

Children with Specific Learning Disorder: Identification and Interventions

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ABSTRACT

Specific Learning Disorder (SpLD) as a 'Disorder' has started attaining considerable attention recently because of the felt need to ensure timely identification and intervention for the betterment of the present and future suffering of such children. For achieving this purpose, better understanding of every aspect of SpLD is very essential for the teachers, as he/ she has the responsibility towards such students being specially able children and it is necessary to guide and train them in proper direction. While highlighting the need and importance of early identification of the students with specific learning disorder, this paper will focus on the various tools and techniques for the screening of SpLD; national and international level programs and policies and school based interventions that can facilitate the learning which can give wings to the dreams of such students.

Keywords: Specific learning disorder, identification, interventions

Specific Learning Disorders or Disabilities (SpLD) is also called Learning Disorders and Academic Skill Disorders which consists of neurodevelopment disorders that inhibits child's learning abilities (Karande, 2008). Diagnostic and Statistical Manual, American Psychiatric Association, (DSM-5 2013) has viewed Specific Learning Disorder as difficulties in acquiring and applying the academic skills and at least for the 6 months presence of at least one symptom as: Slow, incorrect and effortful word reading, complexity in understanding the meaning of content, problems in written expression, complexities with numbers and calculations and spelling difficulties.

All these symptoms are divided into three types of SpLD such as; Dyslexia (reading disorder), Dyscalculia (disorder in numbers and calculations) and Dysgraphia (writing disorder) (Karande, Sholapurwala & Kulkarni, 2011; Mogasale, Patil, & Mogasale, 2011). SpLD is separate from intellectual impairment because children with SpLD may have average or above average level of intelligence. Children who have problem with one or two

academic areas may excel in other areas like art, music and sports etc.

The term 'Learning Disabilities' was first given by a psychologist, Samuel Kirk in 1963, followed by which number of researchers had done research on different aspects of Specific Learning Disabilities and till now research is going on, but the prominent causes behind it are not yet identified. Studies emphasized that up to 70% of SpLD are due to genetic and hereditary factors (Bhandari & Goyal, 2004; Palanisamy & Kumar, 2014; Rao & Raj, 2016) and neurological factors (complexities during prenatal and post natal period and nervous system impairment) are also responsible for the same (Rao, 2003; Bhandari & Goyal, 2004).

Environmental factors are also the potent predictors of SpLDs, including psychological stressors, malnutrition, poverty, poor parenting, defective teaching-learning strategies etc. (Silver & Hagin, 2002; Bhandari & Goyal, 2004). Apart from this, other researches revealed that impairment in working memory and deficits in central executive functions

can cause SpLDs (Brandenburg Kleszczewski, Fischbach, Schuchardt, Buttner, & *et al.*, 2014).

Categories of Specific Learning Disorder (SpLD)

Specific Learning Disorder is mainly divided into three categories as, Dyslexia, Dyscalculia and Dysgraphia:

- (a) **Dyslexia:** It is a Greek word which means 'Difficulty with words' and was coined by Berlin in 1887 but used first in research by Orton in 1937. The words 'Reading disorder' and 'Word Blindness' are used synonymously for it. It includes the symptoms of incorrect and slow words and sentence reading; skipping, repetitions, transpositions additions, substitutions, and reversals in words, numbers and sentences while reading due to deficits in phonologic awareness. In India out of all identified SpLDs, the 80% are of Dyslexic only (Karande, 2008; Karande, Sholapurwala & Kulkarni, 2011).
- (b) **Dyscalculia:** It is a combination of Greek word 'Dys' and Latin word 'Calculia', which means 'to count badly'. It is also called 'Number blindness' and 'Developmental Arithmetic Disorder'. It is related with difficulty in understanding numbers; delay in counting and applying formulas; problems in memorizing the mathematical facts and difficulty in manipulating numbers. Studies reveal that a positive relationship exist between dyscalculia and impairment in domain-general cognitive capacities, central executive functions and visual-spatial sketchpad. (Passolunghi & Siegel, 2001; Geary, 2005).
- (c) **Dysgraphia:** It includes difficulties in writings, it is derived from two Greek words 'Dys' (Impaired) and 'Graphia'(making letter forms by hand). Children with Dysgraphia tend to make lots of spelling mistakes and have poor hand writing, grammar and punctuation; problems with graphs, shapes, and drawing; difference between oral and written expressions and unable to put ideas into writings; difficulties in understandings

directions, rules of the games; mix letters of upper and lower case; unable to write complete sentences and space problems; difficulty in gripping the pencil; avoiding to write and difficulty in reading own writing (Patino, 2014).

Specific Learning Disorder and Co morbidity

The probabilities of co morbidity with Specific learning disorder are stronger, as studies proposed that 33% children with SpLD manifests the symptoms of attention deficit hyperactivity disorder (ADHD) (Margari, Buttiglione, Craig, Cristella, Giambattista & *et al.*, 2013). Beside this, behavioral and personality disorders such as anxiety disorder, depression, stress, phobias, developmental coordination disorder, mood disorder, psychosomatic disorders and delinquency may co-morbid with specific learning disorder and make SpLDs more complex and dangerous.

Issues and challenges of Children with specific learning disorder

There are thousands of disabilities and disorders in this world and each disability consists of numerous challenges and problems, children with SpLDs are also facing these challenges daily. Ignorance, pressure and lack of support from their parents, teachers and peers lead them towards psychological and behavioral disorders. The major issues of specific learning disorder in India is that teachers has a lack of awareness and knowledge of identifying such students on the one hand and lack of training and resources to deal with them on the other hand (Shetty & Rai, 2014; Ahmad, 2015), due to which number of students with SpLDs remain unidentified which later on results in student's low academic achievement, anti-social behavior and sometimes dropout also.

Criticism and negligence from the parents, teachers and peers add fuel to the fire. According to annual report of 'International Save the Children Alliance' 2001, Children with disabilities endure negligence, discrimination, bullying, teasing, violence, poverty, loneliness and abuse universally. By facing all these challenges, their situation becomes more tremendous and the chance of curability falls down. Apart from this, their future education, independence and earning for livelihood are the most potent challenges

for them. Another challenge that is very common and difficult to deal is the overcrowded classrooms which becomes hurdle between the teachers to identify and focus on the needs of such students. Unnecessary workload on teachers and less flexible time-table is also responsible for not giving special attention to these students. Besides all these issues, the irresponsible behavior and lack of professional dedication of teachers are also making the situation labyrinthine.

Identification of Specific Learning Disorder

In India 5-15% of children are afflicted by Specific Learning Disorder and numberless students remain unidentified in remote and rural areas because of lack of knowledge and awareness about SpLDs. Studies reveal that only up to 8% teachers had familiarity with and training in learning disabilities (Karande, 2008; Karande, Sholapurwala & Kulkarni, 2011). The possibilities for identification of SpLDs are more at elementary school level, when the children reach the age of 6 to 7 years and can express and understand by reading, writing and verbally. Individuals with Disabilities Education Improvement Act, 2004 (IDEA 2004) a U.S. federal education law provide guidelines that had influence on instruction, identification, assessment, evaluation of children with learning disabilities. IDEA modified the basis for identifying and determining the children with specific learning disability. According to IDEA the child only identifies as having SpLDs if he/ she does not achieve properly for meeting the grade level standards approved by state in one or more of the followings, after providing the learning experience and instruction appropriate for meeting grade level standards approved by state which are as follows:

- ♦ listening comprehension
- ♦ oral expression
- ♦ written expression
- ♦ basic reading skill
- ♦ reading comprehension
- ♦ mathematics calculation
- ♦ solving mathematical problems
- ♦ fluency in reading

(National Joint Committee on Learning Disabilities, 2015)

By keeping in mind these guidelines; having wider knowledge of symptoms and characteristics of SpLD; observing and assessing the student's academic performance and with the use of various tests, a teacher can identify SpLDs. For this purpose following tests can help teacher:

The National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, has developed NIMHANS Battery which consists of two levels, one for 5 to 7 years and second for 8 to 12 years children. It is widely used in India for testing the mathematical and comprehension, reading and writing ability. Aston Index Battery is another battery with 16 tests for diagnosing and measuring different language related abilities. It helps in examining visual and auditory functions, motor co-ordination, reading and writing expression, spelling ability and graphic abilities and also identifies children with special needs. Wide Range Achievement Test-4 (WRAT- 4) can also be used for measuring an individual's ability to read words and sentences, comprehension of sentences, spelling ability, and ability to solve Math problems.

There are some another tests available for identifying the different aspects of SpLDs. The tests to identify Dyslexia includes: Phonological Awareness Test; Woodcock Johnson III-(W J III) Word Identification and Word Attack subtest; Passage Comprehension subtest; Reading Fluency subtest; Woodcock-Johnson IV (WJ IV) Subtest of Sound Blending; NEPSY-II Phonological Processing subtest; Comprehensive Test of Phonological Processes; Test of Word Reading Efficiency-2 (TOWRE-2); Wechsler Individual Achievement Test-Third Edition (WIAT-III) Word Reading and Pseudo word Decoding subtests; Reading Comprehension and Gray Oral Reading Test (GORT-5). Tests on *Dysgraphia* include Test of Written Language-Fourth Edition (TOWL-4) which includes subtests on vocabulary, punctuation, spelling, sentence combining; WJ IV and WIAT-III containing Grooved Pegboard and Purdue Pegboard subtests for assessing writing abilities and spelling ability for children from age 5 to 8; NEPSY-II Visuomotor Precision subtests for age 3 to 16 and for identifying *Dyscalculia* the tests are Woodcock-Johnson IV (WJ IV) Calculation subtest; Math Fluency subtest; Applied Problems subtest, CMAT Problem Solving subtest; Wechsler Individual Achievement Test IV (WIAT-IV) contains Numerical

Operations subtest, Comprehensive Mathematical Abilities Test (CMAT) subtest and Mathematical Fluency and Calculations (MFaCTs) subtests; WIAT-IV that include Math Problem Solving subtest; Math Fluency subtest, MFaCTs Fluency Test; Arithmetic subtest of Wechsler Intelligence Scale for Children (WISC-V); Paced Auditory Serial Addition Test (PASAT) and Mental Computation test.

Policies for persons with Specific Learning Disorder

USA government in 1964 promotes remedial education for children with learning disabilities by financing the training courses and in first time officially acknowledged SpLDs as a 'Disability' by passing the "The Children with Specific Learning Disabilities Act" in 1969. In India during the post independence period, Kothari Commission (1966) emphasized on the essential of educating disable children. Afterward the various national level schemes and acts such as Integrated Education for Disabled Children, 1974 (IEDC); National Policy on Education (1986) and The Rehabilitation Council of India Act 1992 were continuously attempted for providing the educational facilities to these children and providing free education to children with disabilities up to the age of 18 was made mandatory by the People with Disability Act, (1996).

In 1999, the government passed the National Trust Act for the betterment of persons with mental retardation, physically handicap and other learning disables, along with the District Primary Education Program (DPEP) 1994 and the Sarva Shiksha Abhiyan (SSA) 2002, which facilitates the educational opportunities for the Learning Disables. The most recent policies as, The National Policy for Persons with Disability (2006) and Right of Children for Free and Compulsory Education (2009), focused on providing integrated and special education opportunities according to the needs of the students with Disabilities (Das, & Kattumuri, 2010).

All these national level programs and acts includes all types of disabilities whether physically or mentally but there is lack of special and separate program for children with Specific Learning Disabilities, besides the efforts of state government of Maharashtra in 1996, that support these children by providing necessary provisions and equal educational opportunities in mainstream school and

later on in colleges also (Karande, 2008; Karande, Sholapurwala & Kulkarni, 2011). Although these programs are improving the present circumstances but it will be more fruitful only when the teachers use various interventions, methods and strategies for assisting these children.

Programmes and interventions for persons with Specific Learning Disorder

Following are some educational interventions and programmes which can help the children with SpLD.

Assistive technology (Software programs)

Assistive technology is defined as any item, piece of equipment, system, devices and services (Hardware and software) that are used to enhance, maintain, or improve the capabilities of a student with a disability (Young & Mac Cormack, 2014). For the children with specific learning disorder, there are number of devices and programs that teacher can use in and outside the classroom and can focus on the different needs of such students. For dyslexic students the teacher can use the assistive technologies such as Speech synthesizers/ screen readers, Optical character recognition, Tape recorders, Variable speech control and Kurzweil 3000 Text to speech software. The students with dyscalculia can be helped with the Electronic math work sheets, Talking calculators, Math drill programs and Graphing calculators and there are many programs like Proofreading programs, Outlining programs, Brain storming/Mind mapping programs, Word prediction programs, Graphic Organizers, Pencil grips and Computerized pens for the students having difficulty in writing skills. All these technologies can be a great facilitator for the children with SpLD if the teacher assists such students to use these programs.

Analytic and synthetic approach using technology

Teaching for Phonology is essential for children with dyslexia and dysgraphia learning disorders. These students often face problems in understanding the link between the alphabet and sound. By using phonological awareness developing technique, this difference can be minimized. (Karande, Sholapurwala & Kulkarni, 2011). Phonics can be

taught by using analytic and synthetic approach. By using Synthetic instruction, language is presented in parts first and then how these parts becomes language as a whole can be taught to students with the help of technology. In this process the written and spoken words and sentences are broken into smaller units of sound. In Analytic instruction the opposite process is followed and whole is presented first and later taught how to convert it into parts. Teacher can teach Phonological awareness more effectively by using multi-sensory approach by showing the symbol along with sound and asking them to form it through clay, sand or colors.

Multisensory Approach

India is a developing country and the teachers in remote and rural areas schools still using the blackboard and lecture methods only. Because the children with SpLDs need some extra efforts to understand the concepts, multisensory approach help them a lot. It emphasized on using two or more sensory process like auditory, visual, tactile, and kinesthetic simultaneously. In multisensory approach, teacher can use various techniques and activities for instance numbers and alphabets can be taught by using clay, sand, sandpaper, movement, sound, tracing and cutouts etc. Studies supports that multisensory approach is more beneficial than other methods for the children with specific learning disabilities (Shih, 2006; Kamala, 2014).

Psychological Interventions

As it is seen that the children with SpLD are tend to have low self-esteem, self efficacy, high on aggression and prone to have depression, anxiety and behavioral disorders so it becomes responsibility of the teacher to help them by using psychological interventions. Although it is the work of psychologist and counselor, a teacher can also help them by providing emotional support, remedial teaching, positive reinforcement (by giving token and points at the completion of the task) and extrinsic motivation. The teacher can provide suggestions and guidelines to support the child in home-works and other activities. Studies shows that these children are high on the external locus of control (tendency to seem outsider forces responsible for everything, positive or negative) (Morin 1993) and this hamper their academic performance.

For overcoming this problem of locus of control, researchers support the attribution training, by which they learn internal locus of control. (Tollefson, Tracy, Johnson & Chatman, 1986). Besides these behavioral and emotional problems, their well-being can be increased through biofeedback and relaxation training (Carter & Russell, 1985).

Use of Information and communication Technologies

In present scenario technology leads every profession or activity. Similarly, the uses of information and communication technology can enhance the reading, writing skills and mathematical skill of students. Studies reveal that examination via computer can enhance 18% of right responses as compared to paper pen examinations. (Anestis, 2015) and computer assisted learning significantly improved the mathematical problem-solving skills of Children with SpLD. On the other hand, with the help of pictures, videos, animated movies and sounds the concepts can be taught more precisely. Through technology, students can explore the material, develop their vocabulary, expand knowledge and maintain enjoyment and motivation.

Use of game based teaching- learning strategies

Children with specific learning disorder may find difficulties with conventional lecture method because their biological and psychological structure demand more practical and game based teaching. There is availability of different number and alphabets based games through which children can easily learn spelling, word and sentence formation and develop mathematic problem solving skills (Madeiraa, Silvaa, Marcelino, & Ferreira 2015).

Social Skills Training

The children with SpLDs face many physical and psychological challenges daily and tend to have high level of stress and aggression due to which they have poor social skills. Teacher can give social skills training by using inter-personal skills training(making friends, talking with community members, joining group activities, giving help), life skill training, skills for difficult situations (accepting criticism, resisting peer pressure) and problem solving skills.

CONCLUSION

The government of India has taken significant steps for the upliftment of persons with disabilities, but due to lack of proper implementation and other reasons the proposed results are not coming out. In India plenty of research work has been done only on identifying the prevalence of SpLDs in children, but not on the interventions and activities and also applying them for the betterment of children with SpLDs. This also play a part in teacher's lack of awareness about specific learning disorder which later on results in student's poor academic achievement. So teachers should have the ability and sense of responsibility towards identifying and providing interventions to children with SpLDs.

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