THE DEVELOPMENT OF DISCOVERY LEARNING MODEL TEACHING MATERIALS TO IMPROVE STUDENTS' MATHEMATICAL PROBLEM SOLVING ABILITY ON JUNIOR HIGH SCHOOL

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ARTICLE INFO

ABSTRACT

In order to enhance students' mathematical problem-solving skills, this study looks at how teaching materials are developed using the Discovery Learning model. Since every student nowadays needs to be able to think critically, the study specifically looks at the process and outcomes. development, viability testing, feedback from students, and improving mathematical problem-solving skills. This kind of research makes use of the Research and Development (R&D) or Research-based Development research method, which is a way to create a specific product and use a model to test the product's viability. Students in class VII at MTs Al Bidayah West Bandung Regency served as the research sample for S. Thiagarajan's 4D (Define, Design, Develop, and Disseminate) study. The process and outcomes of creating educational materials lead to the conclusion that the materials, when viewed from the various stages, follow the procedures or methods outlined in 4D. Based on students' responses, which were 68.4% and 70.2% in the good category, the viability of teaching materials made possible by the Photoshop program can be concluded, along with the students' improved problem-solving skills. If this teaching material is used in a classroom setting, it is imperative that the necessary facilities be set up ahead of time because learning with it requires sufficient facilities. There are tasks and content in this teaching resource that need to be altered. so that students' learning experiences are not dull and monotonous.

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How to Cite:

Marthalita, M., Kadarisma, G., Afrilianto, M. (2024). The Development of Discovery Learning Model Teaching Materials to Improve Students' Mathematical Problem Solving Ability on Junior High School. *JIML*, 7(4), 412-423.

INTRODUCTION

In Education is one area of a nation that bears a great deal of responsibility for bringing about change within the country and for producing human resources of the highest caliber who can

advance the nation in line with scientific and technological advancements (Rahmiyati 2020). On the other hand, Hasan and Muhammad (2018) state that an education system is considered successful if it can significantly contribute to the ongoing enhancement of each person's capacity to raise their standard of living. This implies that in order to solve their current and future problems with life, students acquire knowledge, skills, and values. As a result, advancements in education ought to keep pace with shifts in popular culture. In order to prepare for future interests, it is necessary to constantly modify what constitutes good education at all levels. According to (Tobing 2016).

"Education that is able to support development in the future is education that is able to develop the potential of students, so that they are able to face and solve the life problems they face. (Parwati and Pramartha 2021)" Mathematics is one of the key subjects in education. Since mathematics is one of the fundamental subjects that can help students develop their reasoning skills, it is taught in elementary, secondary, and even post-secondary education. Mathematics is a very important subject (Istiqomah and Nurulhaq 2021). Rahmawati, Zulyadaini, and Defitriani (2022) contend that mathematics instruction ought to be methodical, consistent, and tailored to each student's level of intellectual development and prerequisite skills. It should also be given a clear structure. The objectives of mathematics learning in Indonesia are contained in Permendiknas Number 22 of 2006.

In terms of the content standards for mathematics courses in elementary and secondary education, math subjects seek to guarantee that students can comprehend mathematical ideas, grow in their capacity for mathematical reasoning, solve problems, communicate mathematical ideas effectively, and cultivate an attitude that recognizes the value of mathematics in everyday life. The aforementioned objectives state that one of the fundamental skills that students must possess in order to participate fully in teaching and learning activities is the ability to solve mathematical problems. This is consistent with the findings of Yuwono, Yuwono, Supanggih, and Ferdiani (2018), who indicated that the capacity to solve problems is crucial. in mathematics, not only for individuals who intend to study it in the future but also for those who will use it in other academic subjects and daily life. Thus, the emphasis of school mathematics must be on problem solving skills.

It would seem from the explanation above that one of the objectives of learning mathematics is to equip students with problem-solving skills. In actuality, though, Indonesia has not done a good job of achieving these learning objectives. This is demonstrated by the findings of a survey carried out in 2015 by The Trend International Mathematics and Science Study (TIMSS), in which Indonesia was ranked 45th out of 50 countries with an average mathematics achievement score of 397 points. Indonesian students performed well on routine and basic questions in the TIMSS survey, answering more than 80% of the questions correctly. (Wahyuni and Leonard 2021) Indonesia received a score of 386 points and was placed 69th out of 76 countries in the 2015 Program for International Student Assessment (PISA) survey results (Rihada, Jagat, and Setiabudi 2021). According to Nurhasanah and Nurhasanah and Luritawaty (2021), the PISA survey comprises questions that assess an individual's analytical, mathematical reasoning, communication, problem-solving, and situational interpretation skills. Indicators of the ability to solve mathematical problems are closely associated with the skills assessed in TIMSS and PISA. These skills include the capacity to comprehend issues, organize and solve problems, implement plans for resolution, and reflect, specifically reevaluating the outcomes that have been attained. These data demonstrate that mathematical problem-solving skills among Indonesian students remain comparatively low due to the use of traditional teaching methods and the teacher-centered nature of classroom mathematics instruction. In this instance, the teacher gives the students the material and sample questions, assigns them to complete the textbook exercises, and then

gathers feedback from the class, which makes the students more likely to be passive learners. Students are not allowed to build their understanding of a problem during the learning process, which prevents them from being able to explain the problem or an idea related to a particular problem. As a result, pupils' aptitude for solving mathematical puzzles is diminished (Zebua 2024).

These days, education must involve students actively exploring their ideas rather than merely teachers imparting knowledge to their students. According to research findings Hariyati and Rachmadyanti (2022), teachers continue to employ traditional methods of instruction, which means that students learn in a one-way fashion in the classroom and that teachers do not create their own lesson plans; instead, teachers use textbooks and student worksheets as the only learning resources. (LKPD), this situation demonstrates unequivocally that the school's teachers are still insufficient. Teachers are expected to provide teaching materials that suit the qualities of their students as a variety of learning resources, since one factor that influences learning process activities is the availability of suitable teaching materials. It will be simpler for the instructor to facilitate learning in the classroom if the teaching materials are created by the teacher (Makki and Aflahah 2019).

In addition, the developed instructional materials need to be customized to the individual needs of the pupils. Teaching materials are instructional aids that instructors use to carry out coherently designed lessons that can be carried out in a supportive setting to allow students to engage in learning activities (Magdalena et al. 2020). The purpose of this instructional material is to assist teachers in carrying out their teaching duties. On the other hand, collaboration with the open materials is preferable. One way to attain the desired learning outcomes is through the creation of teaching materials, which can be utilized in the classroom. These materials can be developed to help teachers better understand and build their pupils, as well as to adapt to different models or methods. One goal of this is to help students improve their ability to solve mathematical problems, which includes learning through guided discovery (Susmiati 2020). Learning that is guided by a discovery process is known as guided discovery learning. Through group discussions, students can refine their problem-solving abilities in mathematics and independently uncover mathematical patterns and structures. They can also strengthen their understanding of concepts by drawing on prior knowledge and teacher guidance. With this guided discovery model, the teacher merely serves as a facilitator, giving students the chance to actively participate as well.

Discovery Learning is one type of learning that incorporates guided discovery. The operational steps of Discovery Learning are as follows, according to Cahyani and Setyawati (2016): (1) stimulation; (2) problem statement or identification; (3) data collection; (4) data processing; (5) verification; and (6) draw conclusions. After going through the phases of the program, it can be said that guided discovery, or discovery learning, is one kind of instruction that helps students learn how to solve mathematical problems. Learning that is guided by a discovery process is known as guided discovery learning. Thus, through group discussions, students refine their mathematical problem solving abilities and find mathematical patterns on their own.

In addition, schools must be able to accommodate changing needs for infrastructure and educational facilities in light of current developments. For both teachers and students, instructional materials are crucial in this situation. In the absence of comprehensive teaching materials, educators will find it challenging to improve the efficacy of their instruction. Similarly, students will find it challenging to learn in the absence of instructional materials. This demonstrates that in order for students to better understand the material presented and to be more impressed with the learning that has been delivered, teachers of mathematics must

employ a variety of teaching methods and materials that are tailored to the needs of their students. Additionally, students will retain more of the material and be less likely to forget it.

Creating instructional materials that are more efficient, effective, and do not stray from the competencies students will acquire is crucial for educators. All types of materials that teachers can use to help with teaching and learning activities in the classroom are considered teaching materials. According to the National Center for Vocational Education Research Ltd. and the National Center for Competency Based Training in Tepu(A 2013) (2019), teaching materials can be either written or oral. As a result, creating instructional materials is crucial to raising the standard of instruction. In order to meet the demands of the curriculum, the characteristics of the target audience, and the requirements for problem solving, teaching materials must be developed. Curriculum demands serve the purpose of ensuring that graduate competency standards are established by the government, but that educators, as professionals, have complete control over how learning objectives are met and what teaching resources are employed. According to Nuritno, Raharjo, and Winarso (2017), these instructional resources come in printed form, audio, visual, and interactive formats.

The selection of material for this study is algebraic in nature, as it makes extensive use of narrative problems that call for students' problem-solving skills. Furthermore, the issue with this material is that it requires students to first transform story problems into mathematical models in order for them to be solved in story form. According to the above description, the author is interested in carrying out research under the heading **"Development of Teaching Materials using the Discovery Learning Model to Improve the Mathematical Problem Solving Ability of Class VII Middle School Students."**

METHOD

This kind of study employs the Research and Development (R&D) or Research-based Development research method, which is a technique for creating a specific product and evaluating its viability using S Thiagarajan's 4D model wich was Yuniarti, Intyanto, and Pawening, (2022) Define, Design, Develop, and Disseminate. Analysis of needs is the basis for product development. Another definition of the development research method is a research technique that is employed to develop a specific product and evaluate its appropriateness and efficacy. Products that can be accounted for can be among the products that are produced. The goal of the project is to enhance junior high school students' mathematical problem-solving skills by creating teaching materials for algebra operations based on the Discovery Learning model. The final output is a learning model syntax, and the following stages are applied:
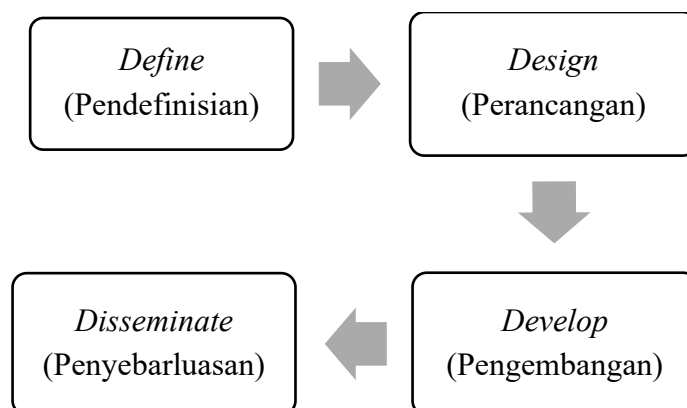

Figure.1 Model Syntax Research and Development (R&D)

The following are the research's subjects and locations: 1) At one of the MTs in the Cimahi area, fifteen junior high school students in class VII were the target audience for the limited

trial. 2) Forty seventh-grade students from one of the MTs in the Cimahi area's classes were the target audience for the wide trial. 3) The following describe the research subjects: Student lacks a thorough understanding of the algebraic material, and the teacher has not fully incorporated an engaging learning model. Ability tests, closed questionnaires, and interviews are the instruments used (Makbul 2021).

RESULTS AND DISCUSSION

Results

a. Define

The first analysis done as part of this development research was to identify the challenges associated with teaching Al Jabar Operations in the classroom. At this point, the researcher targeted MTs Al Bidayah Batujajar with observations in order to gather the necessary data. On November 1, 2023, at 10:00, the teacher's room and class VII A were the sites of the observations. In addition to being conducted in-person, the observations were conducted virtually to gather more data from a number of students. Some findings from observations made in classrooms and interviews conducted with 72 eye educators are listed below. Instruction in mathematics at MTs Al Bidayah Batujajar, The goal of creating learning objectives is to translate the goals of task and material analysis into fundamental behaviors that demonstrate those competencies. The learning objectives for the Al Jabar teaching materials, which are based on Higher Order Thinking Skills (HOTS), have been derived from the concept analysis. The fundamental competencies and indicators specified in the curriculum serve as the foundation for creating the learning objectives for the Al Jabar content.

b. Design

The goal of this step is to create a design for the instructional materials that will be created. The results of the analysis done during the definition stage and other earlier stages are referred to in the preparation of the Al Jabar Teaching Materials. The following are the steps to follow: Pretest and posttest are the two tests that were used in this study's product trials. The posttest is administered at the conclusion of instruction after students have received learning treatment using instructional materials, whereas the pretest is administered at the start of instruction prior to students using the LKPD. Five essay questions using the HOTS C4–C6 question types are used. The pretest and posttest questions are not prepared in the same way as the tests in the developed Teaching Materials. There are essays, multiple choice questions, and LKPD questions in the LKPD. The selection of media has a significant impact on how well learning activities go and increases students' engagement and enthusiasm in the process of learning. According to this research, which focuses on creating Al Jabar operations LKPD teaching materials based on Higher Order Thinking Skills (HOTS), RPP and LKPD are two examples of media that can be directly utilized by teachers and students in the learning process.
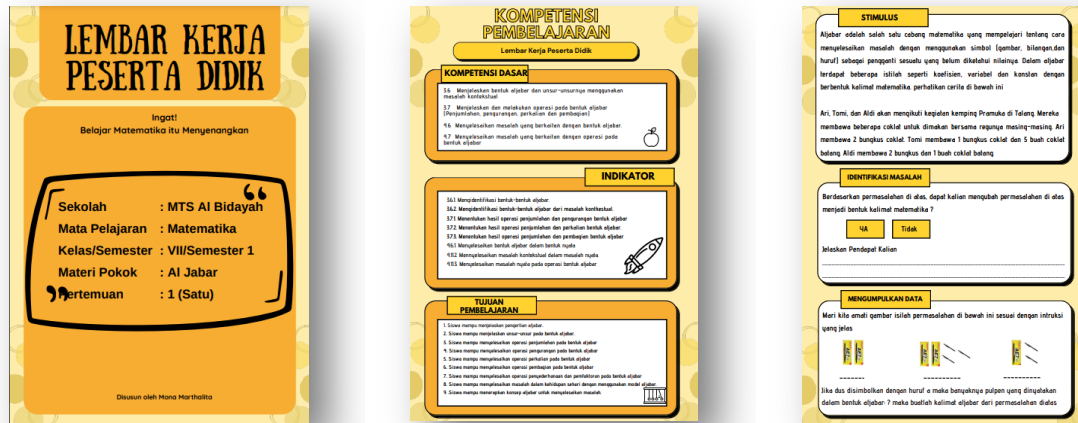
Figure.2 display of LKPD teaching materials

c. Development

This validation stage is an assessment of the suitability of the teaching materials being developed. The validator consists of two expert lecturers at IKIP Siliwangi who are competent in certain fields.

Table. 1 Recapitulation of validation results

No	Validator	Value	Kategory
1	Validator 1	69%	Pretty good
2	Validator 2	70%	Pretty good
3	Praktisi 1	71%	Pretty good
4	Praktisi 2	72%	Pretty good
	Average	**70,1%**	**Pretty good**

The first validator received an average score of 3.45 and a percentage of 69%, while the second validator received an average score of 3.5 and a percentage of 70%. This represents the average of the two validators. The results of the material experts' validation demonstrate that the instructional materials have been created. sufficient to be tested in accordance with recommendations and remarks made by knowledgeable validators, The first practitioner received an average score of 3.6 and a percentage of 72% from the two practitioners; the second validator received an average score of 3.55 and a percentage of 71%. The results of the material experts' validation demonstrate that the instructional materials have been created. sufficient to be tested in accordance with recommendations and remarks made by knowledgeable validators

d. Deseminnate

This phase aims to distribute the finished product as picture card media to teachers and students at MTs Al Bidayah, Batujajar District, West Bandung Regency, after validation tests have been conducted on products that have been tested and revised. In order to determine whether or not the learning media are appropriate for use by students, the researcher at this point offers statements and/or questions about the teaching materials that are being developed. This inquiry takes the shape of a questionnaire that was

provided by the researcher following the learning event. The results of the completed questionnaire are as follows:

Table.3 Recapitulation of Test Results

No	Trials	Value	Kategory
1	limited trial	68,4	Pretty good
2	Extensive testing	70,2	Pretty good
	Average	**69,8**	**Pretty good**

According to the results of the calculations above, 68.4% of the percentage data obtained from the students' responses to the limited test of the instructional materials under development would be classified as good if the value was categorized in accordance with the results. Based on the calculations above, it was determined that 70.2% of the data obtained from students' responses to in-depth tests on instructional materials under development would fall into the good category if the value was classified in accordance with the results.

Descriptive statistics from the pretest and posttest results, which include the average (mean), maximum (max), lowest (min), standard deviation, frequency distribution, and its graphic representation, are used to show the degree of mathematical problem-solving proficiency of the class VII students. The following table displays descriptive statistics of pretest and posttest results.

Table.4 Descriptive Statistics

Descriptive Statistic					
	N	Minimum	Maximum	Mean	Std. Ddeviation
Pretest	22	35	65	45,50	3.526
Postest	22	60	85	77,79	8,477
Valid N (Litwise)	22				

You can see that 22 students took the posttest based on the table that was provided. With a standard deviation of 8,477, the class that participated in the Discovery Learning learning model had an average score of 77.79. Following treatment, students' scores ranged from 60 to 85, with 85 being the highest. To ascertain whether the data being used is normally distributed, the normality test is employed. information gathered from the class VII students' pretest and posttest results. Researchers computed data normality using the SPSS program. Data that is normally distributed (H0) and data that is not normally distributed (H1) make up the computation hypothesis. When the Shapiro-Wilk sig value is less than 0.05, H0 is deemed accepted, and when it is less than 0.05, H1 is considered abnormal and is rejected. The following table displays the results of the normalcy test.

Table.5 Pretest and Posttest Normality Test Results

	Kolmologrov-Smirnov			Shapiro-Wik		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.460	22	.089	960	22	.096
postest	.340	22	.085	.988	22	.217

The pretest and posttest learning results of junior high school students are stated to be normally distributed, as can be seen from the above table. The Shapiro-Wilk pretest value is 0.096, and the posttest value is 0.217, according to calculations done with SPSS. If sig>0.05, then the data is included in normal according to Kolmogorov Smirnov's normality test criteria. The homogeneity test should be conducted following the completion of the normalcy test and the declaration of a normal data distribution. The following are the outcomes:

Table.6 Pretest and Posttest Homogeneity Results

Test of Homogeneity of Variances			
Pretest/Postest			
Levene Statistic	Df1	Df2	Sig.
,780	1	40	,840

Based on the results of the Homogeneity test above, a Sig value of 0.840 is obtained, which is more than 0.05, which means the data is homogeneous. The paired sample t test is a tool used to look at parametric data on two different pairs of data and see the average difference between two related samples.

Discussions

The discussion A number of steps are involved in the process of creating teaching materials, which in this case are teaching materials. Data was generated by this development process in the form of notes made during the product preparation phase, which were then evaluated by the validator to produce the final result. During the planning stages and up until the research is finished, this development process generates data in the form of notes. First, these field notes are assembled into a framework for instructional materials. This product is made possible with the help of the Canva application, which makes it simple and organized to create illustrations and other types of visuals. In the meantime, the content of the learning media that is being developed is the compilation of results from this preparation.

The first page, or cover, is arranged before moving on to the material page, which includes teaching resources to encourage students to learn mathematics as well as a variety of materials related to algebra.The learning media framework needs to be continued or cleaned up in order to be used for instruction. According to (Munawaroh and Ramadhan 2022), learning media using teaching materials is very suitable to be applied to learning that has a cooperative type, so the researcher used a discovery learning approach in this process. that Encounter Learning is a kind of cooperative learning that is simple to use, incorporates play and reinforcement, involves all students equally regardless of status, and involves students acting as peer tutors. The next step after adjusting to the learning model is to finish and tidy up the learning media's untidy writing and images. The researcher will then conduct a limited test when the learning media have been cleaned up. The researcher made important notes at this point so that the product could be reviewed or evaluated and used more successfully in the future.

Students also completed a questionnaire and expressed their opinions about the use of teaching materials in this short test. Following the completion of the limited test, the researcher makes changes to the field notes based on the feedback provided by the students. To ensure that students don't make mistakes when using learning resources, extra help will be given during the upcoming exam. After receiving expert revisions, the researchers tested the developed product extensively on students. In this extensive examination, the investigator distributed instructional materials to forty pupils. By the time of the examination, the pupils

had started to acclimate to utilizing educational media, with the investigator providing assistance in accessing the media. This comprehensive test about the product under development has few challenges, and it concludes research using instructional materials.

Before being widely used and capable of being utilized in classroom instruction, any educational materials must be thoroughly reviewed and verified by professionals. We will thus be able to evaluate the efficacy of the educational materials we are creating. IKIP Siliwangi practitioners, lecturers, and teachers in schools carry out this validation in accordance with their fields of expertise and competency standards. According to (Numan 2019), this stage and implementation are appropriate. In the process of creating instructional materials, experts perform the validation step, which is crucial because the results of the validator's evaluation serve as a guide for determining whether or not the learning media is appropriate for use.

There are two forms of validation used in this validation test, also known as a feasibility test: media and material. Experts in the fields of media and the content itself conducted these two validations. On average, the validation test yields results that are fairly good. These findings indicate that students have a generally positive attitude toward the use of instructional materials and that they concur with its application in the learning process. two validators on average The average score for the first validator was fairly good, and the average score for the second validator was also quite good. The first practitioner's validation results from the two practitioners indicated that the teaching materials used were quite feasible, according to the materials expert's findings. The results of the materials experts' validation indicated that the created teaching materials were more than suitable. worthy of testing in accordance with recommendations and remarks made by knowledgeable validators

Finding out what students think of the learning media is the next step after it has undergone validation testing and produced results that are suitable for use in research.(Uslan et al. 2021) states that teachers at the elementary school level need to be able to generate student responses in every lesson because behavior is a response to a particular problem, and behavior as a consequence of previous behavior means that student responses are crucial to doing in order to create learning conditions. efficient. Research questionnaires are administered in both short and long tests, and the test results for each questionnaire undoubtedly have a different percentage value.

These findings indicate that the state of students' understanding abilities during exams can be impacted by the use of instructional materials. This is consistent with research showing that students' mathematical problem-solving abilities can be influenced by the use of interactive learning materials (Kamarudin 2022).

CONCLUSION

Based on the results of Research and Development (R&D) research using field note data collection methods, product feasibility or product validation, student response questionnaires and the results of tests on the Mathematical Problem Solving Ability of junior high school students, regarding the development or design of teaching materials to improve students' Mathematical Problem Solving Ability Middle School, the following conclusions can be drawn;

1. The process and results of developing teaching material products were collected using field notes at the Define stage, massive observations were carried out at schools to obtain analysis results to become materials for developing teaching materials at schools. At the Design stage, this was the stage for designing and compiling starting from the composition of the teaching materials, The next stage is the Development stage, namely

testing the feasibility and validity of teaching materials that have been created, and the last stage, Disminnate, is the dissemination and use of school objects so that the effectiveness of appropriate teaching materials can be seen. The development process and results can be said to be in accordance with the 4D development steps and methods.

2. The feasibility of the teaching materials provides the conclusion that the products and materials developed have Fairly Good feasibility, seen from the assessment of expert validators and practitioner validators, the results show that the teaching materials have a category that is suitable for use, so that learning media can be used for research or learning at school.

3. Students' responses to the products developed provide the conclusion that learning Algebra material using the products developed has a fairly good level of agreement, this can be seen from the results of the student questionnaire where in the limited test students had an average percentage of 68.4% and in The broad test of students has an average percentage of 70.2%. This can of course be concluded that the product or teaching material has a good enough response to be used in middle school learning and can still be developed again in other learning. This result certainly supports the level of validity that has been previously assessed by validators.

4. The condition of students' Mathematical Problem Solving Ability after using the product developed gives the conclusion that after using the teaching materials it has a good impact on the condition of students' Mathematical Problem Solving Ability, this can be seen from the results of the paired sample t test and the N Gain Score value on the limited test and extensive tests of students which stated that there were significant differences in mathematical problem solving abilities before and after the application of discovery learning teaching materials.

ACKNOWLEDGMENTS

REFERENCES

A, Rusdiana. 2013. *Filsafat Ilmu*. 1st ed. Bandung: Tressna Bhakti Press bandung.

Cahyani, Hesti, and Ririn Wahyu Setyawati. 2016. "Pentingnya Peningkatan Kemampuan Pemecahan Masalah Melalui PBL Untuk Mempersiapkan Generasi Unggul Menghadapi MEA." *PRISMA, Prosiding Seminar Nasional Matematika*, 151–60.

Hariyati, Dina Putri, and Putri Rachmadyanti. 2022. "Pengembangan Bahan Ajar Berbasis Liveworksheet Untuk Siswa Sekolah Dasar Kelas V." *Jurnal Pendidikan Guru Sekolah Dasar* 10 (7): 1473–83.

Hasan, Muhammad, and Aziz Muhammad. 2018. *1| Pembangunan Masyarakat.*

http://eprints.unm.ac.id/10706/1/Buku pembangunan ekonomi contoh fix.pdf.

Istiqomah, Qoriah, and Cici Nurulhaq. 2021. "Perbandingan Kemampuan Koneksi Matematis Siswa Antara Model Pembelajaran Discovery Learning Dan Ekspositori." *Plusminus: Jurnal Pendidikan Matematika* 1 (1): 135–44. https://doi.org/10.31980/plusminus.v1i1.1032.

Kamarudin, Irwan. 2022. "1 , 2 , 3" 2: 33–39. http://194.31.53.129/index.php/DI/article/view/423.

Magdalena, Ina, Riana Okta Prabandani, Emilia Septia Rini, Maulidia Ayu Fitriani, and Amelia Agdira Putri. 2020. "Analisis Pengembangan Bahan Ajar." *Jurnal Pendidikan Dan Ilmu Sosial* 2 (2): 170–87. https://ejournal.stitpn.ac.id/index.php/nusantara.

Makbul, Muhammad. 2021. "METODE PENGUMPULAN DATA DAN INSTRUMEN {PENELITIAN." *Journal of Chemical Information and Modeling* 53 (February): 2021. https://doi.org/10.1080/09638288.2019.1595750%0Ahttps://doi.org/10.1080/17518423.2017.1368728%0Ahttp://dx.doi.org/10.1080/17518423.2017.1368728%0Ahttps://doi.org/10.1016/j.ridd.2020.103766%0Ahttps://doi.org/10.1080/02640414.2019.1689076%0Ahttps://doi.org/.

Makki, M. Ismail, and Aflahah. 2019. *KONSEP DASAR BELAJAR DAN PEMBELAJARAN - Google Books*. Duta Media Publishing. https://www.google.co.id/books/edition/KONSEP_DASAR_BELAJAR_DAN_PEMBE LAJARAN/GXz7DwAAQBAJ?hl=id&gbpv=1&dq=pengertian+pembelajaran&printsec =frontcover.

Munawaroh, Azizatul, and Zulfikar Ramadhan. 2022. "Analisis Faktor-Faktor Yang Mempengaruhi Nilai Perusahaan Dengan Kebijakan Deviden Sebagai Variabel Moderating Pada Perusahaan Pertambangan." *Jurnal Muhammadiyah Manajemen Bisnis* 3 (1): 43. https://doi.org/10.24853/jmmb.3.1.43-54.

Numan, Mulin. 2019. "Pengembangan Bahan Ajar Statistika Penelitian Pendidikan Matematika." *Jurnal Mercumatika : Jurnal Penelitian Matematika Dan Pendidikan Matematika* 3 (2): 114. https://doi.org/10.26486/jm.v3i2.762.

Nurhasanah, Duroh Siti, and Irena Puji Luritawaty. 2021. "Model Pembelajaran REACT Terhadap Kemampuan Pemecahan Masalah Matematis." *Plusminus: Jurnal Pendidikan Matematika* 1 (1): 71–82. https://doi.org/10.31980/plusminus.v1i1.1027.

Nuritno, Rizqi, Hendri Raharjo, and Widodo Winarso. 2017. "Pengembangan Bahan Ajar Berbasis Multimedia Interaktif Dalam Meningkatkan Minat Belajar Matematika Siswa." *ITEJ (Information Technology Engineering Journals)* 2 (1): 1–10. https://doi.org/10.24235/itej.v2i1.11.

Parwati, Ni Putu, and I Nyoman Bayu Pramartha. 2021. "Strategi Guru Sejarah Dalam Menghadapi Tantangan Pendidikan Indonesia Di Era Society 5.0." *Widyadari: Jurnal Pendidikan* 22 (1): 143–58. https://doi.org/10.5281/zenodo.4661256.

Rahmawati, Dian, Zulyadaini Zulyadaini, and Eni Defitriani. 2022. "Pengaruh Model Pembelajaran Generatif Terhadap Kemampuan Pemecahan Masalah Matematika Siswa Kelas Viii Di Smp Negeri 9 Kota Jambi." *PHI: Jurnal Pendidikan Matematika* 6 (1): 25. https://doi.org/10.33087/phi.v6i1.183.

Rahmiyati, Rikha Dhani. 2020. "PERAN GURU DALAM PENGEMBANGAN KURIKULUM Rikha." *Jurnal Serunai Administrasi Pendidikan* 167 (1): 1–5. https://www.e-ir.info/2018/01/14/securitisation-theory-an-introduction/.

Rihada, Arsy, Mutiara, Ratih, Soko, Aji Jagat, and Dede, Indra Setiabudi. 2021. "Refleksi Guru Dalam Pengembangan Pembelajaran Berdasarkan Hasil PISA (Programme for Interational Student Assessment)." *Jurnal Pendidikan Dan Kebudayaan* 1 (Juli): 1–8.

Susmiati, Eri. 2020. "Meningkatkan Motivasi Belajar Bahasa Indonesia Melalui Penerapan Model Discovery Learning Dan Media Video Dalam Kondisi Pandemi Covid-19 Bagi Siswa SMPN 2 Gangga." *Jurnal Paedagogy* 7 (3): 210. https://doi.org/10.33394/jp.v7i3.2732.

Tobing, Irene Vania Lumban. 2016. "Pengaruh Strategi Pembelajaran Dan Gaya Belajar Terhadap Hasil Belajar Kimia Siswa Sma Negeri 2 Medan." *Jurnal Ilmiah Kohesi* I (1): 76–90.

Uslan, Uslan, Julhidayat Muhsam, Suryadin Hasyda, and Ummu Aiman. 2021. "Implementation of Contextual Teaching and Learning and Authentic Assessments to the Science (IPA) Learning Outcomes of 4th Grade Students of Primary Schools (SD) in Kota Kupang." *Jornal of Education Research and Evaluation (JERE)* 5 (3): 380–90.

Wahyuni, Sri, and Leonard Leonard. 2021. "Pengaruh Perhatian Orang Tua Dan Kemandirian Belajar Peserta Didik Terhadap Prestasi Belajar Matematika." *Edu Sains: Jurnal Pendidikan Sains & Matematika* 9 (2): 152–63. https://doi.org/10.23971/eds.v9i2.2194.

Yuniarti, Dwi Ariani, Gramandha Wega Intyanto, and Ari Setyani Pawening. 2022. "DGMATH: Media Digital Matematika Berbasis Android Untuk Siswa Sekolah Dasar Materi Operasi Bilangan Menggunakan Metode RnD." *Edumatica : Jurnal Pendidikan Matematika* 12 (01): 41–51. https://doi.org/10.22437/edumatica.v12i01.17241.

Yuwono, Timbul, Mulya Supanggih, and Rosita Dwi Ferdiani. 2018. "Analisis Kemampuan Pemecahan Masalah Matematika Dalam Menyelesaikan Soal Cerita Berdasarkan Prosedur Polya." *Jurnal Tadris Matematika* 1 (2): 137–44. https://doi.org/10.21274/jtm.2018.1.2.137-144.

Zebua, Nofamataro. 2024. "Studi Literatur : Peranan Higher Order Thinking Skills Dalam Proses Pembelajaran" 1 (2).