

Dynamics of Cognitive Development of Dyslexia Students Through Multisensory Learning

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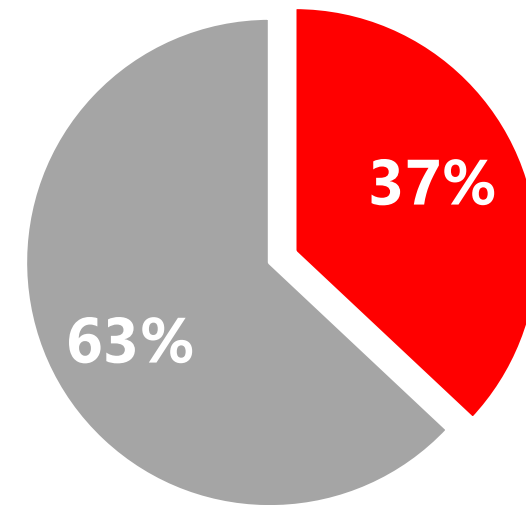
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Introduction

- Dewi, 2020: Learning disorders can hinder children's achievement, making it difficult to achieve results according to expected capacity.
- Costa, Edward & Hooper: Writing and reading barriers in children can increase cognitive load, which has an impact on language dysfunction and executive function (in Vrisaba et al., 2023).
- Faruq & Pratisti, 2022: Multisensory methods are effective in helping children with dyslexia in cognitive development including reading and writing.

7 schools in Surabaya 2019



■ Disleksia ■ Non Dyslexia

Research Questions (Problem Formulation)

Formulation of the Problem

- How is the dynamics of cognitive development of Dyslexic students through multisensory learning?
- What are the multisensory learning media that can be used to develop the abilities of Dyslexic students?

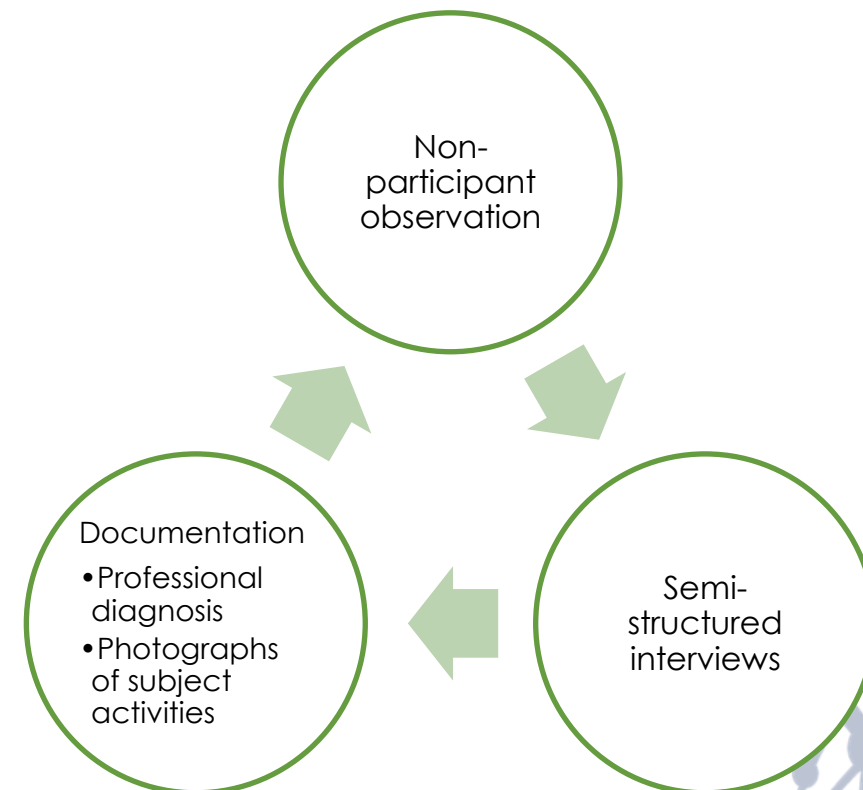
Method

QUALITATIVE CASE STUDY

SUBJECT



DATA COLLECTION TECHNIQUE



Results

Handwriting is neater

- Learning media in the form of dotted lines that need to be connected and juxtaposed with colored images.
- Forming letters with playdough.

Mathematics Increased

- Counting in every activity.
- Addition by utilizing objects around.

Concentration Increased

- Finger Games

Faster Task Completion

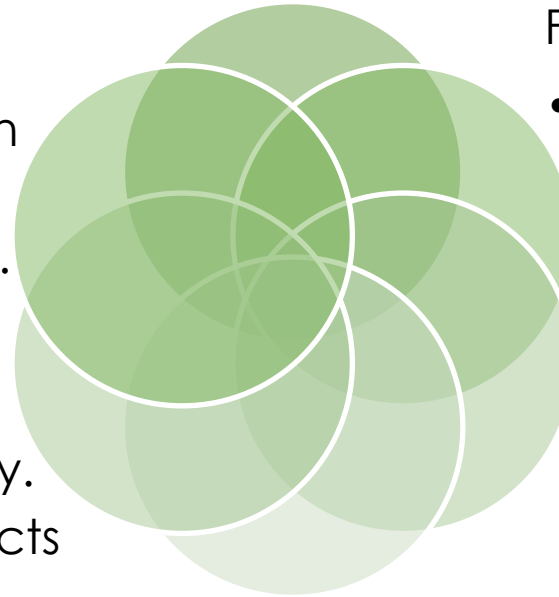
- Drawing on paper as a reward medium.

Reading and Writing Increased

- Arranging colored letters into the name of the object shown.
- Writing letters using fingertips
- Drawing on paper as a reward medium.

Eye Contact 10 seconds

- Eye gazing competition.



Discussion

Mathematics

- Before : **Unable to count or add.**
- After
 - Able to count from 1 to 20
 - Able to do simple addition below ten.
- In line with the results of research conducted by Sullamuddiyanah et al., at UPTD SDN 4 Pringgacala. The study found that the application of multisensory-based learning can improve learning outcomes in grade 2 mathematics (Sullamuddiyanah et al., 2024).

Writing and Reading

- Before : **Messy handwriting and cannot read**
- After
 - The subject's handwriting is neater
 - The subject began to be able to read although there were still some errors in reading and spelling.
- The application of the multisensory method is considered effective in helping the learning process of dyslexic children, especially in reading and writing (Faruq & Pratisti, 2022). Multisensory interventions were able to increase reading ability by up to 60% in dyslexic students at SDN Margaluyu, Serang City (Wijaya et al., 2023).

Focus and Concentration

- Before : **Unable to make eye contact, easily distracted.**
- After
 - Eye contact 10 seconds
 - Starting to be able to focus on completing tasks
 - Faster task completion
- In line with the statement of Ghifary et al., that through the multisensory method, children's concentration in learning and understanding lessons can increase (Ghifary et al., 2023).

Key Research Findings

- Multisensory interventions in dyslexic children have a positive impact on cognitive development. This method is effective in improving cognitive abilities such as focus, reading, writing, and arithmetic.
- The involvement of various sensors in learning helps overcome the limitations of dyslexic children.
- Learning through multisensory methods can utilize various media that are in direct contact with dyslexic children.

Benefits of Research

Theoretical Benefits

- This research is expected to increase knowledge in the field of psychology, especially in improving the cognitive abilities of dyslexic students through multisensory learning. The results of this study can also be an academic reference for the development of theories related to differentiated learning for students with special needs.

Practical Benefits

- For Teachers and Educators
 - Provide insight and alternative learning strategies that are more effective and adaptive in developing the cognitive potential of dyslexic children through a multisensory approach.
- For Schools/Inclusive
 - Provide a basis for consideration in compiling learning programs for dyslexic children.
- For Parents of Dyslexic Students
 - Provide an understanding of the importance of a multisensory approach in assisting the cognitive development of dyslexic children, so that they can be more proactive and supportive in supporting their children's development at home.
- For Other Researchers
 - Become a reference for further research in developing more effective learning methods for students with special needs.

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