have to write / quote the secondary vowel forms to the symbol, which I have given you.

**Scoring**
Each correct symbol carried one score.
Maximum score = 15

**3.4.0 Procedure**
The study was conducted in two parts: screening and main study.
3.4.1. Screening

This part of the study was carried out in four steps.

Step -1: It was planned to conduct the study on the children of standard Kannada medium schools. Hence as a first step three such schools were identified.

Step - 2: From such identified schools a group of children with learning disability among grades III-IX were selected by administering the screening tools.

Step –3: Rutter's proforma-B was supplied to the respective class teachers. Here the teachers were required to assess each student individually on the basis of the child's behaviour at school. These individually assessed proforma were collected from the teachers and on the basis of this assessment a 'general pool' of children was made, those children whose total score was below 9 were retained for further screening.

Step –4: For this group of children the researcher administered other screening tests individually. Firstly, Oral Reading Test (Jaya Bai, 1957) was administered. Depending on the scores on this test children with learning disability were selected. Secondly, in order to screen for mental retardation, RPM/RCPM were administered. Based on the scores, average and above average children were selected. Thirdly, the selected groups were administered the socio-economic status scale. Only those children who came under the category of lower middle class and above were retained. In the last stage of screening, the exclusion criteria mentioned in the sample selection were considered and finally a group of children was selected from grades III, V, VI, VII and IX.

The total number of students tested for screening was 170. The final selected group consisted of 10 children with learning disability.
3.4.2. The Main Study
The main study consisted of 2 parts.

Part - I
Every test was administered individually. Proper care was taken to develop rapport with each child and thus its cooperation and motivation were maintained throughout the assessment session. Whenever required, sufficient interval between one test and another was provided. The exact procedure of testing and scoring has already been described in the previous section. The testing was carried out in the month of August 2000 and 2002 compared, assessed pretest results with that of posttest results.

Part - II – Case Histories of Experimental Group
As a researcher I have actively participated in remedial teaching programme and other co-curricular activities for the last 2½ years. To understand and assess behavioural and scholastic activities, I spent most of the time interacting with children, solving problems at school and Samveda Kunja (Hostel), participated in sports, observed yoga exercises, taught Kannada, English, Mathematics, Science and Social Studies. The author collected relevant information from all other teachers regarding the behavioural and scholastic problems of the children, apart from the records, which we have maintained, to evaluate periodically their progress in social and scholastic activities.

With this background knowledge I have compiled 10 case histories of experimental group children, and assessed intra-individual variations in behavioural and scholastic abilities.