

Case Study Analysis of Dyslexia and Dysgraphia in a 10-Year-Old Male: Intervention and Outcomes

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Abstract:

Specific Learning Disabilities (SLD) represent a range of persistent difficulties in acquiring academic skills, often evident in areas like reading, writing, and mathematics. This study presents a detailed case analysis of a 10-year-old male diagnosed with mixed scholastic difficulties, specifically dyslexia and dysgraphia. The participant exhibited significant challenges with reading and writing, including issues with mirror images of letters and spelling errors, impacting academic performance. Comprehensive assessments, including the Malin's Intelligence Scale for Indian Children (MISIC) and NIMHANS educational battery, were administered, revealing average IQ and academic performance equivalent to a second grader.

The intervention involved 72 individualized sessions over six months, targeting attention span, reading comprehension, and spelling. Adjustments to the school curriculum, such as extra exam time and exemption from a third language, were implemented to support his learning needs. Post-intervention results indicated substantial improvements in reading, spelling accuracy, and academic confidence, as reported by teachers and parents. This study highlights the importance of personalized education plans and ongoing support for children with SLD, providing a framework for clinicians handling similar cases.

Key Words: Specific Learning Disabilities (SLD), Dysgraphia, Dyslexia, Dyscalculia, Individualized Education Plan (IEP), Reading and writing difficulties, Mirror image errors, SLD Assessments, MISIC, NIMHANS neuropsychological battery, School accommodations, Case study, Therapeutic outcomes, Therapeutic Interventions

INTRODUCTION

Specific Learning disabilities (SLD) is a general term for a disorder characterized by significant and persistent difficulties in learning academic skills that are not accounted for by age, intellectual abilities, or educational background (ICD 11). It includes specific deficit in areas of reading, writing and or mathematics. The impairment must be evident during school years and has to significantly interfere or hinder with academic or occupational performance. This interference should not be due to vision, hearing or other neurological conditions or lack of adequate education.

Children with learning disabilities often have problems with reading, writing, listening, speaking, reasoning, memorizing and doing math. Likewise, children with LD also often find it extremely difficult to do schoolwork, which hinders their learning process and leads to further concerns such as behavioral problems, poor grades,

low self-confidence, and lack of interest. These issues end up perturbing their social and personal lives in the long term as the inability to effectively interact and make friends makes it tricky for the students to fit in. Specific Learning Difficulties is a group of difficulties that hinder a child's capacity to think, talk, compose, spell, or do arithmetic's well. At least one of these capacities might be hampered. Specific Learning Difficulties meddles with the typical learning interaction of the individual. The term does exclude learning issues that are fundamentally the consequence of visual, hearing or engine disabilities, of mental impediment, of passionate unsettling influence, or of ecological, social or financial hindrance.

TYPES OF SPECIFIC LEARNING DISABILITIES

Dyslexia

Dyslexia is the particular learning incapacity related to reading. Children influenced with dyslexia think that it is undeniably challenging to peruse. It happens in children with ordinary vision and knowledge.

- Indications of Dyslexia in children who are in school
- Reading adequately underneath the normal level for their age
- Problems recalling the groupings
- Problems in seeing likenesses and contrasts in letters and words
- Problems in spelling words
- Avoiding exercises that include any reading task
- Mispronouncing familiar words
- Difficulties related to identification of words with similar phonetics eg. Cat, bat, hat, mat
- Issues with reading in elder children

Dysgraphia

Dysgraphia is a particular learning difficulty that influences writing articulation, for instance hardships with spelling, helpless penmanship and inconvenience writing considerations down.

- Problems in writing or copying letters
- Issues in dividing and spacing letters effectively while writing
- Difficulty recorded in writing in an orderly fashion in a straight line
- Struggles holding on to paper in one hand while writing with other hand
- Difficulties related to mirror image i.e. writing w as m, p as q and so on
- Holding and directing a pencil or other writing apparatus
- Putting the perfect amount of tension on the paper with a composing instrument
- Keeping a right arm position and stance for writing
- Issues related to inversion and transpositions
- Uneven gripping of pencil
- Issues with tasks that require writing and thinking together

Dyscalculia

- Dyscalculia is a particular learning impairment that causes trouble in learning mathematics, understanding and executing arithmetic exercises. Around 3 to 6% of populace is influenced with some level of dyscalculia.
- Struggles in understanding simple analog clocks
- Issues in identifying which amongst two numbers is bigger
- Difficulties in sequencing items and things
- Difficulty with addition, subtraction, multiplication and division
- Difficulty with time, directions, reviewing plans, groupings of occasions, monitoring time etc
- Inability to focus on intellectually intensive assignments

OBJECTIVE

The objective of this study was to have an in depth analysis into specific learning disabilities and to be able to have greater understanding on the interventions that are primarily used on school going children.

RESEARCH METHODOLOGY

The purpose of this study was to observe and understand the relationship between environment and the development of Specific Learning Disability's symptoms (Rana & Tyagi, 2019a; Tyagi et al., 2017, 2019; Tyagi, Maheshwari, et al., 2020; Tyagi, Moses, et al., 2020). To identify the participant's obstacles and replace them with effective strategies through therapeutic intervention (Rana & Tyagi, 2019a, 2019b; Tyagi, 2021; Tyagi et al., 2021; Tyagi & Moses, 2017, 2022; Tyagi & Singh, 2019; Tyagi & Tyagi, 2022). To assess the change in the participant's overall academic performance and quality of life post-intervention. To provide a detailed case analysis that can serve as a framework for clinicians dealing with similar cases.

CASE STUDY:

Name: XYZ

Age: 10 years

Gender: Male

Profession: Student

Case: This was case of a 10 year old male, who was a school student. The participant came in with complaints from school regarding issue with reading with mirror images. Mirror images are when individuals struggle with similar looking alphabets, such as – the letter b as d, the letter p as q, the letter n as m. The participant also struggled with often either adding or omitting certain letters or words while reading sentences. This led to struggles with keeping up with others in the classroom (Kar et al., 2018). It also proved as an obstacle in comprehension of the material read. This lag alerted the school teacher, who duly informed the school counselor. The parents were informed about the difficulty the child was facing in reading as well as writing.

Under the school counselor's guidance, the parents then were referred an IQ and education assessment for the child. Parents visited the clinic. They informed in detail about what issues the participant is facing and what the school counsellor had informed them about his difficulty in reading and writing, and how he is not able to progress in his reading and writing levels. A thorough background and history was taken. Under this process the child's academic work needed to be assessed. In order to do that, the child's classwork and homework notebooks were checked. It was observed that issues reported by teachers and parents, such as mirror images, were present. A developmental history was taken to see if there had been any prior complaints or observations from school teachers or their side. On further exploration, it was revealed that during the participant's academic struggle started in 2nd grade. During this time, there were often instances, where the teacher's overseeing the child's work noticed incomplete classwork and homework. The teachers also noticed that the child would also frequently suffered with writing, specifically spelling mistakes. The child even upon being informed of their problem words, still had issues correctly spelling words. The child was also not able to read despite being given proper instructions and sufficient time, suggesting inability to read on their own and needed relevant interventions.

Clinical observation: Child was able to sit still and was asked questions regarding his hesitancy to read or write, after conducting some tests, it was observed that he had difficulty in reading and learning.

Onset: onset started since 2nd grade, where teachers started noticing the participant, issues in reading and writing.

TEST ADMINISTERED

- 1) IQ TEST- MISIC (Malin's Intelligence Scale for Indian Children)
- 2) Education assessment- NIMHANS- National Institute of Mental Health and Neuro Science Bangalore Battery tests

RESULT- IQ- AVERAGE- 92

LEARNING DISABILITY- Mix scholastic difficulties- reading and writing
Dyslexia and Dysgraphia

RESULT OF REPORT: The reading and writing level during the time of assessment of the child was that of a second grader.

PROCEDURE:

Individualized Education Plans were conducted for the participant to address the issues he was facing. The session were planned to be conducted over the course of 6 months. 12 sessions per month were scheduled. This

way, a total of 72 sessions were conducted. These sessions were focused on three major fields for improvement-

- 1) Attention span
- 2) Reading- Level 1 and Level 2 story books
- 3) Spelling- side words, phonetic sounds

Review of the schedule and assessments were made halfway during the sessions. The IEPs were reviewed and reconstructed to better fit the treatment. The assessments were re-conducted to see the progress of the participant. Various observations were noted. A marked reduction was noted in spelling errors by the child, in both Hindi and English. The parents were advised that the child required long term intervention and general special education. The school's special educator was (Corballis, 2018) informed about the case and the relevant details were shared. As per the norms and regulations put forth by CBSE, the child was exempted from the 3rd language option, so as to not further complicate the child's academic journey. He was also permitted extra time for his exams. He was awarded an extra hour in a three hour paper and extra fifteen minutes in a one hour exam. The question paper was also explained to him so he does not miss any details or misinterpret questions.

CONCLUSION:

The interventions taken place were necessary and deemed to be successful in the participant's treatment. After the sessions the child was able to effectively complete his classwork and homework. He reported relative ease as compared to previously, before the sessions were conducted. The teachers were contacted to inquire about his progress. They reported that he had a marked increase in reading comprehension. The child also had better performance in examinations (Lalit, 2019). All this culminated in an increased confidence in the child of his own abilities. This confidence bled into his extra-curricular activities as well, and he could participate and contribute equal to his peers. The parents were also able to better understand their child's needs and wants (*Malins Intelligence Scale for Indian Children (MISIC)- Master the 2 Domains of the Scale - Careershodh*, 2019).

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