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A Study the Causes and the Concept of Learning Disability for Education of Special Need

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Abstract- Learning disability is a classification including several areas of functioning in which a person has difficulty learning in a typical manner usually caused by an unknown factor or factors. While learning disability and learning disorder are often used interchangeably, the two differ. Learning disability is when a person has significant learning problems in an academic area. These problems however, are not enough to warrant an official diagnosis. Learning disorder, on the other hand is an official clinical diagnosis whereby, the individual meets certain criteria as determined by a professional (psychologist, pediatrician, etc). The unknown factor is the disorder that affects the brain ability to receive and process information. Another problem in learning process is learning disabilities, in propose research we examine two types of learning disabilities infrastructural and neurological this both disabilities are not present in handicapped categories and this learning disabilities mostly present in rural student due to lack of facility and educational environment.

Keywords- Learning, Disabilities, Cloud Computing, Causes Of Learning Disabilities

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INTRODUCTION

It is becoming increasingly important to deliver services & information around the clock, 7 days a week. Now more than ever, universities are investing time, energy, and money into expanding their online presence, providing more services to students, and enhancing the teaching and learning process through the innovative application of technology. This results in a paradigm shift in how online education is delivered. These days, convenience is key when it comes to selecting an online education provider. Relevant information should be easily accessible in a good e-Learning system. In addition, ICT alters the Learning systems and their potential, allowing for the delivery of a Learning process that is flexible enough to adapt to the needs and preferences of individual students. When used to empower groups that have been historically marginalized, ICTs can help them flourish, join mainstream society, and take part in cultural activities they might have otherwise been shut out of. This has allowed students with disabilities to engage in the general curriculum & succeed at universities.

Learning environments that provide the same material to all participants & identical navigational options cannot keep up with the needs of the growing amount and variety of knowledge available [Brusilovsky P 2001]. The difficulty is that the curriculum does not cater to the individual needs of the students [Hollink V 2007]. Due to the constraints of traditional learning settings, a shift toward adaptable Web-based learning [Brown E 2005; Brusilovsky P 2003] is necessary. E-learning systems are getting bigger and bigger as the number of people using them, the number of services available, the variety of educational materials available, and the quantity of available resources all increase dramatically. Providing scalability and stability of Learning apps and services is one of the fundamental challenges in building the environment for an e-education system. A cloud-based computing architecture could be one answer. This paper presents one strategy for delivering Learning services to a learner with special needs. The built model relies on the underlying cloud computing system. All supports for including students with disabilities are built into the concept.

CONCEPT OF LEARNING DISABILITY

Learning Disability is an umbrella term for a wide variety of learning problems. Learning Disability is not a problem with intelligence or motivation. Usually children with Learning Disability have average or above average intelligence. In fact, most of them are just as smart as everyone else. Their brains are simply wired differently. This difference affects how they receive and process information. Simply put, children and adults with Learning Disability see, hear, and understand things differently. This can

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lead to trouble with learning new information and skills, and putting them to use. The most common types of Learning Disabilities involve problems with reading, writing, arithmetic, reasoning, listening, and speaking ("Learning Disabilities in Children: Types of learning disorders and their signs"). The field of Learning Disability is the challenging sub area of the broader field of special education. The term Learning Disability was first introduced in 1962 in a small meeting of concerned parents and educators in Chicago to consider linking of isolated parent groups active in few communities into a single organization. This term was proposed by Samuel Kirk (1962) as a compromise because of the confusing variety of labels that were being used then to describe the child with relatively normal intelligence who was having learning problems. It was immediately approved. The organization is today known as the Association of Children and Adults with Learning Disabilities (ACLD).

It is only at a later date that Learning Disability was officially recognized as something different from handicapping conditions and so there is still a great deal of debate as to what is meant by the term Learning Disability (Friedrich, Fuller & Davis, 1984). Although the term "learning disability" was not coined until 1962, the field's historical roots date at least to the early 1800s. There has been documented worry about brain dysfunction and its link to reported abnormalities of spoken language since Gall's work in 1802, according to the literature. Language disorders are predicated on integrated functions higher on the neural hierarchy than motor or sensory abilities, so they cannot inherently be categorized as disorders of the motor, visual, or auditory systems, according to Head's 1926 conclusion. Language disorders do not necessarily mean a loss of other abilities like mechanical aptitude.

The origin of the field of Learning Disability has passed through three distinct phases each of which stretches over a period of time. The three phases are the foundation phase, the transitional phase and recognition phase. The foundation phase ranges right from the year 1802 to 1946. In the foundation phase researches relating to disorders of spoken language, written language and perceptual and motor processes were carried out. Transitional phase ranges from 1946 to 1964. In this phase interest had been expanded to include concerns about any student who has apparently normal learning ability but could not learn in the normal manner as others did, making use of standard educational methods. This interest paved the way for classes for brain injured students, dyslexic students, aphasic students and others. In the recognition phase, which ranges from 1965, the field of Learning Disability has grown in a very rapid, though sometimes – disorderly manner, and today it is the largest of the recognized sub areas of special education.

Learning Disability at the Elementary Level

In many children, Learning Disability first becomes apparent when they enter school and fail to acquire academic skills. The failure often occurs in reading, but it also happens in mathematics, writing, or other school subjects. Frequently seen behaviours in the early elementary years like inability to attend and concentrate poor motor skills are evidenced in the awkward handling of a pencil and in poor writing, and difficulty in learning to read.

As the curriculum becomes more difficult in the later elementary years, problems may emerge in other areas, such as social studies or science. After several years of repeated failure, emotional problems may also become more of an impediment, and students become more conscious of their poor achievement in comparison with peers. For some students, social problems and the ability to make and keep friends increase in importance at this age level.

Prevalence of Learning Disability

Prevalence figures can provide valuable information for policy makers, schools and local authorities while planning teaching and resource allocation. However, prevalence figures vary from country to country and even within a country. Rutter and Yule (1975), for example, reported a figure of 3.9 per cent with specific learning difficulties in the Isle of Wight, but using the same methods and psychological characteristics found 9.9 per cent in London. More recently, Chan, Ho, Tsang, Lee and Chung (2008) described two studies in China, where one suggested that Learning Disability was found in less than one per cent of the population whereas the other suggested about 10 per cent. However, different criteria were employed in the two studies (as cited in Kelly & Philips, 2011). That is, as the definitions and criteria vary the statistics about the prevalence also vary. In India a latest report on prevalence of Learning Disability claimed that at least 10% of children in the country have a Learning Disability. This was revealed by experts at 'Learn 2012', an International Conference on Inclusive Education and Vocational options held at Chennai. The organizers pointed out that one in 200 people in India have autism, while an estimated 30 million children are known to be dyslexic. The only way to handle the situation is early detection and intervention by which the symptoms of unacceptable language and behaviour can be minimized (The Times of India, 2012).

Characteristics of Students with Learning Disability

Learning disabilities do not apply to all underachieving students. Furthermore, there is so much individual variance among people with learning disabilities that it is not always easy to identify distinct traits. The main part of all definitions of Learning Disability is that there is a severe discrepancy between achievement and intellectual

ability in some areas such as oral expression, written expression, listening comprehension, reading comprehension, reading or mathematics. Besides these basic characteristic, there are other characteristics, which are common to students with Learning Disability than to the general population of students of their age. These characteristics include delayed spoken language(s) development, poor spatial orientation, inadequate time concepts, difficulty in judging relationships, direction related confusion, poor general motor co-ordination, poor manual dexterity, inattention, hyperactivity, perceptual disorders and memory disorders.

CAUSES OF LEARNING DISABILITY

Unfortunately it is not possible to point out any single factor or group of factors as directly causing a Learning Disability. Rather than a cause and effect relationship, it can only be related to associate factors. The several causes of learning disabilities include

- Organic factors
- Genetic factors
- Environmental factors

Organic factors

A child's normal growth can be hindered in two different ways: 1) by any type of brain injury, and 2) by a delay in maturation.

Neurological Damage: Children with learning disabilities have a number of traits with people who have suffered brain damage from an infection or injury. Impulsivity, distractibility, figure ground disturbances, visual-motor disorders, & cognitive and conceptual abnormalities are a few of these behaviors.

Maturational Delay: Another theory to Learning Disability suggests that it occurs because there is a maturational delay- rather than a permanent dysfunction- within the neurological system. Bender (1973) observed that if differential stages in the development of the brain are delayed, a maturational lag occurs, some typical symptoms mentioned were slow maturation of language skills, specially reading, delayed development of motor skills, uneven performance pattern on measures of intellectual development, visual motor problems, incomplete or mixed dominance, right- left confusion, immaturity (more often seen in males), and tendency for members within a family to show similar symptoms (as cited in Nakra, 2008).

COMMON TYPES OF LEARNING DISABILITY

A person with Learning Disability may have discrepancies in one or all of these categories. The effects of Learning Disability are manifested differently for different individuals and ranges from mild to severe. Learning Disability may also be present along with other disabilities, such as mobility or sensory impairments. Often people with Attention-Deficit Disorder (ADD) or Attention-Deficit/Hyperactivity Disorder (ADHD) also have Learning Disability ("Developmental reading disorder"). Specific types of Learning Disability are listed in the table 1.

Table 1: Common Types of Learning Disability

Type	Area of difficulty	Outcome
Dyslexia	Difficulty in processing language	Problems in reading, writing, spelling, speaking
Dyscalculia	Difficulty with mathematics	Problems in doing math problems, understanding time, using money.
Dysgraphia	Difficulty with writing	Problems with hand writing, spelling, organizing ideas
Dyspraxia	Difficulty with fine motor skills(Sensory Integration Disorders)	Problems with hand eye co-ordination, balance, and manual dexterity
Auditory Processing Disorder	Difficulty in learning differences between sounds	Problems with reading comprehension, language
Visual Processing Disorder	Difficulty in interpreting visual information	Problems with reading, math, maps, charts, symbols, pictures

Note: Adapted from "Learning disabilities in children: types of learning disorders and their signs", by Gina Kemp, M.A., Melinda Smith, M.A., and Jeanne Segal, 2012, retrieved from http://www.helpguide.org/mental/learning_disabilities.htm

There are rigorous criteria used to determine if a student has a Learning Disability as it is defined by special education criteria. Learning Disability is often grouped by school-area skill set. For children it is linked with the three R's of education- reading, writing and arithmetic. Hence the study focuses on the crucial areas of Dyslexia, Dysgraphia and Dyscalculia. The relevant theories related to these areas are given below.

Dyslexia

The term "dyslexia" has been around for a while and has undergone various definitions. Dyslexia was initially described by the World Federation of Neurologists in 1968 as "a problem in children who , despite conventional classroom experience, fail to attain the language skills of reading, writing, and spelling commensurate with their intellectual abilities" (Gaddes&Edgell, 1994, p. 336). The U.S. National Institutes of Health (NIH) classifies dyslexia as a learning disability that can make it difficult for a person to read, write, spell, & occasionally even talk. The most prevalent learning disability in childhood, dyslexia lasts a lifetime. Dyslexia can range in intensity from moderate to severe. Although it is never too late for those with dyslexia to learn to enhance their language abilities, the sooner dyslexia is addressed, the more favorable the outcome. Despite receiving traditional education, being at least averagely intelligent, and having a sufficient amount of learning opportunities, children with dyslexia have trouble learning to read. It is brought on by a breakdown in the brain's ability to convert visual or auditory information into comprehensible language.

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It is not brought on by hearing or vision issues. It is not brought on by intellectual disability, brain injury, or mental retardation. Early in a student's educational career, dyslexia may go unnoticed. The inability to learn to read might annoy the youngster, and dyslexia may be covered up by other issues. The youngster may display depressive and low self-esteem symptoms. Both at home and at school, behavioral issues are regularly observed. The youngster can lose interest in learning & grow to detest school. If the issue is not resolved, the child's success in school may be in danger (Perlstein, 2013).

Signs and Symptoms of dyslexia

Dyslexia occurs when there is a problem in areas of the brain that help interpret language. It is not caused by vision problems. The disorder is a specific information processing problem that does not interfere with one's ability to think or to understand complex ideas. Most people with dyslexia have normal intelligence, and many have above-average intelligence. It's possible for classroom teachers to miss a child's dyslexia. They may spot early indicators that call for additional evaluation by a psychologist or other medical specialist in order to properly identify the disease. The most typical red flags are reversed letters & numbers. Up until the age of 7 or 8, these reversals are fairly common and usually stop by then. If not, testing for dyslexia or other learning issues may be necessary. Copying from a board or book with difficulty may also indicate issues. The written work could be generally disorganized. Even if the material is from a child's favorite video or book, they might not be able to recall it. Spatial relationship issues can be seen outside of the classroom on the playground. The youngster could seem uncoordinated & struggle with team sports or other organized activities. Both the left & right are frequently difficult, and frequently neither hand has established control. Music and dance are frequently employed in the early grades to improve academic learning. Children with dyslexia may find it challenging to dance to the beat of the music.

Multiple auditory processing issues are present in dyslexia. A youngster frequently struggles to

In general, symptoms of dyslexia may include:

- Difficulty in understanding the meaning (idea content) of a simple sentence.
- Difficulty in recognizing written words.
- Difficulty in rhyming.

Dyslexia may occur in combination with writing or math learning problems.

Dysgraphia

Learning Disability in writing can involve the physical act of writing or the mental activity of comprehending and synthesizing information. Disorders of written language are referred to as dysgraphia and this include difficulties in three areas:1) handwriting, 2) spelling and 3) written expression. Basic writing disorder refers to physical difficulty forming words and letters. Expressive writing disability indicates a struggle to organize thoughts on paper.

Dysgraphia is a specific Learning Disability that affects written expression. Dysgraphia can appear as difficulties with poor handwriting, spelling and trouble putting thoughts on paper. Dysgraphia can be a language based, and/or a non-language based disorder.

Many people may have poor handwriting, but dysgraphia is more serious. Dysgraphia is a neurological disorder that generally appears when children first learn to write. Even though the exact reason is unknown, experts believe that early treatment can help prevent or reduce problems.

Writing requires a complex set of motor and information processing skills. Not only does it require the ability to organize and express ideas in the mind, but also requires the ability to get the muscles in the hands and fingers to form those ideas, letter by letter, on paper.

Dysgraphia that is caused by a language disorder may be characterized by the person having difficulty converting the sounds of language into written form (phonemes into graphemes), or knowing which alternate spelling to use for each sound. A person with dysgraphia may write their letters in reverse, have trouble recalling how letters are formed, or when to use lower or upper case letters (Jordan, 1989). A person with dysgraphia may struggle to form written sentences with correct grammar and punctuation, with common problems including omitting words, incorrect verb and pronoun usage, words ordered incorrectly and word ending errors. People with dysgraphia may speak more easily and fluently than they write.

Non-language based dysgraphia are those caused by difficulties performing the controlled fine motor skills required to write. The generic term apraxia refers to a wide variety of motor skill deficits in which the voluntary execution of a skilled motor movement is impaired. Apraxia can involve a single controlled movement, or a sequence of movements, such as writing a single letter or entire words (“What is dysgraphia”).

Signs of dysgraphia

- Generally illegible writing.
- Inconsistencies in writing, e.g. mixtures of print and cursive writing, upper and lower case, or irregular sizes, shapes, or slant of letters.
- Unfinished words or letters, omitted words.
- Inconsistent position of letters on the page with respect to lines and margins.

- Inconsistent spaces between words and letters.
- Cramped or unusual grip of the writing instrument, especially holding the writing instrument very close to the paper, or holding thumb over two fingers and writing from the wrist.
- Strange wrist, body, or paper position.
- Talking to self-whilst writing, or carefully watching the hand that is writing.
- Slow or laboured copying or writing.
- Large gap between written ideas and understanding demonstrated through speech.
- Difficulty organizing thoughts on paper (Joseph, 2010).

Dyscalculia

Learning Disability in Mathematics vary greatly depending on the child's other strengths and weaknesses. A child's ability to do mathematics will be affected differently by a language Learning Disability, or a visual disorder or a difficulty with sequencing, memory or organization. A child with a math–based learning disorder may struggle with memorization and organization of numbers, operation of signs, and number "facts" (like 5+5=10 or 5x5=25). Children with dyscalculia might also have trouble with counting principles (such as counting by 2s or counting by 5s) or have difficulty telling time (Kemp, Smith & Segal, 2012).

The term Dyscalculia has been used in the sense of a specific learning difficulty in Mathematics, indicated by extremely low performance in arithmetic in relation to other indicators of normal intelligence. The first neuropsychological definition of developmental dyscalculia was put forward by the researcher Kosc (1974), who defined it as difficulty in mathematical performance resulting from impairment to those parts of the brain that are involved in mathematical processing, without a concurrent impairment in general mental function. Kosc introduced the term developmental dyscalculia which he defined as a structural disorder of mathematics which has its origin as a genetic or constitutional disorder without simultaneous disorder of general mental functions. An individual could be low functioning on mathematics and yet have above average intelligence (as cited in Nakra, 2008).

Signs of Dyscalculia

- Delay in counting.
- Difficulties in memorizing arithmetic facts. Dyscalculic children have great difficulty in memorizing simple addition, subtraction and multiplication facts (eg. 5 + 4 = 9).
- Lack of "number sense". Dyscalculic children may have a fundamental difficulty in understanding quantity. They are slower at even very simple quantity tasks such as comparing two numbers (which is bigger, 7 or 9?).
- Difficulty imagining a mental number line.
- Difficulty using finger counting (slow, inaccurate, unable to immediately recognize finger configurations).
- Difficulty decomposing numbers (e.g. recognizing that 10 is made up of 4 and 6).
- Shows difficulty understanding concepts of place value, quantity, number lines, positive and negative value, carrying and borrowing.
- Has difficulty understanding and doing word problems.
- Has difficulty sequencing information or events.
- Exhibits difficulty using steps involved in math operations.
- Shows difficulty understanding fractions.
- Displays difficulty recognizing patterns when adding, subtracting, multiplying, or dividing.
- Has difficulty putting language to math processes.
- Has difficulty understanding concepts related to time such as days, weeks, months, seasons, quarters, etc.
- Exhibits difficulty organizing problems on the page, keeping numbers lined up, following through on long division problems (Joseph, 2010).

CONCLUSION

In this analysis we study cloud computing E-learning framework for student with learning disabilities. First framework can be provide solution to infrastructure base learning disabilities using cloud service provider. Learning difficulties is a dynamic and expanding field. Learning difficulty individuals are found across all ages, socio-economic levels, and races and their problems range from mild to severe. At this juncture, to meet this challenge effectively, the teachers should have through knowledge and understanding of the nature of learning difficulty and the process of diagnosis of academic and non-academic problems emanating among students with learning difficulties.

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