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Thinking Process of Mildly Retarded Students in Solving Square and Rectangle Contextual Problems Based on IDEAL Problem Solving

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Abstrak

Tujuan dari penelitian ini adalah untuk menganalisis proses berpikir siswa tunagrahita ringan dalam menyelesaikan masalah kontekstual persegi dan persegi panjang berdasarkan pemecahan masalah IDEAL. Jenis penelitian ini adalah penelitian deskriptif dengan pendekatan kualitatif. Subjek penelitian adalah 2 siswa tunagrahita ringan di SLB-C TPA Negeri 1 Branjangan. Metode pengumpulan data yang digunakan adalah tes dan wawancara. Instrumen penelitian ini yaitu peneliti, soal tes, dan pedoman wawancara. Proses berpikir kedua subjek cenderung mengalami proses disequilibrium, asimilasi, akomodasi dan equilibrium pada lima tahap IDEAL. Subjek mengalami disequilibrium ketika subjek tidak dapat memahami maksud dari soal karena belum pernah menjumpai masalah kontekstual sebelumnya, mengalami asimilasi ketika subjek menjawab pertanyaan dari peneliti secara spontan, mengalami akomodasi ketika subjek dapat menjawab pertanyaan dengan benar yang awalnya salah, dan mengalami equilibrium ketika subjek mampu memahami serta menjawab pertanyaan-pertanyaan dengan benar. Hasil penelitian ini berimplikasi bagi dunia Pendidikan khususnya sekolah yang memiliki siswa tunagrahita ringan dalam mendesain pembelajaran yang dapat memfasilitasi pemecahan masalah.

Kata Kunci: Pemecahan Masalah IDEAL; Proses Berpikir; Siswa Tunagrahita Ringan

Abstract

The purpose of this research was to analyze the thought process of mildly retarded students in solving square and rectangular contextual problems based on IDEAL problem solving. This type of research was descriptive research with a qualitative approach. The subjects were 2 mildly retarded students at SLB-C TPA Negeri 1 Branjangan. The data collection methods used were tests and interviews. The instruments of this research were researchers, test questions, and interview guidelines. The thinking process of the two subjects tends to experience the process of disequilibrium, assimilation, accommodation and equilibrium at the five stages of IDEAL. The subject experienced disequilibrium when the subject could not understand the meaning of the problem because he had never encountered contextual problems before, experienced assimilation when the subject answered questions from the researcher spontaneously, experienced accommodation when the subject could answer questions correctly which were initially wrong, and experienced equilibrium when the subject was able to understand and answer the questions. The results of this study have implications for the world of education, especially schools with mildly retarded students in designing learning that can facilitate problem solving.

Keywords: IDEAL Problem Solving; Thinking Process; Mildly Retarded Children

I. INTRODUCTION

The learning process based on Piaget's theory is divided into three stages, they are assimilation, accommodation, and equilibration (Idhami et al., 2018; Mutaqin et al., 2023). The inability of individuals to respond to the events around them is called disequilibrium or imbalance. With the disequilibrium process, the accommodation process will be created. This accommodation process allows individuals to modify the old schemes into new schemes so that an equilibrium is formed. A good assimilation, accommodation, and equilibrium process will create significant intelligence. Khiyarusoleh (2016) argues that there are keywords that must be understood from Jean Piaget's thinking process. These keywords include assimilation, accommodation, and equilibration. An explanation of Piaget's thinking process can be found in Table 1.

Table 1.
Definition of the Term Thinking Process

Term of Thinking Process	Definition
Assimilation	The process of responding to a new event or phenomenon with existing ideas or concepts.
Accomodation	The process of responding to a new event or phenomenon by modifying existing ideas or concepts to create a new concept.
Equilibrium	The process by which a person can respond to events in the environment by using already held schemas.

Mental retardation is a condition of someone who has intellectual skills below average (Ningrum et al., 2023). Mentally retarded children are children who have low intellectual power which makes their learning activities a little bit disturbed. The classification of mentally retarded children needs to be done because each mentally retarded child has a different classification with other mentally retarded children (Suparno et al., 2007; Cooper et al., 2021). According to Khairun Nisa et al. (2018), the classification of mentally retarded children based on intellectual ability (IQ score) from the Binet scale is divided into 4, there are mildly retarded with IQ 65-80, moderately retarded with IQ 50-65, severely retarded with IQ 35-50, and very severely retarded with IQ less than 35. Students in the mild category are considered to still have skills in the academic field and still have skills in the social field (Fitria, 2018). Students with mildly retarded are able to master subjects in schools with a low level of difficulty (basic) (Abdullah, 2014).

Mathematics is one of the subjects that must be present at every level of schooling, and SLB is no exception. Mathematics material consists of several components such as algebra, arithmetic, geometry, and statistics. Geometry is one of the parts of mathematics that is closely related to real life (Islam et al., 2021). One of the subfields of geometry is two dimensional object that are often found in everyday life include squares and rectangles. Square is a quadrilateral flat shape composed of four congruent line segments and four right angles (Wulandari, 2017). A rectangle is two dimensional object that composed of two pairs of line segments, each of equal length, and four right angles (Wulandari, 2017).

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Mathematics learning has five aspects of mathematical proficiency that every student must have. These five aspects of mathematical proficiency are not abilities that students already have naturally, but are a combination of knowledge, skills, abilities and beliefs that students have and are obtained with the help of teachers through the learning process (Manik et al., 2024). One of the abilities that students must have is problem solving ability. Based on the fact, the problem-solving abilities are still need to improve. The lack of students' mathematical problem-solving abilities also causes the teaching and learning process of mathematics to not achieve the expected learning outcomes (Rosyadana, M.I & Wibowo, S.E.; 2023).

Based on the opinion of (Senjaya et al., 2017) that the purpose of studying mathematics, especially geometry in SLB for mildly retarded students is to find and explore different ways that exist to solve a problem related to a common life. Because mentally retarded students need to learn a material by repeating and concrete examples are given in everyday life as a provision to know the environment and practice self-care and some simple skills (Islami et al., 2022). According to (Safrida et al., 2015), using the habit of solving mathematical problems can develop the power of thinking and skill in intellectual matters. This has a good impact on students with mild disabilities, as their thinking skills are increasingly honed. The contextual problems are problems that exist in real life and presented in an oral or written form so that they are easy to understand Wahyuddin, 2016). In solving a mathematical problem that is packaged in the form of a story, the final result or answer is not the main goal, but the thought process or steps in solving the problem are made an important point. Students need to develop several things to improve their ability to solve a mathematical problems. These skills include being able to understand the problem well, being able to create a mathematical model, solving a problem, and analyzing the solution to the problem (Hidayat & Sariningsih, 2018). In this way, the ultimate goal of students with disabilities after learning and graduating from school can be properly realized, which is to be able to live more independently, optimize their existing abilities, and develop themselves for a better life.

One of the steps that can be used in solving math problems is the IDEAL problem solving. IDEAL problem solver is one of mathematics problem-solving strategies, which function to investigate and describe student's way of thinking in solving problems process (Permata et al., 2018). IDEAL stands for I (identify problem), D (define goal), E (explore possible strategies), A (anticipate outcome and act), and L (look back and learn) (Muhammad Baba Gusau & Mohamad, 2020). According to (Annizar et al., 2018), IDEAL problem solving is a comprehensive problem solving because it can explain the subject's problem solving process so that it can be used to solve problems. Based on the introduction, this research aims to analyze the thought process of mildly retarded students in solving square and

rectangular contextual problems based on IDEAL problem solving.

II. METHOD

This research is descriptive research with a qualitative approach. Descriptive research is research that aims to describe or portray an event in a real and systematic way in a particular group or population. This research uses a qualitative approach because the output produced from this research will be presented in the form of descriptive sentences. The location used in the implementation of the research is SLB-C Taman Pendidikan Asuhan Negeri 1 Branjangan, Bintoro, Patrang District, Jember at September 2022. The subjects taken in this research were two students of mildly retarded students. The subjects of this study were selected using a purposive sampling technique, that is, deliberately and supported by the consideration of the subject teacher and the head of the Tunagrahita Department. The selection of research subjects is based on several categories, such as still being able to receive material well, being able to perform basic mathematical operations such as addition and multiplication, and not being hyperactive. Two research subjects were selected with the aim of making a comparative analysis of the thinking process of the two subjects. This research procedure includes preliminary activities, creating research instruments, testing the validity of the instruments, collecting data, analyzing the data, and drawing conclusions. In this case, the researcher was the main instrument used to determine the focus of the research, select informants as data sources, interpret the data, and make conclusions. Besides the researcher, other instruments used were mathematical test questions and interview guidelines. The methods used in this research were test method and interview method. Math test and interview guidelines were declared valid if they met the minimum validity criteria. For the validity interpretation interval can be seen in Table 2.

Table 2.
Validity Interpretation

V_a Value	Validity Interpretation
$1 \leq V_a < 1{,}5$	Invalid
$1{,}5 \leq V_a < 2$	Less valid
$2 \leq V_a < 2{,}5$	Moderately valid
$2{,}5 \leq V_a < 3$	Valid
$V_a = 3$	Very valid

Once the validity test has been completed, the next step is to collect the test results from the subject and conduct interviews to explore the subject's thought process more deeply.

III. RESULT AND DISCUSSION

Based on the validation results, the math test questions on the area and perimeter of square and rectangular shapes have a total average value for all aspects (V_a), which is 2.832, which is obtained based on the average value for each aspect (I_i). The validity interpretation category for the math test questions is valid.

There are four problems to solve. This analysis describes S1's thinking process as she identifies problems, defines goals, explores possible strategies, anticipates outcomes and acts, and looks back and learns. It also presents the results of the analysis of her thinking process, which includes disequilibrium, assimilation,

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accommodation, and equilibrium according to Piaget's stages.

The test administration on the first and second subjects was conducted for two days at SLB-C Negeri Branjangan, Jember. The first day, second subjects worked individually on mathematics test questions for 60 minutes. The next day, in-depth interviews were conducted to find out the thought process of the two mildly retarded students.

The first subject is called S1 and the second subject is called S2. The list of initials of the research subject's name along with the subject code can be seen in Table 3.

Table 3.
Initial of Subject's Name

Initial of Subjects' Name	Subject Code
S.N.A	S1
S.M	S2

Next, a test was administered, namely solving contextual problems of square and rectangular shapes using IDEAL problem solving. The results of the analysis of the data from the mathematics test and continued with the results of the interviews can be seen in Table 4 for S1 and Table 5 for S2. The results of the analysis of the thinking process of the students with disabilities are described as follows.

1) S1 explanation

Table 4.
S1 Explanation

IDEAL Problem Solving	Thinking Process	Result
Identify problem	Disequilibrium	✓
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓
Define goal	Disequilibrium	✓
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓
Explore possible strategies	Disequilibrium	✓
	Assimilation	✓
	Accomodation	✓
	Equilibrium	✓
Anticipate outcomes and act	Disequilibrium	-
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓
Look back and learn	Disequilibrium	-
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓

Based on the explanation of the Table 4, at the Identify Problem stage, S1 experienced disequilibrium when S1 said that he had never encountered contextual problems before when working on Problem number 1, S1 experienced assimilation which was indicated by S1 mentioning what was known regardless of whether the answer was right or wrong in Numbers 1-4, S1 didn't experience accommodation, and S1 was experiencing equilibrium, which is indicated by S1 being able to answer questions given by researchers about what data is known in problem number 1, which is the length of the side of square field is 20 meter , problem number 2, which is the length of the side of artificial turf, problem number 3, which is the length of the tablecloth 2 meters and 1 meter wide, and problem number 4, which is 2 meters the length of the side of the hijab and 1 meter the width of the hijab . At the define goal stage, S1 experienced disequilibrium when determining the goal in problem number 3 which was characterized by S1 answering

questions from researchers hesitantly, S1 experienced assimilation which was shown by S1 mentioning what was asked regardless of whether the answer was right or wrong in numbers 1-4, S1 did not experience accommodation, and S1 experiences equilibrium which is characterized by S1 being able to answer questions given by researchers about what is asked in problem number 1, namely the distance traveled by students to surround the field, problem number 2, namely the area of Dad's artificial grass, problem number 3, namely the length of lace needed by Mom, problem number 4, namely the area of the cloth to make hijab. At the stage of exploring possible strategies, S1 experienced disequilibrium when exploring possible strategies in problem number 2 as indicated by S1 still feeling confused about distinguishing the area and perimeter formulas in square buildings and when exploring possible strategies in problem number 4 as indicated by S1 feeling confused when the researcher asked about how to solve the problem in that problem, S1 experienced assimilation at the stage of exploring possible strategies, namely when S1 spontaneously answered the questions given by the researcher, Students can use all the data, both known and asked when working on numbers 1-4 and students can explain exactly the steps that will be used in solving the problem, such as using the formula for the perimeter of a square to find the distance, using the formula for the area of a square to find the area of artificial grass, using the formula for the perimeter of a rectangle to find the length of the lace, and using the formula for the area of a rectangle to find the area of the fabric that will be used to make the hijab even though the language used is S1's own language, S1 experiences accommodation at the stage of exploring possible strategies when S1 mentions the formula for the perimeter of a square using his own language in problems number 1, 3 and 4 and when S1 changes the steps to be used in solving problems in problem number 2 and S1 experiences equilibrium when S1 can explain the steps in solving the problem of the perimeter and area of square and rectangular shapes correctly. At the anticipate outcomes and act stage, S1 does not experience disequilibrium at the outcomes and stage, S1 experiences assimilation at the anticipate outcomes and act stage when S1 can determine the operations used correctly to solve problems in problem numbers 1-4, namely the formulas for the area and perimeter of a square and the area and perimeter of a rectangle, S1 does not experience the accommodation process at the stage of anticipating results and acting, S1 experiences equilibrium at the stage of anticipating results and acting when S1 can determine the distance traveled by students to go around the field (perimeter of a square), can determine the area of artificial grass (square area), can determine the length of the lace (perimeter of a rectangle) and can determine the area of fabric needed (rectangular area) with the correct steps and correct answers. At the look back and learn stage, S1 does not experience disequilibrium, S1 experiences assimilation at the look back and learn stage as evidenced by S1 being able to re-examine his answers, and is able to provide

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reasons for each step taken correctly, S1 does not experience accommodation and S1 experiences equilibrium process at the look back and learn stage which is characterized by S1 being able to provide the right reasons for the answers that have been submitted.

2) S2 Explanation

Tabel 5.
S2 Explanation

IDEAL Problem Solving	Thinking Process	Result
Identify problem	Disequilibrium	-
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓
Define goal	Disequilibrium	-
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓
Explore possible strategies	Disequilibrium	-
	Assimilation	✓
	Accomodation	✓
	Equilibrium	✓
Anticipate outcomes and act	Disequilibrium	-
	Assimilation	✓
	Accomodation	✓
	Equilibrium	✓
Look back and learn	Disequilibrium	-
	Assimilation	✓
	Accomodation	-
	Equilibrium	✓

Based on the explanation of the Table 5, at the stage of identifying the problem, S2 does not experience a disequilibrium process, S2 experiences assimilation which is shown when S2 mentions what is known regardless of whether the answer is right or wrong in numbers 1-4, S2 does not experience accommodation, and S2 experienced an equilibrium process which was marked by S2 being able to answer the questions given by the researcher regarding what data was known in problem number 1, namely the length of the side of the square field of 20 meters, problem number 2, namely the length of the side of the artificial grass of 2 meters, problem number 3, namely the length of the tablecloth of 2 meters and a width of 1 meter, and problem number 4, namely the length of the side of the hijab of 2 meters and the width of the hijab of 1 meter. In the define goal stage, S2 does not experience a disequilibrium process, S1 experiences assimilation which is shown by S1 mentioning what is asked regardless of whether the answer is right or wrong in numbers 1-4, S2 does not experience accommodation, S2 experiences an equilibrium process which is indicated by S2 being able to answer questions given by researchers about what is asked in the problem correctly, namely number 1 finding the distance traveled to go around the field, question number 2 finding the area of Dad's artificial grass, number 3 finding the length of lace needed by Mom, and question number 4 finding the area of fabric that will be used to make hijab. At the stage of exploring possible strategies, S2 did not experience a disequilibrium process, S2 experienced assimilation when S2 had a plan to solve the problem in problem number 1, namely finding the distance using the formula for the perimeter of a rectangle, when working on problem number 2 which was shown by S2 answering the researcher's question spontaneously regardless of whether the answer was right or wrong, S2 had a plan to solve the problem in problem number 3, namely by finding the perimeter of the

rectangle and S2 had a plan to solve the problem in problem number 4, namely by finding the area of the square, S2 experienced accommodation when S2 was able to mention the formula for the perimeter of a rectangle using his own language, although initially it was still not correct, S2 changed his steps to solve the problem in problem number 2, and also when S2 was able to mention the formula for the perimeter of a rectangle using his own language, although initially it was still not correct, S2 experienced equilibrium when S2 was able to explain the steps in solving the problem and explain the steps to solve the problem correctly, namely in problem number 1 using the formula for the perimeter of a square to find the distance, problem number 2 using the square area formula to find the area of artificial grass, problem number 3 uses the formula for the perimeter of a rectangle to find the length of the lace, and problem number 4 uses the formula for the area of a rectangle to find the area of the fabric. At the anticipate outcomes and act stage, S2 did not experience a disequilibrium process, S2 experienced an assimilation process which was shown by S2 being able to determine the operation used in solving problems in problem numbers 1-4 correctly, S2 experienced an accommodation process which was shown by when S2 was asked about the operation used in answering the problem, S2 answered by multiplying where the answer was wrong. Then S2 thinks again so that the answer becomes correct, S2 experiences an equilibrium process which is characterized by S2 obtaining the correct steps in solving the problem and being able to provide the right reasons why S2 chooses these steps and is able to explain the acquisition of certain numbers about the square area and is able to perform calculations correctly. At the look back and learn stage, S2 does not experience a disequilibrium process, S2 experiences an assimilation process which is indicated by when S2 is asked to re-examine whether the answers that have been obtained in problem numbers 1-4 are correct, S2 can do this and it turns out that the answers are indeed correct, S2 does not experience the accommodation process, S2 experiences an equilibrium process which is characterized by S2 being able to respond correctly when asked to rethink the answers obtained, so S2 can decide that the results obtained are indeed correct.

This research is in line with previous research, namely research from (Lestari et al., 2017; Permatahati et al., 2015) where the subject experiences disequilibrium at the beginning of working on problems, more precisely when identifying problems. This happens because the subject is not used to working on problems with certain stages (Akib et al., 2022). In addition, the subject is also not used to working on problems in contextual form. However, the subject began to understand how to work on contextual problems using IDEAL problem solving after working on problem number 1. Other thought processes such as assimilation, accommodation, and equilibrium also occur in the subject. The assimilation process occurs when the subject can answer questions spontaneously without thinking about whether the answer is right or wrong. The

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accommodation process occurs when the subject can change the initial steps that were wrong, to be correct. The equilibrium process occurs when the subject has understood the meaning of the problem and can answer questions from the researcher after experiencing a series of assimilation and accommodation processes.

IV. Conclusion

Based on the results found in this study, there is no significant difference between subject 1 (S1) and subject 2 (S2). Students with mild categories tend to be able to understand math materials, especially geometry, although slowly. The two-dimensional object chosen, namely square and rectangular shapes, also include two-dimensional object that are widely found in the environment around the subject, so that the subject can understand the material previously delivered by the researcher. The subject is also able to fulfill the thinking process according to Piaget, namely disequilibrium, assimilation, accommodation, and equilibrium. In solving this contextual problem, the subject is also able to use IDEAL problem solving well even though it must be guided by the researcher.

Suggestions for further research should be able to use qualified media, so that subjects can see the problems that occur more realistically. The problem presented should also be a problem with a mild (basic) category, because students with disabilities tend to be slower in receiving information conveyed directly or indirectly.

References

Akib, I., Husniati, A., Kusumah, F., Kristiawati, K., & Fayanto, S. (2022). Thinking Processes of Mentally retarded: Students Disabled at Junior High School in Solving Fractions Problems. *AL-ISHLAH: Jurnal Pendidikan*, *14*(2), 2185–2196. https://doi.org/10.35445/alishlah.v14i2.1773

Annizar, A. M., Sisworo, & Sudirman. (2018). Pemecahan Masalah Menggunakan Model IDEAL Pada Siswa Kelas X Berkategori Fast-Accurate. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *3*(5), 634–640.

Cooper, B., Jennen-Steinmetz, C., Lackus, B., & Ort, M. (2021). Patterns of impairment and disability in mentally retarded children: a study in Mannheim. In *Psychiatric epidemiology* (pp. 267-284). Routledge.

Fitria, A. R. (2018). Dukungan Strategis dan Operasional Pemerintah dalam Pemenuhan Hak Kesehatan Anak Tunagrahita di Kota Surabaya. *Jurnal Administrasi Kesehatan Indonesia*, *6*(2), 129–135.

Hidayat, W., & Sariningsih, R. (2018). Kemampuan Pemecahan Masalah Matematis dan Adversity Quotient Siswa SMP Melalui Pembelajaran Open Ended. *Jurnal Nasional Pendidikan Matematika*, *2*(1), 109–118.

Idhami, T. C., Susanto, Yudianto, E., Setiawan, T. B., & Monalisa, L. A. (2018). Proses Berpikir Siswa Tunadaksa Cerebral Palsy dalam

Mendefinisikan Bangun Ruang Geometri. *Jurnal Kadikma*, *9*(2), 69–77.

Islam, M. A. Y. F., Sunardi, S., Ambarwati, R., & Alfiah, S. (2021). Representasi Matematis Siswa Bina Prestasi MTsN 1 Jember dalam Menyelesaikan Masalah Segiempat Ditinjau dari Level van Hiele. *Journal of Mathematics Education and Learning*, *1*(1), 27. https://doi.org/10.19184/jomeal.v1i1.24373

Islami, I. B., Gunarhadi, G., & Yamtinah, S. (2022). Mathematics Learning Media and the Need for Montessori Media Development for Students with Mild Mental Retardation in Class IV at SLB Makassar City. *Proceedings of the International Seminar on Innovative and Creative Guidance and Counseling Service (ICGCS 2021)*, *657*(Icgcs 2021), 113–117. https://doi.org/10.2991/assehr.k.220405.020

Khairun Nisa, Mambela, S., & Badiah, L. I. (2018). Karakteristik Dan Kebutuhan Anak Berkebutuhan Khusus. *Jurnal Abadimas Adi Buana*, *2*(1), 33–40. https://doi.org/10.36456/abadimas.v2.i1.a1632

Khiyarusoleh, U. (2016). Konsep Dasar Perkembangan Kognitif Pada Anak Menurut Jean Piaget. *Jurnal Dialektika*, *5*(1), 1–10.

Lestari, H. T., Susanto, & Fatahillah, A. (2017). Proses Berpikir Siswa Tuna Grahita Sedang dalam Menyelesaikan Soal Cerita Matematika Berdasarkan Tahapan Piaget di SMPLB-C TPA Balung. *Jurnal Kadikma*, *8*(3), 154–161.

Manik, E. W. T. A., Herman, T., & Anjani, C. (2018). *Analysis o f Student ' s Mathematical Problem Solving Skills on the Topics of Square and Rectangle in Elementary School*, *6*(1), 152–159.

Muhammad Baba Gusau, N., & Mohamad, M. M. (2020). Problem Solving Skills based on IDEAL Model in Implementing Undergraduate Final Year Project. *Journal of Technology and Humanities*, *1*(1), 26–33. https://doi.org/10.53797/jthkkss.v1i1.4.2020

Mutaqin, E. J., Herman, T., Wahyudin, & Muslihah, N. N. (2023). Hypothetical learning trajectory in place value concepts in elementary school. *Mosharafa: Jurnal Pendidikan Matematika*, *12*(1), 125-134.

Ningrum, A., Astuti, Y., Kusumaningrum, B., Widodo, A., Asmarani, N., Dewi, K., & Irfan, M. (2023). The Creativity of Mentally Retarded Students in Solving Plane Problems with Image Media. *Jurnal Ilmiah Pendidikan MIPA*, *13*(2), 151–166. http://dx.doi.org/10.30998/formatif.v13i2.16177

Permata, L. D., Kusmayadi, T. A., & Fitriana, L. (2018). Mathematical problem solving skills analysis about word problems of linear program using IDEAL problem solver. *Journal of Physics: Conference Series*, *1108*(1). https://doi.org/10.1088/1742-6596/1108/1/012025

Permatahati, F. D., Susanto, & Kurniati, D. (2015). Analisis Proses Berpikir Siswa Tuna Grahita Ringan Kelas VIII dalam Menyelesaikan Masalah Pembagian di SMP Inklusi TPA Jember. *Jurnal Edukasi*, *II*(I), 27–31.

Rosyada, M.I. & Wibowo, S.E. (2023). Analysis Of Mathematics Problem-Solving Ability Based on Ideal Problem-Solving Steps Given Student Learning Styles. *Aksioma: Jurnal Program Studi Pendidikan Matematika, 12*(1), 1332–1343.

Safrida, L. N., Susanto, & Kurniati, D. (2015). Analisis Proses Berpikir Siswa Dalam Pemecahan Masalah Terbuka Berbasis Polya Sub Pokok Bahasan Tabung Kelas IX SMP Negeri 7 Jember, *Kadikma*, *6*(1), 25–38.

Senjaya, A. J., Sudirman, & S. W., P. E. (2017). Analisis Gaya Belajar Siswa Tunagrahita Ringan Materi Perkalian di Sekolah dan di Rumah. *Jurnal Medives*, *1*(1), 1–8.

Suparno, Purwanto, H., & Purwanto, E. (2007). *Pendidikan Anak Berkebutuhan Khusus*. Direktorat Jenderal Pendidikan Tinggi Departemen Pendidikan Nasional.

Wahyuddin. (2016). Analisa Kemampuan Menyelesaikan Soal Cerita Matematika Ditinjau dari Kemampuan Verbal. *Jurnal Tadris Matematika*, *9*(2), 148–160.

Wulandari, C. (2017). Menanamkan Konsep Bentuk Geometri (Bangun Datar). *Jurnal Pengabdian Masyarakat Ipteks*, *3*(1), 1–8.

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