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# Identification of Dyscalculia in Children Special Needs for the Impaired Knowing Numbers

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**Abstract:** This study aims to identify and describe the difficulties in learning mathematics or dyscalculia experienced by children with special needs with disabilities in learning mathematics the subject of knowing numbers. The type of research used in this research is descriptive research with a qualitative approach. Research instruments include observation, tests, and interviews. The results obtained were that the S1 subject experienced the characteristics of dyscalculia which included difficulties in language and reading, abnormalities in visual perception disorders, perseveration, and disturbances in body perception. While subject S2 experienced the characteristics of dyscalculia, namely language and reading difficulties. This study concludes that S1 and S2 subjects were identified as having dyscalculia.

**Keywords:** dyscalculia, children with special needs, quadriplegic, know numbers

## 1. INTRODUCTION

Education is a conscious effort to develop the potential and personality of students inside and outside the school environment. According to Nurfadhillah et al (2021, p. 442) Education is the right of everyone, both children, youth and adults, both men and women, both normal children and children with special needs. In this case, it can be concluded that education is a conscious effort to develop the potential and personality of students inside and outside the school environment where Everyone has the right to proper education, regardless of status, religion, race, ethnicity, language, and limitations of children in normal conditions and with special needs. Education services for children to equalize education in Indonesia can be realized through the implementation of basic education (SD/MI/SDLB), junior secondary education (SMP/MTS/SMPLB), and education senior high school (SMA / MA / SMALB). In the implementation of education, mathematics is one of the subjects given in school. According to Kholifatus Zaqiyah et al (2020, p. 152) Learning that needs attention is learning mathematics because there are many things in it our life related to mathematics. The application of important mathematics learning for anyone, even for children with special needs (disabilities). According to Law No.8 of 2016 (Elytasani, 2020, p. 3) Persons with Disabilities are everyone who experiences severe long-term physical, intellectual, mental, and/or sensory limitations interacting with the environment can experience obstacles and difficulties to participate effectively fully, and effectively with other citizens based on equal rights. Therefore child people with special needs also have the same right to get an education, as well as mathematics they have the right to study it.

In children with special needs, learning difficulties are also a problem that cannot be solved undeniable in the implementation of education, because in children with special

needs, there are limitations in the process of accepting learning because children with special needs cannot accept it learns easily as other normal children, the need for handling learning appropriate to the disorder in the child. Learning difficulties that occur in children. There are many types of special needs in the learning process, one of which is difficulty learn mathematics or can be called dyscalculia. According to Muradlo (Adhim, 2019, p. 1) dyscalculia is a learning difficulty that uses the most basic aspects of arithmetic skills. The difficulty contained in the sector understand, receiving, or producing information that is quantitative and spatial, students who experience dyslexic may experience problems in understanding concepts of simple numbers, lack of understanding in the perception of a number, and learning problems in terms of calculations and procedures, inability to perform skills The arithmetic, for example, is unable to say names, concepts, internal symbols mathematics. This can also be seen in connectedness to everyday life such as telling time, calculating prices, measuring speed, and so on. The diversity of dyscalculia that occurs in children with special needs is due to the different obstacles that occur from one child to another because the abnormalities found in each child are also different. There are also several groups of children with special needs, one of which is a quadriplegic.

The Physically disabled is one of the groups of children with special needs who experience physical disabilities so there are limitations in carrying out the functions of the locomotor in the body (Lasyah, 2018, p. 4). Physical disabilities in children with physical disabilities such as incomplete limbs for example stubby hands or feet, incomplete fingers on hands or feet, stiffness in certain parts of the body, as well as weakening of muscles and nerves. This situation is caused by several things such as congenital defects or birth defects, accidents that cause movement disorders, and weakness of the nerves and muscles. Limitations in carrying out activities such as children In general, normal children with disabilities also experience learning difficulties, because of this then there is special treatment for children with disabilities in getting education with class D special school services which is a special class for all children with disabilities. Dyscalculia in children with physical disabilities occurs, for example, in their difficulty in counting because if in children other normals can use their fingers to count consecutively but cannot do it on disabled children who have abnormalities in the hands, can not also be done on children with physical impairments who have no abnormalities in the body but in the nerves and muscles so that they cannot move like being paralyzed. Based on the results of interviews with teachers, especially those in charge of disabled children who were at the Branjangan State SLB on November 23, 2022, 5 students went to school in class D SLB at the elementary school level. Of the 5 students in the class, only 2 students can be selected as research subjects. This was conveyed by the teacher because 2 students have learned about knowing numbers and the other 3 students are still learning self-organization in class, so they have not learned about academic learning. Mathematics learning given to 2 quadriplegic students currently still up to learning material about numbers from numbers 1 to 10, because the student is weak in terms of remembering. In addition, students also experience difficulties in motor skills, because some of these students experience stiffness in the legs, weak muscles in the legs, stiffness in the jaw, and stiffness in the hands so which also affect learning such as writing as well as pronouncing or pronounce students experience difficulty. The difficulties that occurred to these students, because the 2 disabled students did not only experiencing disabilities but also experiencing other disorders, namely mental retardation. However, for the assignment of classes to these students, they are included in the disabled class, because students experiencing a disability that is more dominant in the physically disabled.

The difficulties experienced by these students could be interpreted as having learning difficulties in mathematics which are commonly referred to as dyscalculia, because students experience the most basic difficulties in mathematics, namely understanding numbers, memorizing the shape and pronunciation of numbers or counting numbers,

sorting numbers 1 to 10, sorting numbers 10 to 1 and the value contained in these numbers, and it can be seen that knowing numbers is the first math lesson given usually to kindergarten level school children. However, for children with special needs, this is only given at the elementary level.

The subject matter that will be given in this study is about knowing numbers. Problems in recognizing numbers are problems related to achievement. The goals are counting or mentioning numbers, writing number symbols, and counting the addition of numbers (SLB Curriculum, 2022, p. 1). Based on the description above, the researcher is interested in conducting research with the title "Identification Dyscalculia in Children with Special Needs with Physical Disabilities in Recognizing Numbers ". Inside reason for conducting this research is expected to gain new knowledge on the difficulties of children with disabilities in learning mathematics.

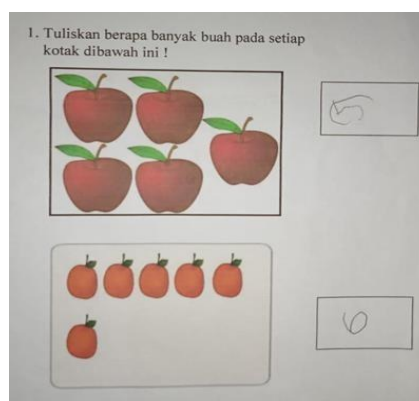
## 2. METHOD

The type of research used in this study is descriptive qualitative because research collects information about a phenomenon that exists, namely the state of things with what existed at the time the research was conducted. This research was conducted at Branjangan State SLB class D Tunadaksa, whose address is at Jl. Branjangan, Semenggu, Bintoro, Kec. Patrang, Kab. Jember, Java East. The subjects used in this study were 2 disabled students who were selected based on the recommendations

of the teacher in charge of the disabled class. Instruments used in research This uses observation, tests, and interviews. Data analysis used in research is the data analysis model of Miles and Huberman. Activity in the data analysis of this model, ie data reduction, data presentation, and concluding.

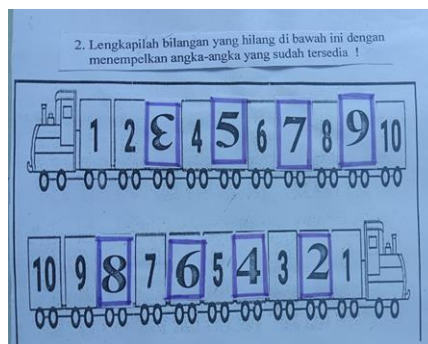
## 3. RESULTS AND DISCUSSION

### 1. Subject S1



### 4. Figure 1. S1 Subject Test Results Question No.1

Based on the picture above question no. 1 indicates that subject S1 can answer correctly, subject S1 can count the number of apples and oranges in the picture and can write down the number symbols of each picture. Apart from the test results, researchers conducted interviews with students during the test, to find out how the process of students completing the test. From the results of interviews conducted with subject S1, on question no. 1 S1 subject experienced a characteristic disorder of dyscalculia including distraction language and reading comprehension difficulties and visual perceptual abnormalities.



5. Figure 2. S1 Subject Test Results Question No.2

Based on the picture above question no. 2 shows that subject S1 answered with correct, can take a random card that matches the answer, can paste it on the empty car in the appropriate place, but at the

time of pasting, there is a number card that is upside down. Apart from looking at the results of the test, the researcher conducted interviews with students during the test, to find out how students process completing the test. From the results of the interview which was carried out with S1 subjects, in question no. 2 S1 subjects experienced perseveration disorders, body appreciation, and difficulties in language and reading



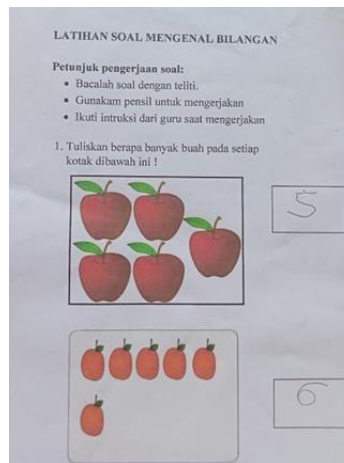
6. Figure 3. S1 Subject Test Results Question No.3

Based on the picture above in question no. 3 shows that subject S1 answered correctly, can count the number of images available in the question, can determine number symbol that corresponds to the number of pictures, and can link pictures with appropriate number symbol. In addition to seeing the results of these tests, researchers conducted interviews with students at the time of carrying out the test, to find out how the student process is in completing the test. From the results of interviews conducted with S1 subjects, on question no. 3 S1 subjects have difficulty understanding language and reading, as well as abnormality difficulties with visual perception disorder.

Based on the results of the research described above, shows that S1 subjects identified as having dyscalculia, because they S1 subject had several disorders characteristics of dyscalculia, namely difficulties in language and reading, abnormalities in perceptual disorders visual acuity, perseveration, and disturbance of bodily perception. In line with the opinion according to Damayanti (2020, p. 25) mathematics learning difficulties that occur in children have several characteristics including the presence of spatial relationship disturbances, abnormalities in visual perception, visual motor associations, persistence, difficulty recognizing and understanding symbols, impaired appreciation of

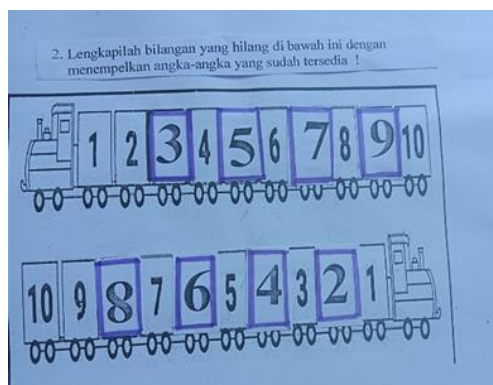
the body, difficulties in language and reading, and performance IQ is much lower than the Verbal IQ score. In addition to the S1 subject experience memory loss. This agrees according to student Ika Wrahastini (Damayanti, 2020, p. 151 ). dyscalculia can understand the lesson but it takes a long time and repetition. So Also, if you look at the learning outcomes contained in the indicator of knowing which numbers are used in the quadriplegic class, number recognition in this quadriplegic class should have reached a range of numbers from 1 to 100. However, in reality, students are still learning to recognize numbers from 1 to 10. This is in line with the opinion according to Bryant (Azhari, 2017, p. 61) students with disorders in mathematics have difficulties that hamper the progress of learning in schools, even though the child is guided by sufficient learning and even though the implementation of practice effective teaching over time.

2. Subject S2



7. Figure 4. S2 Subject Test Results Question No.1

Based on the picture above question no. 1 indicates that subject S2 answered correctly, can count the number of apples and oranges in the picture, and can write down symbol number. In addition to seeing the results of these tests, researchers conducted joint interviews students at the time of carrying out the test, to find out how the students process in completing the test the. From the results of interviews conducted with S2 subjects, they experienced difficulty in understanding language and reading.



8. Figure 5. S2 Subject Test Results Question No.2

Based on the picture above question no. 2 shows that subject S2 answered with right, can take a random card and stick it on the empty box in the right place, and no number cards are turned upside down. In addition to seeing the results of these tests, the researchers conducted interview with students at the time of the test, to find out how the students process in complete the test. From the results of interviews conducted with the subject of S2, experience difficulty understanding language and reading.



9. Figure 5. S2 Subject Test Results Question No.3

Based on the picture above in question no. 3 shows that subject S2 answered with correct, can count the number of images available in the question, can determine the symbol a number that corresponds to the number of pictures, and can link pictures with symbols appropriate number. In addition to seeing the results of these tests, researchers conducted joint interviews with students at the time of carrying out the test, to find out how the students process in completing the test. From the results of interviews conducted with S2 subjects, on question no. 3 are having trouble in language and reading.

Based on the results of the research described above, it shows that the subject of S2 identified as having dyscalculia, because subject S2 experienced a characteristic disorder Dyscalculia is difficulty in language and reading. In line with the opinion according to Damayanti (2020, p. 25) mathematics learning difficulties that occur in children have several characteristics including the presence of spatial relationship disturbances, abnormalities in visual perception, visual motor associations, persistence, difficulty recognizing and understanding symbols, impaired appreciation of the body, difficulties in language and reading, and performance IQ is much lower than the Verbal IQ score. In addition to the S2 subject experience memory loss. This agrees according to student Ika Wrahasitini (Damayanti, 2020, p. 151). dyscalculia can understand the lesson but it takes a long time and repetition. So it can also be seen in the learning outcomes contained in the number of recognition indicators used in the quadriplegic class, number recognition in this quadriplegic class should have reached the range of numbers 1 to 100. But in reality, students are still learning to recognize numbers 1 to 10. This is in line with the opinion according to Bryant (Azhari, 2017, p. 61) students with disorders in mathematics have difficulties that hamper the progress of learning in schools, even if the child is guided through adequate learning and despite the implementation of effective teaching practices from time to time.

## 10. CONCLUSION

Based on the results of the research and discussion described above regarding the identification of dyscalculia in children with special needs with disabilities in recognizing numbers, conclusions can be drawn including:

1. The S1 subject was identified as having dyscalculia because the S1 subject experienced several disorders characterized by dyscalculia, namely difficulties in language and reading, abnormality of visual perception disorder, perseveration,

and disturbance of body perception.

2. Subject S2 was identified as having dyscalculia because subject S2 had a disorder of the characteristics of dyscalculia, namely difficulties in language and reading

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