STATEMENT OF PROBLEM:

Learning disability is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing reasoning and mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to the central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (such as sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (such as cultural differences, insufficient or inappropriate instructions, psychogenic factors), it is not the result of these conditions or influences.

The children of any age who demonstrate a substantial deficiency in a particular aspect of academic achievement, because of perceptual or perceptual motor handicaps are called learning disabled.

Learning disabilities include difficulties in reading spelling, arithmetic (mathematics) and/or written language in spite of average or above average intelligence. The term "specific learning disability' means a disorder in one or more basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia, such terms do not include
children who have learning disabilities which are primarily the result of visual, hearing or motor handicaps, of mental retardation of emotional disturbance or of environmental cultural, or economic disadvantage. Most individuals with dyslexia show problems in area of memory, and language (Siegal and Ryan 1984, 1988).

In several researches it has been found that LD students often have difficulties with spelling, fine motor coordination, visual spatial processing and short term and long term memory. (Fletcher 1985, Johnson and Mykelbust 1967).

The symptoms range from mild to severe and focus on impairments in one or more areas important for learning (e.g., cognition, language, memory, information processing, attention, reasoning, perceptual abilities, problem solving, or psychological behaviour (Begali 1992, Savage and Wolcott 1994, Tyler and Calson 1994).

The present research is concerned with the study of memory, visual motor perception and personality of learning disabled students. The variables of sex, locale and SES have also been taken under consideration.

**OBJECTIVES:**

With the explanatory note above, the objectives of the present study are specified as follows:

1. To measure memory of LD students and to compare them with normal students.

2. To compare memory of rural and urban LD children.

3. To compare memory of male and female LD children.
4. To find out impact of socio-economic status on memory of LD children.

5. To measure visual motor perception of LD students and to compare them with normal students.

6. To compare visual motor perception of rural and urban LD children.

7. To compare visual motor perception of male and female LD children.

8. To find out impact of socio-economic status on visual motor perception in LD children.

9. To measure personality of LD students and to compare them with normal students.

10. To compare personality of rural and urban LD children.

11. To compare personality of male and female LD children.

HYPOTHESES:

The following hypotheses have been formulated in the light of the above problems and objectives, which are envisaged to be tested in the present study.

1. The LD children have inferior memory capacity in comparison to normal children.

2. There will be no difference in memory of rural and urban LD children.

3. No sex difference will be found in memory of LD children.

4. Socio-economic status will have no differential effect on memory of LD children.
5. The LD children have poor visual motor perception in comparison to normal children.

6. There will be no difference in visual motor perception of rural and urban LD children.

7. No sex difference will be found in visual motor perception of LD students.

8. Socio-economic status will have no differential effect on visual motor perception of LD children.

9. There will be significant differences in personality of normal and LD children.

10. There will be no difference in personality of rural and urban LD children.

11. No sex difference will be found in personality of LD children.

TOOLS:

The following tools were used to assess learning disability in students-

1. Scholastic achievement

2. Coloured progressive matrices

3. Achievement test of mathematics

4. Pupil's assessment.

Along with these test a general physical check up was also made by a physician to check speech, hearing or other physical disability.
After selecting LD students and normal students on the basis of aforesaid tools, the following tests were applied to measure their memory, visual motor perception and personality.

5. Test of memory

6. Bender Gestalt test

7. Children personality questionnaire


1. **Scholastic Achievement**:

   Students' scholastic achievement was assessed with the help of their annual examination results of previous class. Percentage of marks obtained in the last qualifying examination was considered as their scholastic achievement.

2. **Coloured Progressive Matrices**:

   It was developed by Raven to measure intelligence of children. It consists of 36 coloured matrices or designs divided into three sets A, Ab, and B each made up of 12 problems. The problems as well as sets are arranged in the increasing order of difficulty.

   In these matrices or designs, one part has been removed. The subject has to choose the missing insert from six given alternatives. The earlier series requires accuracy of discrimination the latter, more difficult series involve analogies, figure permutation and other logical relations. It is a non-verbal test.

   The test is administered with no time limit but it takes approximately 20 minutes to complete. It can be administered individually or in group.
**Scoring** : Scoring is done with the help of scoring key. One point is given to each correct answer. Maximum score for each set is 12 and 36 for total test.

**Reliability** : Test retest reliability of this test is .86 for Indian population. Split half reliability is reported to be .90.

**Validity** : Criterian related validity ranges from .60-.70 for C.P.M. and WAIS correlation.

**Norms** : Percentile norms for different age groups have been given.

3. **Achievement Test of Mathematics (For Primary School Children)**:

This test has been constructed by Asthana and Verma (1990) to measure achievement in mathematics in Primary school children (aged 6 to 11 years). It consists of 30 items, which cover counting, simple addition, sub-straction, multiplication, division, demical and also with statements.

Time given to solve the questions is 45 minutes.

**Scoring** : Each correct answer is scored for 1 mark and the sum of these marks is the mathematics achievement test score of the subject.

**Reliability** : Split half reliability (correlation between scores of odd even items) of the present test is .68. After applying the Spearman Brown Formula the correlation for the total length of the test is .81.

**Validity** : Item analysis made to find out the discriminatory value of each item argues well for the validity of the test. Furthermore the test was administered on 100 high achieving (at least 55 per cent marks in mathematics examination) and 100 low achieving (maximum 40 per cent marks in mathematics examination) students. The mean achievement scores for both groups are
significantly different at .01 level, mean scores of high achieving group are significantly higher than those of the low achieving group on the achievement test of mathematics.

The coefficient of correlation between present test scores and mathematics examination marks is .89 which is significant at .01 level. High positive correlation between test scores and examination marks also reveal the validity of the test.

Norms: Grade norms are computed on a sufficient large sample of 2000 Primary School Children

4. Pupil's Assessment:

Each students was assessed by his/her class teacher on an assessment sheet prepared by researcher.

This sheet consists of 10 items related to auditory comprehension, visual ability, verbal ability, motor coordination, reading, writing, arithmetic, science, English and class room behaviour. Each item has 5 alternative very poor, poor, average, good and very good. Each items is scored a 5 point scale and score 1 to 5 is given accordingly. Minimum score is 10 and maximum is 50 on this sheet. One who gets below 20 on this sheet is assessed as poor.

5. Test of Memory:

To assess sequential memory a list of digits in increasing order was used. The respondent has to produce the presented numbers, in same sequence. The maximum numbers of digits reproduced in correct sequence is the score of individual.
6. Bender Gestalt test:

This test is developed by Bender (1938) on the basis of gestalt theory, its devivation as concerns the name 'Bender Gestalt Test'.

The test consists of nine simple figures and the subject is asked to copy them. Figures are presented one by one singly to him. The designs used in this test were originally developed and used by Wertheimer for demonstrating the principles of Gestalt psychology as related to the general perceptual organization and its concomitant factors.

The Bender Gestalt Test is used to assess the visual motor perception and visual motor integration. The basic rationale of this test lies in the fact that perception and reproduction of Gestalt figures is determined by biological principles of sensory motor action and varies depending on the growth pattern and maturation level of an individual and also his pathological state either functionally or originally included. The proper copying of Bender Gestalt figures reflects the maturation level of visual motor perception which is closely related to language ability and other functions related to intelligence. These include memory, visual perception, motor coordination, temporal and spatial concepts, organization and representation.

Scoring: Developmental scoring system recommended by Koppitz (1964) has been followed. Time taken in copying each figure is noted down separately and added up to gain a Bender score (based on time).

Higher score denote delayed perceptual ability. Every error (distortion in shape, size, direction etc.) in copying the figures is scored, for one mark and these are added up to gain a Bender score (based on errors). Here again, higher scores denote delayed perceptual ability.
Reliability: Reliability for the Bender Test and the scoring system was attempted by several researchers. Two type of reliability were tried, viz., inter-scorer reliability and the test retest reliability.

Miller, Lowenfeld, Lindner and Turner (1962) made a reliability study. They independently scored 30 Bender protocols from young clinic patients. Pearson product moment correlation were computed between the test scores of these scores. All correlation's were statistically highly significant and ranged from .88 to .96. This indicated high validity index for this scoring system.

Test retest reliability was attempted by Koppitz (1964). Sixty kindergarten boys and 52 class first children were tested on the Bender Gestalt Test they were retested after a gap of few months. Kendall's Rank correlation coefficient was used to compute the reliability coefficients between the scores of the first and second administration. The co-relations ranged from .547 to .659 and were significant at .001 level.

Validity: For testing validity 51 young patients, whose age range was from 6 years 4 months to 10 years 8 months, were administered Bender Test along with other tests. The class wise mean composite scores were determined.

Chi-squares were computed comparing the number subjects with and without learning problems whose Bender scores were above or below the mean score for that particular grade level. All chi-squares were statistically significant at the one percent level, which demonstrated the Bender Test can differentiate between students with and without learning problems.

7. Children Personality Questionnaire (C.P.Q.):

Children Personality Questionnaire (C.P.Q.) is made for measurement of personality of children of age 8-12 years. The main purpose of C.P.Q. is to screen out the children from their schools, camps, for individual attention and guidance, those children who need help with emotional, conflicts and behaviour disorders, or to locate individuals with unusual temperamental sensitivity, needing careful handling. By this early recognition many behaviour difficulties can be avoided or handled before they harden into defensive habits and complications resistive to treatment.


The C.P.Q. has 4 forms A, B, C and D. Each forms has 140 items. Each items (except the factor B) has a forced choice 'Yes' or 'No' answer.

The C.P.Q. measures 14 primary traits useful in understanding and evaluating the course of personal, social and academic, development traits, related to creativity.

These factors are as follows:

A  Reserved  -  Warmhearted
B  Dull  -  Bright
C  Affected by Feelings  -  Emotionally stable
D  Phlegmatic  -  Excitable
E  Obedient  -  Dominant
F  Sober  -  Enthusiastic
G  Expedient  -  Conscientious
H  Shy  -  Venturesome
I Tough- Minded - Tender minded
J Zestful - Circumspect
N Forthright - Shrewd
O Self- Assured - Guilt Prone
Q, Undisiplined, self-conflict - Controlled
Q, Relaxed - Tense

Time required is 30 to 60 minutes for completion.

Administration of the Test:

The test booklets and the separate answer sheets are given to the children, who can use it properly. The children are told to write their name, age, sex, class on the top of answer sheet. Instructions are given and the informations regarding statements in booklets are collected in the form of responses on the answer sheets.

Scoring: Scoring is done with the help of scoring key. The answer key shows the correct answer to each item. One mark is given for each correct answer.

Reliability: One week test-retest reliability coefficient for all factors of this questionnaire range from .49 to .86.

Validity: Validity coefficient of this test ranges from .34 to .90.

Norms: Sten norms have been given.

8. Personal Data Sheet:

This personal data sheet has been prepared by the researcher to assess the socio-economic status of the students. This sheet consist of 14 items, of
which first second, third are not scored. The remaining 11 items have multiple choice to respond to.

Scoring is done with the help of scoring key. One can score a minimum of 9 and maximum of 31.

Higher scores are indicative of higher socio-economic status.

SAMPLE:

Sample consisted of 100 LD and 100 normal primary school students of both sex studying in class IV and V (age range 8-10 years) belonging to rural and urban areas of Varanasi. LD students were detected on the basis of their normal intelligence, poor achievement and poor pupils ratings. The students having average + intelligence, average + achievement and average − pupils ratings were considered as normal children (comparison group). Both groups have no physical disabilities.

DESIGN:

This is an ex-post-facto research. Two group of 100 LD and 100 normal students have been taken in this research and are compared on memory, visual motor perception and personality. Further, within the group of LD students, impact of locale (rural-urban), sex and socio-economic status has also been studied.

FIELD WORK:

For the purpose of data collection, the investigator firstly approached to the heads of the institutions from where she had to select the sample of the study. She explained her problem to them. With their permission, investigator got the record of achievement from previous result sheet of students of 4th and
5th class. She applied a test of intelligence (coloured progressive metrics) and a test of Arithmetic achievement to the students of the total class. The students were also assessed by their class teachers on Pupil’s assessment. General physical check up of these students was made by a physician (medical practitioner) to check speech, hearing, or other physical disabilities.

The students with average intelligence, poor scholastic achievement, poor arithmetic achievement and assessed poor by teachers were considered as learning disabled. These students had no physical impairment as reported by physician.

The students with no physical impairment, average intelligent, average achievement and assessed average or above average by teachers were taken as normal students or comparison group.

These two groups were administered the following tests-

1. Test of Memory
2. Bender Gestalt Test
3. Children Personality Questionnaire
4. Personal Data Sheet

The above tests were administered to measure memory, visual motor perception, personality and SES of LD and normal students.

Analysis of Data:

The responses to various tests were scored according to the directions set in the manuals of the test and with the help of scoring keys. Means were computed for the different sets of data and were presented through graphs.
test was applied to test the significance of mean difference between LD and normals on different dependent variables and also to test the significance to difference of mean scores within different subgroups of LD students.

One way analysis of variance treatment were given to the dependent variables i.e., memory, and visual motor perception to find out impact of socio-economic status on them.