



International Journal of Multidisciplinary Research and Growth Evaluation.

The enhancement of reading ability of students with intellectual disability through strengthening their perceptions and images

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Article Info

ISSN (online): 2582-7138

Volume: 04

Issue: 01

January-February 2023

Received: 18-01-2023;

Accepted: 05-02-2023

Page No: 513-517

Abstract

This paper discusses the reading difficulties of intellectually disabled students by strengthening their perception and image by providing teaching materials for reading. Teaching materials are made in such a way with the assumption that the material in teaching materials has been known by students before. Teaching materials are made in such a way in the form of capital letters considering that some intellectual disability students belong to the dyslexia group. Teaching materials are made using attractive colors and good paper so that the printout attracts the attention of students. Strengthening perceptions and images is done by providing real objects in the form of interesting objects or puzzle images, and showing the direct object if the object being taught is found directly around the class. Finally, students are asked to take a capital letter puzzle that matches the object being taught. This research is experimental research by first making a product to be experimented on. The result shows improvement in the reading ability of students, although problems of implementation are still found because their learning cultures are different. After the experimentation process, the teaching materials were perfected according to the input found by the teacher in the field. Teaching materials are added to the existing lowercase and capital letters and given a separator between letters because students are used to being taught using letter by letter. The conclusion from this experiment is that strengthening perceptions and images of a student with an intellectual disability can improve their reading ability.

DOI: <https://doi.org/10.54660/IJMRGE.2023.4.1.513-517>

Keywords: perception, image, intellectual disability, reading problem

Introduction

Education is a conscious effort made by adults to be able to provide meaningful changes to students. The first change that is most expected of students is a change in reading ability, as the main key to understanding the knowledge that will be learned at a later stage (Chacko *et al.*, 2013) ^[5]. Various efforts were made by the teacher to make students able to achieve the learning objectives that had been set previously, but the abilities and differences in intelligence possessed by students also influenced the process and results of learning carried out by the teacher, because students were unique individuals. (Maltby, Day, & Macaskill, 2022) ^[13].

The abilities possessed by students vary, (Altintas & Ozdemir, 2015) ^[2] ranging from abnormal to super normal, all of which require different efforts to deal with them in the implementation of the learning process. However, education remains the right of all students, regardless of their abilities. Every child who is born without exception has the right to get a good and proper education during the developmental period to reach maturity. Education should not be limited to certain children, who can quickly accept, memorize and restate what is learned. The problem that arises then is the fact that students in this world have various abilities and willingness to acquire knowledge through the learning process in the classroom. Allah created various abilities of students, starting from those who are very intelligent, intelligent, those who are less intelligent, and even those who

are very weak in academic ability, must have secrets that humans may be able to or may not be able to grasp (Lannie Kanevsky, 2011) ^[12]. In general, the ability of students is shown by the results of intelligence tests. In this case, there are several known intelligence measurement standards, namely the Binet standard, WAIS-R, Otis-Lennon, and Hemmon-Nelson, which have slightly different standards. (Aiken, 2006) ^[1]. The widely used Binet standard classifies IQ as very superior if the IQ test results show the numbers 140-169, superior if the test results show the numbers 120-139, average high if the test results are 110-119, average/normal 90-109, the average is low if the test results are 80-89, the limit is weak 70-79, and mentally weak if the test results only show a test score of 30-69 (Azwar, 2008) ^[4]. The reality of education illustrates the number of students who have problems in learning, ranging from those who are unable to distinguish between letters or numbers, to those who are unable to remember and re-express what has been perceived, as happens to children with mental retardation. Students like this need special attention in carrying out the learning process in the classroom. They have the potential to be developed, but to be able to have these abilities requires a longer time than normal children (Johnson, 2021) ^[11].

Guiding and directing children with learning difficulties requires serious efforts for educators so that children with learning difficulties can also develop according to their potential. The biggest issue with the learning of mentally retarded children is that of their memory (memory), which is very weak and slow, making it challenging for the teacher to direct and guide them so that they can complete learning objectives. However, efforts must still be made to mentor and educate kids with learning disabilities. Various efforts have been made by experts to help teachers with difficulties in dealing with students with special needs. From several previous studies it can be seen that students with learning disorders still have intellectual ability development, but this development is very slow, so it seems that 10-year-old children have the same development as 4-year-old children. Thus basically children with special needs can be directed and guided, but it takes a very long time to get results. The main problem faced by mentally retarded students is their inability to read and write even though they are entering adulthood. Although various efforts have been made, they have not yet been able to have this ability.

People with mental retardation have a very high level of learning difficulties caused by mental problems, often also called children with learning difficulties or children who have mental retardation or mental deficiency. The inability of mentally retarded students in learning is possible due to several underlying factors, namely: Below-average intellectual functioning, Disturbance in social adjustment, and Following a certain period of development (Sukarno, 2006) ^[17].

IQ test results frequently show how intellectually capable a person is. Because of their intellectual disability, mentally retarded students find it challenging to learn in a classroom setting, necessitating the employment of unique techniques and treatments for these kids. Additionally, people with mental impairment frequently struggle to socialize. The author has observed that there are even mentally handicapped individuals who talk to themselves as if they had their social universe, even though there are numerous other pupils and teachers present in the same room as them. They spend more time by themselves, isolate themselves from their social surroundings, and speak more to themselves.

Due to their low intellectual capacity, students with mental disabilities have difficulty reading. The majority of the mentally disabled students the author has observed are unable to read, but occasionally some of them are already able to discern letters. It will be very challenging to expect a mentally retarded child to be able to live independently at that age because the age that is carried does not correspond to the mental age; even though the child has reached the age of 10 years from a physical perspective, the child is still on the same level as a 4-year-old child. According to studies, people with such mental retardation frequently struggle to care for themselves. The difference in abilities is quite noticeable and varies, starting with students who are classified as mildly mentally retarded, where students are still able to care for themselves, although it is difficult to expect students to be able to care for themselves, is a complicated and serious problem related to mentally retarded students. Independently as befits a typical individual who is capable of taking care of himself and his family; groups are classified as moderate and severe. Generally speaking, mental retardation is broken down into three groups based on the severity of the ailment, expected educational outcomes, and IQ level. Mentally retarded children are grouped into four groups based on how serious their conditions are: mild, moderate, severe, and very severe.

Another classification was put forward by David Smith. He distinguished the mentally retarded from the slow learner group, or children who are slow learners, namely children who cannot study well at school, due to a low IQ score; the emotional disturbance group, namely children who are not progressing at school because of it and the group of lazy youngsters, particularly those who don't advance academically enough specifically, kids who don't make adequate academic progress.

The main problem found in students with intellectual disabilities is their inability to read. (Angelka & Goran, 2018; Walker, Swain & Pellicano, 2022) ^[3, 22]. Their inability to read is the main factor for teachers' difficulties in teaching them various aspects of life. Their inability to read results in the difficulty of their achievement in various other sciences. Whatever the conditions of students, it is the educator's job to find the best method or way so that they can read well (Valizadeh, Pamuk, 2023) ^[20].

Various studies have been carried out by researchers regarding mentally retarded children, including research by Syed, AA, Neelofur, S., Moran, A., and O'Reilly, G. (2020) ^[19] which shows that children with intellectual disabilities have imagery abilities and potentially can be used for their needs, including for therapeutic efforts and increased learning. Strengthening their perceptions and images can certainly help them retain knowledge that has entered their memory so that it will be easier to recall previously embedded knowledge. It can be said that students with intellectual disabilities still have perceptual and image abilities obtained from the process of sensing the outside world (Hewit, *et al.*, 2022) ^[10].

From the results of the research that has been carried out, students with mental retardation still can imagine and perceive objects, but they have difficulty retaining the object in question, therefore strengthening their images and perceptions can of course help them retain the object being studied.

This research tries to provide solutions for learning to read by strengthening the perceptions and images of students with

intellectual disabilities by using various objects at once. Image strengthening is done through the use of basic knowledge and memory contained in the form of teaching materials, puzzles, loose letter puzzles, and miniatures as well as pointing to direct objects if found around them.

Research question

1. How much of a difference is there between the mean reading ability of mentally impaired students before and after perception and image reinforcement?
2. Can boosting senses and imagery help children with mental impairment improve their reading abilities significantly?

Research Methodology

Types of research

The study's experimental research was carried out on mentally challenged pupils in 4 schools in Pekanbaru City, Riau Province, Indonesia with a pre and post-test design, where before the experiment was carried out students were tested first for their reading ability after the experiment was carried out, students were again tested for their reading ability., then the results of the two tests were compared using a parametric statistical test, namely the t-test. Data analysis was carried out using the IBM SPSS Statistics version 26 program.

Population and Research Sample

The population in this study were mentally retarded students from special schools in Pekanbaru, namely Pembina, Sri Mujinab, Kasih Ibu, Panam Mulia, Pelita Hati, Al-Fakih, Melati, Cendana, and Pendowo Lima. The samples in this study were taken by students who had mild and moderate mental problems. Because the population is a homogeneous population, or nearly homogeneous, and it is difficult to deal with mentally retarded students, the samples for this study were taken from Panam Mulia special schools 6 people, Pelita Hati 6 people, Al-Faqih 6 people and Kasih Ibu 6 people, every 2 students are guided by one teacher.

Research Steps

The research was carried out using teaching materials made by researchers based on the assumption that students already have perceptions in the form of recognition of objects that have been perceived and imagined. This teaching material is expected to be able to strengthen their perceptions and images. Teaching materials start from objects and vocabulary that children are familiar with, complemented by brightly colored pictures that can attract the attention of mentally retarded students. This teaching material is grouped into three parts of reinforcement, namely 1). Strengthening of images and perceptions through previously known objects, color stimuli, and images consisting of a series of family members, limbs series, and color series 2) Strengthening of images and perceptions through previously known objects, color stimuli, and pictures and miniature objects consisting of animal series, fruit series, vegetable series, transportation series, and space and shape series 3). Strengthening images and perceptions through previously known objects, color stimuli, and images and physical objects consisting of sports equipment series, school supplies series, cutlery series,

cookware series, and toiletries series. First, students are shown pictures that have been there is written on the object, then ask them to find the same letters as those written in the picture, and repeat them several times. For the second part, student learning activities are continued by asking students to take miniature objects that match the objects, while for real objects, students are shown real objects. Data analysis was carried out using the IBM SPSS Statistics version 26 program.

Results

Descriptive Findings

After conducting experiments on students with learning disorders, an increase in the ability of students was obtained before the experiment was carried out. Data on students' reading abilities can be seen in Tables 1 and 2 below.

Table 1: Students' Pre-Test Scores

		Pre-Test			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50	4	16.7	16.7	16.7
	60	15	62.5	62.5	79.2
	70	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

Table 2: Students' Post Test Scores

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	60	5	20.8	20.8	20.8
	70	5	20.8	20.8	41.7
	80	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

The data above shows that before testing the learning model with perception and image reinforcement, the reading scores of the majority of students were at 70, and after the experiment was carried out there was a significant change to 80.

The difference in the mean, standard deviation, and standard error of the test results of the students before and after the experiment was carried out can be seen in table 3 below.

Table 3: Mean, Standard Deviation, and Standard Error Pre-Test and Post-Test

	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	24	60.42	6.241	1.274
Pos-test	24	73.75	8.242	1.682

From the table above it can be seen that the mean pre-test is 60.42 and the mean post-test is 73.75, where there is a difference of 13.33 where the post-test score is higher than the pre-test, but this difference is also accompanied by an increase in the standard deviation of 1 with an increase deviation of 2,001 points and a mean standard error of 0.408.

Hypothesis testing

The hypothesis that will be tested in this study is "strengthening perceptions and images cannot significantly improve the reading ability of mentally retarded students." The SPSS test results can be seen in the following SPSS output.

Table 4: Reading Ability Before and After Experiment

		Paired Samples Test					t	df	Sig. (2-tailed)
		Paired Differences			95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Pre-test- Pos-test	-13.333	5.647	1.153	-15.718	-10.949	-11.568	23	.000

The output of the SPSS t-test analysis for related samples shows a significant level of 0.00, which means that the hypothesis proposed is not proven, so it can be proven that there is an increase in the ability of mentally retarded students by using perception and image reinforcement. The results obtained are very significant.

Discussion

From the trials conducted, it can be seen that strengthening the perceptions and images of students with learning disabilities can help them learn. This is possible because students with learning disorders also have potentials that can be developed and maximized, and if these potentials can be maximized, then the learning disorders referred to can be overcome, at least learning difficulties can be reduced, it's just to maximize the potential. The intended potential requires patience from the teacher. Therefore a teacher must know what potential students have to be able to help them to learn as much as possible. Even though what was tested in this study was only on reading subjects, basically it can be applied to all subjects.

From the observations made by the authors of the research subjects and interviews with the teacher coaches, the following conclusions were obtained,

1. Students with mental retardation already have perceptions and images brought from their previous environment (home), although these perceptions and images are still limited.
2. The images and perceptions previously possessed by mentally retarded students can sometimes help to learn at school, but sometimes they hinder the learning that is being carried out.
3. Some students are grouped into the mentally retarded group and sometimes have an IQ that is actually above normal which is classified as dyslexia. This can be seen from the presence of students who can make motorized boat toys and fans from used goods.

Constraints in conducting experiments

1. Students have been taught a letter recognition system, but have not been able to recognize it because of their limited abilities, this has become a barrier to implementing the learning system that the researchers have designed.
2. Students are used to being introduced to letters and the lowercase alphabet, while the instruments prepared use uppercase letters.
3. The indiscipline of mentally retarded students who are often absent is an obstacle to the treatment given.
4. Limitations of teaching aids on the market concerning the object being taught.

If strengthening perceptions and images can improve the reading ability of mentally retarded students, then the same technique can also be applied to normal students at early school age. After discussions with the principal of the special schools (SLB) about the material being experimented on, in

which mentally retarded students in the test group had learned to read by first recognizing letters, as well as learning to use lowercase letters, improvements were made to the teaching material that had been experimented with by adding lowercase letters. And chopping off letters and making material per subject.

Conclusion

From research conducted by giving special treatment to research subjects, the results were obtained:

1. The difference in the mean reading ability of mentally retarded students after strengthening perceptions and images compared to before being given reinforcement was 13.33.
2. Strengthening perceptions and images can significantly improve the reading ability of mentally retarded students.
3. The use of strengthening perceptions and images has proven to be effective in influencing the reading ability of mentally retarded students.
4. The use of teaching materials in the form of Reading Lessons as a Core Curriculum is believed to be able to overcome the problem of the reading ability of mentally retarded students.

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