Summary and Suggestions
Specific learning disabilities are characterized by significant impairments in acquisition of reading, spelling or arithmetical skills. They are not due to lack of opportunity to learn or a consequence of brain trauma or disease, but represent a specific type of dysfunction in cognitive processing. This dysfunction affects specific skills, which can be distinguished from the cognitive functions that are usually in the normal range. Learning disability requires that significant impairments of intellectual and adaptive/social functioning coexist. This means that a person with a significant impairment in one of the two domains only, and with no significant impairment in the other, may not be adjudged to have a learning disability (American Psychiatric Association, 1994).

The internationally established diagnostic criteria specify a delay of at least two years and two standard deviations below the mean performance on the skill value against the normative reference group. The subject must have a normal intellectual capacity and not suffer any associated developmental disorders that could account for her/his limitations or difficulties. The subject must also have received adequate and normal schooling. However, while these conditions are essentially conceptual and define LD as intrinsic to the individual and with a biological-genetic basis, they can coexist with problems in self-regulatory behaviours, social perception and interaction. They can also co-exist with other disabilities, such as sensory impairment, mental retardation, severe emotional disorders or with extrinsic factors such as cultural differences or inadequate schooling. These factors, while not the cause of the LD, can influence it greatly. Some learning disabilities are congenital in nature, means that they can be traced to biological influences during prenatal gestation; fetal alcohol effects, fetal cocaine exposure, and perhaps even maternal cigarette smoking are examples of these types of contributing factors to learning disabilities.

Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or
written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage (IDEA, 2004).

Learning disabilities could be both familial and heritable, that can be caused by both environmental influences and family genetics. Learning disabilities can interfere with a student meeting his/her intellectual potentials. Children with specific learning disabilities result in unexpected academic underachievement. As, the disabilities may impact the acquisition, organization, understanding, retention and/or use of information. Learning disabilities are complex and go beyond the stereotypical perceptions of the disorder as simply reading difficulties or letter reversals. They vary considerably, both in terms of the functions they affect and the severity of the impact experienced by the child. The appropriate accommodations depend upon the individual’s strengths as well as his/her specific difficulties.

Learning disabilities are not detected until children start school. Many students with learning disabilities display no signs of difficulty, except when they attempt the specific academic tasks that challenge their particular area of cognitive processing difficulty. Unlike many other disabilities, identifying a learning disability poses some particular challenges since processing disorders are assessed through inference based on student responses. It might not be obvious that a student’s learning difficulties are due to a learning disability. The specific needs of individuals with learning disabilities change and evolve throughout their lifetime. This does not mean the disability no longer exists, but by varying the activities they undertake and the strategies they develop to address their particular learning disabilities, children with learning disabilities may experience different challenges at different times. Students with mild to moderate learning disabilities can cope up with their learning problems in regular mainstream education system without supplementary special education services, particularly where learning environments and instructional
strategies are in place that accommodate a range of learning differences or when students have developed strategies that enable them to independently compensate for their learning disabilities.

Learning disability is relatively a recent and less explored area. In India, the problems of learning disabled children are not adequately addressed and attended due to lack of awareness and knowledge. The needs of learning disabled children demand special attention. Many children with learning disability remain undiagnosed and go throughout life with this “hidden disability”. Consequently, the disability can lead to poor self-esteem and failure to thrive in school. With early detection and interventions, teachers and parents can develop the necessary skills in them for improving their learning abilities. In order to achieve this ideal scenario, all regular classroom teachers should be sensitized to identify this problem at the earliest stage. The teachers should be trained for screening and planning need based strategies to help young children come out of this problem. Learning disability is a permanent condition. Early identification and remediation is the key to help children with learning disabilities, to achieve success in academic areas. These children need help from a teacher, tutor or therapist specially trained in using a multisensory and structured language approach. It is important for these individuals to be taught by a method that involves several senses (hearing, seeing, touching) at the same time. Individuals with learning disabilities need one-on-one help so that they can move forward at their own pace. Human ecological factors though not known cause of learning disabilities, but it is important to see the positive or negative influence of these factors on learning and development of a child. Parental involvement and stimulation plays a critical role in child’s development in every sphere of life. The study entitled “Identification and Remedial Strategies for Children with Specific learning Disabilities” was planned with the following objectives:

**Objectives:**

- To assess and identify children with specific learning disabilities.
- To find out the level of intelligence among children with specific learning disabilities.
Summary and Suggestions

- To examine visual and hearing profile of children showing specific learning disabilities.
- To study the support system available for children with specific learning disabilities.
- To assess the level of academic performance of children with specific learning disabilities on Grade Level Assessment Device (Pre-testing).
- To find out the level of awareness and knowledge about specific learning disabilities among parents and teachers (Pre-testing).
- To plan remedial strategies for improvement of academic performance of children with specific learning disabilities.
- To expose the participants (Children, parents and teachers) with remedial strategies.
- To find out the impact of remedial strategies on participants (Post testing).

Participants

The present study was conducted within the premises of Jhunjhunu district of Rajasthan (India) to ensure optimum personal contact for data collection. Since, the researcher belongs to Jhunjhunu district and the study was conducted on vulnerable group which required continuous and comprehensive monitoring. The participants (children with poor performance in academics) were randomly selected from English medium schools of the district.

Initially, 1500 children of Second and Third Grade were approached. The scholastic performances of these children were assessed by using the Rutter’s Proforma- A containing questions related to academic performance (Appendix-B). On the basis of responses received, 160 children, who were found academically backward were taken. Further, these poor performers were screened to detect specific learning disabilities using Behavioural Checklist for Screening the Learning Disabled (B.C.S.L.D.) scale by Swaroop and Mehta (2011). On the basis of scores obtained (above 44) on B.C.S.L.D scale, 56 children were found specific learning
disabled. These children were assessed to find out the level of intelligence using Raven’s Coloured Progressive Matrices. These children were also tested for their hearing and visual capacities.

Finally, 30 children with average or above average intelligence, without any visual or hearing impairment were taken as participants. The performance of these children in reading, writing and mathematics were assessed by using Grade Level Assessment Device by Narayan (1997). The socio demographic status of the children was studied to find out the support system available for children with learning disabilities at home as well as school. Parent and teachers of these children were interviewed to find out their level of awareness about specific learning disabilities. Learning disability checklist for teachers by Orkids Foundation (2011) to elicit more information about the children was used by the researcher.

**Sample Design**

```
Jhunjhunu (Rajasthan)                       Purposive
                                           
Sample Universe (1500 Children)               Random
                                           
Academically backward children (160 Children)
                                           
Children with Specific Learning Disabilities (56) (Average/ above average IQ)

Total Sample (n=30)
Children with Specific Learning Disabilities (Without any visual/hearing impairment) Purposive

Boys (n_b=19)

Grade II SLD (n_b=9)       Grade III SLD (n_b=10)

Girls (n_g=11)

Grade II (n_g=5)       Grade III (n_g=6)
```
Summary and Suggestions

MEASURES

BASE LINE PROFORMA

A self-made base line proforma, containing background information about the participants like class, age, gender, parental education, family income, etc. was framed and used for the present study (Appendix-A).

ACADEMIC PERFORMANCE

Poor academic performance is the foremost requisite for the diagnosis of specific learning disabilities. Therefore, first of all the global impression by the teacher about a particular child on scholastic backwardness based on the Rutter’s 1987 Proforma- A (Appendix-B) was obtained. This proforma has 15 close ended questions to be answered either yes or no. Academic records of previous examinations (any two) of children were taken to decide the performance of children. Children with academic grades C or C+ in any two tests (as per test norms) were considered scholastically backward. The decision of selecting grade C or C+ was taken as per discussion with school authorities in consistent with education policy of Rajasthan.

BEHAVIOURAL CHECKLIST FOR SCREENING THE LEARNING DISABLED

A standardized Behavioural Checklist for Screening the Learning Disabled developed by Swarup and Mehta (2011) was used to assess the children with specific learning disabilities. It has been specially designed to test 8 to 11 years old children studying in English medium private schools. The checklist attempts to integrate all the aspects of learning, i.e. the ability to process visual and auditory information, memory, comprehension, thinking, psychomotor skills, self-image and motivation. The interplay of these factors ultimately results in child’s scholastic performance. The checklist consists of 30 items positive and negative to be filled by the teacher.

COLOURED PROGRESSIVE MATRICES

Raven’s Progressive Matrices test is used to measure general intelligence. It is designed for children of 5 to 11 years of age, the elderly and mentally as well as physically impaired individuals. The 36 items are presented in three sets (12 each) in increasing order of difficulty within each set. The three sets provide respondents
with the opportunity to become familiar with the type of problem-solving (thought processes) that successful completion of the test involves. This test contains sets A and B from the standard matrices, with a further set of 12 items inserted between the two, as set Ab. Most items are presented on a coloured background to make the test visually stimulating for participants.

**GRADE LEVEL ASSESSMENT DEVICE (GLAD)**

GLAD by Narayan (1997) was used to find out the processing problems in child’s academic performance. It is useful for children who are scholastically backward to find out ‘why’ they fail. The tool is easy to administer and useful to refer child for remedial teaching.

**DEMOGRAPHIC PROFILE SCHEDULE AND INTERVIEW SCHEDULE**

A self-prepared demographic profile schedule was used to elicit information about socio demographic status of the participants and the support system available for them at home and school. Interview schedule was prepared and used, to find out the level of awareness among parents and teachers about learning disabilities.

Along with above mentioned measures Learning disability checklist for teachers by Orkids Foundation (2011) was also used by the investigator to elicit more information about symptoms of learning disabilities, to plan effective remedial strategies.

**REMEDIAL STRATEGIES**

**PHASE I- SAMPLING AND PRE-TESTING**

- The sample for the present study was taken with the help of different measures as described a head (under the head participants). It took approximately 6 months to finally select a sample of 30 children with specific learning disabilities.
- Pre-testing of children was done with the help of percentage scores of marks obtained on worksheets for English, Hindi and Mathematics of Grade Level Assessment Device developed by Narayan (1997). It took approximately 6 months. Parents and teachers level of awareness about learning disabilities was also pretested with the help of interview schedule.
PHASE II - DEVELOPMENT AND IMPLEMENTATION OF REMEDIAL STRATEGIES

Remedial strategies are the administrative methods for imparting knowledge and training to the individuals to improve their existing knowledge, capacity and efficiency regarding any skill. In present study, remedial strategies were planned and implemented to scaffold academic skills of children with specific learning disabilities. Teachers dealing with these children were also given demonstration on remedial strategies. Interactive sessions with parents were organised to improve their knowledge and awareness about specific learning disabilities.

Development of Remedial Strategies

Development of the remedial strategies includes following steps:

- **Identification and collection of items**: Items were identifies on the basis of available literature and were collected on a rational theoretical basis. During item selection, children’s developmental level was kept in mind and most relevant items were selected to improve hidden potentialities of children with learning disabilities.

  To scaffold skills of children with SLD 30 remedial strategies were planned as: Reinforcement, initially extrinsic but gradually moving towards intrinsic reinforcement, spelling practice which include error correction procedure with modelling and feedback, self-directed study and self-monitoring, a combination of visual and phonological approaches (phonic games), letter-sound correspondence, word identification, paraphrasing, visual imagery, strategies for visual motor processing, which includes a combination of strategies as student self-monitoring of writing process, strategies related to mathematics as numeracy- teaching concept and problem solving strategies, use of concrete materials that are applied in a number of contexts, teaching and understanding by focusing on concept, memory strategies which encourage purposeful learning and help us organize information into pattern, meta cognitive strategies which involve coordinating the processes and strategies involved in learning, menomonic strategy, paired associate strategy, reciprocal teaching, self –questioning, developing word fluency and vocabulary, read aloud strategy, question answering, high frequency words, word reading, paragraph
reading, self-advocacy strategy, reading recovery, word hunt strategy, role play and drama, graphical representation, inference strategy and multisensory approach were included in the plan.

- **Arrangement of items**: The items were arranged in the order of increasing difficulty keeping in mind the developmental level of children.

- **Experts’ opinion**: The developed package of remedial strategies was given to a panel of seven experts from the field of child development and psychiatry for evaluation. Their suggestions were incorporated and after consultation with experts, the remedial package was finalized for pretesting.

- **Pretesting**: The remedial strategies were pretested on 10 children from Jaipur (Rajasthan). The sample was different from those children on which the final package was implemented. While pre-testing all the precautions regarding implementation were taken into consideration. The strategies were found suitable and finally the target group was exposed to remedial strategies. Finally, a manual was developed by the investigator in both English and Hindi.

**Implementation of Remedial Strategies**

The main objective of administering of remedial strategies was to improve academic children with specific learning disabilities. Firstly, the teachers were exposed to remedial strategies in two groups (13 each) for eight sessions; on every Saturday of the week (For 2months). The remedial strategies were demonstrated with the help of video recording along with oral presentation by the investigator.

In second phase of implementation, specific learning disabled children identified by the researcher were exposed to remedial strategies in 6 batches (for two weeks) each batch by investigator with the assistance of class teachers.

In third phase, parents were contacted for interactive sessions with investigator (two sessions each parent). These sessions were planned and carried out every Sunday of the week for two months (5 parents every Sunday). In this way all the parents received two interactive sessions with the investigator.
PHASE III : IMPACT OF REMEDIAL STRATEGIES - POST-TESTING

The impact of remedial strategies on children was evaluated by using the Grade Level Assessment Device which has been used for pre-testing. The comparison between pre-test scores and post test score was done to see the impact of remedial strategies in scaffolding potentials of children with specific learning disabilities. Teachers and parents knowledge level was also compared to see the impact of remedial strategies and interactive sessions among them.

Time Plan For Implementation Of Remedial Strategies

Sample selection
(6 months)

Pre-testing
(3 months)

Expose to remedial strategies
(7 months)

Teachers (2 months)

Children (3 months)

Parents (2 months)

(After a gap of 2 months)

Post Testing
(3 months)
PROCEDURE OF DATA COLLECTION:

The data was collected personally by the researcher with the help of well-structured interview schedule for parents and teachers of participants and standardized tests were used for screening children for specific learning disabilities and to measure their IQ and academic performance. Jhunjhunu district of Rajasthan was selected purposively due to easy accessibility to the researcher. A list of English medium schools was procured from the District Education Office, Jhunjhunu. Schools were selected randomly. A visit of the schools was made the investigator to explain the purpose of the present study. The consent was obtained from the principals of the schools by explaining the purpose of present investigation, with their permission same details were explained to the teachers of second and third grades to obtain their cooperation. First of all rapport was established with all the teachers. Consultation with the principals and class teachers, a visit schedule was developed according to their convenience and availability. The children were individually tested and all the standard procedures were kept in mind while administering the tests. The procedure facilitated better cooperation and participation. Step by step all the tests needed to identify children with specific learning disabilities were applied and finally 30 children with specific learning disabilities were taken. Remedial strategies were given to children with the help of class teachers for a period of 3 months.

STATISTICAL ANALYSIS

The collected data were classified and tabulated to draw the meaningful inferences. The data were analyzed by using the following statistical tools:

i) Frequencies and percentage scores were calculated to know demographic profile and symptoms of learning disabilities in children.

ii) Coefficient of correlation (Pearson’s ‘r’) was computed to see the relationship between demographic variables and different areas of learning disabilities.

iii) Paired t-test was used to find out the mean scores differences between pre- and post-test scores of children with specific learning disabilities and teachers.
CONTROLS

- Only those children studying in second and third grade
- Only those children studying in English Medium private schools
- Only children from Jhunjhunu district were taken

Major findings of the study:

1. Most of the children were facing difficulties in all the eight areas of BCSLD, namely: Visual processing, auditory processing, cognitive domain, motor coordination, language, memory, preservation tendencies and affective domain.

2. Auditory processing difficulties were found in majority of children followed by memory and affective domain in the present study. These children were not having any visual or hearing impairment.

3. Majority of the children showed speech and language deficit. Distractibility, reaction to unnecessary stimuli, poor class work, erratic learning behaviour, inability to transfer learning, reading difficulties, writing difficulties, lack of cooperation, preservation, disorganisation, memory deficit, hyperactivity, low frustration tolerance, lack of co-operation, problems in gross and finer motor skills and problems related to directionality were the symptoms observed in more than half of the participants under study.

4. More boys than girls were found to be learning disabled. Most of the participants were from middle SES families, followed by low and high SES. Majority of the participants were first born. All the parents were educated but not aware about learning disabilities and not giving time to their children’s study. Fathers of children were mostly in service while some were doing their own business. The mothers were mostly housewives. Majority of the participants were found to be living in developing surrounding. Only limited numbers of participants were living in underdeveloped or developed surrounding. The participants were supervised by their mothers more than their father in home work completion. Majority of parents spent only one hour to help their child in completion of his/her school work. The children were found to have medium exposure to mass media that was only limited to watching television without any supervision. Children were found to spend
limited time in writing or reading that too only for completion of homework
given in the school.

5. Some of the mothers reported serious complications during pregnancy while
majority of mothers reported that they had faced minor problems. The
physical development of children was found to be normal. The gestation
period was full nine month in case of most of children, as reported by the
mothers. Majority of the participants were born by normal delivery process.

6. Lack of facilities for children with learning disabilities was found in all the
schools under study. No provisions for screening, diagnosis or remedial
teaching. There was no counsellor in any of the schools. The schools were
having no provisions for smart classes or multisensory teaching. Only audio-
visual aids were available in some schools but those were also less used.
Teachers were not even aware about the provisions made by CBSE and
Government for these children. The schools did not have any provisions for
continuous and comprehensive evaluation in the schools.

7. Majority of teachers were found to be unaware about children’s learning
disabilities. A few teachers only heard about the term LD, but not able to
explain the cause, characteristics or types of learning disabilities. Though,
most of the teachers have done B.Ed. No other special training was done by
the teachers.

8. The reasons told by most of teachers for poor academic performance of
children were lack of interest and poor concentration, low IQ, family
background, surroundings and family problems, parental negligence and lack
of parental awareness, poor understanding and memory, careless attitude,
Irregular, indiscipline or over pampered, lack of guidance and motivation,
lack of confidence, excess exposure to mass media, lack of practical
knowledge and practice, teacher-student ratio, etc.

9. The study found that children have high level of difficulties on the
worksheets administered in English, Hindi and Mathematics. Most of the
children were found at frustration level on Grade Level Assessment Device
(GLAD). The common types of errors noted in English and Hindi included;
poor visual processing, difficulty in copying accurately, spacing of letters
and words, letter and word reversals, poor handwriting, repetition of sentences, omission of some words and letters, overprinting to correct mistakes, grammatical mistakes (punctuations, spellings and capitalization), inadequate expression of ideas and vocabulary, poor organizational skills, unreadable letters and words, non-attempt or slowness in completing work.

In Mathematics, most pupils totally failed in items that tested their skills in spatial order and relationships, division, time and money.

10. A highly significant positive inter-correlation was found in visual processing deficit and motor coordination deficit while a significant negative correlation of visual processing was found with language and memory of the participants.

11. Auditory processing difficulty was found to have a highly significant correlation with cognitive domain while no significant correlation of auditory processing was found with other areas.

12. A significant positive relationship was found between language deficit and memory deficit. Difficulty in Motor coordination had highly significant positive correlation with preservation tendencies. A highly significant negative relationship of affective domain was found with motor coordination. Affective domain was also found to have significant negative correlation with visual processing.

13. There were significant improvements in the scores of children on English, Hindi and Mathematics. Percentage scores of children after exposure to remedial strategies found to increase on GLAD worksheets. The remedial strategies were found to be effective to improve academic skills of children with specific learning disabilities.

14. It was found that there was increase in parental awareness after interactive sessions. Most of the parents were found to be aware about specific learning disabilities, consequences, recommended treatments and remedial strategies as well as the provisions available for these children.

15. There were significant improvements in teachers’ knowledge after exposure to remedial strategies. After exposure to remedial strategies, majority of teachers were found using remedial strategies with these children in the
normal classroom setting. Teachers were now aware about the concept of learning disabilities, types of learning disabilities, causes and characteristics and also about the provisions made by CBSE and government of India for these children.

**IMPLICATIONS**

The present investigation has great importance for parents, teachers, administrators and policy makers. Some practical implications derived from the present study are as follows:

- Results of the present study revealed that along with the neurological dysfunction various human ecological factors (home, school, community, etc.) were also contributing to the poor performance of children with specific learning disabilities. The present study will be a great help to both parents as well as teachers to be aware about the role of ecological factors and thus, help these children by providing positive stimulation and attention.

- The results of the present study support the positive impact of remedial education given at an early age, as at this age, the children are most receptive to any change. Therefore, parents, teachers, early childhood educators, psychologist and policy makers can benefit from these results to focus their efforts in needful direction.

- The study would empower parents of children with learning disabilities with the knowledge to be proactive in their child’s education, to deal effectively with the children right from their early age.

- The various effective remedial strategies were planned for children with specific learning disabilities in the study. These strategies can be a great help to all those working in the field of learning disabilities; to overcome the problems faced by these children.

- The findings of the present study will be a great help to policy makers, school administrators and educators to provide a suitable environment and essential facilities to mainstream the children with learning disabilities.

- Teachers’ training is the utmost need of today’s education system for effective teaching learning process, as the findings revealed that none of the
teachers were trained to deal with specific learning disabled children, thereby no child with learning disability was identified. Thus, teachers training must include knowledge of child development, identification, diagnosis and remediation of children with learning disabilities. This learning will make them able to use effective strategies for learning and assessment techniques.

• The study would be a great help to all those dealing with specific learning disabled children to offer effective administrative methods with the help of remedial strategies to reduce the problems of dropout at an early age. With the use of developmentally appropriate strategies and approaches, children with learning disabilities can be identified and given proper intervention so that they can learn, feel motivated to learn and scaffold their hidden potentials. The focus should be on capacities rather than deficiencies of the children.

• The present investigation shows that there is a need to search, not only appropriate age for intervention but appropriate intervention for each age. Proper counselling from specialist in psychology and speech/language pathology should be given more importance.

SUGGESTIONS

Following are some of the suggestions of vital importance for future researchers to conduct further studies related to this field:-

• The present study was conducted on 30 specific learning disabled children from Jhunjhunu District of Rajasthan. Same study can be replicated on larger sample by taking any other region of India.

• A more comprehensive study including the students from the other grades will contribute greater understanding and effectiveness of various remedial strategies, as the present study was done on second and third grade students.

• It also needs to be emphasized that this study includes subjects from English medium private schools. Therefore, this study can be extended to further examine impact of remedial strategies on children from Hindi medium public and private schools.
• A comparative study to find out gender differences related to specific learning disabilities could be planned.

• Researches may be conducted by taking other psychological variables like self-esteem, self-concept etc. among children with specific learning disabilities.

• A study could be undertaken for development and standardizations of assessment devices for diagnosis of individuals with learning disabilities.

• Further more research is needed to find out the challenges faced by parents of children with specific learning disabilities.

• A comprehensive study of family history of children with learning disabilities could be undertaken.

• Cross cultural studies can be organized for identification and remediation of children with specific learning disabilities.

• Intervention programmes including a team work of counsellors, teachers and speech therapist may be undertaken to yield more comprehensive results.