CHAPTER VI

MANUAL

6.1 Tests

6.1.1 Attention

Principle- When a child is affected by both dyslexia and ADHD, the impairments are likely to influence almost every area of development. Co morbidity, in other words, is a prognostic indicator and important for the long-term planning of educational and other support services (Knivsberg, Reichelt and Nodland, 2003)

OBJECT CANCELLATION TEST:
Black and white picture of spoons and forks given to the children. They were asked to cancel only the spoons. Altogether there were 21 spoons and forks. Children were given 1 minute to complete the test.
Scoring system:
Number of spoon not crossed and number of forks crossed
More is the number greater is the learning difficulty.

6.1.2 Visual discrimination 1

Principle-Visual discrimination allows us to tell the difference between similar objects, tell where one object ends and another begins, and to recognize objects and symbols when only part of it can be seen (or when it is fuzzy). Individuals who have visual discrimination disorders often mix up letters or numbers and have difficulty reading or scanning pictures for information.

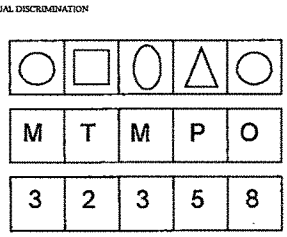

Fig 6.1

Children were asked to circle similar looking pictures or similar looking alphabets and words. The first picture in the first row is pointed at and the child is asked to point to or circle similar looking picture. Similar procedure is followed with the next two rows. Only one row is shown at a time.

Exposure time per row is one minute.

Scoring system-

For every wrong 1point is given

For every right 0 point is given

6.1.3 Visual discrimination 2

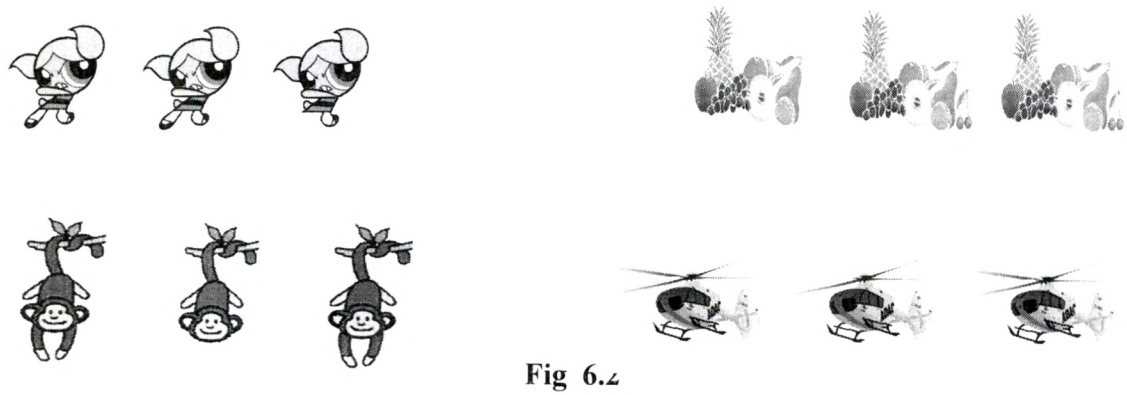

Fig 6.2

Children were shown three nearly similar looking pictures with one picture had a part missing. Child had to identify the picture with a part missing. One example is shown to the child and child is asked to point at the helicopter with missing part. If unable to do so is explained and shown the missing fan blade. Once the tester felt confident that the child has understood the concept the tester proceeded ahead to administer the test.

Exposure time per row -1 minute

Scoring system –

For every wrong 1point is given

For every right 0 point is given

Maximum score- 3

Minimum score-0

6.1.4 Spatial Orientation I

Principle-The ability to perceive the location of objects in relationship to other objects is a critical skill in reading, math, and handwriting, where a child must be able to recognize the different symbols, perceive their direction, tell the difference between similar shapes, and determine where these are located in relationship to each other. Individuals who have difficulty with spatial relationships may seem unusually clumsy or accident prone, may have difficulty reading or may refuse to read, or may have poor handwriting (dysgraphia).

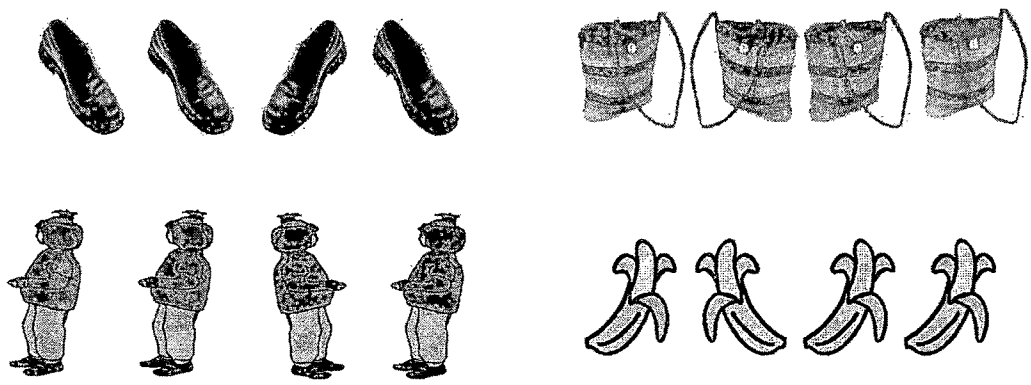

Fig 6.3

Children were shown similar pictures of objects with one object aligned in a different way and the other three aligned in the same direction. Child had to identify the picture that is aligned in different direction from the other three pictures. One example is shown with the picture of shoes. The child is explained that the third shoe is not aligned with the rest of the shoes.

Exposure time per row -1 minute
Scoring system –
For every wrong 1point is given
For every right 0 point is given
Maximum score- 3
Minimum score-0

6.1.5 Spatial orientation 2

Principle-The ability to perceive the location of objects in relationship to other objects is a critical skill in reading, math, and handwriting, where a child must be able to recognize the different symbols, perceive their direction, tell the difference between similar shapes, and determine where these are located in relationship to each other. Individuals who have difficulty with spatial relationships may seem unusually clumsy or accident prone, may have difficulty reading or may refuse to read, or may have poor handwriting (dysgraphia).

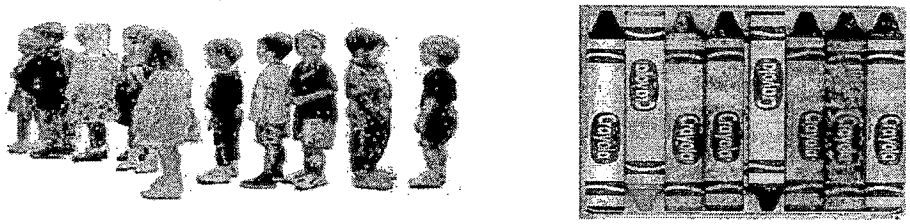

Fig 6.4

Children were shown pictures of the crayons and children standing in a row. They were asked to point out the crayons and the children not aligned in the row. No examples were given as this test is the extension of the above test.

Exposure time per row -1 minute
Scoring system –
For every wrong 1 point is given
For every right 0 point is given
Maximum score- 2
Minimum score-0

6.1.6 Spatial orientation 3

Principle- Some individuals have difficulty perceiving or integrating the relationship between an object or symbol in its entirety and the component parts which make it up. Some children may only perceive the pieces, while others are only able to see the whole. Children with a visual integration disorder will have difficulty learning to read (dyslexia) and recognizing symbols.

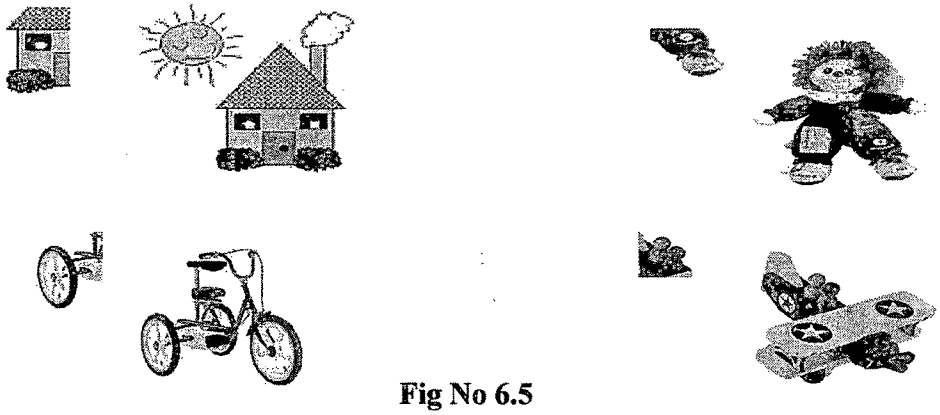

Fig No 6.5

Children were shown pictures. A small part is shown separately and the child is asked to identify the small part in the bigger picture. The first picture is explained to the child that the small picture shows a part of the cottage. Find out where is this small part of the cottage in the bigger picture.

Exposure time per picture -1 minute
Scoring system –
For every wrong 1point is given
For every right 0 point is given
Maximum score- 3
Minimum score-0

6.1.7 Left and right recognition

Principle Difficulty in establishing laterality or hand dominance. Marked confusion over the left/right side . Orientation problems associated with left/right confusion. Reversals/inversion of letters when reading . Some evidence suggests that left -right confusion is independent of directional dyslexia. As many as eight out of ten severely dyslexic children have directional confusion.

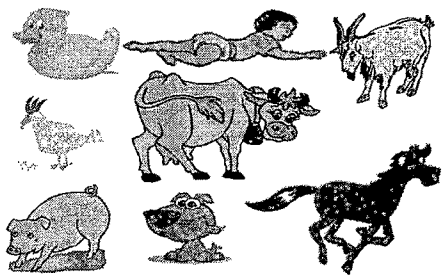

Fig No 6.6

Children were shown left and right by raising their respective hand and the arm is pointed sideways in the direction of the arrow. They were then tested by asking which side is their right and which is left. The child is asked to turn his head to the right side and then to the left to see if the child had really understood the concept. Finally, the picture is shown which had animals looking in the two directions and he is asked to point to all animals looking to the left and then all animals looking to the right.

Exposure time per picture -2 minute
Scoring system –
For every wrong 1point is given
For every right 0 point is given
Maximum score- 8
Minimum score-0

6.1.8 Top and bottom recognition

Principle: Another form of directionality confusion is up and down confusion. Some children with dyslexia are also up-down confused. They confuse b-p or d-q, n-u, and m-w.

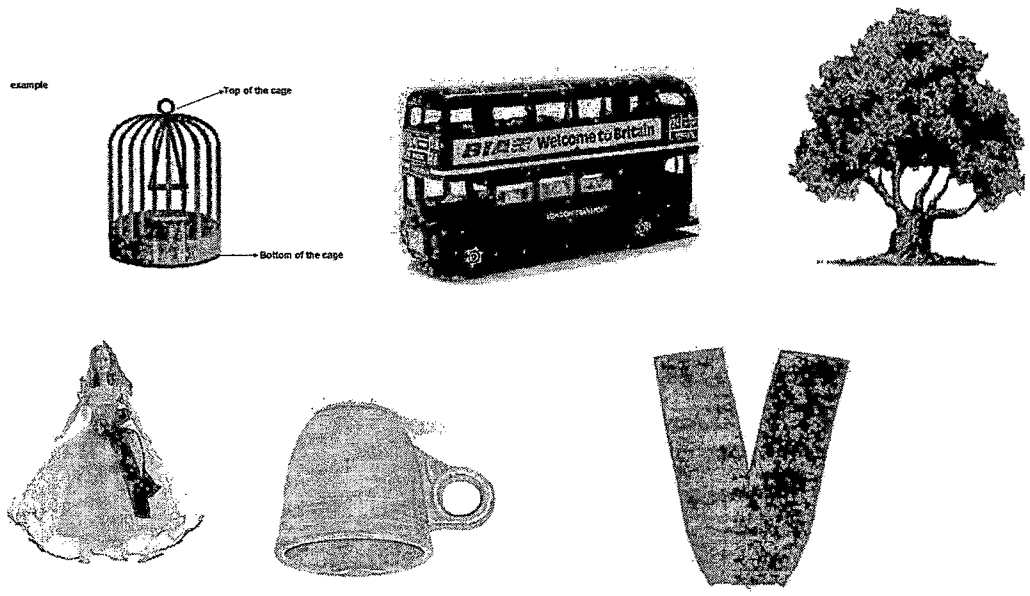

Fig No 6.7

Children were shown top and bottom by raising their hand and lowering them respectively and were shown the arrows pointing upwards and downwards. Then the child is tested by

asking to point to the top and to the bottom of the cage. If the child could not answer he is explained the top and the bottom in the picture of the cage.
After this the formal testing is done where the child is asked to point to the top and bottom of the picture.

Exposure time per picture -1 minute
Scoring system –
For every wrong 1point is given
For every right 0 point is given
Maximum score- 10
Minimum score- 0

Visual organization

Principle - Gestalt imagery—the ability to create imaged wholes—is a critical factor in oral and written language comprehension. Despite good decoding, good vocabulary, and adequate background experiences, many individuals experience weak gestalt imagery, thus processing "parts" rather than "wholes," from verbal stimuli, spoken or written. This contributes to a Language Comprehension Disorder that may be accompanied by a commonality of symptoms: weak reading comprehension, weak oral language comprehension, weak oral language expression, weak written language expression, difficulty following directions, and a weak sense of humor. Sequential stimulation using an inquiry technique develops gestalt imagery and results in significant improvement in reading comprehension (Bell,991).

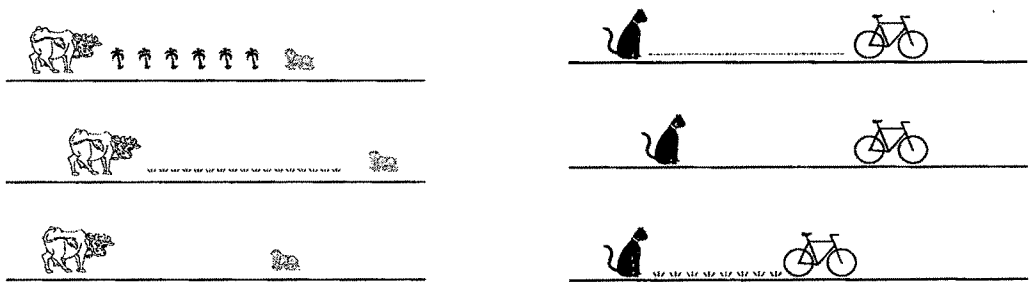

Fig No 6.8

6.1.9 Test of proximity

i) Children were shown a picture of cow and boy. There were three similar pictures arranged in three rows. The child is asked to find out the picture in which the cow and the infant are placed the closest. Similarly, the second picture of the cat and the bicycle is shown and the child is asked to identify the picture where the two of them are placed the closest.

Exposure time per picture -1 minute

Scoring system –

For every wrong 1point is given

For every right 0 point is given

Maximum score- 2

Minimum score- 0

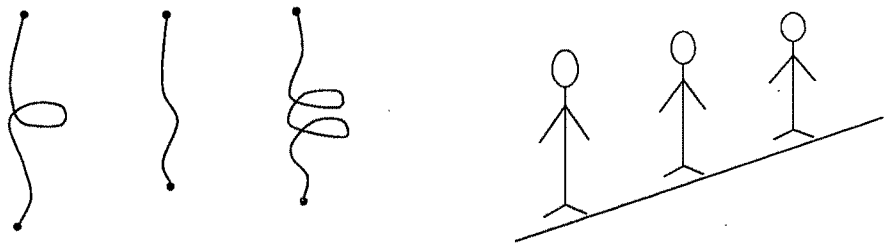

Fig 6.9

ii) Picture of three ropes were shown and the child had to identify the longest rope. Similarly, stick picture diagram of three men were shown and they had to identify the tallest man.

Exposure time per picture -1 minute

Scoring system –

For every wrong 1point is given

For every right 0 point is given

Maximum score- 2

Minimum score- 0

6.1.10 Test of similarity

Fig No 6.10

Children were shown four shapes in a one picture and they had to identify the two shapes that were similar in that picture. In the first picture the two hexagons were similar. In the second picture the two rectangles were of the same size and shape.

Exposure time per picture -1 minute
Scoring system –
For every wrong 1point is given
For every right 0 point is given
Maximum score- 2
Minimum score- 0

Complete the alphabet

Fig No 6.11

6.1.11 Test of closure

Children were shown incomplete pictures of alphabets and were asked to recognize the alphabet. Child is explained the first alphabet by showing partially made b and if unable to identify then is shown the whole letter. The child should have been taught the alphabets in school then only this test is valid. Similar three such pictures were shown subsequently and the child is asked to identify the partially completed alphabets.

Exposure time per picture -1 minute

Scoring system –

For every wrong 1point is given

For every right 0 point is given

Maximum score- 3

Minimum score- 0

6.1.12 Synthesis and analysis

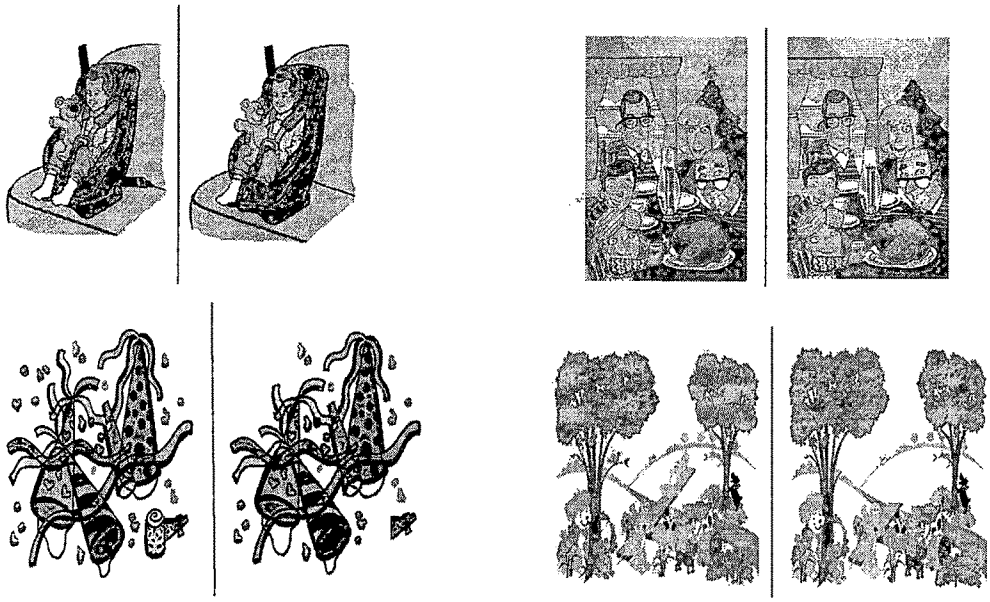

Fig No 6.12

Principle - Since dyslexia enables a person to see the whole picture at once, all the little details that help to form that picture get lost. All the steps that go into solving the problem are superseded by the need to have a whole perspective solution.

Children were shown two similar looking pictures. The second picture has two things missing which are present in the first picture. The child is asked to find out the missing objects in the second picture. The first picture is shown as an example to the child and is asked to find the missing objects. There are two objects missing in each picture. If unable to do so is shown the objects missing in the second picture of the first example. In the subsequent three pictures is told to find the missing the missing objects in the picture.

Exposure time per picture -1 minute

Scoring system –

For every wrong 1point is given

For every right 0 point is given

Maximum score- 6

Minimum score- 0

Principle of visual motor skills - Dyslexic subjects are found to be less efficient at recognizing structure-from-motion and less accurate at grasping objects precisely. They also showed a mild impairment in stereo acuity. These results, then, lend some support to the hypothesis that dyslexic individuals should show deficiencies on tasks dependent on dorsal stream processing of visual information (Felmingham & Jakobson,1995).

6.1.13 Visual motor skills I

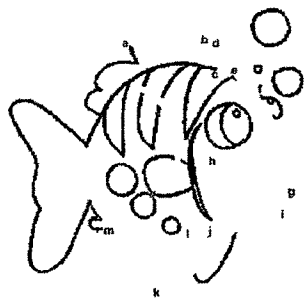

Fig No 6.13

Children were shown a picture of a fish which they had to complete by joining the numbers from one to ten. They were asked to join the numbers sequentially.

Exposure time per picture -4 minute

Scoring system –

For wrong 1point is given

For right 0 point is given

Maximum score- 12

Minimum score- 0

6.1.14 Visual motor skill II

VISUAL MOTOR SKILLS :

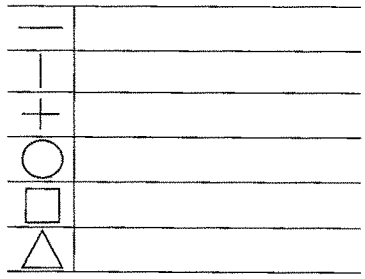

Fig No 6.14

Children were shown picture one at a time and the child is asked to draw the same after taking away the picture.

Exposure time per picture -1 minute

Scoring system –

For wrong 1point is given

For right 0 point is given

Maximum score- 6

Minimum score- 0

6.1.15 Visual motor skill III

VISUAL MOTOR SKILLS

SEQUENCING :

BEADS :

1. RED , GREEN , RED , GREEN —10 such beads
no. of error (score)

2. RED , BLUE , YELLOW , RED , BLUE , YELLOW —15 such beads
no. of error (score)

Fig No 6.15

Children were given ten beads and were asked to arrange them in a sequence like red, yellow, red and yellow. Once the sequencing is demonstrated to the children and then they were told to do the same.

Scoring system –

For five sequence wrong -5

For four sequence wrong-4

For three sequence wrong-3

For two sequence wrong -2

For one sequence wrong 1point is given

For right 0 point is given

Maximum score- 5

Minimum score- 0

6.1.16 Visual Memory

Principle-Child finds the assimilation of visually based coded material difficult. As they grow older the symptoms seen are due to lack of visual recall like reading error confusing similar looking words, difficulty in single word reading compared to same words occurring in text (when contextual guesswork is supporting decoding) spelling errors indicating lack of visual memory recall; reading errors- confusing similar looking difficulties attributing correct meaning to single-word homophones difficulty with mental arithmetic, difficulty copying etc.

Children were shown pictures and then the pictures were removed from view. They were asked to name the pictures they saw in the same order as shown.

ROW	TIME TAKEN
DOG	2 SEC
CLOCK ,	2 SEC
CAT , SCISSOR	3 SEC
MAN , KEY, FISH	3 SEC
COW , TREE , PEN	3 SEC

Scoring system –

For wrong 1point is given

For right 0 point is given

Maximum score- 5

Minimum score- 0

6.1.17 Auditory discrimination

Principle- Dyslexics have a specific speech processing deficit at the sensory level which could be used to identify children at risk at an early age (Schulte-Körne, Deimel,, Bartling, & Remschmidt,1998).There is an inconsistency in the dyslexics' phonetic classification of auditory cues. A significant relationship is found between reading level and speech discrimination (Godfrey, Syrdal-Lasky, Millay, & Knox, 1981)
Children were asked ten pair of similar sounding words. The child is made to sit facing the wall and the tester sat behind him. They were asked to differentiate if the pair of words sounded the same or different. Child is given examples of man and van, van and van etc

Scoring system –
For wrong 1point is given
For right 0 point is given
Maximum score- 10
Minimum score- 0

6.1.18 Auditory memory

Principle- Auditory Processing Disorder, previously known as Central Auditory Processing Disorder (CAPD), is characterized by problems with:

- Auditory Discrimination; the ability to distinguish between similar sounds or words
- Auditory Figure-Ground; the ability to distinguish relevant speech from background noise
- Auditory Memory, the ability to recall what is heard (Dyslexics often have problems with working memory and it is this that makes learning so difficult. Working memory can be auditory and visual. Pupils with poor auditory memory benefit from regular practice in using their memory to recall increasing strings of information(Palfreyman 2005)
- Children were asked to repeat the words in the sentence in the same order. One or more errors in each of the six sentences suggest difficulty with auditory memory.

Scoring system –
For wrong 1point is given
For right 0 point is given
Maximum score- 6
Minimum score- 0

6.1.19 Receptive language

Principle - Children with dyslexia have weakness in language processing. Listening is the receptive mode of oral language and involves the ability to attentively hear what others say to us. Listening involves not only hearing but also understanding what we hear. Here the child has problems in following instruction of others. The child is unable to follow the language of others.

Children were shown pictures of ten objects placed on one sheet of paper. The child is asked to identify the object by pointing with their index finger.
Scoring system –
For wrong 1point is given
For right 0 point is given
Maximum score- 10
Minimum score- 0

6.1.20 Verbal language expression test

Principle: Research and clinical practice clearly demonstrate that many reading disabilities are language-based. Because the language deficits associated with reading disabilities are often present during the preschool years, these deficits can serve as early indicators of risk for reading disabilities. In expressive language difficulty, child has problems putting thoughts into words (Curtis & O'Hagan, 2008).

Children were shown some pictures. Child is asked to speak about each picture like-uses, appearance etc. Less than two responses suggest difficulty in the areas of verbal expression.

Scoring system –
For no response 2 points were given
For one response 1 point is given
For two response 2 points were given
Maximum score- 8
Minimum score- 0

6.1.21 Picture sequence

Principle-The most common difficulty that comes with dyslexia is the inability to or difficulty with, a concept called sequencing, the step-by-step way in which most people solve problems and organize their lives (Davis & Braun, 1995). The basic mechanics for the thought processes involved in sequencing depend upon visual memory -

Children were shown some pictures and objects that were arranged in a particular sequence or order. One picture is missing in the sequence. The child had to identify the missing picture. The first picture is shown as an example. The first two subtests had only one picture missing. The third subtest had two pictures missing in the sequence.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 4
Minimum score- 0

6.1.22 Story sequence

Principle: The most common difficulty that comes with dyslexia is the inability to or difficulty with, a concept called sequencing, the step-by-step way in which most people solve problems and organize their lives ((Davis & Braun, 1995).The basic mechanics for the thought processes involved in sequencing depend upon visual memory. Understanding that events occur in logical sequence is a fundamental pre-literacy skill.

Children were shown three pictures. They were showing small actions to complete a small activity. The child had to arrange the pictures in a sequential order to complete the activity. One example is shown.

Example: Sowing seed---watering the seed---big plant
Three tests were taken.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 3
Minimum score- 0

6.1.23 Literacy readiness

Principle- Letter knowledge at 45 months is the strongest predictor of literacy level at 6 years (Gallagher, Frith, & Snowling, 2000).

Children were shown four triangles and had to identify the best drawn triangle
Children were shown four alphabets (all capital A) and had to identify the best written capital A.
Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 2
Minimum score- 0

6.1.24 Phonemic awareness test I

Principle:

a) Phonological awareness: analysis and synthesis of the sound structure of oral language. The order of progression of phonological awareness starts with syllables and moves toward smaller units of speech sounds (Adams,1990).

Phonological awareness provides individuals with the ability to break words into syllables and component phonemes, to synthesize words from discrete sounds, and to learn about the distinctive features of words (Torgesen & Wagner,1998).

(b.) Phonological memory: coding information phonologically for temporary storage in working or short-term memory. Phonological short-term memory involves storing distinct phonological features for short periods of time to be "read off" in the process of applying the alphabetic principle to word identification

Children were explained that bat starts with buh, fan starts with fuh and red starts with ruh. Child is shown pictures. The tester asked them to identify two pictures that start with the same phoneme (letter). The first picture is shown as an example where bat, apple, ball and cone were seen. Bat starts with buh. There are pictures of apple, ball and cone. Show me another object which starts with buh. Similarly, three other tests were conducted.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 3
Minimum score- 0

6.1.25 Phonemic awareness test II

Children were explained that they have to match the letter and the beginning sound of the picture shown. The first picture is shown as an example. This is a helicopter. Below are three alphabets h, c, p. what does helicopter start with? Similarly, all other tests were conducted.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 3
Minimum score- 0

6.1.26 Phonemic awareness III and letter identification

Children were asked to identify the letter that makes a particular sound. Firstly, an example is shown to the child. Find the letter that makes tuh sound. If unable to identify is shown the letter T which makes tuh sound.
Similarly, four such tests were conducted for other alphabets

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 4
Minimum score- 0

6.1.27 Rhyming

Principle - Rhyming ability is considered a particularly strong predictor of later reading development in English (Goswami & Bryant,1990)

Children were shown four pictures and they were named aloud- bat, cat, horse, tree. Two words end the same way. They are called rhyming words. Orthographically and phonologically similar word pairs (e.g. 'bite-kite') and orthographically similar but phonologically dissimilar word pairs were tested. They were asked to identify the two rhyming words. If the child is unable to do so, he is asked to look for words ending with –at. Once it is very clear that the child understood the concept, the test is administered.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 3
Minimum score- 0

6.1.28 Blending I test

Principle : The reading/writing/spelling characteristics are the result of difficulty with the development of phonological awareness, including segmenting, blending, and manipulating sounds in words

Children were shown pictures of two objects and those objects were named aloud. They were asked to join the two words together to make a compound word. If unable to understand example is explained with one fist depicting pencil and the other depicting the box. The two fists were joined in the centre and the child is asked what the two had become now after joining. Then the child is shown the picture of the compound word. The child is then administered the tests.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 4
Minimum score- 0

6.1.29 Blending II test

The blending is made more complex with child shown

i) These pictures are: table lamp, sofa, shoe, and cap. Find what you get when you put table and lamp together. Find table (pause) lamp.
ii) These pictures are: eye, sun, nose, moon .Find what you get when you put NNN and OSE together. Find NNN (pause) OSE
iii) Find what you get when you remove mon from mon-key. Pictures of cup, broom, box and key were shown.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 3
Minimum score- 0

6.1.30 Rapid naming object test

Principle: Efficient retrieval of a series of names of objects, colors, digits, or letters from long-term memory. Rapid naming of verbal material is a measure of the fluid access to verbal names, in isolation or as part of a series, and related efficiency in activating name codes from memory (Torgesen, et al 1999).

The children were shown pictures of objects and they had to name them as quickly as possible.10 different objects were placed in an irregular sequence. The objects were common which children could identify easily. They were timed for the time taken to name the 23 objects. The errors were counted too.

Scoring system –
For wrong 1 point is given
For right 0 point is given
Maximum score- 23
Minimum score- 0

6.2 Classification to Identify the Degree of Learning Difficulty in 4-5 Year Old Children

Table No 6.1

	normal	mild	mod	Total
colcancl	0/1	2/3/4	5/6/7/8/9	9
vdt1t	0/1	2	3	3
vdt2t	0	1	1	1
sot1t	0/1	2	3	3
sot2t	0/1	2	3/4	4
sot3t	0/1	2	3	3
lar	0/1	2/3/4	5/6/7/8	8
tbt	0/1	2/3	4/5	5
prot	0/1	2/3	4	4
simt	0/1	2	2	2
clot	0/1	2	3	3
sat	0/1/2	3/4/5	6	6
vmst1t	0/1	2/3	4/5	5
vmst2t	0/1/2	3/4	5/6	6
vmst3t	0/1/2	3/4/5	6/7	7
vmt	0/1/2	3/4/5	6/7/8/9	9
adt	0/1/2/3	4/5/6	7/8	8
amt	0/1	2/3/4	5/6	6
reclang	0/1	2	3	3
vet	0/1/2	3/4/5	6/7	7
pst	0/1	2/3	4	4
sst	0/1	2	3	3
lrt	0/1	2	2	2
pat	0/1	2	3	3
lbst	0/1	2/3	4	4
lpmt	0/1	2	3	3
rhyt	0/1	2	3	3
b1t	0/1	2/3	4	4
b2t	0/1	2	3	3
rner	0/1	2/3	4	4
range	0 to 36	66 to 90	117 to 135	135

Depending on the minimum and maximum scores on a particular test and the pattern of scoring by the children identified with learning difficulty and without learning difficulty the researcher decided to score limits of normal, mild and moderate learning difficulty which has been shown in table 6.1. These score limits have been decided based on the percentile norms and age norms calculated for the sample studied in this research (shown in Data Analysis chapter IV).