Neurodiversity is a range of commonly co-occurring 'conditions' related to processing or cognitive differences. **It includes Dyslexia, Autism, ADHD, and more**. This study investigates eye gaze movements of neurodivergent children with different reading abilities to improve the quality of education to enhance their academic learning. It highlights the use of eye tracker as a potential tool to aid in diagnosis of specific learning disabilities. This research focuses on the learning disabilities - dyslexia. The Eye tracker can be used as a futuristic techniques / tool to identify early symptoms of dyslexia in children followed further by a psychometric test / evaluation. The issue of identifying and assessing children for specific learning disabilities is very difficult and crucial for the psychological, social, and personal wellbeing of the child growing into an adult. The window of our brain functioning is the eye and differences in eye movement can reflect diseases or disorders in various functional areas of the brain. Eye tracking is an increasingly important tool in psychology research. Eye tracking has been defined as “the study of the human visual system”. It examines eye movements while people perform tasks such as reading, comprehending text, solving problems and engaging in physical activities. It allows examination of different aspects of cognitive processing in moment-to-moment details and provides a neurobiological basis for cognitive processes.

Introduction :

It was the time when the whole world came into lethal clutches of Coronavirus and many nations including India announced nationwide lockdown.

The situation kept worsening and the whole world suffered huge losses in terms of jobs, occupations and businesses, mourned over losing their loved ones and witnessed mass exodus and several things terrifying and horrific. Everything came to a standstill with every establishment completely shut. Staying indoors under the grip of fear is no less than a brutal punishment and it was turning more terrible for our neurodivergent children who required more attention, care, love, affection, direction and smiles

Learning disabilities are disorders that affect the ability to understand or use spoken or written language, do mathematical calculations, coordinate movements, or direct attention. Learning disabilities don't have anything to do with intelligence. They are caused by differences in the brain, and they affect the way the brain processes information. These differences are usually present at birth. But there are certain factors that can play a role in the development of a learning disability, including Genetics, Environmental exposures, and Problems during pregnancy. Although learning disabilities occur in very young children, the disorders are usually not recognized until the child reaches school age. There are several types of learning disabilities: Specific learning disability (SLD), general learning disability (GMD), and attention deficit disorder with hyperactivity. This can constitute to a spectrum of disorders affecting the ability to learn in school in a number of different ways, including poor academic performance, slower comprehension, or weaker memory. A child with a learning disability may struggle with low self-esteem, frustration, and other problems. The most common learning disability is dyslexia.

Children with learning differences can have normal intelligence, but the specific learning disorder may make teachers and parents concerned about their general intelligence. Often, these children may try very hard to follow instructions, concentrate, and work hard in academics. Yet, they are unable to master the subject work and thus fall behind. Learning disorders affect at least 1 in 10 schoolchildren. These disorders cannot be eliminated but can be mitigated with early interventions. If they are not treated early, they can have a “snowballing effect”. The most common learning disability is Dyslexia.

Factors that might influence the development of learning disorders include:

* **Family history and genetics.** A family history of learning disorders increases the risk of a child developing a disorder.
* **Prenatal and neonatal risks.** Poor growth in the uterus (severe intrauterine growth restriction), exposure to alcohol or drugs before being born, premature birth, and very low birthweight have been linked with learning disorders.
* **Psychological trauma.** Psychological trauma or abuse in early childhood may affect brain development and increase the risk of learning disorders.
* **Physical trauma.** Head injuries or nervous system infections might play a role in the development of learning disorders.
* **Environmental exposure.** Exposure to high levels of toxins, such as lead, has been linked to an increased risk of learning disorders.

**ACADEMIC SIGNS AND SYMPTOMS:**

**Signs and symptoms of learning disabilities: Preschool age**

* Problems pronouncing words.
* Trouble finding the right word.
* Difficulty rhyming.
* Trouble learning the alphabet, numbers, colours, shapes, or days of the week.
* Difficulty following directions or learning routines.
* Difficulty controlling crayons, pencils, and scissors, or colouring within the lines.
* Trouble with buttons, zippers, snaps, or learning to tie shoes.

**Age 5-9: Signs and symptoms of learning disabilities**

* Trouble learning the connection between letters and sounds.
* Unable to blend sounds to make words.
* Confuses basic words when reading.
* Slow to learn new skills.
* Consistently misspells words and makes frequent errors.
* Trouble learning basic math concepts.
* Difficulty telling time and remembering sequences.

**Age 10-13: Signs and symptoms of learning disabilities**

* Difficulty with reading comprehension or math skills.
* Trouble with open-ended test questions and word problems.
* Dislikes reading and writing; avoids reading aloud.
* Poor handwriting.
* Poor organizational skills (bedroom, homework, and desk are messy and disorganized).
* Trouble following classroom discussions and expressing thoughts aloud.
* Spells the same word differently in a single document.

**WHAT EXACTLY IS DYSLEXIA?**

According to the **INTERNATIONAL DYSLEXIA ASSOCIATION**

*“Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.”* (Adopted by the IDA Board of Directors, Nov. 12, 2002. Many state education codes, including New Jersey, Ohio and Utah, have adopted this definition.)

Signs of reading problems include problems along with:

* Letter and word recognition.
* Understanding words and ideas.
* Reading speed and fluency.
* General vocabulary skills.
* Reading at a typical pace
* Understanding what they read
* Recalling accurately what they read
* Making inferences based on their reading
* Spelling

The impact that dyslexia has is different for each person and depends on the severity of the condition and the effectiveness of instruction or remediation. The core difficulty is with reading words and this is related to difficulty with processing and manipulating sounds. Some individuals with dyslexia manage to learn early reading and spelling tasks, especially with excellent instruction, but later experience their most challenging problems when more complex language skills are required, such as grammar, understanding textbook material, and writing essays. (<https://dyslexiaida.org/frequently-asked-questions/>)

 Other learning disabilities besides Dyslexia include the following:

* **Dyscalculia** – a mathematical disability in which a person has unusual difficulty solving arithmetic problems and grasping math concepts.
* **Dysgraphia** – a condition of impaired letter writing by hand—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.
* **Attention Deficit Disorder (ADD) and Attention Deficit Hyperactive Disorders (ADHD**) can and do impact learning *but they are not learning disabilities*.  An individual can have more than one learning or behavioral disability. In various studies as many as 50% of those diagnosed with a learning or reading disability have also been diagnosed with ADHD.  Although disabilities may co-occur, one is not the cause of the other.