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## LEARNING DIFFICULTY IN READING AND WRITING OF CHILDREN WITH DISLEXIA: A QUALITATIVE STUDY ON ELEMENTARY SCHOOL'S STUDENT

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**Abstract.** Dyslexia is a specific learning difficulty in reading or writing or both and can be diagnosed when a child comes to school-age. This study was conducted to get a diagnosis of children with dyslexia. Diagnosis is based on the criteria contained in the category of specific learning disorders in DSM 5. At the initial stage, measurement is done by testing the ability to read and write to elementary school students who have indications of learning difficulties. The next stage, it is done by testing intelligence using WISC III. The aspect used to measure dyslexia is reading speed, verbal memory, visual memory and writing ability. Students diagnosed with dyslexia were 104 persons consisting of 34 female students and 70 male students from 42 elementary schools in Kudus Regency. The result of the test on reading ability showed that there were 62 students with reading speed below 40 words in one minute. There were found to be totally 104 students who experienced errors in verbal memory and visual memory on more than 4 questions from 9 questions given and as many as 75 students with writing disorders with various error criteria.

**Keyword:** *dyslexia, reading, writing, intelligence*

### INTRODUCTION

The issue on the concept of dyslexia from an educational perspective is the children with "special" categories and have the right to get different treatment (Seigel, 1989; Riddick, 2003). Dyslexia studies and specific learning difficulties are often termed the same although some authorities have specific learning difficulties in various forms, and dyslexia is one part of the forms of learning difficulties (Pumfrey and Reason, 1991; Miles, 1995; Riddick, 2003). In the 1980s, American dyslexic researchers put more emphasis on changes in the "reading difficulties" perspective than "learning difficulties" (Riddick, 2003), and some researchers tried to look at the causes of dyslexia and the causes of reading difficulties.

Dyslexia is a form of specific learning disorder. This definition refers to a learning disability that is specifically different from the notion of general learning disability. Meanwhile the category of specific learning difficulties includes disorders related to listening, reading, writing and mathematics (Lyon, Shaywitz and Shaywitz, 2003). Dyslexia or specific reading disability reflects reading difficulties that can occur in relation to cognitive abilities, intelligence, level of education or profession (Lyon, 1995; Lyon, Shaywitz, & Shaywitz, 2003; Shaywitz, 1996, 1998; Shaywitz & Shaywitz, 2008). Dyslexia is predicted to reach between 5% and 17% in school-age children (Shaywitz, 1998).

Dyslexia is a form of specific learning difficulties that is derived from neurobiology, which is the characteristic of difficulties in accuracy or fluency in recognizing words, as well as deficiencies

in spelling and the ability to encode words. The types of difficulties that result from the inability to absorb phonological components in language (Shaywitz & Shaywitz, 2003).

Research conducted by Ferrer & McArdle (2004) found a link between cognitive development and changes in academic achievement (e.g. academic knowledge and quantitative grade) in children and adolescents. Whereas the researches conducted by Ferrer, Shaywitz, Holahan, Marchione, and Shaywitz (2010) indicate a reciprocal relationship between reading ability and IQ to see comparisons in reading development.

Difficulty in reading will prevent dyslexic children from applying their reading skills in the classroom and inhibiting children from practicing their reading skills independently and reading comprehensively in the following year. (Gabrieli, 2009).

Scarborough (1990) compared the risks to children who were late detected in dyslexic children. It is found that the risk in dyslexic children is poor in language. Slow language development in children at risk for dyslexia is also shown by studies conducted by Snowling, Gallagher and Frith (2003). Reading difficulties are related to literacy in children (Singleton, 2002). Literacy in reading relates to cognitive measurement, and more importantly that cognitive ability can be used to predict children in the development of literacy to read it (Singleton, 2002).

### Criteria of Dyslexia

It is important to see learning difficulties in dyslexic children by looking at the linkages between biological causes, cognitive impairment, and behavior such as weakness in reading and spelling (Frith, 1992). Dyslexia is also a persistent problem from the difficulty of writing serious words. This problem affects people who have normal intellectual capacity. This learning difficulty is the substance of the low reading ability expected in children according to chronology, intelligence and grade level age (Serrano and Defior, 2008).

Several studies in cognitive measurement to determine the ability or

inability to read, are more directed at reading ability related to IQ (de Jong & van der Leij, 2003). One factor that is related to differences in the development of reading and reading difficulties is IQ (Shaywitz et al., 1995; Ferrer et al., 2007; Stanovich, 1986).

Dyslexia is often identified with the difference between the average or above average of intelligence in general and the sub-standard reading ability test (Gabrieli, 2009). Shaywitz (2003) argues that there is a gap in intelligence by reading indicating children with dyslexia. Shaywitz (2003) further stated that the reading test is a way to find out the fluency of reading. one of them is to see the accuracy in the pronunciation of letters and words.

In the theoretical view there are three major frameworks for identifying dyslexia, namely 1) the presence of phonological weaknesses, 2) weakness of magnocellular function and 3) damage to brain function (Fawcett & Nicolson, 2007). There are several indicators that can be used to determine dyslexia at an early age (Miles & Miles, 1990; Riddick, 2003), namely the difficulty to distinguish right and left directions, the difficulty of saying with long sentences, difficulties in learning, difficulty mentioning the month of the year, having trouble mentioning letters that are almost like b, d and p.

The British dyslexic association (Beech, 2013) states that some indications of dyslexic children include 1) having difficulty in distinguishing sounds, 2) lack of attention, 3) lack of differentiation between sounds, 4) having a slow development history, 5) difficulty in catching, kicking and throwing the ball, 6) difficulty in jumping and over obstacles, 7) having difficulty in differentiating right or left direction.

There are three ways to identify dyslexic children (White, 1983), i.e. 1) getting information from parents regarding physical and biological causes and daily behavior in children, 2) getting information about dyslexia categories from various sources, 3) doing IQ test to detect visual-motoric, auditory and memory abilities.

In accordance with the American Pediatric Association (2013), in the Diagnostic and Statistical Manual of Mental Disorder (DSM 5), it is said that the

criteria for dyslexia refers to specific learning difficulties namely learning difficulties and the use of academic skills, among others related to: 1) Inaccuracy or slow or no effort in reading (for example inaccuracies when reading letters or too slow and hesitant, often guessing words, having difficulty of hearing words). 2) Difficulty in understanding the meaning of what is being read (for example, being able to read text accurately but not understanding the sequence, relationships, conclusions, or deeper meanings of what is being read). 3) Difficulty in spelling (for example, being able to add, remove, or substitute vowels or consonants). 4) Difficulties in written expressions (for example, making grammatical mistakes or punctuation errors in sentences; ideas in written expressions do not have clarity). Another category in determining the diagnostic criteria in determining the diagnosis of children with dyslexic disorders in accordance with the American Pediatric Association (2013), in the Diagnostic and Statistical Manual of Mental Disorder (DSM 5) is the intellectual ability that specific learning difficulties affect individual learning abilities and are demonstrated by normal level category intelligence (IQ).

In this study the criteria used to diagnose children with dyslexia are the criteria for specific learning disorders referring to the Diagnostic and Statistical Manual of Mental Disorder (DSM 5).

## **METHOD**

### **Research Subject**

The subjects in this study were elementary school students in the range of grade 2 to 6 which were conducted on 42 elementary schools. At the beginning of the measurement it was indicated that there were 1 students who have learning difficulties, with an average age of 9 years. However, after initial measurements using general reading and writing skills, there were found 104 students who were indicated to have dyslexia and then it was conducted an intelligence test to the 104 students to see the category of dyslexia.

### **Procedures**

Based on the diagnostic criteria in DSM 5 in determining children with specific learning difficulties in the dyslexic category there are 5 criteria that are used as references, those are reading fluency, reading comprehension, spelling, writing ability and intelligence, for which measurements are taken with several measurement stages. The first stage is carried out on 109 students, by doing a reading ability test, students are asked to read letters in a reading text that is randomly designated by a tester of various types of letters. This is done to see if the child can recognize the letter well or is there still something wrong with pronunciation. The second stage is done by asking the child to read the reading designated by the tester, this is done to find out whether the child has been able to read well or not, stammering or even having difficulty in reading. The third stage is done by asking the child to write the sentence according to the sentence read by the tester, this is to see whether the child can write and the writing can be read well or they have not yet been able to write (the writing is not spaced, the letter is not upside down, letter writing regularly or there are still letters that are not written). The next measurement is telling the child to do activities such as distinguishing right and left direction using hands or the child is told to practice when having to turn right or left. The last measurement is conducted by doing an IQ test on the 104 students by using intelligence tests to find out whether the intelligence of students who indicated dyslexia had intelligence below normal, normal or even superior. The intelligence measurement used the Wechsler Intelligence Scale for Children (WISC-III). Based on the data obtained from the 104 subjects, with an average age of 8.9 years, at range 7,3 until 11.2 years.

## **RESULT AND DISSCUSSION**

Based on the results of measurements that have been carried out on the 104 dyslexic children. Children with dyslexia category have criteria for experiencing both reading and writing disorders with normal and above normal IQ (85 – 115).

The criteria used as the basis for determining the diagnosis of children

with dyslexia refers to the Specific Learning Disorder diagnostic criteria contained in DSM 5, based on the severity of learning difficulties and the use of academic skills in category 1). Inaccuracy or slow or no effort in reading (e.g. inaccuracies when reading letters or too slow and hesitant, often guessing words, having difficulty in hearing words), and intelligence categories. The results were obtained that based on the observation on reading ability, there were 43 boys and 20 girl who had slow reading criteria, whose reading skills were less fluent and were still stuttering. To diagnosed this criteria test used speed reading in a minut. The students have speed reading in 40 words in a minut only from 100 words.

In category 2) Difficulty in understanding the meaning of what is read (for example, being able to read text accurately but not understanding the sequence, relationships, conclusions, or deeper meanings of what is being read) and intelligence categories, it was obtained the results of observing the measurement of reading skills, there are 43 subject included in the criteria who can read well but in reading it is not clear, which seems to be not understanding the meaning more deeply than what is read, with intelligence capabilities of 121 (superior category).

Based on category 3) Difficulty with spelling (for example, able to add, remove, or substitute vowels or consonants) and intelligence categories. It was obtained the results of observation of reading ability that there are 97 subjects who have the ability to read but there are some letters that are not read or lost. The lowest intelligence is 90 and the highest intelligence is 121. For example “hidup” become “hidu”, makan” become “maka”, “butuh” become “ butu”, “tetap” become “tepat”.

Based on category 4) Difficulty in written expression (for example, making grammatical mistakes or punctuation errors in sentences; ideas in written expressions do not have clarity) and intelligence categories. It was obtained the results of observations of writing skills, there were 104 subjects with criteria of having difficulty in writing with unreadable writing and grammatical errors. Meanwhile, the

lowest intelligence was 90 and the highest intelligence was 121. For example b-d wrote d-b.

The findings described above show the relevant link between reading and IQ to establish a diagnosis of reading progression for dyslexics. Ferrer, Shaywitz, Holahan, Marchione, and Shaywitz (2010), in their research results suggest that for normal readers, reading and IQ have a two-way relationship, whereas for children with dyslexia they will continue to have difficulty, and have little effect (from IQ by reading) or even no effect (from reading to IQ).

Measurements using the WISC III test have been considered based on verbal and non-verbal abilities, some children have below average in verbal ability but in some other children the performance ability is below average but the results of intelligence tests (total IQ) show normal IQ (Weschler scale). Shaywitz (2003) suggested that after a child is evaluated it can be seen that there is a pattern that can be explored from the diagnosis of dyslexia, including difficulty in reading letters and words, difficulty in pronouncing unfamiliar words, improper reading, slow reading and not being able to spell.

Reading tests (accuracy, fluency and speed), spelling and language reflect several tests as a diagnosis of dyslexic children. In general, the concept of dyslexia as an unexpected difficulty in reading, which is interpreted as a lack of achievement in reading basic abilities. This is based on the belief that in children with average ability (measured by IQ tests) and reading achievement it is considered as a correlation, so there is a gap between IQ ability and reading (Shaywitz, 2003). Children who have an average IQ or above average should have good reading skills, but in dyslexic children there is a gap between IQ and reading ability.

of course, learning achievement tests (mathematics as an example), language, writing or memory are parts of the overall evaluation of students with dyslexic disorders (Shaywitz, 2003). There is no single test that can be used to diagnose dyslexia in children.

Disorders in dyslexic children can also be detected from phonological

and metaphonological awareness disorders (Vellutino, Fletcher, Snowling, Scanlon, 2004), another disorder in dyslexia seen in long-term verbal memory and short-term verbal memory (Swanson, Xinhua, Germany. 2009), memory ability (Kibby, Marks, Morgan, & Long, 2004), visual perception (Stein, 2001), automation function and learning function (Nicolson & Fawcett, 1990), perception of hearing (Stark & Tallal, 1988), and spatial attention (Vacoetti, Larusso, Cattaneo, Galli & Montelli, 2005)

## CONCLUSION

Based on the overall data according to the category of learning difficulties which is a form of dyslexic disorder, it was found that there were 63 students who experienced a reading disorder, 43 students were difficulty in understanding the meaning of what is read, there are 97 subjects who have the ability to read difficulty with spelling and 104 students who experienced writing disruption.

The result who same with Shaywitz (2003) states that some of the main disorders experienced by dyslexic children are 1) weak phonological awareness which is a major factor for dyslexic children in addition to weak reading ability. Intelligence (IQ) in this case does not even affect even those who have an above average of IQ even superior. 2) Learning difficulties in language are deficiencies in all aspects of language including hearing. Measurement through verbal intelligence is very significant to see deficiencies in language. 3) Difficulties in learning to read because of the occurrence of trauma to the brain due to collisions, tumors or strokes in the brain which will affect the brain's ability to read.

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