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Learning Disability and its Impact on Cognitive Functioning: An Analytical Review

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Abstract: This review article examines how children's cognitive functioning is impaired by learning Disability. Learning Disability (LD) is a condition that causes significant difficulties in one or more of the basic processes used in understanding or using spoken or written language. Learning Disability encompasses conditions that affect abilities like dyslexia (reading), dysgraphia (writing), and dyscalculia (mathematical computation). Learning-disabled children frequently struggle to identify emotions such as fear, joy, or anger. They also struggle to evaluate social situations and anticipate cognitive functioning correctly. Cognition refers to multiple mental processes, including attention, perception, learning, thinking, reasoning, remembering, problem-solving, creativity and decision-making. Children with Learning Disability struggle in most of these aspects. In addition, compared to non-LD children, these children are less adept at applying effective techniques for resolving conflicts and addressing problems. LD children also have more severe cognitive issues. If it is left undiagnosed, these problems worsen as the children grow older and would exert a detrimental effect on their overall development. The main objective of the article is to critically analyse the concept of learning disabilities and its consequences on cognitive functioning of children. The current review would also be applicable to aware parents, educators, and school counsellors about the harmful effects of learning disability on children's cognitive development.

Keywords: Learning Disabilities, Dyslexia, Dysgraphia, Dyscalculia, Cognitive Functioning

Introduction:

Childhood is a period of remarkable changes. Children’s development is found extraordinary throughout this period. Their growth depends mainly on early experiences, which also affect their overall development in present as well as in future too. Unfortunately, if it does not occur in proper way, their life becomes filled with challenges and learning disability is one of them.

Learning disability refers to a disorder that interferes with one's ability to store, process and produce information. It can take many forms like Dyslexia, Dysgraphia, and Dyscalculia. Such disabilities may be manifested by specific delay in early development. These disabilities create a gap between the true potential and day to day productivity and performance. Despite this, due to Learning disability (LD), a sizable number of children dropout from the school at an early age. Consequently, it exerts negative impact on child and society.

In fact, children with learning disabilities are often gifted with reasonable competence and intelligence, it is just that they are unable to learn in the same manner as the rest of their peers and may have specific learning difficulties in the basic psychological processes involved in speech, reading, writing, or spelling, understanding, or remembering information and often-times in co-ordination and mathematical calculations. It is not true that they lack intelligence or they are lazy, it is just that their brains are wired differently and this difference affects how they receive and process information.

Conceptualization of Learning Disability

The term learning disability was first introduced in 1963 by Krik. Initially a small group of concerned parents and educators met in Chicago to consider linking the isolated parent groups active in a few communities into a single organization. Each of these parent groups identified the children of concern under a different name, including perceptually handicapped, brain-injured, and neurologically impaired. If these groups were to unite, they needed to agree on a single term to identify the children. When the term learning disability was suggested at this meeting, it met immediate approval (Krik, 1963). The organization today is known as Learning Disabilities Association of America (LDAA) which was born at this historic meeting.

In 1994, National Joint Committee defined, "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 innate to the person, may manifest at any stage of life, and are thought to be caused by dysfunction of the central nervous system. Although they may coexist with learning problems, issues with self-regulation, social perception, and social interaction may not always indicate a learning disability. Learning disabilities are not caused by other handicapping conditions, even though they may coexist with them (such as mental retardation, sensory impairment, severe emotional disturbance, or extrinsic factors like cultural differences, inadequate or inappropriate instruction).
According to DSM-5 (2013) “Specific Learning Disability (SLD) is a form of Neurodevelopmental Disorder that inhibits the ability to learn or apply some definite academic abilities like; reading, writing or arithmetic, which are the basics for all other academic learning.” Early signs of learning disability may appear in the preschool years (e.g., difficulty in learning names of letters or counting objects), but they can only be diagnosed reliably after starting formal education. SLD is understood to be a cross-cultural and chronic condition that typically persists into adulthood, albeit with cultural differences and developmental changes in the way the learning difficulties manifest. So, learning disability have many forms which is discussed in the following section.

Types of Learning Disability (LD)

Although learning disabilities can take several forms but there are three main types of LD which adversely influence the scholastic achievement and cognitive functioning of children i.e. reading disability (dyslexia), writing disability (dysgraphia) and mathematical disability (dyscalculia).

- **Dyslexia (Reading Disability):** Dyslexia is the most common learning disability, accounting for 80% of all learning disability cases. It is a language-processing disorder characterized by difficulty in speaking, reading, writing, or understanding words. This can cause the person's vocabulary to develop at a slower pace and lead to issues with grammar, reading comprehension, and other language skills.
- **Dysgraphia (Writing Disability):** People with dysgraphia may have difficulty putting their thoughts into writing due to issues with vocabulary, spelling, grammar, memory, and critical thinking. This condition is characterized by poor handwriting, as the person may struggle with letter spacing, spatial awareness, and motor planning. Dysgraphia can make it hard for the person to think and write simultaneously.
- **Dyscalculia (Mathematical Disability):** This condition includes learning disorders related to mathematics, such as difficulty with numbers, concepts, and reasoning. People with dyscalculia may struggle to count money, read clocks, and tell time, perform mental math calculations, identify number patterns, and apply mathematical formulae.

An individual may experience more than one of these disabilities, it is called "comorbidity of learning disabilities". Simply, people with learning disabilities have different ways of perceiving and understanding the world. This may make it difficult to pick up and apply new knowledge and abilities. The appearance of learning problems varies greatly throughout childhood and adolescence. While some children have trouble with reading and spelling, others may have trouble with math. Another child may struggle to comprehend what people are saying or expressing. Thus, the problems are very different, but all are concerned with learning disabilities.

Epidemiology of Learning Disability (Worldwide)

Learning disability is a neurological disorder, which takes many forms and is identified around the globe. People with learning disability are among the most vulnerable and socially omitted in society. The WHO has estimated the prevalence of learning disability in industrialized countries to be around 3%. In another study done in the United States of America, nearly 5% of all public students were identified as having a learning disability. The Survey of Income and Programme Participation (SIPP) demonstrated that the LD prevalence rate among the U.S. population is 1.8%. The SIPP found a parent-reported LD rate of 3% among school-age children. The true prevalence of learning disabilities in the U.S. is estimated at between 4-6% in both children and adults based on data.

In a survey in London, UK, the prevalence of dyslexia was 3% in the metropolitan area. In contrast, in another survey using the same tools and criteria for identification, the prevalence rate was 6%. In England, it is estimated that there are 1.2 million people with mild or moderate learning disability and about 120,000 adults with severe or profound learning disability. Over the past three decades, almost all the long-stay National Health Services beds for people with learning disability have closed and virtually all people with learning disability are now living in the community and depend on their practice for their primary health care needs.

In another survey in Singapore, nearly 5% of primary students were likely to suffer from dyslexia. However, Lyon suggests that it should be made clear that complications in the identification of children with learning disabilities do not make the disabilities any less "real" to the student who cannot learn to read, write, or understand mathematics despite good intelligence, an adequate opportunity to learn, and ostensibly good teaching.

The above researches represent the prevalence of LD in some countries in the world. Some more data in Indian context has been represented in the following section.

Learning Disability in India

Epidemiological data on the prevalence of learning disabilities (LDs) in India have been scattered due to the many difficulties inherent in the Indian situation. Suresh and Sebastian (2003) declared that the research on the prevalence of learning disabilities in India is limited and there is certainly no data that can be quoted about the Indian situation. There have been no prospective longitudinal studies and there is miniscule information on the prevalence of learning disabilities in comparison to other psychiatric disorders like ADHD, among Indian children and adolescents.

However, in a series of studies it was found that approximately 10-14 % of the 416 million children in India have LD (Krishnan, 2007; Krishna Kumar, 1999; Mehta, 2003). Mogasale et al. (2012) studied the prevalence of specific learning disabilities among primary school children in the cities of South India. A six-level screening approach that started with identification of scholastic backwardness followed by stepwise exclusion of impaired vision and hearing, chronic medical conditions and subnormal intelligence was carried out among these children. In the final step, the remaining children were subjected to specific test for reading, comprehension, writing and mathematical calculation. It was found that prevalence of learning disabilities was 15.17%, whereas 12.5 % children had dysgraphia, 11.2 % children had dyslexia and 10.5% children had dyscalculia. A study on the magnitude and pattern of disability was conducted in a rural community in Karnataka. The prevalence of learning disability was found 2.02%. Further, it was found that the prevalence of LD was higher among female (2.14%) than males (1.89%), (Pati, 2004).

In a study Ramma and Gowramma (2002) reported the incidence of dyscalculia that lie in between 5 percent to 6 percent in primary school children. Whereas, in another study the incidence of dyslexia in primary school children has been reported 2 to 18 percent (Mittal, Zaidi, Puri, Duggal, Rath & Bhargava, 1977). Bansal and Sneh (2012) reported that out of 745 students in primary grade (8-10 years), 5.36% students had learning disability in written English, 4.28% and 6.32% in grade III and grade IV respectively. Further, the prevalence of learning disabilities in girls was found to be 3.98% whereas in boys it was found 5.9%. In a cross-sectional study, Kumari and Barkiya (2016) found that out of 300 students with poor school performance, problem in learning was seen in 106 students. In post assessment, it was found that 39 (13%) students had learning disability.

An extensive survey conducted in Kerala, revealed that nearly 10% of children and adolescents in the age range of 0-18 years experienced learning difficulties (Suresh & Sebastian, 2003). In India, estimates for children with academic. difficulties in different settings range from 9-39% (Kapur, 1993; Razario, 1991; Sarkar, 1990; & Shenoy et. al. 1998). Prevalence rates of Children with specific laming disabilities involving Math and written expression are difficult to estimate given the current lack of research evidence (Cook et al., 2001). The ASER Report (2015) denotes that 80 million children are in III, IV & V grades in India where 48% are below II class standards in basic skills like reading writing and arithmetic.

Researches carried out in the various states of India revealed that in every average-sized class at least five students were likely to have the learning disability (Thomas, Bhanutej, & John, 2003). However, during the last two decade there has been an increasing awareness and identification of children with learning disability. Despite this, there is a lack of the exact statistical data about the children affected by learning disabilities. The reason behind scattered and sporadic nature of this epidemiological studies include- the bilingualism and multi- lingual system, lack of standardized tools available in different languages to assess learning disabilities, classroom and school context in rural areas, lack of trained teachers/professionals to screen for learning disabilities, parental illiteracy, non-availability of standardized psychological and educational tests and more over it is not visible like other disability categories (Karande et al. 2011).

Causative Factors of Learning Disabilities

Causes of Learning disabilities may be classified in several different ways. This may fall into three main categories; genetic, neural, and environmental factors.

Genetic causes: Many of our physical features (phenotype) originate from our genetic make-up (genotypes). The information required for the development of these characteristics exists in the form of genes that are passed from parents to offspring during the process of cell division. Genes can be found on structures called chromosomes that are present within the nucleus of every human cell and consist of the genetic material DNA (Deoxyribose Nucleic Acid). During the process of cell division (meiosis), the chromosomes from each parent combine and then divide. During this process, changes in both the structure of the chromosomes and their respective genes can occur and this may give rise to genetic abnormalities that are the cause of some learning disabilities. It is believed that between 30-40% of moderate to severe learning disabilities are caused by changes in the genetic makeup of an individual (Knight et al, 1999) and developments in genetic technology arising from The Human Genome Project suggest that the percentage may be higher. A relatively recent study by Knight et al (1999) has shown that several previously undiagnosed conditions in learning disabilities could be attributed to subtle chromosomal rearrangements.

Neural Factors: A significant understanding of the role of brain in learning disabilities has emerged because of the advent of non-invasive structural and functional neuroimaging. After a sizable number of functional neuroimaging studies, researchers identified a network of three left hemisphere regions that support proficient reading and are impaired in people with word-level disorders. These areas are: under activation of (1) a ventral stream involving the occipital region and posterior temporal lobe (occipitotemporal); (2) a dorsal stream involving the posterior portion of the superior and middle temporal gyri, extending into temporoparietal areas (temporoparietal); and (3) either under activation or overactivation of the inferior frontal lobe.

Environmental factors: Environmental factors have an important influence on individuals' physical and intellectual development. Where the environment contains positive factors for growth such as food, warmth, love, safety and sensory stimulation, normal development should ensue. However, in some cases, certain environmental conditions may hinder the growth and development of an individual and this could result in a learning disability. Environmental factors that may exert influence on development might occur in the pre-conception, prenatal and postnatal stages and include infections; trauma, drugs and social deprivation and child abuse.

General Consequences of Learning Disability

The consequences of LD are serious and damaging on overall development of children (Bender & Wall,1994). A sizable number of studies evinced that learning disabled (LD) children displayed distorted cognitive (Hallahan & Kauffman, 2003) and behavioural (Maughan et al. 1985) functioning. Learning Disability can affect all domains of development - Social, Emotional, Cognitive and Behavioural and all these developmental areas are interrelated. A brief description of adverse effects of LD on these developmental aspects is listed below:

- **Social Problems:** Three factors, (i.e. Social Skills, Social Competence and Family Characteristics) are delineated within the domain of social development. All these variables within the social development are interrelated. Studies have consistently shown that children with learning disabilities (LDs) have deficits in social skills. Research proved that up to 75% of LD children exhibit underdeveloped social skills as compared to their non-LD counterparts (Kavale & Forness, 1996; Pearl& Bryan 1992). As a result, LD children tend to avoid social interaction, leading to fewer opportunities for social contact.
- **Behavioural Problems:** Behaviour problems in children and adolescents can be classified into two major domains of dysfunction, namely external behaviours, and internal behaviours. Researches consistently proved the significant associations between learning disabilities and both externalizing and internalizing behaviour problems (Bender & Smith, 1990; Eliason & Richman, 1988; Richards Samuels, Turnure, & Ysseldyke, 1990). In a comprehensive review study Khatoon and Pandey (2022) have analyzed the behavioural problems of LD children. The study indicated that LD children may have difficulty in focusing attention, motor coordination, time management, organizational skills, and emotional maturity. They experience as well as express fear of failure, criticism, and judgment, being rejected and isolated, as well as fear of being identified as one with these problems. In a recent study Khatoon and Pandey (2024) established the adverse effect of LD in behavioural functioning i.e. social interaction, study behaviour, non-compliance, and withdrawal. LD students as compared to non-LD counterparts displayed poor study behaviour and social interaction but heightened aggressive behaviour and withdrawal.
- **Emotional Problems:** Several studies have compared students with and without LD on their negative feelings; namely, depression, anxiety, and loneliness (Margalit, 1991a; Margalit & Ben-Dov,1992; Margalit & Zak, 1984; Wiener et. al., 1990). The results of these studies consistently have indicated that students with LD are more likely to experience these negative emotions than non-LD students. Researches indicated that children and adolescents with learning disabilities exhibit lower self-concept and lower perceived competence than their nondisabled peers (Ayres, Cooley, & Dunn, 1990; Bear, Clever, & Proctor, 1991; Raviv & Stone, 1991). Further, research has suggested that lower self-concept negatively affects social behaviour and academic achievement (Heyman, 1990; Kershner, 1990) of LD students. Studies also evinced those children and adolescent with learning disabilities exhibited more external attribution orientations than internal (Lewis & Lawrence-Patterson. 1989). Feelings of loneliness have been found to range from 10%-18% in children without disabilities but to range as high as 25% or more among children with developmental disabilities (Pavri & Luftig, 2000). Additionally, students with LD do manifest a high risk of depression and an increased risk of suicide (Hall & Haws. 1989; Huntington & Bender, 1993).

- **Motivational and Attribution Problems:** Students with LD often lose the motivation to succeed in school. As failure starts to become more prominent, they begin to attribute on an external locus of control. External locus of control is a motivational term whereby an individual believes that he no longer has control over his fate in life. Chronic difficulties with academic assignments often lead children with learning disabilities to anticipate failure; success is seen as an unattainable goal no matter how hard they try. Seligman (1992) identifies this outlook as learned helplessness. Youngsters who maintain this attitude frequently give up and will not even attempt to complete the task. As a result, even when success is possible, the individual no longer tries because she has the mindset that failure is inevitable anyway.

Impact of Learning Disability on Cognitive Functioning

Researchers have proved the adverse impact of learning disabilities (LD) on various forms of cognitive processes. The major cognitive problems in LD children are displayed in fig-1 and discussed below.

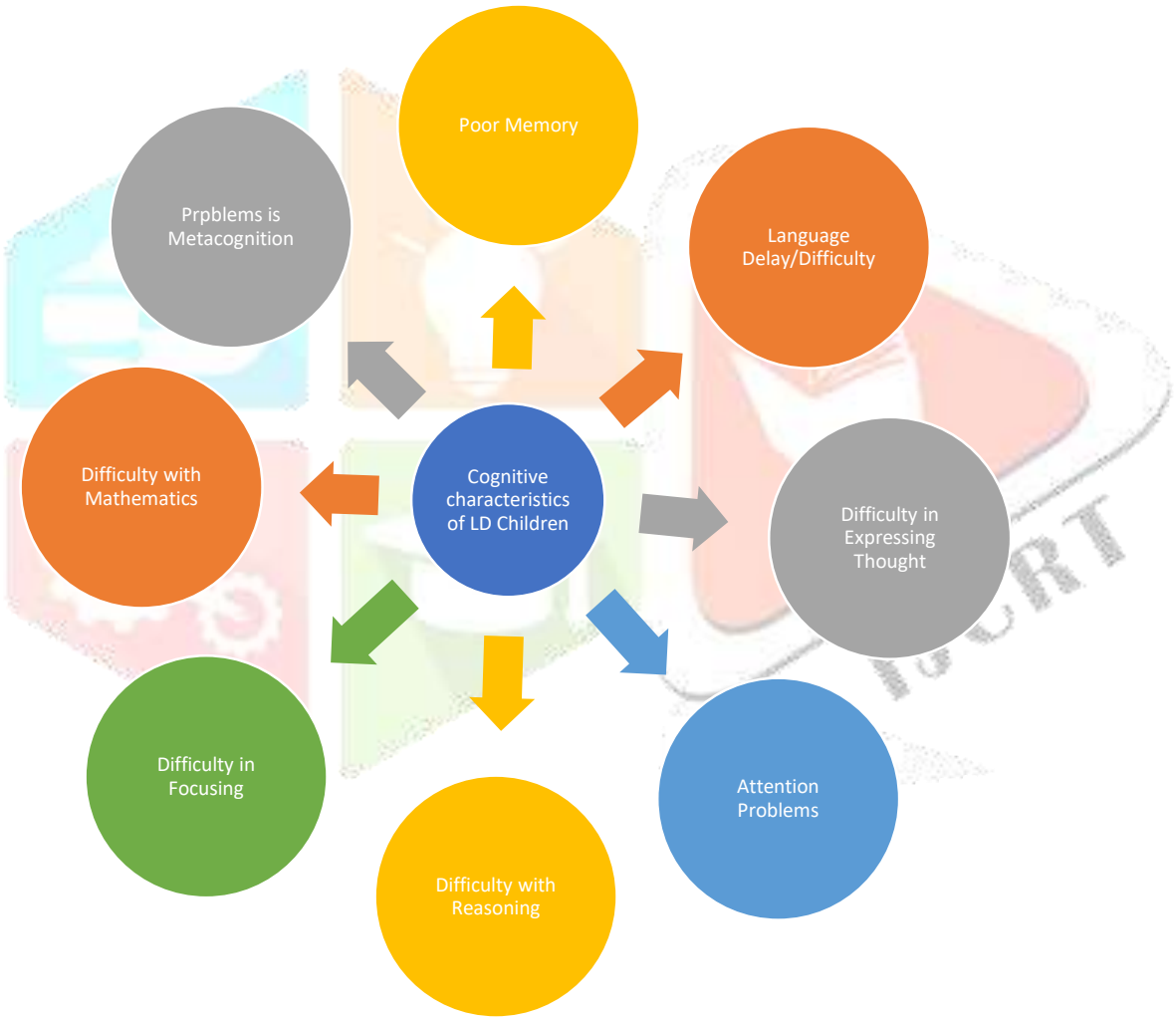

Figure 1 Some major cognitive problems of LD children

- **Attention:** Research evinced that children with learning disabilities often have attention problems (Kotkin, Forness, & Kavale,2001). These children are often characterized as short attention span. Their attention difficulties are often severe enough for them to be diagnosed as also having Attention-Deficit Hyperactivity Disorder (ADHD). Researchers have consistently found an overlap of 10 to 25% between ADHD and learning disabilities (Forness & Kavale, 2002). Many students with LD also exhibit perceptual problems (Lerner, 2003). Perception does not pertain to whether a student sees or hears but rather to how that student's brain interprets what is seen or heard for example, a student with a visual perception problem may see perfectly well the letters b-a-t written on the page but what the brain interprets them to be is t-a-b. Problems in auditory perception often include difficulties with

perceiving sounds that are not attributable to a hearing loss (Kruger, Kruger, Hugo, & Campbell, 2001).

- **Memory:** The importance of memory skills in academic learning cannot be underestimated (Liddell & Rasmussen, 2005). It is well documented that children and adolescents with LD have significant difficulties remembering academic information and non-academic information. Early research in learning disabilities has documented that LD students have difficulty in retaining learned information, repeating read or heard information, following multiple directions, and performing tasks in the right sequence (Hallahan & Kauffman, 2003).
  According to Silver (1966), people with LD are more likely to have concerns with short-term rather than long-term memory. The memory difficulties faced by students are normally either in short-term memory (STM) or working memory (WM). Deficits in memory, particularly working memory, often translate into difficulties in the classroom. Success with reading and math seems to depend more on working memory than short-term memory. Working memory also appears to be crucial for word recognition and reading comprehension (Ashbaker & Swanson, 1996). Research (Swanson and Berninger, 1996) has consistently found that children with all types of learning disabilities display poor working memory performance, especially in verbal and executive working memory.
  In a study, Pandey et al (2020) analyzed the association between LD and working memory. Results revealed that domains of LD were found negatively correlated with various dimensions of working memory. Regression results proved that learning disabilities contributed inversely to the development of working memory.
  Further, in a recent research, Pandey et al (2024) examined the effect of LD, age, and socio-economic status in the development of working memory, Research revealed that LD children displayed very poor working memory than their non-LD counterparts. A developmental trend with growing age was found for each domain of working memory. Moreover, participants of high SES group were found superior on each dimension of working memory as compared to middle and low SES group.
- **Language:** Many individuals with LD exhibit deficits in written language (Hallahan, Kauffman, & Lloyd, 1999). Learning disabilities in written expression are beginning to receive more recognition as a serious problem (Smith et al., 2004). Writing is a highly complex method of expression involving the integration of eye–hand, linguistic, and conceptual abilities. As a result, it is usually the last skill children master. Whereas reading is usually considered the receptive form of a graphic symbol system, writing is considered the expressive form of that system.
  Students with learning disabilities often have difficulties with the mechanical and social uses of language (Hallahan & Kauffman, 2003). Specific mechanical deficits difficulties are often present in the three different areas (Gargiulo, 2004). Language deficits are found in the areas of oral expression and listening comprehension. These two areas control our ability to communicate with others, and therefore a deficit in either or both can have a major impact on the quality of life of a child with a learning disability, as well as his or her life in education (Smith et al., 2004). Studies have found that more than 60% of students with LD have some type of language disorder (Bryan, Bay, Lopez-Reyna, & Donahue, 1991).
- **Academic Achievement:** It is well documented that children and adolescents with LD have significant difficulties remembering academic information and non-academic Information, such as doctors' appointments, homework assignments, multiplication facts, directions, and telephone numbers. Teachers frequently comment that, with these students, it seems to be "in one ear and out the other," which can be highly aggravating for teachers as well as parents. Teachers and parents also report that memory skills are inconsistent. For example, a student may know the multiplication facts on Thursday and then fail the test on Friday. So, this poor achievement caused by poor working memory. Several studies have suggested that students with LD have more deficits in memory than students without LD except in long-term memory. Students with memory deficits have difficulty retaining learned information, repeating information read or heard, following multiple directions, and performing tasks in the right sequence (Smith et al., 2004).

Although there are various views as to why students with learning disabilities have difficulties with memory tasks, it appears that they do not use "strategies for remembering" the way their nondisabled peers do.

- **Metacognition:** Students with learning disabilities often have problems with metacognition. Metacognition is defined as understanding of the strategies available for learning a task and the regulatory mechanisms needed to complete the task. Hallahan and colleagues (1999) refer to metacognition as "thinking about thinking." Students with LD might have difficulty focusing on listening, purposefully remembering important information, connecting that information to prior knowledge, making sense out of the new information, and using what they know to solve a problem. They often lack strategies for planning and organizing, setting priorities, and predicting and solving problems. An important component of metacognition is the ability to evaluate one's own behaviour and behave differently when identifying inappropriate behaviour or mistakes (Smith et al., 2004).

In sum, children with learning disability face many challenges throughout their lives, however, the home and school environment, parental and social support, and the culture may influence a student's motive and ability to learn and perform successfully.

Implications of the study

Present review was done to analyze the role of learning disability in cognitive functioning of children with LD. This review article has significant implications for identification and remediation of children at risk of cognitive problems, particularly those affected by learning disabilities. As we already know that learning disability in children consists of functional inability to receive and process specific types of information in the brain. The disability makes it difficult for the affected children to learn as fast as other normal children do.

Learning Disability is detected mainly in different language processing areas such as; reading, writing, listening, speaking, and application of symbols and numbers for arithmetical operations, which may be found in combination or in isolation. It is well established that LD children are intellectually average or above average, but their highly specific processing difficulty can become detrimental for their personal growth and achievements, if they do not learn to overcome the disadvantages. They are found to have difficulty in learning alphabets, writing alphabets, rhyming words, or connecting letters to their sounds. These may further manifest as difficulty in following verbal and non-verbal directions or manifest as incompetency in social skills required for discussions and team efforts. In brief;

- This review article has pointed out that because of cognitive problems children with learning disabilities are at risk of psychological difficulties; therefore, it is very important to introduce parental support to protect them.
- Diagnosing learning disabilities in children, and helping them to overcome the problems is very important. It is well known that most of LD children can be trained to either overcome or manage to handle their problems successfully.
- Therefore, it is very important for parents as well as teachers, to learn strategies to manage them, have adequate knowledge of specific drawbacks, and must know the rationale of efforts to apply for overcoming them with many problems. They must learn to work with the distressed children with a positive attitude and apply techniques to support them.

Conclusion and Recommendation

- Learning disability is not a single disorder in fact; it includes disabilities in any of different areas related to reading, writing, language, and mathematics. These separate types of learning disabilities frequently co-occur with one another. Based on the review of pertinent literature as discussed earlier, it is concluded that understanding of cognitive functioning of children in context of learning disabilities are much essential for the proper development of a child with LD. This paper has briefly focused on the nature and salient features of learning disabilities and their cognitive consequences in children with LD.

- Since learning disability can lead to poor cognitive functioning and may give rise to cognitive problems in children. Therefore, a multidisciplinary approach is essential for early recognition of learning disabilities in children.
- Despite this, children with learning disabilities should need proper guidance. Parents and teachers should be aware of symptoms, causes and impact of learning disabilities on cognitive and overall development of children. They should learn how to handle disabled children with proper love, protection, and care so that children with learning disabilities can learn in proper way and gain the self-confidence to overcome all the obstacles that hinder their progress and development in educational and social fields.
- A cursory glance at analysis of the reviewed literature revealed that although learning disabilities are present in children at high level in many forms, but it is unnoticed and unreported. Therefore, understanding and awareness of the nature, root causes and impacts of LD should be properly investigated.

Certain recommendations have been made based on analysis of the study:

- It is suggested to aware parents, teachers, and other caregivers about symptoms, causes and detrimental effects of learning disabilities through awareness programs like; workshop, seminar, group discussions, role-play etc.
- Institution based intervention programs and academic enhancement programs should be applied to help these students.
- Further, it is supposed that this review article can help the researchers and professionals who are working in designing programs and intervention strategies for LD children to provide suitable support and encouragements and to overcome the adverse effects of learning disabilities on children.

REFERENCES

American Psychiatric Association, & American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5.* Arlington, VA.

Ashbaker, M. H., & Swanson, H. L. (1996). Short-term memory and working memory operations and their contribution to reading in adolescents with and without learning disabilities. *Learning Disabilities Research & Practice. 11*(4), 206-213

Ayres, R., Cooley, E., & Dunn, C. (1990). Self-con-cept, attribution, and persistence in learning disabled students. *Journal of School Psychology, 28*, 153-163.

Bansal, Sneh (2012): Effective International Strategies for Children with Learning Disabilities, *Edutracks, 11*(8), 3-6.

Bear, G. G., Clever, A., & Proctor, W. A. (1991). Self-perceptions of nonhandicapped children and children with learning disabilities in integrated classes. *Journal of Special Education, 24,* 409- 426.

Bender, W. N., & Smith, J. K. (1990). Classroom behaviour of children and 'adolescents with learning disabilities: *A meta-analysis. Journal of Learning Disabilities, 23*, 298 -305.

Bender, W. N., & Wall, M. E. (1994). Social-emotional development of students with learning disabilities. *Learning Disability Quarterly, 17*(4), 323-341.

Bryan, I., Bay, M., Lopez-Reyna, N., & Donahue, M. (1991). Characteristics of students with learning disabilities: A summary of the extant data base and its implications for educational programs. *The regular education initiative: Alternative perspectives on concepts, issues, and models,* 113-131.

Cook L, Don D, Fuchs D, M J, Fletcher, Frank G et al. Researcher consensus statement. [Online]. 2001 [cited 2006 Sept]; Available from: URL: http:// www.nrcld.org/publications/digests/digest3.shtml

Eliason, M. J., & Richmond, L. C. (1988). Behavior and attention in LD children. *Learning Disability Quarterly, 11*, 360-369.

Hall, C. W., & Haws, D. (1989). Depressive symptomatology in learning disabled and non-learning-disabled students. *Psychology in the Schools, 26,* 359-364.

Hallahan, D. P., & Kauffman, J. M. (2003). Ypatingieji mokiniai: specialiojo ugdymo vadas. *Vilnius: Alma littera*. p.608

Heyman, W. B. (1990). The self-perception of a learning disability and its relationship to academic self-concept and self-esteem. *Journal of Learning Disabilities, 23*, 472-475.

Huntington, D. D., & Bender, W. N. (1993). Adolescents with learning disabilities at risk? Emotional well-being, depression, suicide. *Journal of Learning Disabilities*, 26, 159-166.

Karande, S., Sholapurwala, R., & Kulkarni, M. (2011). Managing specific learning disability in schools in India. *Indian paediatrics, 48*(7), 515-520.

Kavale, K. A., & Forness, S. R. (1996). Social skill deficits and learning disabilities: A meta-analysis. *Journal of learning disabilities, 29*(3), 226-237.

Kershner, J. R. (1990). Self-concept and IQ as predictors of remedial success in children with learning disabilities. *Journal of Learning Disabilities, 23*, 368- 374.

Khatoon, S. & Pandey, S. (2022). Learning Disabilities and its Behavioural Consequences: An Analytical Review. *International Journal of Indian Psychology, 10*(3), 740-750. DIP:18.01.076.20221003, DOI:10.25215/1003.076

Kirk, S. A. (1963). Behavioural diagnosis and remediation of learning disabilities. In proceeding of the conference on the Exploration into the Problems of the Perceptually Handicapped Child. Evanston, IL; Fund for Perceptually Handicapped Child.

Kotkin, R. A., Forness, S. R., & Kavale, K. A. (2001). Comorbid ADHD and learning disabilities: Diagnosis, special education, and intervention. *Research and global perspectives in learning disabilities. Essays in honor of William M. Cruikshank*, 43 -63.

Krishnan, B. (2007). Effective special needs education. Education World (March). Retrieved January 2, 2008, from www. educationworldonline.net/index.php/page-article-choice-more-id-834 Krishnakumar, A. (1999). Coping with a disability. Frontline, 19(8).

Kruger, R. J., Kruger, J. J., Hugo, R., & Campbell, N. G. (2001). Relationship Patterns Between Central Auditory Processing Disorders and Communication Disorders Quarterly, 22, 2.

Kumari, M. V., & Barkiya, S. M. (2016). Children with Poor School Performance for Specific Learning Disability. *International journal of scientific study, 3*(12), 197-201.

Lerner, J. 2003. *Learning disabilities. Theories, strategies*, Boston: Houghton Mifflin Company

Lewis, S. K., & Lawrence-Patterson, E. L. (1989). Locus of control of children with learning disabilities and perceived locus of control by significant others. *Journal of Learning Disabilities, 22*, 255-257.

Liddell, G. A., & Rasmussen, C. (2005). Memory profile of children with nonverbal learning disability. *Learning Disabilities Research & Practice, 20*(3), 137. 141.

Margalit, M. (1991a). Feelings of loneliness in students with learning disabilities. Paper presented at the annual IARLD Conference, Cincinnati.

Margalit, M. (1991b). Understanding loneliness among students with learning disabilities. Behavior Change, 8, 167-173.

Margalit, M., & Ben-Dov, I. (1992). Kibbutz versus city comparisons of social competence and loneliness among students with and without learning disabilities. Paper presented at the annual IARLD Conference.

Margalit, M., & Zak, I. (1984). Anxiety and self-concept of learning-disabled children. *Journal of Learning Disabilities, 17*, 537-539.

Maughan, B., Gray, G., & Rutter, M. (1985). Reading retardation and antisocial behaviour: A follow-up into employment. *Journal of Child Psychology and Psychiatry, 26*(5), 741-758.

Mittal, S. K., Zaidi, I., Puri, N., Duggal, S., Rath, B., & Bhargava, S. K. (1977). Communication disabilities:emerging problems of childhood. *Indian pediatrics, 14*(10), 811-815.

Mogasale VV, Patil VD, Patil NM, et al. Prevalence of specific learning disabilities among primary school children in a South Indian city. *Indian Journal of Pediatrics, 79*: 342–347.

Pandey S, Tripathi N. (2019) Examining the impact of learning disability on development of working memory. *International Journal of Health Science and research, 9*(4):216-232.

Pandey, S., Tripathi, N., Khatoon, S. (2020). Analyzing Working Memory in relation to Learning Disabilities, Age, and Socioeconomic Status. *International Journal for Innovative Research in Multidisciplinary Field. 6*, 246-257.

Pavri, S., & Luftig, R. (2000). The social face of inclusive education: Are students with D really included in the classroom? *Preventing School Failure, 45*, 8- 15.

Ramaa, S., & Gowramma, I. P. (2002). A systematic procedure for identifying and classifying children with dyscalculia among primary school children in India. *Dyslexia, 8*(2), 67-85.

Raviv, D., & Stone, C. A. (1991). Individual differences in the self-image of adolescents with learning disabilities: The roles of severity, time of diagnosis, and parental perceptions. *Journal of Learning Disabilities, 24*, 602-611; 629.

Richards, G. P., Samuels, S. J., Turnure, J. E., & Ys-seldyke, J. E. (1990). Sustained and selective attention in children with learning disabilities. *Journal of Learning Disabilities, 23*, 129-136.

Shenoy, J., Kapur, M., & Kaliaperumal, V. G. (1998). Psychological disturbance among 5-to 8-year-old school children: a study from India. *Social Psychiatry and Psychiatric Epidemiology, 33*(2), 66-73.

Silver, A. A., & Hagin, R. A. (1966). Maturation of perceptual functions in children with specific reading disability. *The Reading Teacher, 19*(4), 253-259.

Smith, D. J. (2004*). Parenting and Delinquency at Ages 12 to 15*. University of Edinburgh, Centre for Law and Society.

Suresh, P.A., & Sebastian, S. (2003) Epidemiological and Neurological Aspect of Learning Disabilities. In Karanth, P. & Rozaria, J. Eds. Learning Disabilities in India: Willing the Mind to Learn. New Delhi: Sage Publications. Pp 30-43.

Swanson, H. L., & Berninger, V. W. (1996). Individual differences in children's working memory and writing skill. *Journal of experimental child psychology, 63*(2), 358-385.

Thomas, S., Bhanutej, K., & John, S. (2003). *Dealing with dyslexia. The Week, 21*, 36 42.

Wiener, J., Harris, P. J., & Shirer, C. (1990). Achievement and social-behavioral correlates of peer status in LD children. *Learning Disability Quarterly, 13*, 114-127.