CHAPTER 6
EFFECT OF THE INTERVENTION PROGRAMME ON CHILDREN

As mentioned earlier, the main objective of the intervention programme was to enhance children’s reading comprehension skill. All classroom children were divided into 4 sub-groups and result has been presented accordingly. Details of the changes occurred during the course of the intervention has been presented in this chapter.

Review had revealed that reading for any purpose or at any level is meaningful only when a reader gets the sense of the text. Comprehension ability is necessary for all kinds of reading in order to understand the meaning. Reading comprehension ability requires advanced level of thinking skill which develops as children get matured with age. It refers to understanding beyond what is merely written in the form of text. In the beginning of the reading development children focus on learning to read. However, at Class IV level, their focus shifts to reading to learn (Geske and Ozola, 2008). Reading, at this critical stage without comprehension affects not only the language learning but learning of other school subjects too. Therefore, the teaching-learning approach should focus on strengthening children’s ability or strategies to enhance comprehension of narrative text as well as expository text. In the context of this study, from observation and interview with the teacher, it was clear that the situation in the classroom did not ensure comprehension.

As mentioned earlier, the intervention programme was aimed at developing children’s reading comprehension strategies. The study started with the use of story mapping technique for the increment of narrative comprehension of stories. Changes that occurred in children’s performance from pre-test to post-test were assessed with the help of statistical measurement i.e., Wilcoxon Signed Rank Test by using the Statistical Analysis
The results indicated a significant difference in children’s reading comprehension ability of narrative text.

The intervention also focused on the transfer of children’s acquired narrative comprehension strategies to the expository text comprehension. The impact of the intervention on reading comprehension of expository text material was analysed through qualitative analysis where major themes and subthemes were identified. Details of children with LDs have been presented in the form of the case study. Class IV children were observed on many occasions before starting the actual intervention which served as baseline. It is practically not possible to control all variables in researches on human beings especially in natural settings. It is equally difficult to study a large population in order to see the functionality of an intervention programme. Therefore, in order to overcome these challenges, case study method was followed. Multiple cases were chosen for the study. Selection of cases was completely based on purposive maximal sampling where diverse cases were taken. For presenting case studies, information from various sources, such as, classroom observation, teacher’s opinion and feedback, observation of children’s notebooks, data gathered during pre-test and post-test were utilised. For selected cases embedded analysis was done where specific aspects of cases were highlighted (Creswell 2007). Further, data was analysed by providing description of the cases, different themes and cross-case-themes in order to have a comprehensive understanding of complexities of the cases.

Intervention mainly focused on the enhancement of reading comprehension skills of children. Apart from measuring children’s comprehension skill before starting the actual intervention, other reading related skills were also measured as the part of pre-test assessment. Other skills that were assessed are ability to read accurately, ability to read fluently, ability to recognise letters/words in reference to its sounds and context (i.e., decoding), spelling skill, phonological skill, text reading speed and text reading accuracy (more detail has been mentioned in the methodology chapter). After knowing their reading skills awareness, intervention focused on
areas where they were weak. Details of children with LDs have been presented below.

**Impact on Learning Outcomes**

The result showed a significant effect on children’s reading comprehension ability. The following section describes the impact of the intervention on the children with LDs. Every case was unique in nature; yet there were some commonalities across the cases. Profiles of children’s reading skills and the change with intervention have been presented in the form of *case study*. The conversation between the researcher and the child took place in the form of an interview details of which have been presented in case studies with the rationale that LD children needed more probes and time to articulate learnt skills. In fact, these children were able to do the sessions efficiently but they were less persuasive that normal children. Details of 3 children with LDs have been presented in the form of case study. Performances of 2 LD children have been mentioned in the tables to examine changes occurred in them from pre-test to post-test.

**Case 1: Faizan**

*Faizan* was a boy, aged 8 years 3 months at the time of pre-assessment before actual intervention started. He fulfilled all the criteria to be diagnosed as a child with LD by following its operational definition. For example, initially teacher reported that he was weak in reading. She stated as ‘*He reads very fast. But whatever he reads I do not understand*’. Fast reading speed with less focus on the letter-sound combination in word/s resulted in errors. He was depending on guessing words while reading that led him to produce maximum nonsense words. He was a totally different child in Class IV. He had special ability to produce sound of words which appeared as real words. He moved his fingers very fast under the line of the text while reading. It appeared that his phonological knowledge was not well developed which compelled him to depend on the use of his graphitic knowledge. He was not able to produce the sound of the target or real word/s correctly but his pronunciation appeared right due to the knowledge of legal and illegal letter patterns. On the BCSLD
screening device he scored 44 (73%), thus, he was treated as at-risk for LD. In order to rule out poor academic performance due to limited cognitive abilities his intelligence was measured with the help of two tests (Draw-a-Man test and ICIT). However, he scored within the average range. The deviation IQ of the child on Draw-a-Man Test was 116 and on ICIT was 108. On the test for the assessment of LD in Hindi language, Faizan scored below 40% on six sub-tests: figure ground, spatial relations, auditory processing, cognitive abilities, memory, and expressive language. Qualitative analysis of his writing on the test showed very poor eye-hand co-ordination. His performance in mid-term examination was also taken into consideration.

Assessment of Reading Skills:

*Pre-test:* The main aim of the pre-test was to know the child’s ability to understand text i.e., comprehension ability, which was evaluated by asking 10 generic questions based on the story given him to read, in the pre-test session. Faizan had to provide answers in the written form. His performance has been mentioned in figure (6.1). Out of 10 questions he could answer only 3 in pre-test assessment. These were the questions which measured child’s literal comprehension ability through which answers were found by reading *within the lines* of the text. In other words, answers of these questions were explicitly stated in the text. He failed to answer a single question which was meant to measure inferential comprehension ability i.e., ability to look *between the lines* and ability to understand *beyond the lines*. Responses of these questions were indirectly mentioned in the text which also requires other information to find the correct answers. For example, the answer for the question characteristics of the main character was not mentioned explicitly in the text. Thus, Faizan’s performance on pre-test showed poor reading comprehension ability.
Apart from taking measure of the reading comprehension skill, a measure was also taken for all basic reading related skills and his performance has been presented in the table (6.1), which helped to know child’s foundational reading skills level. The primary aim of the intervention was to improve reading comprehension skill of children which is considered as a higher level reading skill. So before developing the comprehension skill a child needs to acquire other lower level of reading skills (e.g., phonological awareness, alphabetic principles, accuracy and fluency of word reading, decoding ability, spelling, text-reading speed and text-reading accuracy) which contribute to the development of comprehension ability. In a successful reader, all these skills are developed to a level of automaticity. Comprehension is such a skill which comes on the top of all these reading skills.

Word reading accuracy task consisted of two sub-tasks: simple word reading task and consonant cluster word reading task. Out of 30 simple words (15 without matra and 15 with matra) Faizan could read 23 words correctly. Whereas only 9 words were correct while reading the list of 30 words of consonant clusters. Errors committed by him on pre-test were phonological in
nature. Other errors were omission and substitution of vowels and letters. For example, अखर as हर, and नगर as नहर. In both the examples he omitted letters and substituted by another letter. In the first example he omitted first letter of the word while in second example he omitted middle letter of the word. It could be the result of sight word reading. Other errors were रेटी as रेटी, ढोलक as कुलक, लोमड़ी as लेफति, सावधानी as साफ्खाने, and अनमोल as अनमेल. Faizan’s consonants cluster errors were mainly of omission of cluster words or compound words. He was unable to identify sounds and pronunciations of blended letters in a word along with omission of letter/s. His speed of reading was so fast that the researcher was not able to recognise word/s read by him. But the rate of reading words correctly per minute was very slow. Due to fast reading speed he ended up committing lots of errors, therefore, reading accuracy rate decreased. He could read 20 WPM (word per minute) which is considered poor reading accuracy. His decoding ability was not very poor as he could read 8 words correctly out of 15 words, which revealed that he had acquired the ability to recognise basic sounds that make up letters/words. His performance on spelling tasks was very good. He could successfully recognise 46 words out of 50 which meant he had good awareness of orthographic structure of Hindi language. Three types of tasks were used to measure phonological awareness of the child. His poor performance on identification of final phoneme of words (i.e., words with similar ending sound) showed a weak awareness of differentiation between similar sound/s. Faizan’s awareness of differentiation between different ending sound/s or different final phoneme was average (50%). His awareness of breaking words into different sound was above average. At Class IV level a child is supposed to read long paragraphs and lessons, therefore, a measure was taken for awareness of text-reading speed and text-reading accuracy. His text-reading speed was 45 WPM which was much higher than his word reading accuracy (20WPM). His text-reading accuracy was above average (i.e., 81.63%). After looking at his performance on basic reading related skills it was clear that he had acquired all skills to an extent which would help him to read text successfully, however, his mastery
over all reading skills was not uniform. Therefore, it can be concluded that assessment of Faizan’s basic reading skills revealed that he was aware of foundational skills of reading but he had not mastered it according to his grade level.
Table 6.1 Performance of children with LDs on basic reading skills tasks (pre-test and post-test)

<table>
<thead>
<tr>
<th>Reading Skills</th>
<th>Faizan</th>
<th>Priya</th>
<th>Manan</th>
<th>Prerna</th>
<th>Mansi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Word Reading Accuracy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Simple Word Reading Task</td>
<td>76.66%</td>
<td>86.66%</td>
<td>100%</td>
<td>100%</td>
<td>86.66%</td>
</tr>
<tr>
<td>b) Consonant Cluster Word Reading</td>
<td>30%</td>
<td>53.33%</td>
<td>70%</td>
<td>83.33%</td>
<td>90%</td>
</tr>
<tr>
<td>Fluency Task</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word Attack Task</td>
<td>20WPM</td>
<td>32WPM</td>
<td>46WPM</td>
<td>50WPM</td>
<td>46WPM</td>
</tr>
<tr>
<td>Orthographic Choice Task</td>
<td>53.33%</td>
<td>73.33%</td>
<td>93.33%</td>
<td>100%</td>
<td>73.33%</td>
</tr>
<tr>
<td>Phonological Awareness Task</td>
<td>92%</td>
<td>98%</td>
<td>94%</td>
<td>96%</td>
<td>92%</td>
</tr>
<tr>
<td>Similar Final Phoneme</td>
<td>33.33%</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Different Final Phoneme</td>
<td>50%</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Sound Detection</td>
<td>70%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>80%</td>
</tr>
<tr>
<td>Text-reading Fluency Task</td>
<td>45WPM</td>
<td>51WPM</td>
<td>58WPM</td>
<td>72WPM</td>
<td>65WPM</td>
</tr>
<tr>
<td>Text-reading Accuracy Task</td>
<td>81.63%</td>
<td>92%</td>
<td>97.6%</td>
<td>98%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Note: WPM= Word per Minute (i.e., correct word read per minute)
**Post-test:** All reading skills were again measured after 2 weeks of the termination of the intervention programme. For the post-test similar procedure was followed but a different set of items was used in order to avoid familiarity effect. After getting some mastery over the use of the story mapping technique and drawing of the same, a shift was taken to create conceptual maps for Social Science and Science subjects. Skills acquired by the child (i.e., setting goals for reading, questioning, identifying themes, organisation, and summarisation etc.) were useful for the creating concept maps for expository text-materials.

An improvement in the reading comprehension ability of the child was seen after the implementation of the intervention programme. Faizan’s performance in post-test assessment on reading comprehension task has been presented in figure (6.1). During the intervention, training for one semester was given for the use of the story mapping technique where the child was taught to identify different story components. Initially Faizan was helped by the class teacher, the researcher and classmates wherever he needed assistance. In post-test, the child could answer more questions in comparison to pre-test, which indicated an improved reading comprehension skill. Now he was able to answer more number of questions which demanded inferential comprehension aptitude. An improvement was seen in his basic reading skills apart from reading comprehension ability. The child’s performance on basic reading skills in post-test assessment has been mentioned in the table (6.1). The intervention also included training in generating conceptual maps for the text which contained more abstract information. On the basis of teacher’s feedback and classroom observation it was visible that the child had difficulties in expository text comprehension along with narrative text comprehension. Analysis of Faizan’s conceptual maps showed an improvement. For example, in the beginning he had mentioned few themes and sub-themes in the figure and later on it got improved.

An in-depth interview was conducted to investigate the child’s ability to understand and use the story mapping technique. During the in-depth interview
three major components were explored. The first component was oral retelling, where Faizan was asked to retell the story by following the same sequence after reading it. He was also asked to use the same language as mentioned in the story. His responses on this aspect have been mentioned below in the form of conversation:

**Oral Re-telling of the Story**: First the child was asked to read the story.

**Researcher**: Ok, Faizan, now I want you to re-tell the story to me. Try to narrate the story in the same order. As much as possible try to use the same language as the story was written in.

**Faizan**: Prahalad...[silent].

**Researcher**: Ok, good! Then what happened?

**Faizan**: Prahalad pushes Hiranyakashipu [this was wrong answer so in order to get the right answer the researcher asked another question].

**Researcher**: who pushes?

**Faizan**: military

**Researcher**: hmmm then?

**Faizan**: Prahalad is put into the oil. Then the oil becomes cold. Then the king ordered the military to run elephant over Prahalad...[silent].

**Researcher**: then?

**Faizan**: An animal took the form of god and made Hiranyakashipu lie on his lap and ripped him apart. And finally he saved the Prahalad...[silent].

**Researcher**: then?

**Faizan**: [no answer].

**Researcher**: okay, anything else you can remember about the story?

**Faizan**: He was defeated.

**Researcher**: who was defeated?

**Faizan**: the king.

**Researcher**: anything else?

**Faizan**: Narayan was in the form of animal.
While retelling the story Faizan named all the characters and the major incidences occurred in the story. The sequence of retelling the story was also correct. But a lot of probes were required for eliciting the responses from him.

**Story Mapping follow up questions**: This was the second important component of the *story*. For this purpose 10 generic questions were asked for assessing his narrative comprehension ability and *Faizan* could answer all.

The third component was *general narrative comprehension questions*, which measured story reading strategies, and drawing strategies.

**Reading strategies**:

Researchers: Can you explain what do you do when you read stories?

*Faizan*: [no answer]

Researchers: what do you think....how should you read stories?

*Faizan*: nothing

Researchers: *Faizan*, when we read stories, we think how we should read. What do you think while reading stories?

*Faizan*: [no answer]

Researchers: what do you keep in mind when you read stories?

*Faizan*: I should read well.

Researchers: you should read well means?

*Faizan*: I should read fast.

Researchers: and what else?

*Faizan*: I have to read stories.

Researchers: okay, what else do you consider while reading stories?

*Faizan*: [no answer]

Researchers: what do you look for in stories?

*Faizan*: nothing.

**Drawing strategies**:

Researchers: What do you do when you draw stories?

*Faizan*: I draw well.
Researcher: okay, what all you draw?

Faizan: [no answer]

Researcher: Suppose, the story is of 3/4 pages and you draw on a single sheet. So, what all would you draw and what would not draw?

Faizan: [no answer]

Researcher: when I give story in the class for drawing, you always draw.

Faizan: Yes (nodded his head).

Researcher: okay, what all you draw and what you skip?

Faizan: [no answer]

Researcher: Recently I asked you to retell the story and you did it. But you did not tell entire things that are written therein. Similarly, what do you draw from these stories?

Faizan: All important things I draw.

Researcher: Important things?

Faizan: yes, what happens in the beginning, then what happens next? Like this...and what happens in the end.

Researcher: Anything else you can remember?

Faizan: No!

Apart from positive changes that occurred in Faizan’s reading comprehension ability, improvement was also seen in his basic reading skills (table 6.1).

Academic Achievement: Mid-term and Final Examination

His performance in final examination conducted by school was also taken into consideration in order to see changes occurred over a period of time (before and after the intervention). Child was also taught to organize expository text material in graphic form. Therefore, his achievement in subjects which contain more information for example, Science and Social Science, was also taken in account. Result revealed an improvement in his performance in all subjects (aggregate percentage) in final examination conducted after successful implementation of the intervention program. His performance in three subjects (Hindi, Social Science and Science) that was
focused during intervention programme has also been mentioned in the table (6.2).
Table 6.2: Achievement of children with LDs in mid-term and final examination

<table>
<thead>
<tr>
<th></th>
<th>Faizan Mid-term</th>
<th>Final Exam</th>
<th>Priya Mid-term</th>
<th>Final Exam</th>
<th>Prerna Mid-term</th>
<th>Final Exam</th>
<th>Manan Mid-term</th>
<th>Final Exam</th>
<th>Mansi Mid-term</th>
<th>Final Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate</td>
<td>52</td>
<td>58</td>
<td>49</td>
<td>64</td>
<td>50</td>
<td>63</td>
<td>48</td>
<td>71</td>
<td>48</td>
<td>73</td>
</tr>
<tr>
<td>Hindi</td>
<td>50</td>
<td>55</td>
<td>55</td>
<td>57</td>
<td>42</td>
<td>51</td>
<td>43</td>
<td>72</td>
<td>41</td>
<td>82</td>
</tr>
<tr>
<td>Social Science</td>
<td>41</td>
<td>51</td>
<td>41</td>
<td>58</td>
<td>41</td>
<td>47</td>
<td>41</td>
<td>61</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>Science</td>
<td>46</td>
<td>51</td>
<td>56</td>
<td>68</td>
<td>61</td>
<td>67</td>
<td>48</td>
<td>66</td>
<td>51</td>
<td>86</td>
</tr>
</tbody>
</table>

**Note:** Mid-term= mid-term examination conducted before the intervention, Final Exam= Final Examination conducted after the intervention, Aggregate= achievement of children in all school subjects in terms of percentage out of total 700 marks. Achievement in Hindi, Social Science and Science subjects are in terms of percentage out of 100 marks each.

**Mean and Standard Deviation - Mid-term Examination** (Aggregate=55 & 8 (mean and standard deviation respectively, Hindi= 55 & 14, Social Science= 53 & 14 and Science= 57 & 11) and **Final Examination** (aggregate=68 & 8), Hindi=65 & 13, Social Science=61 & 13 and Science=69 & 13.50).
Lesson Learnt from the Case: While retelling the story, it was noticed that, Faizan named all the characters and the major incidents occurred in the story. The sequence of retelling the story was also correct. But a lot of probes were needed for evoking the responses from him. His responses were in his own language which showed improvement in his receptive and expressive language. He was not able to articulate strategies required to monitor his cognitive processes (meta-cognitive strategies). Although, he was able to do intervention sessions independently but he was not very vocal, therefore, he could not articulate strategies used by him for completing the tasks. It could be also attributed to the fact that children with LDs faced difficulties in acquiring meta-cognitive skills. The assessment showed that his reading ability was severely affected in comparison to other children with LDs, thus, he required more individualistic attention and care.

Case 2: Priya

Priya was a girl child, 8 years and 3 months old. In the beginning, the class teacher referred to her as a child having problems in reading. On screening devise (i.e., BCSLD), she scored 44 (73%) which made her to treat Priya as a child with at-risk for LD. Further assessments were carried out to avoid misdiagnosis. The deviation IQ of the child was 94 and 100 on Draw-a-Man test and ICIT respectively. On the test for assessment of LD in Hindi language, she achieved below 40% score on 7 subtests: position in space, auditory processing, cognitive abilities, memory, receptive language and expressive language. Analysis for her writing skill on the test was done in qualitative way. An individual’s handwriting skill requires expertness of several other abilities, for example, coordination of gross motor and fine motor control (coordinating vision, eyes, arms, hands, memory, posture, and body control, and ability to hold pencil and forming shapes and letters). Her handwriting skill was limited due to poor eye-hand co-ordination.

During the initial meeting, Priya’s teacher described her as:

“She knows everything but I do not know why she does not study. Until I do not sit infront of her, she does not do any academic task. If I go away even
for two minutes then I do not know in what thought she gets indulged. Until I
do not beat her with stick she does not do anything. I am tired of beating her. I
have many other students to teach, so I cannot always sit in front of one
child”.

A child’s poor confidence and low self-esteem could be caused by
learning disability. LD in child does not only turn into academic difficulties,
but they also create frightening barriers to positive self-esteem, and result in
self-doubt, frustration and social failure. Fortunately, she got continued
encouragement from the teacher, which helped her to work on her self-doubt
and succeed in the Class IV. She was the one who needed constant monitoring
during the sessions. She would do her work properly only in presence of
someone. Without special monitoring, she indulged in day dreaming.

**Assessment of Reading Skills:**

**Pre-test:** Priya exhibited deficits in comprehension ability which is the most
important reading skill that requires higher level of cognitive functioning. As
mentioned earlier, for the purpose of measuring reading comprehension
ability, a list of 10 generic questions was given to the child that intended to
measure both literal and inferential ability. Answering literal questions were
easier as answers were directly cited in the text. She could answer only 2
questions i.e., the name of the main character and the end of the story
correctly. She failed to answer the questions in which responses were implicit
within text. Her responses on comprehension task have been mentioned in
figure (6.1) under the pre-test section.

Furthermore, all basic reading skills of Priya were also measured. On
the measurement of word reading accuracy, she could read all given words
(simple words). Reading of consonant cluster words were 70% correct in pre-
test. Her reading fluency was 46 WPM. Her ability to recognise letters and
combination of letters was well developed which was evident from her score
on word attack task (table 6.1). It showed that she had mastered the skill of
orthographic principles. She had also achieved proficiency to an extent in
other reading related skills; phonological awareness, text-reading speed, and
text reading fluency. Her reading speed was very slow. She was weak in using
vowels and consonant combinations. For example, क्रम as कम, मुघटना
(nonsense word) as मुघटना, प्रभाि as पभाि were example of consonant
cluster errors. She also had tendency of interchanging letters in a word, for
instance, कारण as काणर.

**Post-test:** In the post-test, an improvement was seen in her performance on the
task given to measure reading comprehension ability (figure 6.1). She could
successfully generate more number of correct answers in comparison to pre-
test. During the course of the intervention it was noticed that her drawing was
not expressed well. Sometimes she drew only few lines. Gradually she learnt
representing stories in a good drawing format which displayed all the needed
components. The quality of the answers also improved which was manifested
the way she started writing the answers. For example, in case of the story
mapping items where she had to write characteristics of the main and second
important character. Her answers were “achha” (good) for the positive
character and “ganda” (dirty) for the negative characteristics of the characters.

With the passage of time and with experience she started using other terms for
describing the characteristics. The rate of change in the use of Priya’s
academic and non-academic doing was very slow. She appeared very sluggish
in the classroom. At times, the researcher thought of dropping her from the
study. The researcher had little hope of improvement in her performance.
Gradually changes were seen and her reading abilities were enhanced. In the
beginning she was completely uninterested and unexcited in the classroom
activities. She would not reply if she was asked any question. She would
remain silent and show cold and impassive face. Even towards the end of the
intervention programme she was not able to generate inferential answers
independently but there was a little improvement from pre-intervention to
post-intervention. Thus, it was believed that she needed constant monitoring in
academic as well as non-academic area. The following excerpt from the re-telling of story illustrates certain changes that were observed.

*Oral Re-telling of the story* - *Priya* was asked to read the story followed by the narration of the same.

*Researcher* - Ok, *Priya*, now I want you to re-tell the story to me. Try to narrate the story in the same order. As much as possible try to use the same language as the story was written in.

*Priya* - Bhakt Prahalad.

*Researcher* - hmm what happens next?

*Priya* - [no answer].

*Researcher* - You just read the story. Tell me what all you can remember?

*Priya* - Hiranyakashipu was the king of monster.

*Researcher* - Then?

*Priya* - [no answer]

*Researcher* - yes, you are right. What else happens?

*Priya* - [no answer]

*Researcher* – He was the king of the monster. Then?

*Priya* -[no answer]

*Researcher* – who was the devotee?

*Priya*-[no answer]

*Researcher*– then what happens in the story?

*Priya* - [no answer]

By re-framing the questions and through cluing *Priya* answered the questions towards the end of the session.

*Reading strategies:*

*Researcher* - what do you do when you read the story?

*Priya* - after reading the story, I do question answer.

*Researcher* - ok, what question you have to answer?

*Priya* - Name all the characters of the story, teacher, second question is, who is the main character of the story.
Researcher- Other?

Priya- third question, write the characteristic of the main character.

Researcher - hmm next?

Priya- [no answer]

Researcher – what else?

Priya- where does the story happen?

Researcher -Other?

Priya- when does the story take place? [She told all the question consisted in the story mapping technique].

Researcher - do you look for any part of the story?

Priya- [after a long pause] yes teacher, I think, what happens first in the story. I mean, what happens in the beginning. What happens in the end and what happens in the middle?

Drawing strategies:

Researcher - What do you do when you draw stories?

Priya- [no answer]

Researcher - Suppose, the story is of 3/4 pages and you draw on a single sheet. So, what all you draw and what you do not draw?

Priya- I take care of writing.

Researcher – what writing?

Priya- we write after the drawing.

Researcher - ok, when you draw what all you include?

Priya- [after a long pause] all important points.

Researcher – what you do not include?

Priya- less important points I do not include in the drawing.

Researcher – what you write after drawing?

Priya- First I draw and then write about it. I cannot include everything in drawing. So I write important points.

Researcher - very good!

Her performance on the basic reading skills in pre-test was quite well (for more detail refer the table 6.2). She did not show many difficulties in
basic reading skills in pre-test but during the course of intervention she exhibited difficulties in visual memory and grapheme-phoneme correspondence. She was weak in vocabulary, so, needed inputs. She had difficulties in copying from the blackboard. Lines were not straight in her writing. She used to do lots of cutting, rubbing and overwriting. Her writing was such that by the end of the session answers sheet was completely dirty. She had tendency to put over pressure while writing. Sometimes, the writing sheet used to tear. In all the basal reading skills an improvement was gained from pre-test to post-test.

**Academic Achievement: Mid-term and Final Examination**

Her academic performance was considered in order to see the impact of intervention. In the final examination, improvement was seen in her performance in comparison to the mid-term examination. She showed more improvement in oral expression than the written one. As mentioned before, she had difficulties in putting thoughts into text and used to float in thoughts during the sessions. The teacher provided a writer for her during the final examination. Even she was taking a lot of time to express herself orally, therefore, she was provided extra time too. Her achievement in examination has been presented in table 6.2.

**Lesson Learnt from the Case:**

On the basis of her responses in the interview it was clear that she had poor memory due to which was not able to recall details of the story elements. However, she recalled information when probes and clues were provided by the researcher. Surprisingly, she articulated cognitive and meta-cognitive strategies that were used for reading text with comprehension.

**Case 3: Manan**

The case was about a 12 years old boy who met all the criteria to be diagnosed with LD as followed in the present study. For instance, the Class teacher referred him as poor in studies. His scores on BCSLD was 48 (80%) led him to be treated as a suspected case of LD. He scored within the average
range of deviation IQ (93 and 94) on Draw-a-Man test and ICIT respectively. The LDDT-VL, a test which measured information processing and language skills of the child, provided poor scores on four sub-tests: auditory processing, cognitive abilities, memory and receptive language.

In spite of the fact that he was struggling with reading, he was a decent boy and was trusted by the teacher. He was the single weak student in the classroom who was loved and cared by the teacher. He had freedom to access teacher’s personal things (like, purse, shelf etc.). He was a well behaved student.

**Assessment of Reading Skills:**

**Pre-test:** Similar to other children with LDs, he also exhibited poor reading comprehension skills (figure 6.1). He could answer 4 questions out of 10 in the pre-test. Out of 4 questions, three questions required inferential skills to answer. Therefore, it could be said that, Manan could not provide answers of all questions but his performance was better than other children with LDs.

His performance on basic reading skills has been mentioned in the table (6.1). Errors committed by him on pre-test tasks were mainly inappropriate use of vowels/matras. He also exhibited poor awareness of mixed and blended consonant words (for instance, इंद्र as इद्र and स्नेह as सनेहा) and also showed Confusion between phonologically similar letters/words (सनेह as सनेहा). His performance on tasks of basic reading skills in pre-test made it clear that he had acquired awareness of skills to read text.

**Post-test:** Over the course of the intervention programme, drastic change was seen in his performance of reading comprehension skills. In the post-test assessments, he could answers all story elements questions. In other words, he provided right answers of literal as well as inferential questions (figure 6.1). His responses in the interview conducted after the completion of the intervention has been mentioned below:

**Oral-retelling of the story:** After completing the reading of the story, Manan was asked to re-tell the story.
Researcher- Good! You have read the story successfully. Can you re-tell the story in the correct sequence using the original words of the story if at all possible?

Manan- Story... Hiranyakashipu and Prahalad... [no answer].

Researcher- And what happens in the story?

Manan-... in this story... [thinking]... in this story... the king... the king gives order to make Prahalad fall from the peak of the mountain.

Researcher- Then?

Manan- Monster (the king) ordered... but he was not hurt. Prahalad... reaches the palace safely. The king got angry to see him. Then he gives order to put him in hot oil. Prahalad touches the oil and oil gets chilled. He becomes angrier. Then he gives order to trample him by an inebriate elephant. He touches the elephant and elephant becomes calm.

Researcher- Then?

Manan- Prahalad... [He thought] kills Hiranyakashipu? [Manan asked to the researcher].

Researcher- Prahalad kills?

Manan- no!

Researcher- Then?

Manan- Narsingh

Researcher- How did he kill?

Manan- He made him lie on his lap and ripped monster apart.

Researcher- Who ripped him apart?

Manan- One creature, his body was like human being and head was like a lion. He came out from a pillar when the monster kicked on it.

Researcher- why did he kick on the pillar?

Manan- He was angry because Prahalad said, my God is everywhere. Then, Hiranyakashipu asked, is he there in the pillar? Prahalad replied, yes! Then he kicked on the pillar in anger. One animal came out from the pillar who killed Hiranyakashipu.

Researcher- Then?

Manan- The animal was Narayan in the form of Narsingh.

Researcher- ok, good!

Story map follow up questions: He answered all the questions of story maps correctly.
**Reading strategies:**

Researcher- Can you explain what you do when you read the story?

Manan- First of I tick on the name of all characters. Then I find out the main character. Then find out the problems and steps taken to solve the problems. I write answers of all the questions. [Manan told all the question of story mapping technique].

Researcher- Then?

Manan- After completing the answers I draw it on the paper.

**Drawing strategies:**

Researcher- What do you do when you draw stories on the paper sheet?

Manan- Whatever happens in the beginning of the story, I draw it first. For example, first I draw images of main and second main character (e.g., Hiranyakashipu and Prahalad).

Researcher- Then?

Manan- Then I write important things about the story.

Researcher- Then?

Manan- Then I write what happens in the end of the story. For example, in the present story, Hiranyakashipu was killed.

Researcher- You write or you draw?

Manan- First I draw images and I write about it. Suppose, I draw main character, then I make a box and write about him. Like this, I write answers of all questions in sequence. Then, lesson of the story. [He told all the elements of story maps].

Researcher- Manan, what is the benefit of using the new approach in the classroom.

Manan- no answer

Researcher- The way your teacher used to teach you earlier and the way she is teaches you now. Which approach do you like more? What is the difference between these two approaches?

Manan- The new approach of teaching, I like more. We do task independently. Before doing the task we tick answers of all the questions then we write. Earlier, our teacher used to dictate answers from the answers key. Now we do on our own so we find answers easily. I also remember answer easily as I do it on everyday basis. And I also use my brain to complete the task.

Researcher- How do you use your brain?
Manan- Completion of task takes more time. First we read the lesson, and then we mark all important components. Then we make drawing and write answers of all questions. So it is easily remembered.

Researcher- Ok, good!

Manan’s performance on basic reading skills in post-test had also improved. For more detail see table (6.1).

Academic performance: His academic achievement in mid-term examination and final examination is mentioned in table (6.2). Increment in final examination scores showed improvement in child’s performance.

Lesson Learnt from the Case: He could successfully re-tell the story and required very few probes. He took less time in comparison to other children with LDs. On the basis of his responses, it could be concluded that he had successfully acquired and articulated meta-cognitive strategies used by him for creating story maps and conceptual maps.

Case 4: Prerna

Case 3 was a girl child, aged 9.5 years. She was diagnosed with LD as she had deviation IQ on both the intelligence tests 126 and 113 on Draw-A-Man test and ICIT respectively. Her measure of IQ indicated that her poor performance was not because of limited intelligence. On the BCSLD test she had scored 46 (77%) which showed that she was a suspected case of LD. For the final diagnosis a specific test for assessment of children with LD was administered to her. Her performance on LDDT-VL in Hindi language was less than 40% on three sub-tests; cognitive abilities, memory and expressive language which showed that she were weak in these areas. After getting data from various sources she was diagnosed with LD.

Assessment of Reading Skills:

Pre-test: Prerna’s reading comprehension ability was weak too. In the pre-test assessment she could successfully answer 4 questions. During the course of the intervention session it was clear that her ability to extract meaning while reading was severely affected. Her scores on the story elements have been presented in figure (6.1).

Her performance on the measure of basic reading skills was also assessed. Nature of language difficulties faced by Prerna was similar to those
faced by other children which was mainly orthographic and phonological in nature. For more detail, her performance on tasks of basic reading skills has been presented in the table (6.1).

**Post-test:** On the measurement of reading comprehension ability on the post-test, her performance had improved (figure 6.1). In ongoing sessions during the intervention, she showed much better performance than post-test assessment. Progress was also seen in the area of basic reading skills (table 61).

**Academic Achievement: Mid-term and Final Examination**

Improved academic achievement from mid-term examination to final examination suggests positive impact of the intervention on her academic performance (table 6.2).

**Lesson Learnt from the Case:** She re-told the story in correct sequence but needed probes to facilitate the answers. She successfully articulated the use of reading and drawing strategies.

**Case 5: Mansi**

Achievements of Mansi, a girl with LD has also been presented in tables; reading comprehension task (figure 6.1), basic reading skills (table 6.1) and academic performance in the table (6.2). She successfully re-told the story in correct sequence and articulated strategies of reading and drawing in well manner.

**Children with Low IQ**

It was already mentioned in the methodology chapter, there were 2 children (1 boy and 1 girl) who had learning related difficulties but causes could be attributed to low intelligence as indicated by their IQ scores. Their IQ was below 85 on tests used to measure intelligence in this study. Therefore, they were not included in the category of learning disability. Their performance was below 40% on several sub-tests of LDDT-VL which measured information processing and language components. Since the intervention programme was based on whole classroom approach, the changes that occurred in these children during the course of intervention have been noted and presented in the following section.
The children were, Rubi, a girl child and Angad, a boy, aged 12.2 years and 9.9 years respectively. Their IQ was less than 85 (DSM IV) on Draw-a-Man test and ICIT. They were reported to the researcher by the teacher as children with reading difficulties. Rubi’s score on BCSLD was 46% and IQ 68 (Draw-a-Man test) and 67 (ICIT). She performed below 40% on 6 sub-tests of LDDT-VL: figure constancy, spatial relation, cognitive abilities, memory, receptive language and expressive language. Angad had also achieved 73% on BCSLD, IQ 83 (Draw-a-Man test) and 80 (ICIT) and less than 40% score on 7 sub-tests of LDDT-LV: very poor eye-hand co-ordination, position in space, auditory processing, cognitive abilities, memory, receptive language and expressive language. Apart from showing all the difficulties related to information processing and language, they were not included in the LD group because of low IQ.

**Assessment of Reading Skills:**

An improvement was seen in reading comprehension ability from pre-test to post-test (figure 6.2). On the measurement of basic reading skills, Rubi performed very well. Her performance has been presented in the table (6.3). Her achievement revealed acquisition of basic reading skills required for reading-learning by her. On the other hand, Angad exhibited poor reading skills. Rigorous intervention programme brought up an improvement in their abilities.
Figure 6.2 Percentage of correct story mapping elements of children with low IQ (pre-test and post-test).
Table 6.3: Performance of children with low IQ on basic reading skills tasks (pre-test and post-test).

<table>
<thead>
<tr>
<th>Measured Reading Skills</th>
<th>Rubi’s Scores</th>
<th>Angad’s Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Skills</strong></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td>Word Reading Accuracy</td>
<td>93.33%</td>
<td>100%</td>
</tr>
<tr>
<td>Simple word reading</td>
<td>76.66%</td>
<td>90%</td>
</tr>
<tr>
<td>Consonant Cluster</td>
<td>41 WPM</td>
<td>49 WPM</td>
</tr>
<tr>
<td>Word Reading Fluency</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Task (word reading)</td>
<td>96%</td>
<td>100%</td>
</tr>
<tr>
<td>Orthographic choice task</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Phonological awareness</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Same Ending Sound</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Different Ending Sound</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Sound Deletion</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Text-reading Speed</td>
<td>49 WPM</td>
<td>52 WPM</td>
</tr>
<tr>
<td>Text-reading Accuracy Task</td>
<td>97%</td>
<td>99%</td>
</tr>
</tbody>
</table>
**Academic Achievement: Mid-term and Final Examination**

Their academic performance increased from mid-term to final examination. Improvement was also seen in their behavioural domain in the classroom. They started taking initiative in the classroom for asking any doubts and for answering questions as well. *Rubi* showed more changes in her academic as well non-academic domain while minor improvement was seen in *Angad*’s performance. Their achievement before and after the intervention programme in examination has been presented in the table (6.4).

**Table 6.4 Achievement of children with low IQ in mid-term and final examination**

<table>
<thead>
<tr>
<th></th>
<th>Rubi</th>
<th>Angad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mid-term</td>
<td>Final Exam</td>
</tr>
<tr>
<td>Aggregate</td>
<td>69</td>
<td>78</td>
</tr>
<tr>
<td>Hindi</td>
<td>75</td>
<td>82</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>71</td>
<td>73</td>
</tr>
<tr>
<td>Science</td>
<td>61</td>
<td>88</td>
</tr>
</tbody>
</table>

Note: Increase in final examination scores showed improvement in children’s learning outcomes.

**Children without Learning Problems**

After categorising children with weak academic achievement as children with LDs and low IQ, there was left a remainder group with a significant number of children who did not show many difficulties related to learning. These children were put into a different category i.e., children without learning problems which comprised 32 children. These children did not exhibit significant difficulties that needed extra attention on teacher’s part. So being the part of the ongoing intervention programme these children also showed positive changes in learning language and content of the syllabus.

**Reading Comprehension Skills:**

No doubt, children without learning problems were able to memorise the answers and reproduce on the answer sheets during the examinations. But they also lacked the ability to comprehend and draw inferences about what they read. This could be attributed to the existing teaching-learning practices in the
classroom where there was least focus on the process of striving for meaning while reading as observed by the researcher. It was evident from the answers they gave during pre-test assessment on the task used for assessing reading comprehension skills. They also lacked the ability to make connection between the story components and events happening in the story. These children were equally lost when they were asked to draw the story and create conceptual maps for expository text material. But the major difference that was noticed was academically brighter children grasped the technique or strategies very quickly than other children. Their content of the answers were more comprehensive. Words used by them while answering the questions were not limited. In spite of the fact that these children did not have much difficulty in learning answers by heart they found the GOs (story maps and conceptual maps) approach easier and mesmerizing. Strategies required for extracting meaning of the text was better explicated by this group of children. An improvement was seen in reading comprehension of all children (figure 6.3).

As mentioned earlier, few children were interviewed to see what strategies they use during the use of story mapping technique and generating conceptual maps. It was found that children with good academic performance required less probes during the interview. Majority of the children needed one or two probes during the narration of the story. They used exact language as mentioned in the story in the beginning of the narration followed by using their own language. Story components were chronicled while re-telling.

Strategies used during the reading were setting goal of reading before starting the actual reading. While drawing stories and framing conceptual maps they tried to follow the sequence of the story; beginning, middle and end of story, as mentioned by children. They learnt to focus on all important aspects of the story and lesson. At the same time they also acquired skills to avoid information which was not very essential. In sum, these children benefited from using GOs (both story mapping technique and conceptual map), which resulted in enhanced comprehension ability of narrative and expository text. They were seen to be very engrossed and showed a preference for the use of this approach in learning other subjects too.
In order to assess impact on the intervention programme on children’s learning outcome, a nonparametric test i.e., Wilcoxon Signed Rank test was used which showed significant changes from pre-test to post-test on the measure of reading comprehension skills and school subjects (Hindi, Social Science and Science).

Table 6.5 Achievement of children without learning problems in pre-test to post-test on various measures.

<table>
<thead>
<tr>
<th>Sample Size 32</th>
<th>Reading Com.</th>
<th>Agg. achievement</th>
<th>Hindi</th>
<th>Social Science</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>Pre-test</td>
<td>6.06</td>
<td>398.50</td>
<td>59.16</td>
<td>59.54</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>12.56</td>
<td>490.44</td>
<td>66.72</td>
<td>63.09</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>Pre-test</td>
<td>3.340</td>
<td>55.748</td>
<td>14.384</td>
<td>15.429</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>2.782</td>
<td>53.736</td>
<td>12.940</td>
<td>14.537</td>
</tr>
<tr>
<td><strong>Z value</strong></td>
<td></td>
<td>−4.943</td>
<td>−4.937</td>
<td>−4.642</td>
<td>−4.789</td>
</tr>
<tr>
<td><strong>Asymp. Sig. (2 tailed)</strong></td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td><strong>r value</strong></td>
<td></td>
<td>−0.63</td>
<td>−0.61</td>
<td>−0.58</td>
<td>−0.59</td>
</tr>
</tbody>
</table>

Note: Reading Com.=Reading comprehension, Agg.=Aggregate

**Interpretation:** The significance difference was established on 0.01 level and two tailed level was considered for analysing the data. It was statistically found that the intervention programme brought up significant change from pre-test to post-test in children’s performance of narrative text comprehension, \( Z= -4.943 \) and \( p < 0.01 \). The effects size of the intervention outcomes was separately calculated and a large effect size (\( r=0.63 \)) was found. Improvement was also seen in aggregate scores in all subjects and specifically in Hindi, Social Science and Science subjects from pre-test or mid-term examination to post-test or final examination. Statistically significant improvement was found in all subjects. Further details of the analysis are presented in table 6.5.

**Basic Reading Skills:**

On the basis of classroom observation and information provided by the teacher, it was clear that these children also faced difficulties in using matras/vowels, blended words and complex words due to the complexity of the Hindi orthography. It was not as prominent as in the weak children. As an effect of the intervention programme these children also improved basal
reading skills, for example, improvement was seen in vocabulary, spelling and pronunciation of complex, blended and long word, clarity in using matras/vowels, improvement in expression of ideas in their own words, and enhancement in the quality of the answers.

**Academic Achievement: Mid-term and Final Examination**

Children’s enhanced academic performance was seen from mid-term examination to final examination which was evident through their achievement in final examination. All children of this category were not equally efficient in every domain of reading-learning. However, statistically significant change was noticed in them in all school subjects. The change in achievement scores of children without learning problems for language (Hindi), Social Science and Science and the aggregate scores are depicted in graphs (figure 6.4 to 6.7).

Apart from academic changes in these children, they also learnt to behave in a polite way with children who had difficulties in studies. They became more co-operative and would offer help to weak children even without asking. Thus, the intervention led to positive behavioural outcomes in these children as well.
Figure 6.3 Achievement of children without learning problems on reading comprehension task in pre-test and post-test

Note: Figure 6.3 represents children’s performance on reading comprehension task according to scoring mentioned in the table (3.2).
Figure 6.4 Aggregate percentages of marks of children without learning problems in mid-term and final examination
Figure 6.5 Percentage of marks of children without learning problems in Hindi subject in mid-term and final examination
Figure 6.6 Percentage of scores children without learning problems in Social Science subject in mid-term and final examination
Figure 6.7 Percentage of scores children without learning problems in Science subject in mid-term and final examination
Children who could not Read

It was mentioned in the methodology chapter that Class IV children were divided in several groups and specific criteria was followed for the same. There were 6 children (2 girls and 4 boys) with learning problems in the class who were not even able to read as revealed by the teacher and classroom observation. In spite of the fact that these children completely lacked the ability of basic principles of reading and writings i.e., recognizing letter/s, but their visual memory was strong. On the measurement of intelligence, they all scored within the average range. These children had efficiency of copying from the blackboard and from someone’s notebook. Their notebooks were filled up with all questions-answers on time. In the conversation with the researcher, the teacher stated:

“You (the researcher) do something for these children. I really do not understand, how I should teach them everything from the beginning. They are not even aware of akshara (alphabets). How much effort you put, they understand nothing. These children studied in the villages or government school before coming here. They have not been taught anything over there. These children cannot be failed in examination, as we have been ordered from our school principal. So we cannot do anything. We have to keep these children in the class. If their notebooks are not completed on time, then, we are scolded by the head of the school. There are so many children in the classroom how much can be done alone”.

As discussed earlier, these children were completely ignored by the teacher. In the classroom, specific seats were allotted to them with the reason that these children created lots of disturbances in the class and distracted other children in their studies. She further said that “they are least bothered about their studies. I make them sit together, so that, they can not disturb others”.

A very interesting fact was noticed during the session. A child, Pankaj was given a story and he was asked to search a few words in the text. For example, he was asked by the teacher to identify 'chocolate' word in the story. It was very surprising; he put his finger on the correct word. Again he was asked to find out how many times the term 'chocolate' had appeared in the
story. He successfully recognized all the terms. While doing so, he would
detect one term at a time then again he would start from the beginning to find
out the next term. He kept doing it until he found all.

Majority of children from this category had behavioural difficulties. Few
children exhibited disturbed external behaviour (naughty, talkative, not able to
sit at the place for longer) while others exhibited disturbed internal behaviour
(silent, sluggish, poor self-esteem etc). These children were not the part of the
main study as the intervention aimed at strengthening the reading
comprehension ability which required the acquisition of basic reading skills
beforehand. Therefore, these children were dealt with differently. In the
beginning of the intervention, the class teacher was suggested by the
researcher to make them sit in junior class so that they would learn
fundamental reading skills. Initially, they sat in Class one for a week
throughout the day. After gaining some awareness about the basic reading
skills, they were shifted to their respective class. During the classroom, the
teacher mainly focused on the acquisition of literacy skills; alphabets, writing
two or three syllables words, blend words, making small sentences etc. During
the actual intervention sessions, they were also asked to draw the story in their
own way. The idea behind was to make them associate with literacy task that
would hold some meaning to them. Their drawing was really nice, and they
were able to articulate story orally and in graphic form too. Towards the end of
the intervention sessions a moderate change was noticed in them in academic
as well as behavioural realm. After getting a positive treatment from the
teacher, these children started behaving nicely in the class, maintained
discipline, showed interest towards the study. Pankaj did not have school
uniform, so, he was wearing casual attire. Earlier he would not have bath every
day. Later on he started dressing up nicely. By the end of the sessions, these
children had developed some basic reading skills. Their academic performance
in mid-term and final examination has been presented in figure (6.8).
Figure 6.8. Performance of children who could not read in mid-term and final examination