Research Paper Education

Identification of Learning Disabilities and Intervention Techniques

T.Prabu Assistant Professor, Sri Rangapoopathi College of Education, Alampoondi, Gingee-604 151

P.Pachaiyappan Research Scholar, Institute of Advanced Study in Education, Saidapet, Chennai-600 015.

M.Ramamoorthy Assistant Professor, Sri Rangapoopathi College of Education, Alampoondi, Gingee-604 151.

ABSTRACT

Education is being increasingly regarded as a fundamental right of every child, but a large number of children have learning disabilities preventing them from full advantage of education and productive potential. They suffer from a group disorders collectively known as learning disabilities. These children may have problems in reading, writing, listening, communication, doing mathematical calculations or paying attention. These disorders may be inherited or may be result of minor neurological damage caused by pre-natal or post-natal process. India has 300 million children. Even if we accept the number of learning disabled children at 6%, it is possible that 18-20 million children in India have this condition. Hence a detailed and comprehensive assessment to identify the students who actually have a learning disability is of extreme importance. In this way the article highlights the identification of learning disabilities, common types of learning disabilities and various intervention techniques.

KEYWORDS Identification and Intervention Techniques of LD, Types of Learning Disabilities, Dyslexia, Dysgraphia, Dyscalculia, Learning Disabilities

Introduction

The term learning disability is used to describe a specific group of children, adolescents and adults who have problems in learning. A learning disability is fond across all ages and in all socio-economic classes. Learning is knowledge got by study, by experience or teaching. When the children fail to learn, they impair the capacity to profit from new experiences. They are not able to learn because something prevents them from doing something, may be internal or external causes. This is termed as *Learning Disability* (LD).It is very difficult to recognise the child with learning disability when it is too young. Once the child starts going to school, is participating in the teaching-learning process and other co-curricular activities, these learning disabilities show up and are recognised.

The Phrase *"Learning Disability"* was coined by Samuel Kirk (1963). He defined a learning disability as a disorder or retardation of development affecting specific area, such as reading, spelling, arithmetic and writing as well as delays in language in general. Since the 1980s the broad definition of LD formulated by the US National Joint Committee on Learning Disabilities (NJCLD) Learning Disability is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction and may occur across the life span. Problems in self-regulatory behaviours, social perception and social interaction may exist with learning disability. Although learning disabilities may occur concomitantly with other handicapping conditions or with extrinsic influences such as cultural differences, insufficient or inappropriate instruction, they are not result of these conditions or influences (Wong, 1996).

At least one out of the ten people in the world has a disability, according to the estimates of World Health Organization. About 7% of children and adolescents will experience a substantive learning deficit in at least one area of mathematics (MLD) before graduating from high school (Barbaresi *et.al*, 2005).Therefore the first goal is to identify high risk children and design intervention procedures. The second goal is to minimise the risk of exposing children to academic failure when they enter formal academics.

Hemisphere control in the brain

The brain is naturally divided into right and left hemispheres. These hemispheres are tied together with a small bundle of nerves called the corpus callosum. Information is transferred between the hemispheres via the corpus callosum. The left side of the brain predominantly controls the right side of the body and the right side of the brain predominantly controls the left side of the body. So, neurologically, the right side of the brain controls the left eye, ear, hand, and foot, the left side of the brain controls the right eye, ear, hand and foot. In the right-handed person, the left hemisphere of the brain is normally dominant hemisphere containing fine motor skills functions that are usually indicated by right handed eating, writing, throwing, hair brushing, and etc. In the left-handed person, the right hemisphere will normally control the dominant left side of the body and fine motor skills. A stroke in the dominant hemisphere of the brain resulting in a loss of speech function can render a stroke victim unable to talk. They can usually understand language but cannot articulate answers. If the left hemisphere was affected by the stroke the right side motor functions of the body are negatively affected.

Identification of Learning Disabilities

Manju Pandey (1999) identified learning disabled children on the basis of academic disorders and to measure their level of intellectual development. This study was done on 100 learning disabled and 100 learning abled children of primary level. The results of the study indicated that the level of intellectual development plays an important role to determine the individual's learning ability/disability.

For the purpose of identifying children with learning disabilities, Bannatyne (1968) proposed the re-categorising of WISC Scale scores into spatial, conceptual and sequential categories. The spatial scores was derived from three performance subtest

scale scores object assembly, block design and picture compilation, which usually involve the ability to manipulate objects perceptually either concretely or symbolically. Comprehension, similarities and vocabulary comprised conceptual score. This category represents the child's ability to respond verbally. Digit span coding and picture arrangement comprised the sequential category. The subsets tap the child ability to process short-term memory items and storage of auditory and visual stimuli. Bannatyne's sample of dyslexic children scored highest on spatial, lowest on sequential and their scores on conceptual were in the middle.

The following inclusion criteria are used in identification of learning disabled children.

- Normal intelligence performance or verbal IQ equal or greater than normal range.
- Normal sensory functioning (After correction).
- Retardation in learning areas such as reading, writing and Arithmetic. Minimum of two years of retardation when compared to relative chronological age.
- Average or above average in socio-economic status.
- Not suffering from serious emotional disturbances.
- Exhibits symptoms of perceptual deficits.
- Adequate educational opportunity.
- The child's special abilities should also be ascertained by means of other psychological tests.
- The scholastic history of the child should be properly studied and his day-to-day individual group behaviour should be carefully evaluated.

Causes for Learning Disabilities

The causes for learning disabilities are not well understood and sometimes there is no apparent cause for a learning disability.

- Heredity: Learning disabilities often run in the family, Abnormalities of chromosomes and genes.
- Problem during pregnancy and birth: Learning disabilities can result from anomalies on the developing brain, illness, Drug misuse during pregnancy, including alcohol intake and smoking, low birth weight, oxygen deprivation.
- Birth long before the expected birth date - also called extreme pre-maturity.
- Accidents after birth: Learning disabilities can also be caused by head injuries, malnutrition.
- An autism spectrum disorder.
- Poor diet and health care.
- Psychological conflict, maturation lag, inherited neurological disorder.

Types of Learning Disabilities

Children with learning disabilities are those who exhibit academic difficulties out of proportion to their intellectual capacities. They have impaired ability in learning the academic skills of reading, writing, arithmetic or spelling. As per the diagnostics and statistical manual -IV (American psychiatric Association, 1994) Learning disability may occur in various forms such as reading disability, writing disability, Numerical disability, communication and comprehension disability.

Dysgraphia

Dysgraphia is a term for problems with writing. Dysgraphia is a Greek word. The base word graph refers both to the hand's function in writing and to the letters formed by the hand. The prefix dys indicates that there is impairment. Graph refers to producing letter forms by hand. The suffix is refers to having a condition. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting. Impaired handwriting can interfere with learning to spell words in writing and speed of writing text. Children with dysgraphia may have only impaired handwriting, only impaired spelling (without reading problems), or both impaired handwriting and impaired spelling.

Writing Problem

Writing is frustrating for a child with LD. He is extremely slow with writing and rarely completes his class notes or exam papers with in the given time. His spellings are bad and so are grammar and sentence construction. Even spelling mistakes are in consistent; the same word may be spelt differently in different places on the same page. He is unable to see the pattern in the spelling like 'tion' in 'portion' and 'station'.The LD child may confuse letters while writing, like 'b' for'd', 'n' for'u'. These letters may be mirror images like 'E' for'3, '6' for' 9'. He omits capitals and punctuation. The handwriting may be poor and pencil grip awkward. In more severe cases, word images may be transposed eg. 'saw' for' was', 'no' for'on'etc.

Symptoms

Symptoms that suggest disorder of written expression include:

- poor or illegible handwriting
- poorly formed letters or numbers
- excessive spelling errors
- excessive punctuation errors
- excessive grammar errors
- sentences that lack logical cohesion
- paragraphs and stories that are missing elements and that do not make sense or lack logical transitions
- Deficient writing skills that significantly impact academic achievement or daily life.

Initially, children with impaired handwriting benefit from activities that support learning to form letters:

- Playing with clay to strengthen hand muscles
- Modelling clay games
- Keeping lines within mazes to develop motor control
- Connecting dots or dashes create complete letter forms
- Tracing letters with index finger or eraser end of pencil
- Imitating the teacher modelling sequential strokes in letter formation and Copying letters from models.
- Check board practice should precede pencil and paper writing.

Dyslexia

German Doctor, Berlin coined the term Dyslexia to mean "Difficulty in words, Dyslexia is a term for problems with reading. The word dyslexia is derived from the Greek "dys" (meaning poor or inadequate) and "lexis" (words or language). Dyslexia is a learning disability characterized by problems in poor word reading, word decoding, oral reading fluency, and spelling orthographic and phonological coding, chaotic spelling, trouble with syllabication(breaking words into syllables), and failure to recognize words, hesitant oral reading, and word-by-word rather than contextual reading rapid automatic naming and focused, switching, and/or sustained attention. As per the definition given by national institute of Neurological disorder and stroke, "Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read. These individuals typically read at levels significantly lower than expected, despite having normal intelligence. Although the disorder various from person to person.

Dyslexia is a reading and language-based learning disability. With this problem, a child may not understand letters, groups of letters, sentences or paragraphs. At the beginning of the first grade, children may occasionally reverse and rotate the letters they read and write. This may be normal when he or she is first learning to read. By the middle of first grade (and with maturity) these problems should disappear. However, a young student with dyslexia may not overcome these problems. The difficulty can continue as the student grows. To him, a ' b' may look like a 'd'. He may write on when he really means no. Your child may reverse a 6 to make 9. This is not a vision problem, rather it is a problem with hoe the brain interprets the information it "sees".

Symptoms

Common characteristics of children with reading disorder include:

- Difficulty decoding words – single word identification
- Difficulty encoding words – spelling
- Poor reading comprehension
- Slow reading speed (oral or silent)
- Delayed spoken language
- Problems understanding the sounds in words, sound order, or rhymes
- Transposing letters in words
- Omitting or substituting words
- Similar problems among relatives

Dyscalculia

Dyscalculia is a term for problems with numbers. Dyscalculia is difficulty in learning or comprehending steps in arithmetic problems, difficulty in understanding numbers, learning how to manipulate numbers and learning maths concepts such as quantity, place, value and time memorizing maths facts difficulty organizing numbers, and understanding how problems are organized on the page. Dyscalculias are often referred to as having "poor number sense". The DFES defines dyscalculia as: A condition that affects the ability to acquire arithmetical skills. Dyscalculia learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence.

Mathematics disorder, formerly called developmental arithmetic disorder, developmental acalculia, or dyscalculia, is a learning disorder in which a person's mathematical ability is substantially below the level normally expected based on his or her age, intelligence, educational background, and physical impairments. This disability affects the ability to do calculations as well as the ability to understand word problems and mathematical concepts.

Symptoms of Dyscalculia

- **Counting:** Dyscalculia children can usually learn the sequence of counting words, but may have difficulty navigating back and forth, especially in twos and threes.

- **Calculation:** Dyscalculia children find learning and recalling number facts difficult. They often lack confidence even when they produce the correct answer. They also fail to use rules and procedure to build on known facts. For example, they may know that 5+3=8, but not realise that, therefore, 3+5=8 or that 5+4=9.

- **Numbers with zeros:** Dyscalculia children may find it difficult to grasp that the words ten, hundred and thousand have the same relationship to each other as the numbers 10, 100 and 1000.

- **Measures:** Dyscalculia children often have difficulty with operation such as handling money or telling the time. They may also have problems with concepts such as speed (miles per hour) or temperature.

- **Direction/ orientation:** Dyscalculia children may have difficulty understanding spatial orientation (including left and right) causing difficulties in following directions or with map reading.

Intervention Techniques for Learning Disabilities

Reddy *et.al* (1999) discussed developmental disabilities in children. A disorder or disability that disturbs or changes the order of a child's developmental progress is known as developmental disability. The developmentally disabled children experience limitations in self -care, receptive and expressive language, learning, mobility, self-direction, and capacity of independent living. Chromosomal aberration, neural tube defects, central nervous system damage during prenatal period and metabolic disorders cause developmental disabilities in children. Early intervention programmes that stimulate cognition, motor skills, language or socio-emotional development should be adapted to the children with developmental disabilities. The following intervention techniques used for the children with different types of learning disabilities.

1. *Mastery Model*
- Learners works at their own level of mastery Practice.
- Gain fundamental skills before moving onto the next level.
- This approach is most likely to be used with adult learners or outside the mainstream school system.

2. *Direct Instruction*
- Highly structured, intensive instruction.
- Emphasizes carefully planned lessons for small learning increments.
- Scripted lesson plans.
- Rapid- paced interaction between teachers and students.
- Correcting mistakes immediately.
- Achievement- based grouping.
- Frequent progress assessment.

3. *Classroom Adjustments*
- Special seating arrangements.
- Alternative or modified assignments.
- Modified testing procedures.
- Quiet environment.

4. *Special Equipments*
- Word processors with spell checkers and dictionaries
- Text- to- speech and speech- to-text programmes.
- Talking calculators.
- Books on tape.
- Computer- based activities.

5. *Classroom Assistants*
- Note- takers
- Readers
- Proof readers
- Scribes

6. *Special Education*
- Prescribed hours in a resource room.
- Placement in a resource room.
- Enrolment in a special school for learning disabled students.
- Individual Education Plan (IEP).
- Educational therapy by adopting behaviour modification techniques.

Conclusion

Learning disabilities is an emerging, dynamic and expanding field. Children with learning disabilities are found across all ages, socio-economic levels and races. The problems of these children may range from mild to severe. The learning disabled students can be trained to improve their learning by given special education. They should not be neglected by the society. Children with learning disabilities need support from parents, teachers and peers. Teachers should cooperate and guide parents regarding their child's specific needs. Both Central &State government must take more care to develop the status of learning disabled. The government should initiate a policy for parents of children with learning disabilities like other disabilities. The government service centres should provide training and organise workshops and conferences for parents and class teachers handling methods and also provide transportation facilities for these children. Learning disability does not have anything to do with a person's intelligence after all, such successful people as Mahatma Gandhi, Winston Churchill, Thomas Alwa Edison and Tagore - all had learning disabilities.

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