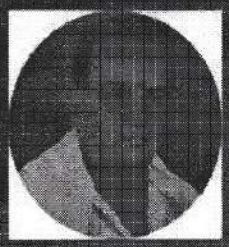

NATIONAL SEMINAR ON EDUCATING DYSLEXIC CHILDREN

(Sponsored by University Grants Commission)

21st & 22nd April, 2017

PROCEEDING

V.O.CHIDAMBARAM COLLEGE OF EDUCATION

(Re-Accredited by NAAC with 'B' Grade)

THOOTHUKUDI – 628 008

TAMILNADU

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Principal
St. Xavier's College of Education
(Autonomous)
Palayamkottai-627002

LEARNING DISABILITIES: DYSCALCULIA, DYSGRAPHIA AND DYSLEXIA

*Dr. Y. Daniel

Introduction

Learning Disabilities (LD) are neurologically-based processing problems. These processing problems can interfere with learning basic skills such as reading, writing and/or math. They can also interfere with higher level skills such as organization, time planning, abstract reasoning, long or short term memory and attention. It is important to realize that learning disabilities can affect an individual's life beyond academics and can impact relationships with family, friends and in the workplace. Learning disabilities should not be confused with learning problems which are primarily the result of visual, hearing, or motor handicaps; of mental retardation; of emotional disturbance; or of environmental, cultural or economic disadvantages.

Dyscalculia

It is a specific learning disability that affects a person's ability to understand numbers and learn math facts. Individuals with this type of LD may also have poor comprehension of math symbols, may struggle with memorizing and organizing numbers, have difficulty telling time, or have trouble with counting.

Affects a person's ability to understand numbers and learn math facts

Individuals with this type of Learning Disability may also have poor comprehension of math symbols, may struggle with memorizing and organizing numbers, have difficulty telling time, or have trouble with counting.

Dyscalculia is difficulty in learning or comprehending arithmetic such as difficulty in understanding numbers, learning how to manipulate numbers, and learning maths facts. It is generally seen as a specific developmental disorder like dyslexia.

Dyscalculia can occur in people from across the whole IQ range, often, but not always, involving difficulties with time, measurement, and spatial reasoning. Estimates of the prevalence of dyscalculia range between 3 and 6% of the population. A quarter of children

*Assistant Professor, St. Xavier's College of Education, (Autonomous), Palayamkottai – 627 002. Tamil Nadu.

with dyscalculia have ADHD. (**Attention Deficit Hyperactivity Disorder** is a psychiatric disorder of the neurodevelopmental type in which there are significant problems of attention hyperactivity). Mathematical disabilities can occur as the result of some types of brain injury, in which case the proper term is acalculia, to distinguish it from dyscalculia which is of innate, genetic or developmental origin.

Etymology

Dyscalculia comes from Greek and Latin which means: **"counting badly".** The prefix **"dys" comes from Greek and means "badly". "Calculia" comes from the Latin "calculare", which means "to count".** The word "calculare" comes from 'calculus' (the diminutive of "calx", which means stone), which means "pebble" or one of the counters on an abacus.

Dyscalculia involves frequent difficulties with everyday arithmetic tasks like the following:

- Difficulty reading analog clocks
- Difficulty stating which of two numbers is larger
- Inability to comprehend financial planning or budgeting, sometimes even at a basic level; for example, estimating the cost of the items in a shopping basket or balancing a checkbook
- Difficulty with multiplication-tables, and subtraction-tables, addition tables, division tables, mental arithmetic, etc.
- Difficulty with conceptualizing time and judging the passing of time. May be chronically late or early.
- Problems with differentiating between left and right
- Inability to visualize mentally
- Difficulty reading musical notation
- Difficulty navigating or mentally "turning" the map to face the current direction rather than the common North=Top usage
- Having particular difficulty mentally estimating the measurement of an object or distance (e.g., whether something is 10 or 20 feet (3 or 6 meters) away).
- Often unable to grasp and remember mathematical concepts, rules, formulae, and sequences
- Inability to concentrate on mentally intensive tasks
- Low latent inhibition, i.e. over-sensitivity to noise, smell, light and the inability to tune out, filtering unwanted information or impressions. Might

have a well-developed sense of imagination due to this (possibly as cognitive compensation to mathematical–numeric deficits)

- Mistaken recollection of names. Poor name/face retrieval. May substitute names beginning with same letter.

Signs and Symptoms

- Shows difficulty understanding concepts of place value, and 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
- Is challenged making change and handling money
- 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

Strategies

- Allow use of fingers and scratch paper
- Use diagrams and draw math concepts
- Provide peer assistance
- Suggest use of graph paper
- Suggest use of colored pencils to differentiate problems
- Work with manipulatives
- Draw pictures of word problems
- Use mnemonic devices to learn steps of a math concept
- Use rhythm and music to teach math facts and to set steps to a beat
- Schedule computer time for the student for drill and practice

Dysgraphia

A specific learning disability that affects a person's handwriting ability and fine motor skills. Problems may include illegible handwriting, inconsistent spacing,

poor spatial planning on paper, poor spelling, and difficulty composing writing as well as thinking and writing at the same time.

Affects a person's handwriting ability and fine motor skills

A person with this specific learning disability may have problems including illegible handwriting, inconsistent spacing, poor spatial planning on paper, poor spelling, and difficulty composing writing as well as thinking and writing at the same time.

Signs and Symptoms

- May have illegible printing and cursive writing (despite appropriate time and attention given the task)
- Shows inconsistencies: mixtures of print and cursive, upper and lower case, or irregular sizes, shapes or slant of letters
- Has unfinished words or letters, omitted words
- Inconsistent spacing between words and letters
- Exhibits strange wrist, body or paper position
- Has difficulty pre-visualizing letter formation
- Copying or writing is slow or labored
- Shows poor spatial planning on paper
- Has cramped or unusual grip/may complain of sore hand
- Has great difficulty thinking and writing at the same time (taking notes, creative writing.)

Strategies

- Suggest use of word processor
- Avoid chastising student for sloppy, careless work
- Use oral exams
- Allow use of tape recorder for lectures
- Allow the use of a note taker
- Provide notes or outlines to reduce the amount of writing required
- Reduce copying aspects of work (pre-printed math problems)
- Allow use of wide rule paper and graph paper
- Suggest use of pencil grips and /or specially designed writing aids
- Provide alternatives to written assignments (video-taped reports, audio-taped reports)

Dyslexia

Dyslexia was identified by Oswald Berkhan in 1881, but the term *dyslexia* was coined in 1887 by Rudolf Berin. He used the term to refer to a case of a young boy who had a severe impairment in learning to read and write in spite of showing typical intellectual and physical abilities in all other respects.

Dyslexia, or developmental reading disorder, is characterized by difficulty with learning to read fluently and with accurate comprehension despite normal intelligence. This includes difficulty with phonological awareness, phonological decoding, processing speed, orthographic coding, auditory short-term memory, language skills/verbal comprehension, and/or rapid naming.

Dyslexia is the most common learning difficulty. Dyslexia is the most recognized of reading disorders. There are three proposed cognitive subtypes of dyslexia (auditory, visual and attentional), although individual cases of dyslexia are better explained by specific underlying neuropsychological deficits and co-occurring learning difficulties(e.g. an auditory processing disorder, an attention deficit hyperactivity disorder, a visual processing disorder) and co-occurring learning difficulties (e.g. dyscalculia and dysgraphia). Although it is considered to be a receptive language-based learning disability in the research literature, dyslexia also affects one's expressive language skills.

Dyslexia is a learning disorder characterized by difficulty reading. Also called specific reading disability, dyslexia is a common learning disability in children. Dyslexia occurs in children with normal vision and intelligence. Sometimes, dyslexia goes undiagnosed for years and isn't recognized until adulthood.

There's no cure for dyslexia. It's a lifelong condition caused by inherited traits that affect how your brain works. However, most children with dyslexia can succeed in school with tutoring or a specialized education program. Emotional support also plays an important role.

Signs and Symptoms

- Reads slowly and painfully
- Experiences decoding errors, especially with the order of letters
- Shows wide disparity between listening comprehension and reading comprehension of some text
- Has trouble with spelling
- May have difficulty with handwriting

- Exhibits difficulty recalling known words
- Has difficulty with written language
- May experience difficulty with math computations
- Decoding real words is better than nonsense words
- Substitutes one small sight word for another: a, I, he, the, there, was

Strategies

- Provide a quiet area for activities like reading, answering comprehension questions
- Use books with large print and big spaces between lines
- Provide a copy of lecture notes
- Don't count spelling on history, science or other similar tests
- Allow alternative forms for book reports
- Allow the use of a laptop or other computer for in-class essays
- Use multi-sensory teaching methods
- Teach students to use logic rather than rote memory
- Present material in small units

Conclusion

Individuals with learning disabilities can face unique challenges that are often pervasive throughout the lifespan. Depending on the type and severity of the disability, interventions and current technologies may be used to help the individual learn strategies that will foster future success. Some interventions can be quite simplistic, while others are intricate and complex. Teachers, parents and schools can create plans together that tailor intervention and accommodations to aid the individuals in successfully becoming independent learners. School psychologists and other qualified professionals quite often help design the intervention and coordinate the execution of the intervention with teachers and parents. Social support may improve the learning for students with learning disabilities.

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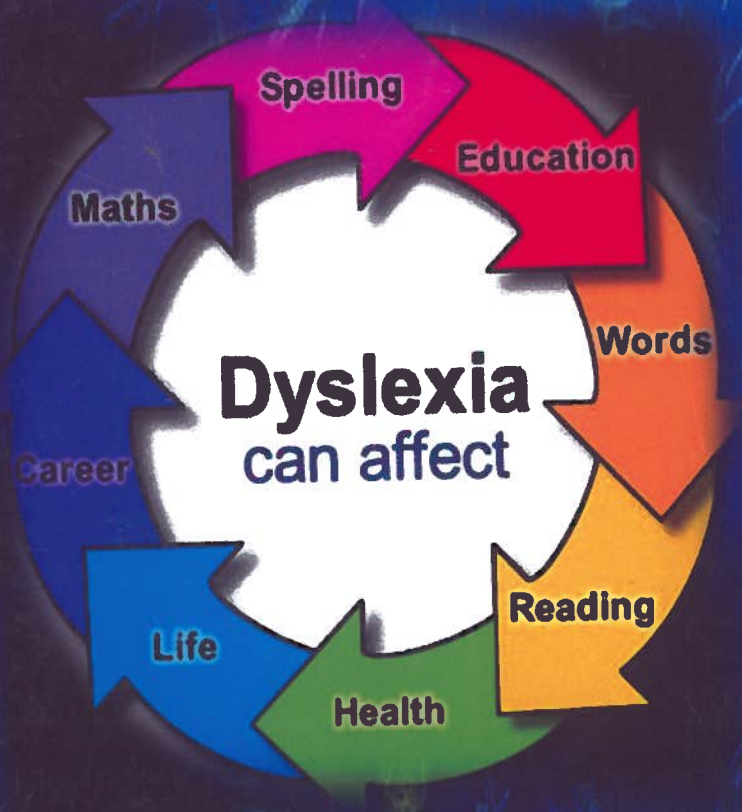

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