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Chapter 3

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Chapter 3

METHOD

1. Design and Sample

The Present study used a quasi – experimental design with the following four groups of participants.

1st Group – Children with Learning difficulties (LD) at 4th grade level (N = 30).

2nd Group – Children with No Learning difficulties (NLD) at 4th grade level (N = 30).

3rd Group – Children with Learning difficulties (LD) at 7th grade level (N = 30).

4th Group – Children with No Learning difficulties (NLD) at 7th grade level (N = 30).

The participants with and with no learning difficulties were tested on a battery of tests to study and compare their cognitive and socio – emotional functions. The participants chosen for the study were grouped into four groups on the basis of the following inclusion and exclusion criteria.

Groups 1 and 3:

Children with Learning difficulties (LD).
INCLUSION CRITERIA:

1. IQ 89 and above as measured on Raven's Progressive Matrices.
2. Children studying at 4th grade (Group 1) and 7th grade (Group 3) in English medium schools.
3. Difficulty in learning ability as determined by their performance in monthly tests.

EXCLUSION CRITERIA:

1. Mental Retardation.
2. Diagnosed as mentally ill of psychiatric nature.
4. Major neurological / Medical conditions like C.P., Epilepsy, Meningitis, Hypothyroidism and nutritional deficiency.

GROUPS 2 AND 4:

Children with no Learning difficulties (NLD).

INCLUSION CRITERIA:

1. IQ 89 and above as measured on Raven’s Progressive Matrices.
2. Children studying at 4th grade (Group 2) and 7th grade (Group 4) in English medium school.
4. Normal learning ability as determined on their performances in the monthly tests.

EXCLUSION CRITERIA:

1. Mental Retardation.
2. Diagnosed as mentally ill of a psychiatric nature.
4. Major Neurological / Medical conditions like C.P., Epilepsy, Meningitis, Hypothyroidism and Nutritional deficiencies.

Sample Characteristics

The participants were all chosen from two schools in Bangalore City, Karnataka State, with English as the medium of education with similar educational system and practices. Both the schools were within a radius of about 2 miles and the children were from middle socio-economic status family. Totally 120 children were chosen where in 60 were experimental (LD) and 60 control (NLD). The sample was characterized in terms of sex, age, intelligence, socio-economic status, and emotional aspects as described next:
All the groups 1, 2, 3 & 4 had an equal distribution of both the sexes i.e., 15 males and 15 females in each group.

1) **Age**:

The distribution of age in the sample is shown in Table 3.1.

Table 3.1: Distribution of age shown in years with mean and SD for all the 4 groups.

<table>
<thead>
<tr>
<th>Age</th>
<th>Group-1 4th grade LD</th>
<th>Group-2 4th grade NLD</th>
<th>Group-3 7th grade LD</th>
<th>Group-4 7th grade NLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8.783</td>
<td>9.083</td>
<td>12.166</td>
<td>12.216</td>
</tr>
<tr>
<td>SD</td>
<td>0.51</td>
<td>0.44</td>
<td>0.49</td>
<td>0.50</td>
</tr>
</tbody>
</table>

From the table it is evident that the LD groups & the NLD groups were comparable within the grades.
2) **Intelligence:**

The purpose of utilizing intelligence as one of the parameters in the sample selection was to screen them for mental retardation. The Raven's colored Progressive Matrices were administered for the 4th graders and the Raven's Standard Progressive Matrices for the 7th graders. Table 3.2 shows the mean raw score and the standard deviation as measured on the respective Ravens progressive matrices.

Table 3.2: Distribution of raw scores on Ravens Progressive Matrices of the LD and NLD participants.

<table>
<thead>
<tr>
<th>Intelligence</th>
<th>Groups / Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LD / 4th</td>
</tr>
<tr>
<td>Mean</td>
<td>25.7</td>
</tr>
<tr>
<td>SD</td>
<td>3.57</td>
</tr>
<tr>
<td>Std. Error</td>
<td>0.65</td>
</tr>
</tbody>
</table>
As can be seen from the above table the differences between the LD and the NLD groups were not very much so that comparison between the groups in the respective grade level was possible. The difference between LD and NLD among 4\textsuperscript{th} graders was not significant, \( t (df=58) = 1.564; p < .05 \). The difference at the 7\textsuperscript{th} grade level between LD and NLD was also not significant, \( t (df=58) = 1.803; p < .05 \).

3) \hspace{10pt} \textbf{Emotional Disturbances}:

Learning difficulties can also stem from emotional disturbances. Hence, in order to rule out such children with emotional disturbances, Rutters Proforma A & B (Rutter, 1967) was used. Proforma A identifies learning difficulties and Proforma B identifies emotional disturbances. Based on the Proforma B scores, the participants were screened for emotional disturbances. The participants in whom emotional disturbances were ruled out were chosen. Also care was taken that the children chosen were not demonstrating gross hyperactive, attention and behavior problems on observation.

4) \hspace{10pt} \textbf{Socio-Economic Status}:

Another factor that can influence learning is the socio economic status of family from which the individual comes. Hence, an attempt was made to control the influence of this factor. A socio economic status scale (Shah, 1986) was administered to all the participants. In order to control this factor, all the
participants who fell under the category of middle socio economic status only were chosen for both LD & NLD groups.

5) Monthly test mark sheets:

Scholastic achievements are generally a good indicator of the presence or absence of learning difficulties. Hence, to obtain this information, the academic records having the marks obtained by the participants in their monthly, half yearly and annual exam were collected. Academic performance records from previous year and current year were examined for individuals selected by their respective class teachers. Participants who had more than three consecutive failures in more than three subjects for the past 6 months were chosen for the LD group. The participants chosen for the NLD group had successfully passed in all the subjects’ previous year and in the current year.

Tools used in the study:

The tools used can be divided into two groups: A) Tests / tools for the purpose of screening or selection of the participants. B) Tests for the main study. The rationale, description and the scoring of the various tests are given below.
A) Tests / Tools used for screening:


In a large population, screening calls for rapid reliable techniques that are relatively short and easy to administer. The best of these are inventories consisting of items of behaviors or observable acts that are comprehensible to an observer over a period of time. One such instrument is Rutter’s A & B scales developed in 1967 (Children’s Behavior Questionnaire). It is a children’s behavior questionnaire to be completed by the teachers and it is shown to identify children with psychological problems.

This questionnaire contains Proforma A and B. The proforma A seeks qualitative information about educational performance, consistency in academic work, attendance, leadership abilities, reading, writing and arithmetical difficulties, nicknames, any illness, physical handicaps and the teacher’s opinion about the need for psychological help. All together this proforma has 9 items. Proforma B has 26 descriptions of behavior against which the teacher is asked to indicate whether each such description ‘does not apply’, ‘applies somewhat’ or ‘definitely applies’ to the child in question. These ratings of each item are scored 0, 1, and 2 respectively and the scores are added together to produce a total score. Rutter (1967) and Rutter, Tizard and Whitmore (1970) found a cut off score of 9 or more had discriminative value for identifying the disturbed children. In addition, the scores for certain items can be grouped to obtain a neurotic subscore (items: 7, 10, 17 and 23) and
antisocial subscore (items: 4, 5, 15, 19, 20 and 26). The items are chosen to cover the main common emotional, conduct and behavioral problems of children as they might be seen in an educational setting. Each item provides descriptions of overt behavior requiring minimum of inference by the teacher. The scales were designed for children 6 to 12 years.

The scale has been used as a screening instrument in different populations of children in different cultures and found to provide valid and reliable results. Rutter (1967) first used it in Aberdeen, subsequently on the Isle of Wight with London school children (Rutter, Cox, Tupling, Berger, and Yule, 1975). The scale has also been used with the Ugandan school children (Minde, 1975; Minde, 1977), with Italian school children (Zimmerman, Mingletti, Tacconi, & Tansella, (1978) in Israel (Kolvin, Garside, Nicol, Macmillan, 1977) and in India (Rosario, 1988; Jayarama 1997).

This scale has been shown to have a high test-retest reliability of 0.89 over a three month period and an inter-rater reliability of 0.72 (Rutter et al, 1975). Zimmerman (1978) translated the scale to Italian & tested it on Italian children. Her results showed a retest reliability of 0.80 and inter-rater reliability of 0.50.

2. **Raven's Progressive Matrices**:

a) The **Standard Progressive Matrices** (SPM) developed by J.C. Raven (Revised 1988 edition), is a Non Verbal test of Intelligence. It is a test of a person's capacity at the time of the test to apprehend meaningless figures presented for his
observation, see the relations between them, conceive the nature of the figure completing each system of relations presented, and, by so doing, develop a systematic method of reasoning. The scale consists of 60 problems divided into five sets of 12 (Sets A, B, C, D and E). In each set the first problem is as nearly as possible self-evident. The problems that follow become progressively more difficult. The order of the items provides the standard training in the method of working. The five sets provide five opportunities for grasping the method and five progressive assessments of a person’s intellectual ability.

SPM was designed to cover the widest possible range of mental ability and to be equally useful with persons of all ages whatever their education, nationality or physical condition. The scale is intended to cover the whole range of intellectual development from the time a child is able to grasp the idea of finding a missing piece to complete a pattern. It is sufficiently long enough so as to assess a person’s maximum capacity to form comparisons and reason by analogy without being unduly exhausting or unwieldy.

Over forty studies dealing with the reliability of the SPM have been reported. They cover a very wide age-range, many cultural groups and clinical as well as normal populations and providing a general picture of good reliability, internal consistency or retest reliability. With regards to studies measuring internal consistency, the correlations between the item difficulties established separately in the UK, US, East and West Germany, New Zealand, and China range from .98 to 1.00. The test is therefore found to measure the same thing – in a wide range of
cultural, socio-economic and ethnic groups. With an Indian study of 180 teenagers, Ganguly (1967, as cited in Raven, Court and Raven, 1988) reported a split-half reliability of 0.84, while Sinha (1977, as cited in Raven, Court and Raven, 1988), also from India, found 0.89 and 0.95. Dey (1984, as cited in Raven, Court and Raven, 1988) with talented Indian students obtained a Kuder–Richardson correlation of 0.91. Well-conducted studies in many cultures have indicated satisfactory re-test reliability for period up to 1 year. Rath (1959, as cited in Raven, Court and Raven, 1988) obtained a finding of 0.91 after 7–10 days with Indian Undergraduates.

The standard progressive matrices were administered for the 7th graders.


RCPM is the children's version of SPM, to be administered for children 5 to 11 years of age. This also is a test of intelligence and has 3 sub sets A, Ab, and B with 12 problems in each set. This is similar to the Raven's SPM, but more simple and colored. This is has been used in Indian research studies (Jayarama, 1997).

This test was administered to the 4th graders in the present study.

3. General Information Sheet:

This was prepared by the investigator, which includes the information regarding personal details such as name, age, date of birth, order of birth, class, address & mother tongue. Information regarding type of family – joint or nuclear, Socio –
economic status & religion were also included. The purpose of this sheet was to organize and record the relevant information and the data individually.


This Socio-economic status measure is an improved scientific scale among the existing Socio-economic Status Scales, because of 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) Possession (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 the family).

(4) Educational status of family is considered by taking the average score of educational level of father, mother & sibling.

(5) Economic status is measured by total income of family divided by family size. For this score, income tax and property tax payment is also considered.

(6) Score to the different articles possessed by the family is assigned according to the cost and quality of material.

Test-retest reliability was 0.92 for 20 days and 0.89 for 30 days time interval. Validity for 6 component variable with composite socio-economic scores were as
follows – Caste - 0.72; occupation - 0.82; education - 0.86; income - 0.83; 
possessions - 0.78; social participation - 0.69.

Scoring : The total score from all the categories were converted into Staninie scale. The social economic status were classified into five categories – lower status (LS), Lower middle status (LMS), middle status (MS), upper middle status (UMS), and upper status (US) depending on the distribution of the scores.

3. **Monthly test marks sheet:**

The academic records indicating the monthly marks for all monthly tests / exams conducted in the school of the students selected by their respective class teachers as LD and NLD were collected by the investigator from the school. This gave the investigator an opportunity to examine the performance of the participants in the monthly tests and hence was able to choose the participants for the study to group the participants according to LD / NLD.

**B) TOOLS FOR MAIN STUDY :**

1. **Test for Attention & Concentration** : Double digit cancellation test.

This test consists of numbers from 1 to 5 randomly arranged in a matrix of 25 rows & 25 columns on a sheet of paper. All the 5 numbers occur in a random manner equal number of times. The task of the participant is to cancel or mark on 2 digits, as instructed by the investigator wherever it has occurred on the sheet. The
investigator notes down, the time taken by the individual to complete the task and the errors committed are counted. This test has been successfully used by many researchers and is still being used in institutes such as NIMHANS, Bangalore. The task taps the individual’s attention and concentration.


   This test consists of six gestalt designs, which the participant needs to copy. The reproduced designs are scored for degrees of rotation. The test is a culture free test. The MPD test provides a rapid and objective method of identifying children with reading disability who suffer from perceptual impairment.

   The test-retest reliability reported in the literature ranged from 0.89 to 0.71. With regard to validity, the authors reported that 85% of the Reading disability and 92% of normal children were identified with the help of this test.

   The participant was provided with 8 ½ x 11-inch white paper, pencil and erasers. After placing the sheet in front of the participant, 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 for the degree of rotation was done with the help of a protractor and a ruler as described in the manual. Maximum score = 150.

This is a Reading diagnostic testing tool used to assess reading and writing skills of children. It is an individually administered test. The test was primarily constructed as a means to help the teacher / learning specialist to examine the performance of the child and to assess the strengths & weakness of the child.

Only sub tests Oral Reading, Words : Flash, Words : untimed and Spelling were administered in the present study. These tests were used so as to keep the test materials constant for both the grade levels.

a) **Oral Reading**:

The Oral Reading test was designed to assess the child’s use of both context or meaning clues and word form clues in word recognition. The oral paragraphs contain both phonetically regular and irregular words. The test has seven paragraphs starting from easy three letter words and four-line paragraph to more difficult 10-letter words & 8 or 9-line paragraphs. The participant reads the paragraphs aloud while the examiner records.

The page containing the material to be read is only exposed to the participant. The investigator instructs to the child, “I’d like you to read these paragraphs out loud for me. Begin with the first paragraph. If you find some hard words, say them as well as you can and go on reading”. The test was continued until all the passages were read. The total time taken to read as well as the number
of errors made was recorded. The type of errors that were recorded was omissions, additions, repetitions & mispronunciation (whole or part). Self-corrections were not counted as errors. Based on the errors the raw scores were calculated. Since the test has not been standardized for Indian children, raw scores were not converted to grade scores.

b) **Words : Flash & Words : Untimed**

These two tests are designed to evaluate the child’s ability to read isolated words without the aid of context clues. On Words : Flash, the brief exposure of each word prevents an opportunity for detailed study of the word. Hence the child’s performance here measures the ability to recognize a word instantly or by sight. Conversely, on Words: Untimed, the child is allowed time to study a word before pronouncing it. Performance on this test thus is a measure of word analysis or word attack skills. These two tests were chosen so that, a Comparison between them would provide useful information.

In Words: Flash test, only one word is exposed for not more than one – half second, by using a tachistoscope. The examiner instructs the child as follows - “I have a word covered up by this card. When I move the card down, the word will show through the opening. I will give you a quick look at the word then cover up again. Watch carefully to see the word and tell me what it is. So that you will be ready, I will say ‘ready’ just before I show the word.” Totally there are 40 words ranging from two letter words to twelve letter words. No second chance is given & number of correct responses is the raw score.
In Words: Untimed, the child is asked to read from the test material which consists four columns of words with the range of difficulty increasing from the 1st column to the next. The child is given all the time he needs & if he does not know the word right away, he is instructed to figure it out. The 1st column with the easiest words is asked to be read first and then to proceed to the 2nd column. Totally there are 60 words. Scoring is by assigning 1 point to each word pronounced correctly on the 1st trial & ½ point to the words pronounced correctly on the 2nd trial. The raw score is the total number of points earned.

c) Spelling:

The spelling list consists of 40 words ranging from very easy two letter words to harder twelve letter words. The child is asked to write spelling words as they are dictated. As the meanings of the words can became difficult, sentences were used as per the example as follows –

is The cat is in the room. is

The sentences used were consistent for all participants. The number of correct words is the raw score.

d. Writing: The participants were asked to copy the first four paragraphs of the oral reading test from the Gates Oral Reading test material. The errors were
subjected to a qualitative analysis according to a list of errors prepared by the investigator similar to the list suggested in the Gates reading diagnostic test manual.

4. **Arithmetic**: Sub test from NIMHANS index of specific Learning Disabilities (Kapur, John, Rozario, and Oomen, 1992)

The Arithmetic portion of the NIMHANS battery consists of Simple arithmetic, Graded arithmetic and Fractions. The range of difficulty is from very Easy (Simple) to slightly higher level (Graded) to higher level (Fraction). Due to this nature of the test i.e., gradually increasing in difficulty, the test was chosen, as it can be administered to participants in the present study for both 4th grade and 7th grade levels.

Simple arithmetic has problems in simple addition, simple subtraction, simple multiplication and simple division. There are 5 problems in each.

Graded arithmetic has graded addition, graded subtraction, graded multiplication & graded division where in digit has to be carried over for further solution of the problems.

Fraction has problems in fractional addition, subtraction, multiplication and division.

The total number of problems solved correctly is the score.
5. **Visual Memory test**: Memory for Designs test (MFD), (Graham & Kendall, 1960).

As the title suggests, this is a test of visual memory. MFD involves the presentation of simple geometric designs & the reproduction of these designs from memory. Test materials consists of five inch cardboard square with a design printed in black. There are totally fifteen designs and all the designs are composed of straight lines since it seemed more likely that errors in reproducing curved lines would be more difficult to score objectively. The designs are exposed one at a time for 5 seconds. After the 5 seconds exposure, the design is withdrawn & the subject is asked to draw one like it. It generally takes 5 – 10 minutes to complete the test.

**Scoring**: Each design is scored on a 4 – point scale with values from 0 – 3 based on number & the kind of errors. The total score is the sum of the scores on the 15 individual designs; the higher the score, the poorer the performance.

6. **Auditory Memory Tests**:

1) **Paired Associate Learning** – Sub test from ‘NIMHANS Index of Specific Learning Disabilities (Kapur, et al, 1992)’.

This is a sub test in NIMHANS Index of Specific Learning Disabilities, to test the auditory memory. It involves the presentation of pairs of words to the child, and then the child has to repeat the word that was said in association with the prompting word being asked by the investigator. There are two types of paired association words used in the test –
a) Familiar or Similar words. Ex: Dog / Cat. b) Unfamiliar or Dissimilar words. Ex: Cow / Spoon. There are six pairs of words in each. All the six pairs of familiar words are presented to the child and tested for memory by the prompt of one of the pair. A maximum of five trials only is given. Following the familiar, the unfamiliar paired word set is presented & the child is tested after each trial as above. The number trials needed for the participant to get all the answers correct are the score for that set of words. If no learning takes place it is scored as 5. So the higher the score the poorer the performance.

2) **Serial Recall test**: (Investigator made)

This test was translated from Oriya (Das, 1982). This test consisted of twelve set of words which began with a four word series and progressed to six word series. There were four sets for each the four, five and six word series.

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

Scoring : The number of words reproduced in the correct order is scored. Each correct word carries one score. Maximum = 60.
Tests for Social - Emotional Functioning :

6. **Pre-adolescent Adjustment Scale (PAAS)**, (Pareek, Rao, Ramalingaswamy and Sharma, 1976.)

The Pre-adolescent Adjustment Scale (PAAS) measures the adjustment of the individual towards home, peers, school, teachers and general matters. The scale is an inventory of questions answered by the participants and it consists of 40 items: home (9), school (8), teachers (8), peers (8), and general (7). For each area of adjustment a separate score is obtained. The total of the 5 scores gives the score for total adjustment. High positive scores indicate high adjustment in the area, while high negative scores indicate maladjustment.

PAAS has validated with the ratings of the teachers from four schools. The teachers were asked to name five most adjusted and five most maladjusted, after they were given the meaning of adjustment and maladjustment. Mann-Whitney U values were calculated for each area of adjustment, for each of the four schools. The U values were significant at .05 level or above in one or more areas and at an acceptable level of validity in all the other areas.

For Reliability of the scale, retest data were obtained from five schools with an interval of three months between test and retest. Product movement correlations showed an acceptable level of reliability. To find out the interrelationship between adjustment scores on the 5 areas of adjustment, Pearson’s correlations were
calculated between scores on the 5 areas. All the coefficients of correlation were significant at .01 level.

8. **Culture - Free Self Esteem Inventory for children (SEI) - James Battle, (Form – A) 1981.**

This scale was developed by Battle (1981). The 60 item form is classifiable into 5 subscales.

a) General self-esteem.

b) Social / peer related self-esteem.

c) Academic / school related self-esteem.

d) Parents / home related self-esteem.

e) Lie scale, indicating defensiveness.

These sub-scales were derived through factor analysis. The inventory may be administered individually or in groups. The scores for SEI are derived by totaling the number of items checked which indicates high self esteem, excluding the lie scale items. The highest possible score on Form A is 50 and on the lie scale is 10. Separate sub-scale scores can be calculated.

One hundred and ninety eight boys and girls, enrolled in grades three through six, in three schools participated in the initial test-retest reliability study for Form A. Test retest correlations for the total sample ranged from 0.81 to 0.89. Similar results were obtained (Battle 1978) in a study which employed boys and girls enrolled in grades one through eight in 32 schools. Sex was not found to be a significant
variable affecting self esteem scores on all scales of Form A. Indian norms were calculated on a sample of 184 boys and 184 girls of IX grade from English medium schools (Vinutha, Rajini and Nagalashmi, 1989).


This is a 25 item scale, measuring the extent to which children with Learning disability perceive their disability as, (a) delimited rather than global; (b) modifiable rather than permanently limiting and (c) not stigmatizing.

Each item is a statement with which students agree or disagree by circling True or False. There is a balance of positively keyed responses with a point assigned for each item answered in the neutral or positive direction. Thus low SPLD scores represent a negative perception of the learning disability and high scores, a more neutral perception.

An initial pool of 28 items was revised for clarity, face validity and piloted on a sample of 12 learning disabled children between ages 8 – 11 years. Based on their feedback, some items were modified, eliminated or added by the author of the scale. The 33 item scale was then piloted on the 147 Crombach’s alpha 0.75 indicating high internal consistency. 15 items with total correlations below 0.20 were dropped.

For the final 25 item scale, 7 items were added. Coefficient alpha was 0.70 in a sample of 67 learning disabled children aged 9 through 11 years, 11months. The
item total correlations of new items ranged from 0.21 – 0.43. Final SPLD scores ranged from 3 to 23 with an average score of 16.8 and standard deviation of 3.74.


The STAIC was developed initially as a research tool to study anxiety in elementary school children by Spielberger, Edwards, Lushene, Montouri and Platzek (1973). This scale is developed to measure anxiety for children between 9 – 12 years. It may also be used with younger children, 8 years and below if their comprehension is adequate. It is also applicable for use with 13 year old children. The test has separate self report scales of 20 - items each that measure two distinct anxiety (A - trait) and (A - Trait). While the A – State items consist of statements that ask how the subjects feel at a “particular moment in time”, the A – Trait consists of statements with a requirement to respond by indicating how they generally feel.

Elevations on the A – state scale are expected in children exposed to stressful situations. Children, who score elevations on A – Trait are expected to be anxious more frequently and with greater intensity.

The test is suitable for individual or group administration. It requires 8 to 10 minutes to complete one of the scales and collectively about 20 minutes are estimated. The items are scored 1,2 or 3 depending on the amount of anxiety
indicated by the choice. All 20 items STAIC, A – State are phrased as “I feel …” followed by 3 choices for e.g., very calm, calm or not calm which are respectively scored as 1,2 and 3. The scores on each item are added to obtain a total score indicative of the level of state anxiety.

On STAIC – A-Trait scale, the child is required to respond to each item by indicating the frequency of occurrence of a particular behavior. For e.g. item 6 on the scale states “I worry too much “. The options for each item provided are : hardly ever, sometimes or often, which are scored as 1,2 and 3 respectively.

The STAIC shows a test – retest reliability of 0.65 and 0.71 of A-Trait scale for boys and girls respectively. While it has a reliability of 0.31 and 0.47 respectively, on A-State scale for males and females. Its internal consistency and reliability scores for A- state scale was 0.82 for males and 0.87 for females. For the A-Trait scale, the alpha co-efficients were 0.78 for males and 0.81 for females.

Concurrent validity of the STAIC – A-Trait scale was obtained by correlating it with the children’s Manifest Anxiety scale and General Anxiety scale for children. Correlations of 0.75 and 0.63 were obtained, respectively. Construct validity was also calculated by the authors for the A-State scale and was found to be fairly high.

In all the above tests, instructions were followed with a number of illustrations to ascertain that the participants understood the nature of the task. Only then the test proper was administered.
III PROCEDURE

The entire procedure of the study can be divided into two parts, Screening and Main study.

Screening:

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

Step - 1 - It was planned to conduct the study on children studying in English medium schools. Hence, as a first step two such schools were identified. To keep consistency in the school system, teaching methods and community, both schools selected were convent schools & in the same neighborhood.

Step - 2 - From such identified schools two groups of children, namely children with Learning difficulty and children without Learning difficulty were selected from 4th grade and 7th grade classes by administering the screening tools.

Step - 3 - Screening tools: Rutter's proforma 'A' & 'B' were supplied to the respective class teachers. Here the teachers were required to assess each student individually on the basis of the child's scholastic performance, school attendance, sports & extra curricular activities, physical handicaps, emotional & behavior characteristics at school. This individually assessed proforma were collected from
the teachers and on the basis of this assessment a ‘general pool’ of children was made, such children whose total score on proforma ‘B’ was below 9 were retained for further screening.

Step – 4 - To this group of children other screening tests were administered individually by the Researcher. To start with first, their performance on the monthly tests were assessed as per their marks sheet. Depending on this assessment, the participants were divided into two groups at each grade level. Secondly, in order to exclude mental retardation, RPM (for 7th graders) and RCPM (for 4th graders) were administered. Based on the scores, only the participants with normal & above normal IQ were retained. Thirdly, such selected groups were administered Socio economic Status scale. Only those participants who fell in the category, lower middle class & middle class were retained. Based on the exclusion criteria mentioned in the sample selection, four groups of participants were selected from 4th & 7th grade classes namely – 4th grade LD, 4th grade NLD, 7th grade LD, 7th grade NLD. The total number of participants tested for screening were 153 (81 from 4th grade & 72 from 7th grade). The final selected groups consisted of 30 participants with LD and 30 participants without LD form each of the grade levels (Total = 120).
The Main Study

Every test was administered individually. Proper care was taken to develop rapport with each participant & their interest, cooperation and motivation were attempted to be maintained through out the assessment session. Whenever required sufficient interval of rest between one test to another was provided. The procedure of testing & scoring has already been described in the previous section. The testing was carried out within one academic year during the months from September and February.