Revisi 2190-2 (27-05-23)

by Erina dan Wulan
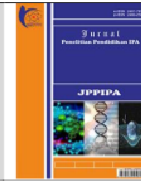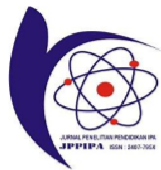

Implementation of Discovery Learning Models to Improve Students Mathematic Learning Outcomes

Erina Ika Muhayati[1*], Wulan Trisnawaty[2], Subaidah[3]

[1] Erina Ika Muhayati, Mathematic Education Department, STKIP Bina Insan Mandiri, Surabaya, Indonesia.
[2] Wulan Trisnawaty, Primary Teacher Education Department, STKIP PGRI Pacitan, Pacitan, Indonesia.
[3] Subaidah, Mathematic Education Department, STKIP Bina Insan Mandiri, Surabaya, Indonesia.

Phone*: +6281232204351

Abstract: The aims of this research was describing about implementation of discovery learning model to increase students mathematics learning outcomes. It was a quantitative research with one shot case study design. Subjects of this research were students of Xth TEI 1 SMK Negeri 1 Driyorejo for the academic year 2021/2022. Data collection technique using three essay questions with data analyze technique include validity test and completeness test of Minimum Completeness Criteria. In this research, students are given 6 steps of discovery learning. There are stimulation, problem statement, data collection, data processing, verification, and generalization. The research revealed that students learning outcome using discovery learning having increase from 30 to 89. It could be conclude that discovery learning model can improve students' mathematics learning outcomes.

Keywords: discovery learning, learning outcomes.

Introduction

The Law No. 20 of 2003 article 13 (*Undang-Undang Nomor 20 tahun 2003 pasal 13*) concerning education states that education is a conscious and planned effort in order to create a learning atmosphere. The planned learning process must involve students actively in developing their potential. Students' self-potential development is expected to be able to cover aspects of spirituality, religion, ability to control oneself, personality, intelligence, noble character, and the necessary skills (Muhari, 2017). Especially in Mathematics, students can develop the ability to measure, calculate, find and solve everyday problems.

The achievement of learning objectives can be seen based on the level of success and completeness of student learning outcomes. According to Siregar (2017:227), for some students mathematics is still considered a difficult and boring subject, so students are less interested in mathematics which causes students to have low scores below the Minimum Completeness Criteria. Minimum Completeness Criteria are learning completeness criteria determined by the education unit.

Results of interviews with Mr. Sutejo, S.Pd., M.Pd. as a Mathematics teacher at SMK Negeri 1 Driyorejo, information was obtained that student learning outcomes were below 75. This can be proven by 70% of students who scored below the Minimum Completeness Criteria. In fact, every student must reach the Minimum Completeness Criteria in order to achieve complete learning. One of the causes of student learning outcomes under the Minimum Completeness Criteria is because the models, methods, and learning media used are less innovative, so students are not interested in participating in learning. According to Mr. Sutejo, teacher competence in learning is also one of the reasons why students' scores are below the Minimum Completeness Criteria.

Based on literacy studies conducted by researchers and referring to the condition of students at SMK Negeri I Driyorejo, the solution offered to improve student learning outcomes is to use the Discovery Learning learning model. Ananta (2016) states that Discovery Learning is a learning method that can encourage students to ask a question and can formulate their own answers, as well as conclude general principles from an experience. According to Jerome Bruner in Wedekaningsih, et al (2019) said that Discovery Learning is a learning model that makes students think to ask questions and draw conclusions from an experience. Discovery Learning has characteristics among other learning models, namely: 1) problem solving, 2) about students, and 3) combine all the information held. The advantages of this learning model are that students become more active in learning activities, students are easier to solve problems in everyday life, and train students to learn on their own. So learning using discovery Learning will make students motivated so that they can improve their learning outcomes, especially in mathematics.

In addition, Hanafi (2016) said that the discovery learning model requires students to participate in making many decisions about what, how, and when something should be learned. Discovery learning plays a role in developing students' active learning methods by finding and investigating themselves so that the material to be delivered is easier to understand. The use of the discovery learning model will change the learning conditions that were originally passive to active and change the habits of students who only receive information from the teacher to find information on their own.

Research conducted by Ismah & Sundi (2018) states that the discovery learning model can improve mathematics learning outcomes on set material. Another study conducted by Wedekaningsih, et al (2019) revealed that the application of the Discovery Learning learning model can improve critical thinking skills and student learning outcomes in mathematics.

In this study, the Discovery Learning learning model was implemented on the subject matter of trigonometry because from the results of the second semester teacher assessment, the student learning outcomes in this material were 70% of students overall have not experienced mastery learning. Trigonometry material can be applied using the Discovery Learning learning model, because in this material students find it difficult to understand various things related to how to complete calculations using formulas.

Another research from Ali (2019) says that when he compared learning methods between traditional teaching methods using the activities that are based on teaching and inquiring through the discovery learning method in teaching the unit "If It Weren't For The Pressure?" to seventh- year elementary students can enhances the students' success and perception of inquiry learning skills.

Based on the results of the background above, the formulation of the research problem is: how are student learning outcomes using the discovery learning model?

Method

The type of research that will be used in this research is quantitative research. The research design is One Shot Case Study Design which is a study without a comparison group and without a test at the beginning. In this study, researchers conducted research on 35 students of class X TEI 1 SMK Negeri 1 Driyorejo on Trigonometry and will be conducted in the even semester of the 2021/2022 academic year.

The instruments used in this research are syllabus, lesson plans, evaluation instruments. Syllabus, lesson plans, evaluation instruments used to determine students' abilities after being given a discovery learning model. The types of instruments used include assessment rubrics, questions, and post tests.

The data collection technique used a test method which included a written test in the form of a description of 3 questions. This written test aims to determine student learning outcomes after being given a discovery learning model.

The data analysis technique used descriptive statistical analysis which was used to describe the data resulting from the post test. The data analysis techniques used include: 1) validity test, 2) Completeness test, 3) calculating the average (mean), and 4) post-test result category.

Result and Discussion

Researchers conducted research on Monday, May 23, 2022 at SMK Negeri 1 Driyorejo. This study was conducted to determine the students learning outcomes using discovery learning. Collecting data in this study using the test method. The validity test is carried out to determine whether an instrument is valid or not. The test instruments tested have been tested for validity by expert validators in their fields. The experts who tested were mathematics lecturers at STKIP Bina Insan Mandiri as many as 2 experts.

In the Minimum Completeness Criteria, the researcher calculates the percentage of students who are above the Minimum Completeness Criteria. The formula used refers to chapter 3. From the calculation results above, it can be seen that 89% or 31 students whose scores are above the Minimum Completeness Criteria. Meanwhile, 11% or 4 students scored exactly on the Minimum Completeness Criteria score. Subekti, et al

(2019) in their research says that Minimum Completeness Criteria determines a measurement of the quality of learning in the educational unit. It usually determine each school by observe the abilities of their students. So that learning mathematics using discovery learning models X[th] TEI 1 SMK Negeri 1 Driyorejo for the academic year 2021/2022 can be categorized very well.

The discovery learning model requires students to find their own understanding of a problem. The characteristics that exist in Discovery Learning are: 1) problem solving, 2) student-centered, and 3) combining all the information they have. The syntax carried out by researchers when carrying out the teaching and learning process using the Discovery Learning learning model are: 1) Stimulation (provider of stimulation), 2) Problem Statement (problem identification), 3) Data Collection (data collection), 4) Data Processing (processing). data), 5) Verification (proof), and 6) Generalization (drawing conclusions).

After carrying out the teaching and learning process using the Discovery Learning learning model, the researcher gave a post test to students in the form of 3 essay questions. From the research result for the post X TEI 1, it is known that there is an increase learning outcomes after using the Discov learning model. This can be seen in n Completeness Criteria, which is known t students achieve completeness if students get a score more than 75.

The first research conducted by Cintia, et al (2018). She said that the level of learning in students was considered successful if there were 80 of students who achieved the standard of completeness minimum criteria more than 65

The second study from Sulfemi & Desi (2019) said that students had achieved complete learning when they achieved a score of 85 with the Minimum Completeness Criteria score more than 75.

Another study conducted by Puspitasari & Siti (2019) in their states that research is considered complete if it meets the minimum standards of completeness criteria, which is 75. These results are in accordance with the theory put forward by Sudjana (2004) which says that learning outcomes are changes in individual behavior in the cognitive, affective, and psychomotor fields. From the theory stated above, it can be concluded that student learning outcomes can be known after going through the learning process.

Tabel 1. Category of Student Post Test Results

Score Range	Category	Amount
≥80	Tall	5
60 – 79	Currently	30
≤59	Low	0
Total	35	100

After the teaching and learning process and doing the post test, it was calculated that there were 89% of students who scored . And there are as many as 11% of students whose grades are right on the Minimum Completeness Criteria, this happens because the students who not take part in the teaching and learning process from beginning to end due to being late for class and there are some students who not focus when participating in the teaching and learning process so that the material gained only partially more than 75.

Then the results of the post-test of students' mathematics are categorized into several criteria according to Table 1 Categories of Post-Test Results. After being categorized according to the table, the results showed that there were 0 students with a percentage of 0% who were in the low category. Students who are in the medium category are 30 students with a percentage of 86%. And there are 5 students with a percentage of 14% in the high category.

The average score of class X TEI 1 students after the post test was 77.6. Based on Table 1 Assessment Criteria for Average Student Scores, it was found that the average score of X TEI 1 students was in the good category. So it can be concluded that all students are said to be success in using the discovery learning model.

This is in accordance with the research that conducted by Wardani, et al (2018). They are taking research samples, namely SDN 1 Kaligentong as a core elementary school, SDN 2 Urutsewu as a distant impact elementary school, and SDN 3 Urutsewu as a close impact elementary school. The purpose of this study was to determine the differences in learning outcomes using the problem based learning (PBL) model in the experimental class and discovery learning learning models in the control class. The experimental class has a value of 49.18 and increased to 73.76. As for the control class has a value of 50.12 and increased to 80.12. In this study, the experimental class and the control class both experienced an increase,

The second study conducted by Surur & Sofi (2019) said that there was a significant difference in learning outcomes between the experimental class and the control class. The experimental class that uses the discovery learning model has an average score of 8.2500 and the class that uses the direct teaching model has an average score of 7.0968. This shows that the class with the discovery learning model is more suitable for use in learning mathematics.

The third study conducted by Siantruri (2020) showed that in the first cycle there were 71.79% of students who completed individually and in the second cycle there was an increase in completeness to 100%. This shows that students' mathematics learning

outcomes in the second cycle increased compared to the first cycle.

The fourth, another study from Wedekaningsih, et al (2019) also showed that there was an increase from cycle I to cycle II. In the pre-cycle, the average was 60, in the first cycle, the average was 70, and in the second cycle, the average was 81. This proves that the application of the Discovery Learning model can improve critical thinking skills and student learning outcomes.

The fifth study conducted by Fatimah & Sundi (2018), showed that the data on student learning outcomes during the pre-cycle, cycle I, and cycle II experienced an increase in the set material. Although there was a slight decrease in cycle II, it did not have a significant impact, but the discovery learning model could improve student learning outcomes on the set material.

The sixth study conducted by Prasasti, et al (2019) showed that in the pre-cycle the number of learning outcome achieved was only 35%, but there was an increase in the first cycle to 77% and increased to 85% during the second cycle. The application of the Discovery Learning model in this study was able to improve student learning outcomes, especially in the flat material.

The seventh, some study from Trisnawaty, et al (2017) also conducted that the assessment instrument based on SSA-HOTS can be applied in learning to train higher-order thinking skills so that it can improve cognitive aspects, psychomotor aspects, and affective aspects. The SSA-HOTS assessment conducted at SMA Muhammadiyah 4 majoring in science had a score of 0.95, 0.83, 0.81, and 0.80 which were in the high category. So that the use of the SSA-HOTS assessment instrument can improve students' higher order thinking skills.

The last research using the discovery learning learning model from Oktaviani, et al (2018). There was an increase from pre-cycle to cycle II. This can be shown in the pre-cycle where the number of students who completed was 34.61%, then increased to 73.07% in the first cycle. Because the indicators of success were not completed, the second cycle was carried out which obtained the number of students who completed 84.62%. This shows an increase in critical thinking skills and student learning outcomes using the discovery learning model.

In this research, students are given 6 steps of discovery learning. In the first step, stimulation, the teacher starts learning by asking various questions and other learning activities that lead to preparation for problem solving. Furthermore, in the problem statement, students are asked to identify problems that are relevant to the topic of the lesson and formulate it in the form of a hypothesis. The third step is data collection

where the teacher gives students the opportunity to prove their hypothesis by collecting as much relevant information as possible. In the next step, data processing, students process the data obtained with the guidance of the teacher. Furthermore, in the verification step, students carry out a careful examination to prove the hypothesis and related to the results of data processing. And in the last step, generalization, students draw conclusions from the results.

After observing and assessing the students of class X TEI 1 SMK Negeri 1 Driyorejo, it was concluded that students who previously obtained completeness of 30% experienced an increase to 89%. Meanwhile, the students' average score, which was previously below 75, has now increased to 77.6. So that students experienced an increase of 59%. Svinicki (1998) in his research says that the learning theory behind discovery learning is the cognitive model of learning, which focuses on what goes on in the mind of the students as new information is acquired. According to this model, the primary purpose in learning is to incorporate new information into an already existing network of associations that the student has. This is done by creating new networks or reorganizing old networks to accommodate the new information. To do this, the student is constantly monitoring new information and checking in memory for related ideas to make connections. If no related ideas exist, new but very tenuous networks are formed using whatever links to prior knowledge can be made. With repeated use, these new networks are strengthened and elaborated until they become well. So we can say that students of class X TEI 1 SMK Negeri Driyorejo have obtained good cognitive learning. It can see frome their score that increased by 59%.

From the tests conducted by researchers, starting from the validity test, calculating the average (mean), and categorizing the students' post test results, it can be shown that the discovery learning model has an influence on the mathematics learning outcomes of students in class X TEI 1 SMK State 1 Driyorejo. The result relate with the research from Marian (2019) that find the learning method used by the teacher has not been able to facilitate students so that the learning process is still not meaningful. It can not yet cover all competency indicators in the school. From that conclusion we can say that if teacher did not used the right learning method, it can make learning process being not meaningfull. Zulkarnain et al (2021) in their research also find that mathematical communication skills of students in mathematics learning can increase using discovery learning model. Another research from Muchlis et al (2021) also find that discovery learning model can improve learning outcome in trigonometry course. From their research discovery learning also can

optimize multiple intelligence activity of students. Batubara (2019) in his research also find that guided discovery learning methods can improve students critical thinking ability. From all these research we can conclude that discovery learning can improve all students ability so we can use these models in the learning process. It is suitable with our research too. From our research we find that the application of the discovery learning model is able to improve student learning outcomes on trigonometry material in class X TEI 1.

Conclusion

Based on the results of the research and discussion that have been carried out and explained in Chapter IV, the researchers can conclude that students' mathematics learning outcomes using the discovery learning learning model have increased, especially in trigonometry material in class X TEI 1 SMK Negeri 1 Driyorejo. Suggestions that can be considered by schools include: 1) To improve student learning outcomes, especially in mathematics teachers are expected to use various variations of learning models. One that can be used is the discovery learning model and 2) so that mathematics becomes a subject of interest to students, it is hoped that teachers can provide various innovations in delivering learning materials.

Author Contributions
This article was compiled by three peoples with their contribution such as: Conceptualization, Erina and Wulan; methodology, Subaidah; Analyze using SPSS, Erina; validation, Wulan and Subaidah; formal analysis, Erina, Wulan, and Subaidah; investigation, Erina; resources, Subaidah; data curation, Wulan; writing-original draft, Erina; writing-review and editing, Wulan; funding acquisition, Wulan and Subaidah.

Conflicts of Interest
The authors declare no conflict of interest. The funders also had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

Balım, A.G. (2009). The effects of discovery learning on students' success and inquiry learning skills. *Egitim Arastirmalari- Eurasian Journal of Educational Research*, 35, 1-20. https://ejer.com.tr/wp-content/uploads/2021/01/ejer_2009_issue_35.pdf

Ali, S.S. (2019). Problem based learning: a student-centered approach. *English Language Teaching Journal*, 12(5), 73-78. https://eric.ed.gov/?id=EJ1212283

Ananta, H. (2016). The effect or discovery learning method application on increasing students listening outcome and social attitude. *Jurnal Dinamika Ilmu*, 16 (2), 291-306. https://doi.org/10.21093/di.v16i2.552

Batubara, I.H. (2019). Improving student's critical thinking ability through guided discovery learning methods assisted by geogebra. *International Journal for Educational and Vocational Studies*, 1(2), 116-119. DOI: https://doi.org/10.29103/ijevs.v1i2.1371

BSNP. (2016). Permendikbud No. 23 tahun 2016 tentang Standar Penilaian Pendidikan. Kemendikbud. Jakarta: Kemendikbud Ristek

Cintia, N.I., F., Indri A. (2018). Penerapan model pembelajaran discovery learning untuk meningkatkan kemampuan berpikir kreatif dan hasil belajar siswa. *Jurnal PERSPEKTIF Ilmu Pendidikan*, 32(1), 69-77. https://doi.org/10.31932/jpdp.v5i1.348

Hanafi, H. (2016). The effect of discovery learning method application on increasing students' listening outcome and social attitude. *Jurnal Dinamika Ilmu*, 16(2), 291-306. https://doi.org/10.21093/di.v16i2.552

Ismah, I., & Sundi, V.H. (2018). Penerapan model discovery learning untuk meningkatkan hasil belajar matematika siswa kelas VII SMP Labschool. *FIBONACCI: Jurnal Pendidikan Matematika dan Matematika*, 4(2), 161-169. https://doi.org/10.24853/fbc.4.2.161-169

Marian, F. (2019). Design of student worksheet based on discovery learning to improve the ability of mathematics reasoning students of class VII Junior High School. *Journal of Physics: Conference Series*, (1306,1), 012036-012038. https://doi.org/10.1088/1742-6596/1306/1/012036

Muchlis, E.E., M., & Rahimah, D. (2021). The multiple intelligence optimize activity using discovery learning models that improve learning outcome

in trigonometry course. In *Journal of Physics: Conference Series*, (1731,1), 012049-012055. https://doi.org/10.1088/1742-6596/1731/1/012049

Muhari. (2017). Psikologi pendidikan (pp.26-30). Surabaya: Unesa University Press.

Oktaviani, W.F., Firosalia, K., Indri, A. (2018). Penerapan model pembelajaran discovery learning untuk meningkatkan kemampuan berpikir kreatif dan hasil belajar matematika siswa kelas 5 SD. *Jurnal Basicedu*, 2(2), 5-10. https://doi.org/10.31004/basicedu.v5i3.925

Prasasti, D.E., Henny, D.K., Sri, G. (2019). Peningkatan keterampilan berpikir kritis dan hasil belajar matematika melalui model discovery learning di kelas IV SD. *Jurnal Basicedu*, 3(1), 174-179. https://doi.org/10.31004/basicedu.v3i1.113

Puspitasari, Y., & Siti, N. (2019). Pengaruh model pembelajaran discovery learning terhadap hasil belajar siswa. *Jurnal Pendidikan dan Kewirausahaan*, 7(1), 93-108. https://doi.org/10.47668/pkwu.v7i1.20

Siantruri, D. (2020). Penerapan model pembelajaran discovery learning dalam meningkatkan hasil belajar matematika. *Jurnal Global Edukasi*, 3(4), 239-247. https://doi.org/10.31932/jpdp.v2i1.25

Siregar, N.R. (2017). Persepsi siswa pada pelajaran matematika: studi pendahuluan pada siswa yang menyenangi game. *Jurnal Unissula*, 1, 224-232. Retrieved from http://jurnal.unissula.ac.id/index.php/ippi/article/view/2193

Svinicki, M.D. (1998). A theoretical foundation for discovery learning. *Advances in Physiology Education Journal*, 275(6), S4-7. https://doi.org/10.1152/advances.1998.275.6.S4

Subekti, E., Rusilowati, A., & Khumaedi, M. (2019). Teacher evaluation in determining ability minimum completeness criteria subject first high school mathematics. *Journal of Research and Educational Research Evaluation*, 8(2), 133-140. https://doi.org/10.15294/jere.v8i2.38022

Sudjana, N. (2004). Dasar-dasar proses belajar mengajar (pp 70-75). Bandung: Sinar Baru Algesindo.

Sulfemi, W.B., & Desi, Y. (2019). Penerapan model pembelajaran discovery learning meningkatkan motivasi dan hasil belajar pendidikan kewarganegaraan. *Jurnal Rontal Keilmuan PKN*, 5(1), 17-30. https://doi.org/10.29100/jr.v5i1.1021

Surur, M., & Sofi, T.O. (2019). Pengaruh model pembelajaran discovery learning terhadap pemahaman konsep matematika. *Jurnal Pendidikan Edutama*, 6(1), 11-18. Retrieved from http://ejurnal.ikippgribojonegoro.ac.id/index.php/JPE

Trisnawaty, W., Alfina, C., Anas, T. (2017). Self assessment for student performance based on higher order thinking skills in physics learning. *Jurnal of Education and Learning*, 11(4), 446-452. https://doi.org/10.11591/edulearn.v11i4.6456

Wardani, F.I.P., Mawardi, Suhandi, A. (2018). Perbedaan hasil belajar matematika kelas 4 SD dalam pembelajaran menggunakan model discovery learning dan problem based learning. *Jurnal Teori dan Aplikasi Matematika*, 2(1), 62-75. Retrieved from https://core.ac.uk/download/pdf/228422851.pdf

Wedekaningsih, A., Henny, D.K., Sri, G. (2019). Penerapan model pembelajaran discovery learning untuk meningkatkan keterampilan berpikir kritis dan hasil belajar matematika peserta didik. *Jurnal Basicedu*, 3(1), 21-26. Retrieved from http://repository.uksw.edu/handle/123456789/17288

Zulkarnain, I., Kusumawati, E., & Mawaddah, S. (2021). Mathematical communication skills of students in mathematics learning using discovery learning model. *Journal of Physics: Conference Series*, 760(1), 012045-012050. https://doi.org/10.1088/1742-6596/1760/1/012045

Revisi 2190-2 (27-05-23)

21%	**%**	**29**%	**14**%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1   M D Svinicki. "A theoretical foundation for discovery learning.", Advances in Physiology Education, 1998
Publication   1%

2   Imada Cahyani Elvirawati, Vanda Rezania. "The Application of Discovery Learning Model to Improve the Character of Democracy and Learning Outcomes For Elementary Students", AL-ISHLAH: Jurnal Pendidikan, 2022
Publication   1%

3   Submitted to Universitas Mataram
Student Paper   1%

4   Dianita Eka Prasasti, Henny Dewi Koeswanti, Sri Giarti. "PENINGKATAN KETERAMPILAN BERPIKIR KRITIS DAN HASIL BELAJAR MATEMATIKA MELALUI MODEL DISCOVERY LEARNING DI KELAS IV SD", Jurnal Basicedu, 2019
Publication   1%

5   Submitted to Universitas Indonesia
Student Paper   1%

6   Rika Sasriyanti, Farida F, Jon Efendi. "Integrated Thematic Learning Based On Discovery Learning in Excellent Islamic School Bukittinggi", Jurnal Basicedu, 2021
Publication
   1%

7   BALIM, Ali Günay. "The Effects of Discovery Learning on Students' Success and Inquiry Learning Skills", Anı Yayıncılık, 2009.
Publication
   1%

8   Archana Loganathan, Prasanth Manohar, Ramesh Nachimuthu. " Phage-Antibiotic Combination: An Effective Method for Eradication of ", Cold Spring Harbor Laboratory, 2023
Publication
   1%

9   Hendra Simanjuntak, Hasian P.K.A Silalahi. "The Effect of Discovery Learning Model to Improve Learning Outcomes and Chemical Process Skills", Jurnal Basicedu, 2022
Publication
   1%

10   Submitted to Laureate Higher Education Group
Student Paper
   1%

11   L L Sarah. "The implementation of discovery learning using personal site in physics online classroom", Journal of Physics: Conference Series, 2021
Publication
   1%

12 F Marian, Suparman. "Design of Student Worksheet Based On Discovery Learning to Improve the Ability of Mathematics Reasoning Students of Class VII Junior High School", Journal of Physics: Conference Series, 2019
Publication

1%

13 Elly Sukmanasa, Yanti Suryanti, Lina Novita, Teti Rostikawati. "IMPROVEMENT OF MATHEMATICS LEARNING OUTCOMES OF MEASUREMENT MATERIAL THROUGH THE APPLICATION OF DISCOVERY LEARNING MODELS", Jurnal Pendidikan Matematika dan IPA, 2020
Publication

1%

14 Veronika Yusnita Andriani Prastika, Riyadi Riyadi, Siswanto Siswanto. "DISCOVERY AND CORE LEARNING MODEL TOWARD CREATIVE THINKING VIEWED FROM LOGICAL MATHEMATICAL INTELLIGENCE", AKSIOMA: Jurnal Program Studi Pendidikan Matematika, 2021
Publication

1%

15 I Zulkarnain, E Kusumawati, S Mawaddah. "Mathematical communication skills of students in mathematics learning using discovery learning model", Journal of Physics: Conference Series, 2021
Publication

1%

16 A. Jauhar Fuad, Pranita Andhinasari. "Improving Student Learning Outcomes During The Covid-19 Pandemic Using Learning Videos and E-Learning", eL Bidayah: Journal of Islamic Elementary Education, 2021
Publication

1%

17 Endang Endang, La Anse, I Ketut Suardika. "PENERAPAN MODEL PEMBELAJARAN DISCOVERY LEARNING UNTUK MENINGKATKAN HASIL BELAJAR SISWA PADA TEMA DAERAH TEMPAT TINGGALKU KELAS IV SDN 5 PASIR PUTIH", Jurnal Ilmiah Pembelajaran Sekolah Dasar, 2020
Publication

1%

18 Submitted to IAIN Tulungagung
Student Paper

1%

19 Desty Ratna Permatasari, Heribertus Soegiyanto, Budi Usodo. "The use of discovery learning model with rme approach viewed from interpersonal intelligence", Journal of Education and Learning (EduLearn), 2018
Publication

1%

20 Dinna Cilvia Asri, Sangkot Samosir. "Peningkatan Hasil Belajar Siswa SMAN 2 Palembang melalui Model Discovery Learning pada Materi Trigonometri", ARITHMETIC: Academic Journal of Math, 2020

1%

Publication

21 Submitted to Universitas Negeri Manado
Student Paper
1%

22 Andriyani, Joko Lianto Buliali, Yudhiakto Pramudya. "The effectiveness application of learning model with augmented reality on deaf student's geometry learning outcomes", AIP Publishing, 2022
Publication
<1%

23 Ratu Betta Rudibyani, Ryzal Perdana. "Enhancing higher-order thinking skills using discovery learning model's on acid-base pH material", AIP Publishing, 2018
Publication
<1%

24 Submitted to Universitas Islam Indonesia
Student Paper
<1%

25 Purwini Purwini. "PENGGUNAAN DISCOVERY LEARNING UNTUK MENINGKATKAN HASIL BELAJAR PKN SISWA KELAS VIII", Paedagoria | FKIP UMMat, 2019
Publication
<1%

26 Submitted to Universitas Muhammadiyah Surakarta
Student Paper
<1%

27 Wulan Trisnawaty, Alfina Citrasukmawati, M. Anas Thohir. "Self Assessment For Student Performance Based on Higher Order Thinking
<1%

Skills in Physics Learning", Journal of Education and Learning (EduLearn), 2017
Publication

28 Atik Tri Susilowati, Adi Winanto. "Meta Analisis Komparasi Model Discovery Learning dengan Problem Based Learning terhadap Hasil Belajar Kognitif Siswa Sekolah Dasar", Jurnal Basicedu, 2022
Publication

<1%

29 I Junina, A Halim, Mahidin. "The effect of discovery learning-based worksheet on students' metacognition skill and learning outcomes", Journal of Physics: Conference Series, 2020
Publication

<1%

30 Rusmiati Rusmiati, Nurhayati Abbas, Kartin Usman. "Pengaruh Model Pembelajaran Kooperatif Tipe Jigsaw Terhadap Hasil Belajar Siswa pada Materi Bilangan Pecahan", Jurnal Cendekia : Jurnal Pendidikan Matematika, 2023
Publication

<1%

31 Submitted to Universitas Muhammadiyah Makassar
Student Paper

<1%

32 Utin Desy Susiaty, Nurul Fitria, Marhadi Saputro. "Morndumath Application Against HOTS in Building Materials for Middle School

Students", Absis: Mathematics Education Journal, 2022
Publication

33 Levi Febri Damayanti, Ade Octavia, Tona Aurora Lubis. "FAIRNESS OF SERVICE, TRUST AND CUSTOMER VALUE AS VARIABLE OF ANTECEDENT OF CUSTOMER LOYALTY WITH CUSTOMER SATISFACTION AS INTERVENING VARIABLE IN PT. BANK JAMBI BRANCH OF MUARA BULIAN", Journal of Business Studies and Mangement Review, 2019
Publication
<1%

34 Waluyo Aji, Bambang Suteng Sulasmono, Eunice Widyanti Setyaningtyas. "UPAYA MENINGKATKAN HASIL BELAJAR DAN KETERAMPILAN PROSES SISWA MELALUI MODEL PEMBELAJARAN PROBLEM BASED LEARNING DI KELAS IV SD N TINGKIR TENGAH 02", Jurnal Basicedu, 2019
Publication
<1%

35 Amalia Septian Pandani, Tustiyana Windiyani, Mira Mirawati, Dadang Kurnia. "PENGARUH PENERAPAN MODEL DISCOVERY LEARNING TERHADAP HASIL BELAJAR SUBTEMA 1 KEKAYAAN SUMBER ENERGI DI INDONESIA", Jurnal Pendidikan dan Pengajaran Guru Sekolah Dasar (JPPGuseda), 2021
Publication
<1%

36 Desy Nursinta Al Kharomah, Muhammad Abduh. "The impact of the MathMagic learning method on students' mathematics cognitive learning outcomes", Jurnal Elemen, 2023
Publication

<1%

37 H Hikmawati, K Kosim, A Doyan, G Gunawan, E Kurniawan. "Discovery Learning Model to Practice Students' Science Process Skill in Elasticity and Hooke's Law", Journal of Physics: Conference Series, 2021
Publication

<1%

38 Nadri Taja, Encep Syarief Nurdin, Aceng Kosasih, Edi Suresman, Tedi Supriyadi. "Character Education in the Pandemic Era: A Religious Ethical Learning Model through Islamic Education", International Journal of Learning, Teaching and Educational Research, 2021
Publication

<1%

39 Roswita Lioba Nahak, Asti Yunita Benu. "Analisis Kesesuaian Rencana Pelaksanaan Pembelajaran Satu Lembar Tematik Berbasis Active Learning dengan Pelaksanaan Pembelajaran Daring Di Sekolah Dasar", Jurnal Basicedu, 2021
Publication

<1%

40 Sukarno -, AA Musyafa. "AM Analysis of Metacognition Ability and Critical Thinking Skills of Students in Integrated Islamic Education Institutions", INNOVATIO: Journal for Religious Innovation Studies, 2021
Publication

<1%

41 Yulin Yulin, Luh Sukariasih, Vivi Hastuti RM, La Maronta Galib. "Meningkatkan Keterampilan Proses Sains dan Hasil Belajar Kognitif Peserta Didik Kelas VIII D SMP Negeri 1 Sampolawa melalui Penerapan Model Pembelajaran Penemuan pada Materi Pokok Gerak dan Gaya", Jurnal Penelitian Pendidikan Fisika, 2020
Publication

<1%

42 Andromeda, Iryani, Ellizar, Yerimadesi, W P Sevira. "Effectiveness of chemical equilibrium module based guided inquiry integrated experiments on science process skills high school students", Journal of Physics: Conference Series, 2019
Publication

<1%

43 Galih Puji Mulyoto, Luthfia Aldila Arsy Subagyo Subagyo, Sutomo. "Development of Smart Apps Creator-Based Learning Media on Religious Diversity Materials in Indonesia", Madrosatuna: Journal of Islamic Elementary School, 2022

<1%

44 K Arafah, B D Amin, S S Sari, A Hakim. "The Development of Higher Order-Thinking Skills (HOTS) Instrument Assessment in Physics Study", Journal of Physics: Conference Series, 2021
Publication

<1%

45 Sugestiana Azhad, Nur Fitri Yani, Ishaq Nuriadin. "Mendesain Pembelajaran dengan Model Discovery Learning Perbantuan Eddpuzzle dalam Optimalisasi Berpikir Kritis Matematis Siswa SMP", Journal of Education and Instruction (JOEAI), 2022
Publication

<1%

46 Submitted to Universitas Hasanuddin
Student Paper

<1%

47 Yudhi Arifani, Ruruh Mindari, Nur Hidayat, Awang Setiawan Wicaksono. "Basic psychological needs of in-service EFL teachers in blended professional training: voices of teachers and learners", Interactive Learning Environments, 2021
Publication

<1%

48 Ambuy Sabur, Dadang Saepuloh, Reva Triana. "Improving Students' Critical Thinking during Covid-19 through Online Learning", Jurnal Pendidikan Edutama, 2021
Publication

<1%

49 Anggraeni, Dafik, I M Tirta. "The analysis of the application of discovery learning in improving student's combinatorial thinking skill to solve local super antimagic face coloring problem", Journal of Physics: Conference Series, 2019
Publication

<1%

50 F Riandari, R Susanti, Suratmi. "The influence of discovery learning model application to the higher order thinking skills student of Srijaya Negara Senior High School Palembang on the animal kingdom subject matter", Journal of Physics: Conference Series, 2018
Publication

<1%

51 Prayogi Dwina Angga, Umar Umar. "Knowledge Analysis of PGSD FKIP University of Mataram Students on Physical Education, Sports, and Health Concept", Journal on Education, 2023
Publication

<1%

52 S H Noer, P Gunowibowo. "Scientific Learning and Its Contributions to Increase the Student's Self Confidence and Learning Outcomes", Journal of Physics: Conference Series, 2019
Publication

<1%

53 M Tohir, M Atikurrahman, M Maswar, L A Daulay, M Minhaji, A Albadri, W Sardjono.

<1%

"Building a caring community in problem based learning to improve students' mathematical connection capabilities", Journal of Physics: Conference Series, 2021
Publication

54 Moh. Farizqo Irvan, Mohammad Adam Jerusalem, Habibullah Habibullah. "THE MATHEMATICS LEARNING MODEL'S FOR EARLY GRADE STUDENTS: CONTEXTUAL OR PROBLEM-BASED LEARNING", AKSIOMA: Jurnal Program Studi Pendidikan Matematika, 2020
Publication

<1%

Exclude quotes   Off   Exclude matches   Off
Exclude bibliography   On