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Problem-Based Learning in Outdoor Study Settings Affects Learning Motivation and Science Learning Outcomes

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ABSTRAK

Motivasi belajar siswa belum optimal dan hasil belajar yang rendah. Inovasi dalam proses pembelajaran diperlukan guna meningkatkan motivasi dan hasil belajar siswa. Penelitian ini bertujuan untuk mengetahui perbedaan motivasi belajar dan hasil IPA dengan problem based learning dalam setting outdoor study *dan model pembelajaran konvensional siswa kelas IV SD. Jenis Penelitian adalah eksperimen semu (quasi eksperimen) dengan rancangan penelitian* posttest-only control group design*. Populasi penelitian ini adalah seluruh siswa kelas IV SD yang terdiri dari 80 orang siswa. Sebanyak 65 orang siswa dipilih sebagai sampel yang ditentukan dengan teknik* random sampling*. Pengumpulan data menggunakan metode non tes berupa kuesioner motivasi belajar dan metode tes obyektif pilihan ganda untuk mengukur hasil belajar IPA siswa. Analisis data menggunakan analisis MANOVA berbantuan IBM SPSS Statistic 26.00 for Windows. Hasil penelitian menunjukkan terdapat perbedaan motivasi belajar dan hasil belajar IPA secara simultan antara siswa yang mengikuti pembelajaran model dengan PBL dalam* setting outdoor study *dengan pembelajaran konvensional. Terdapat perbedaan motivasi belajar siswa yang mengikuti pembelajaran model dengan PBL dalam setting* outdoor study *dengan pembelajaran konvensional. Terdapat perbedaan hasil belajar IPA siswa yang mengikuti pembelajaran model dengan PBL dalam setting outdoor study dengan pembelajaran konvensional. Sehingga dapat disimpulkan bahwa terdapat pengaruh PBL dalam setting outdoor study terhadap motivasi belajar dan hasil belajar IPA siswa kelas IV SD.*

ABSTRACT

Student learning motivation could be more optimal, and learning outcomes could be higher. Innovation in the learning process is needed to increase student motivation and learning outcomes. This study aims to determine the difference in learning motivation and science results with problem-based learning in outdoor study settings and conventional learning models of grade IV elementary school students. This type of research is a quasi-experiment with a posttest-only control group design. The population of this study was all grade IV elementary school students, consisting of 80 students. A total of 65 students were selected as samples determined by random sampling. Data collection using non-test methods in the form of learning motivation questionnaires and multiple-choice objective test methods to measure student science learning outcomes. Data analysis using MANOVA analysis assisted by IBM SPSS Statistic 26.00 for Windows. The results showed differences in learning motivation and science learning outcomes simultaneously between students who followed model learning with problem-based learning in outdoor study settings and conventional learning. There are differences in the learning motivation of students who follow the learning model with problem-based learning in outdoor study settings with conventional learning. There are differences in science learning outcomes between students who follow model learning and problem-based learning in outdoor study settings and those who follow conventional learning. So, problem-based learning in outdoor study settings influences learning motivation and science learning outcomes of grade IV elementary school students.

1. INTRODUCTION

Elementary school education is the initial education students obtain to learn various kinds of academic and non-academic lessons, where students must master more than one subject (Ina Magdalena et

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al., 2020). Fun and impressive learning will lead students to master the learning material faster. If the learning process is obtained by students from their understanding of learning and their discoveries, they will find it easier to remember the Lessons (Sari & Sumarli, 2019). The learning implementation process must be distinct from the influence of the curriculum, which has changed as an effort by the government to advance Education in Indonesia. The latest curriculum change from the K13 curriculum to the Merdeka Curriculum, due to the COVID-19 pandemic, allows students to master the Pancasila student profile (Wiguna & Tristaningrat, 2022). Implementing the Independent Curriculum allows teachers to enrich their teaching methods and provide students with learning experiences with different models and methods. Applying learning models is expected to stimulate students' feelings, attention, interests, and responses in the learning process (Arini & Lovisia, 2019). Learning models can facilitate students in the learning process to obtain information, ideas, or concepts, work together, and exchange ideas with their friends to motivate them in learning activities. The use of learning media and the environment also affects the learning process, where the environment around students can help the learning process directly through natural phenomena found in the environment around students (Pratiwi & Hapsari, 2020; Zakiah & Fajriadi, 2020). The teacher's ability to combine various learning methods can make the learning process interesting and meaningful for students, especially in science content.

Science understanding is achieved through understanding science concepts, high activity levels in the learning process to achieve science learning outcomes, and developing discovery and problem-solving abilities through direct practice and experimentation (Nomleni, F. T. & Manu, 2018). Science learning that involves practice and experiments provides a more interesting learning experience for students because students are directly involved in the process. However, in reality, the implementation of science learning is still considered difficult and uninteresting by students because students are only allowed to read and understand the material in books without going through direct practice (Baskara & Yudiana, 2023; Okpatrioka & Nusantari, 2022). The dense science learning material makes students memorize much material, so learning cannot be achieved optimally. Based on the interview results, it is known that in the science learning process, students are less actively involved, students need to be more serious in paying attention to the presentation of material by the teacher, and learning activities are only in class. This shows that students need to be more motivated to learn.

Meanwhile, based on the observations, it was found that teachers are the center of the learning process, so students are less active in following the learning process. Teachers still apply conventional models by providing material using memorization and assignment methods where the tasks given are individual, and the use of learning resources that are not optimal, such as learning activities outside the classroom by utilizing the environment around the school so that learning activities are dominant in the classroom so that students are bored and tired. This is also supported by the average science test scores of students in 3 schools in 1 cluster, which are still very low. Data obtained from 3 Public Elementary Schools with 80 students showed that the average science knowledge competency test score was 61.67, with the KKM in each school being 65.00.

Problems in learning can be helped by implementing adequate learning models and methods so that they can increase learning motivation, thus having an impact on improving students' science learning outcomes (Atminingsih et al., 2019; Devi & Bayu, 2020; Wahyuningtyas & Kristin, 2021). The use of media and learning environments can also support the success of student learning, one of which is by studying outside the classroom (outdoor study). Outdoor study is an activity that delivers learning outside the classroom and involves students directly with their surroundings through the teaching material (Asfuri, 2020). Outdoor activities can also be interpreted as learning activities that use nature directly as a source of learning to obtain information about learning materials. Based on research results, outdoor study can improve student activity and learning outcomes with learning outside the classroom, expand students' knowledge of the material studied in the environment, and high enthusiasm to solve the problems given (Bendriyanti et al., 2021; Djajadi, 2019). Outdoor study can allow students to think and discuss with each other so that students appear more interested in the material. Learning through direct experience outside the classroom makes it easier for students to learn the material. Based on this, it can be concluded that outdoor study has advantages, such as increasing student learning activities, improving the ability to express facts and obtaining information directly through the student's environment, encouraging student motivation, and making student learning activities more meaningful (Irwandi & Fajeriadi, 2020).

Applying this method must also be accompanied by a learning model that can facilitate the learning process to realize learning objectives. One of the models that has been known and commonly used is the problem-based learning (PBL) learning model. PBL is a learning model involving students solving problems with several learning steps to encourage students to collect information in solving problems (Izzah & Azizah, 2019). The PBL learning model has the advantage of creating student growth and development in creativity both individually and in groups so that learning outcomes with maximum completeness can be

achieved (Mardani et al., 2021). The application of learning models and the use of learning environments can support successful learning. Student involvement in the learning process allows students to discover and build their knowledge so that the knowledge created becomes more meaningful, lasts longer, and fosters student motivation in learning (Aswarliansyah, 2020). The problem-based learning model in an outdoor study setting can foster active and enjoyable learning activities because, in learning activities, students will be invited to learn directly with surrounding objects outside the classroom so that it can help students easily understand the material that the teacher will teach and then discuss with group friends in solving problems (Awaluddin & Setiyadi, 2023). Previous research found that the problem-based learning model affects students' cognitive learning outcomes and science learning motivation (Kusnandar, 2019). The difference between the research and this research is in the research subjects, seventh-grade students, and there needs to be a supporting basis for implementing this model.

Further research found that outdoor learning can improve student outcomes (Nasution, 2020). The difference from the study is that no other model is combined with outdoor learning, and the motivation variable is not measured in the study. Therefore, the difference in the study results with this study is an advantage and novelty of this study. This study aims to analyze the problem-based learning model in the outdoor study setting regarding learning motivation and science learning outcomes. Because there has been no research on the effect of the problem-based learning model in the outdoor study setting, this study aims to determine the effect of the problem-based learning model based on the outdoor study setting on the Learning Motivation and science learning outcomes of fourth-grade students of Elementary School Cluster VI, Kediri District, Academic Year 2023/2024.

2. METHOD

This study is a quasi-experimental study with a post-test-only Control Group Design. The experimental and control classes from the population tested for class equivalence were determined using random sampling techniques from all four elementary school classes in Cluster IV, Kediri District, with a total of 80 students. The experimental class was given PBL learning model treatment in an outdoor study setting, while the control class was given conventional learning. The research stages are divided into 3, the Preparation, Implementation, and Final Stage. In the preparation stage, several activities related to the preparation of the research process have been carried out, determining the research cluster, visiting the school where the research was conducted, conducting initial observations by interviewing teachers in related fields of study to find out the average score obtained by students and the learning process that occurs in the classroom before being given treatment, determining the initial population, conducting an equivalence test using one-way ANOVA using the SPSS 26.0 for Window program, determining the research sample, designing research instruments such as designing learning devices (teaching modules), compiling instrument grids and determining instrument assessments and designing tests that will be used for the posttest, conducting discussions with the fourth grade homeroom teacher in compiling learning activities that are in accordance with the learning model to be used, conducting expert tests (judges), and conducting trials of ready instruments, then conducting instrument analysis.

The stage of implementing experimental class research was carried out through several stages, the planning stage in planning problem-based learning in an outdoor study setting. The model teacher carried out learning according to what had been planned using the problem-based learning model in an outdoor study setting; several teachers as observers observed student activities during learning and discussions about students during learning and discussed solutions for further learning. While in the control class, it was carried out through several different stages from the experimental class, making instruments and teaching modules for the implementation of previously planned research, consulting with related teachers and supervisors regarding the instruments and teaching modules used, implementing learning by the teaching modules that had been prepared. Furthermore, a posttest was given on science learning outcomes in the experimental and control classes, and a learning motivation questionnaire was given. Data on students' science learning outcomes were obtained through the test method. The question grid compiled in this study was the instrument grid used to measure science knowledge competency in fourth-grade students in the cognitive domains C1 to C4, C1 (remembering), C2 (understanding), C3 (analyzing), and C4 (applying). Student learning motivation data were collected using the non-test method. The test used a questionnaire on students' learning motivation consisting of 40 items, and the test used an objective multiple-choice test instrument consisting of 40 questions. The questionnaire outline compiled in this study is an instrument outline used to measure the motivation of fourth-grade students. The outline of students' learning motivation and science learning outcomes are listed in Table 1, and Table 2.

Table 1. Learning Motivation Grid

Measured Aspects	Indicator
Learning Motivation	Having a passion and desire to succeed
	Having perseverance and tenacity in learning
	Having hopes and ideals for the future
	Having fun learning independently and in groups
	Following the learning process in an orderly and conducive manner

Table 2. Science Learning Outcomes Grid

Learning Outcomes	Learning Achievement Indicators	Cognitive Level	Dimensions of Knowledge
Identifying body parts of plants and their functions.	Mentioning the parts of the plant body	C1	K1
	Identifying the parts and types of plant bodies	C2	K2
Explaining the process of plants obtaining food and its benefits for humans	Determining the types of roots, stems, leaves, flowers, or seeds in the fruit of plants	C3	K2
	Finding statements that match the parts and reproduction of plants	C4	K2
Understanding plant reproduction in various ways, such as vegetative and generative reproduction.	Classifying the concept of the relationship between the shape and function of the plant body	C3	K2
	Explaining the relationship between the shape and function of plant body parts	C4	K4
Conducting observations on plants and being able to record	Analyzing the relationship between the shape, function, and reproduction of plants		
	Explaining the types of plant body parts and plant reproduction	C2	K2
Conducting experiments on the process of photosynthesis and recording the results of observations	Analyzing the process of photosynthesis in plants	C4	K3

In the final stage, data analysis of student learning motivation and knowledge competency was carried out. The statistical analysis techniques used to test this research were the ANOVA and MANOVA tests. Data analysis was carried out with the assistance of the IBM SPSS25 for Windows applications. Before conducting ANOVA and MANOVA, a prerequisite analysis test was carried out first, including a normality test for data distribution consisting of a univariate and multivariate normality test. Then, the homogeneity test of variance included a homogeneity test of the variance-covariance matrix. As well as a multicollinearity test between dependent variables. Data that had passed the prerequisite test were then subjected to a hypothesis test.

3. RESULT AND DISCUSSION

Result

The study results indicate that the problem-based learning model in the outdoor study setting influences students' motivation and science learning outcomes simultaneously and partially. This study has three groups of data: data from the analysis of students' learning motivation and science knowledge competencies with Manova, data from the analysis of students' learning motivation with Anava A, data from the analysis of students' science knowledge competencies with Anava A, and the results of the analysis of students' curiosity are presented in Table 3.

Table 3. Results of the analysis of student learning motivation and science knowledge competency using Manova

Effect		Value	F	Hypothesis df	Error df	Sig.
Model	Pillai's Trace	0,441	24,496[b]	2,000	62,000	0,000
	Wilks' Lambda	0,559	24,496[b]	2,000	62,000	0,000
	Hotelling's Trace	0,790	24,496[b]	2,000	62,000	0,000
	Roy's Largest Root	0,790	24,496[b]	2,000	62,000	0,000

Based on the results of the MANOVA analysis in Table 3, the sig. Score for Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root is smaller than 0.05, which is 0.0000. Thus, H0 is rejected, and H1 is accepted. Thus, the problem-based learning model in the outdoor study setting simultaneously influences fourth-grade students' motivation and science learning outcomes. The analysis results of student learning motivation are presented in Table 4.

Table 4. Results of the analysis of student learning motivation using Anova A.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Learning model	Learning Motivation	693.157	1	693.157	19.875	0.000

Based on the results of the analysis in Table 4, the sig. Score is 0.0001, which is smaller than 0.05. So H0 is rejected, and H1 is accepted. So, the problem-based learning model influences the learning motivation of fourth-grade students in the outdoor study setting. Furthermore, a significant analysis of the difference in the average value of student learning motivation between the experimental and control groups is presented. The estimated average value (μ) of student learning motivation in the experimental and control groups is shown in Table 5.

Table 5. Estimated Average Value of Students' Learning Motivation

Dependent Variable	Group	μ	μ (i) - μ (j)	Std. Error
Student Learning Motivation	Experiment	85.583	6.532*	1.465
	Control	79.051	-6.532 *	1.465

Based on Table 5, the significance of the difference in the average value of students' learning motivation in the experimental and control groups was analyzed using the Least Significant Difference (LSD) method. For a significance level of 5% (p = 0.05), the number of samples of the problem-based learning group in the outdoor study setting and the conventional learning model was 32 and 33 students, respectively, and the total number of samples (N) was 65 students, the number of model groups (a) was 2, obtained ttable = t(0.025;63) = 2.296. Using the statistical value of tTable and MSE = 34.875 for the dependent variable, Learning Motivation, the rejection value limit (LSD) was 3.338. From Table 4.12, it can be seen that the value of μ(i) - μ(j) = 6.532, the value is greater than the rejection limit of 3.338 [(μ(i) - μ(j) > LSD)], this means that the average value of student learning motivation between the problem-based learning group in the outdoor study setting and the conventional learning model is significantly different at a significance level of 5%. Thus, it can be said that the motivation of students who participate in learning with problem-based learning in the outdoor study setting is higher than that of students who study with the conventional learning model. The analysis results of students' science learning outcomes are presented in Table 6.

Table 6. Results of the analysis of students' science learning outcomes using Anova A.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Learning model	Science Learning Outcomes	2622.562	1	2622.562	49.488	0.000

Based on the analysis results in Table 6, the sig. score is 0.0001, which is smaller than 0.05. So H0 is rejected, and H1 is accepted. So, the problem-based learning model in the outdoor study setting influences

the science learning outcomes of fourth-grade students. Furthermore, a significant analysis of the differences in the average value of students' science learning outcomes between the experimental and control groups is presented. The estimated average value (μ) of students' science learning outcomes in the experimental and control groups is shown in Table 7.

Table 7. Estimated Average Value of Students' Science Learning Outcomes

Dependent Variable	Group	μ	μ (i) - μ (j)	Std. Error
Science Learning Outcomes	Experiment	85.937	12.705*	1.806
	Control	73.232	-12.705*	1.806

Based on Table 7, the significance of the difference in the average value of the science learning outcomes of students in the experimental and control groups was analyzed using the Least Significant Difference (LSD) method. For a significance level of 5% (p = 0.05), the number of samples of the problem-based learning group and the conventional learning model was 32 and 33 students, respectively. The total number of samples (N) was 65 students, the number of model groups (a) was 2, obtained ttable = t(0.025;63) = 2.296. Using the statistical value of ttable with MSE = 52.994 for the dependent variable of learning outcomes, the rejection value limit (LSD) was 4.114. From Table 4.14, it can be seen that the value of μ(i) - μ(j) = 12.705. This value is greater than the rejection limit of 4.114 [(μ(i) – μ(j)) > LSD]. This means that the average value of students' science learning outcomes between groups studying with the problem-based learning model in outdoor study settings and conventional learning models differ significantly at a significance level of 5%. Thus, it can be said that the science learning outcomes of students who participate in problem-based learning in outdoor study settings are better than those of students who study with conventional learning models.

Discussion

This study found an influence of the problem-based learning model in the outdoor study setting on science learning outcomes and student learning motivation. The problem-based learning model in the outdoor study setting is a learning process that can create a pleasant learning atmosphere for students because learning outside the classroom can introduce students directly to objects or things in the classroom environment as a source of student learning (Khomsatun et al., 2023). The problem-based learning model in an outdoor study setting allows students to be involved in solving real problems that are relevant to the real world. This can increase the relevance of science material and student involvement in learning, increasing students' motivation and learning outcomes (Ansya, 2023). The problem-based learning model in outdoor study settings uses problems as the initial step in collecting and integrating new knowledge based on experience and real activities (S. Wahyuni, 2019). Problem-based learning is a method that uses problems as the first step in collecting and integrating new knowledge based on experiences in real activities (Baharuddin, 2021; Pujiastuti, 2021). The problems given in learning are related to the student's real world, so students will be directly involved in finding a solution to the problem (Hotimah, 2020).

The problem-based learning model is appropriate if students directly understand real-life problems and can find solutions that can be applied through learning outside the classroom (outdoor study). The problem-based learning model constructed from constructivist learning principles can foster values intended to be built into soft skills such as problem-solving, creativity, innovation, teamwork, communication, and presentation skills. When students succeed in finding solutions or producing deep understanding, their sense of achievement can increase their motivation to continue learning (Sholihah & Pertiwi, 2019). Students must discover, analyze, and understand the concepts involved in the given problem (Pramestika et al., 2020; Wulandari, 2020). This process can deepen students' understanding of scientific concepts in science learning. The problem-based learning model in outdoor study settings also links problems to scientific concepts students must master (Santika et al., 2022). The problem-based learning model in outdoor study settings encourages students to develop analytical, reasoning, and problem-solving skills; these are important skills in science learning (Larasati, 2023). Problem-based learning involves students solving problems through the stages of the scientific method so that students can learn knowledge related to the problem and, at the same time, have the skills to solve problems (Saputri, 2020; Sitompul, 2021). When students see a direct connection between the concepts and real-life problems, they tend to be more actively engaged and strive to understand better the concepts that can be used in everyday life situations, which can deepen students' understanding and learning outcomes. Learning outcomes include cognitive, affective, and psychomotor abilities (Frianto et al., 2018; Magdalena et al., 2021). An interesting learning process is needed for students in terms of cognitive, affective, and psychomotor aspects by using a

learning model appropriate to students' interests and characteristics so that the learning process can run optimally in improving science learning outcomes to improve students' science learning outcomes (Marta et al., 2020; Salombe & Harjono, 2022). Learning with the problem-based learning model in an outdoor study setting involves students directly with the surrounding environment, making it easier for students to understand that it can help foster learning motivation and science learning outcomes. Learning will be more enjoyable because students solve problems directly in everyday life (Puspitasari, 2019). This means that the problem-based learning model in an outdoor study setting positively influences students' science learning outcomes compared to conventional learning models.

The problem-based learning model in an outdoor study setting is a learning process that can create a pleasant learning atmosphere for students because learning outside the classroom can introduce students directly to objects or things in the classroom environment as learning resources, thus having an impact on students' ability to construct and discover their knowledge which has an impact on learning outcomes (Mantek et al., 2019). The problem-based learning model in the outdoor study setting allows students to express their aspirations and ideas to solve the problems that have been determined so that students must explore various sources outside the classroom. Student-centered learning facilitates activities that lead to collaboration, problem-based learning, technology integration, and discussions between students and educators about learning that greatly help increase students' learning motivation (Jaya, 2023). The problem-based learning model in the outdoor study setting directs students to be able to solve problems and emphasizes contextual learning in complex ways, such as giving students the freedom to explore and plan learning activities collaboratively to solve contextual problems outside or around the classroom environment (Laksmi & Suniasih, 2021; Wati, 2022).

Collaboration in problem-based learning model groups in outdoor study settings can create positive social interactions. In the problem-based learning model in outdoor study settings, educators direct students to develop scientific discovery skills, students can exchange opinions through discussions, and students can try their practicums and find their concepts (Mantek et al., 2019; Ulfa, 2019). Students' learning motivation can be developed through science learning. Students work together in discussion groups to discuss and solve problems based on students' real lives (Mikran et al., 2018; N. K. D. Wahyuni et al., 2021). Learning motivation is an important element for the success of the learning process because learning motivation can create an active learning situation so that the learning process can be centered on students (Beddu, 2019; Semara & Agung, 2021). The environment also plays an important role in the growth and development of students in following the learning process. Utilizing the environment as a learning resource can make learning more enjoyable. Learning in the environment can foster creativity, initiative, independence, and cooperation and increase interest in learning (Djajadi, 2019; Kuswanto et al., 2022). Active student involvement in the learning process can help students build better understanding because students have to search for, examine, and formulate solutions to problems related to science concepts. It can also help students understand science concepts that can be applied in real life.

This finding is reinforced by previous research stating that the influence of the problem-based learning model on student learning outcomes in the material on identifying the properties of spatial shapes in grade five obtained results, that a good learning model can improve students' mathematics learning outcomes (Nofziarni et al., 2019). Research by testing the Problem-Based Learning (PBL) model's influence on the science learning outcomes of fifth-grade students on the water cycle material shows that the problem-based learning model influences science learning outcomes (Zulfa et al., 2023). The study aimed to determine the effect of the problem-based learning model on students' learning motivation; it was found that it affected students' learning motivation, which decreased due to the impact of the COVID-19 pandemic (Sukmana & Amalia, 2021). Furthermore, the research also found that the problem-based learning model influences students' learning motivation (Pangesti et al., 2020). From the results of this study, teachers, as implementers of education in schools, can apply the problem-based learning model in outdoor study settings to science content to improve student learning outcomes and learning motivation. However, in its implementation, there are obstacles to class conditioning for students carried out outside the classroom, which causes students to be less orderly. This is certainly an input for future teachers to condition the class well when implementing this model.

4. CONCLUSION

Implementation of problem-based learning model in outdoor study setting on learning motivation and science learning outcomes. This is because the problem-based learning model in outdoor study settings can increase activeness, self-confidence, learning motivation, students' ability to work independently or in groups in solving problems, and students can be actively involved in the learning process. This provides an opportunity for students to improve science learning outcomes. The problem-based learning model in

outdoor study settings can also be a solution for teachers in creating an interesting learning process for students.

5. REFERENCES

Ansya, Y. A. (2023). Upaya Meningkatkan Minat dan Prestasi Belajar Siswa Kelas IV Sekolah Dasar pada Pembelajaran IPA Menggunakan Strategi PjBL (Project-Based Learning). *Jurnal Ilmu Manajemen Dan Pendidikan*, *3*(1), 43–52.

Arini, W., & Lovisia, E. (2019). Respon Siswa Terhadap Media Pembelajaran Alat Pirolisis Sampah Plastik Berbasis Lingkungan Di SMP Kabupaten Musi Rawas. *Thabiea: Journal of Natural Science Teaching*, *2*(2), 95–104.

Asfuri, A. (2020). Implementasi Pembelajaran Door to Door Pada Perkembangan Psikologi Belajar Anak di TKIT Raudlotul Mu'minin. *IJIP: Indonesian Journal of Islamic Psychology*, *2*(1), 84–111. https://doi.org/10.18326/ijip.v2i1.84-111.

Aswarliansyah, A. (2020). Pengembangan Lembar Kerja Siswa Berbasis Kontekstual untuk Meningkatkan Hasil Belajar Matematika di Sekolah Dasar. *Jurnal Basicedu*, *4*(4), 1134–1141. https://doi.org/10.31004/basicedu.v4i4.509.

Atminingsih, D., Wijayanti, A., & Ardiyanto, A. (2019). Keefektifan Model Pembelajaran PBL Media Audio Visual Terhadap Hasil Belajar IPA Kelas III SDN Baturagung. *Mimbar PGSD Undiksha*, *7*(2). https://doi.org/10.23887/jjpgsd.v7i2.17560.

Awaluddin, R., & Setiyadi, M. W. (2023). Pengaruh Metode Pembelajaran Outdoor Learning Berbentuk Jelajah Lingkungan Terhadap Motivasi dan Hasil Belajar Siswa. *Jurnal Genta Mulia*, *14*(1). https://doi.org/10.61290/gm.v14i1.420.

Baharuddin, M. R. (2021). Adaptasi Kurikulum Merdeka Belajar Kampus Merdeka (Fokus: Model MBKM Program Studi). *Jurnal Studi Guru dan Pembelajaran*, *4*(1). https://doi.org/10.30605/jsgp.4.1.2021.591.

Baskara, G. W., & Yudiana, K. (2023). Tes Tertulis Berbasis HOTS pada Pembelajaran IPA Menggunakan Google Form Siswa Kelas IV SD. *Mimbar PGSD Undiksha*, *9*(3), 416–423. https://doi.org/10.23887/jjpgsd.v9i3.39223.

Beddu, S. (2019). Implementasi Pembelajaran Higher Order Thinking Skills (HOTS) Terhadap Hasil Belajar Peserta Didik. *Jurnal Pemikiran Dan Pengembangan Pembelajaran*, *1*(3), 71–84.

Bendriyanti, R. P., Dewi, C., & Nurhasanah, I. (2021). Manajemen Pembelajaran Berdiferensiasi Dalam Meningkatkan Kualitas Belajar Siswa. *Pendidikan*, *6*(2), 70–74.

Devi, P. S., & Bayu, G. W. (2020). Berpikir Kritis dan Hasil Belajar IPA Melalui Pembelajaran Problem Based Learning Berbantuan Media Visual. *MIMBAR PGSD Undiksha*, *8*(2), 238–252. https://doi.org/10.23887/jjpgsd.v8i2.26525.

Djajadi, M. (2019). The Use of Outdoor Study Methods in Physics Kinematics Learning (A Classroom Action Research). *Jurnal Pendidikan Fisika*, *7*(2), 151–172. https://doi.org/10.26618/jpf.v7i2.2070.

Frianto, O., Relmasira, S. C., & Hardini, A. T. A. (2018). Meningkatkan Kemampuan Pemecahan Masalah Matematika melalui Penerapan Model Pembelajaran Problem Based Learning (PBL) berbantuan Media Realia pada Siswa Kelas IV SD. *International Journal of Elementary Education*, *2*(4), 348. https://doi.org/10.23887/ijee.v2i4.16115.

Hotimah, H. (2020). Penerapan Metode Pembelajaran Problem Based Learning Dalam Meningkatkan Kemampuan Bercerita Pada Siswa Sekolah Dasar. *Jurnal Edukasi*, *7*(2), 5–11. https://doi.org/10.19184/jukasi.v7i3.21599.

Irwandi, I., & Fajeriadi, H. (2020). Pemanfaatan Lingkungan Sebagai Sumber Belajar untuk Meningkatkan Minat dan Hasil Belajar Siswa SMA di Kawasan Pesisir, Kalimantan Selatan. *BIO-INOVED: Jurnal Biologi-Inovasi Pendidikan*, *1*(2), 66–73.

Izzah, K. H., & Azizah, M. (2019). Analisis Kemampuan Penalaran Siswa dalam Pemecahan Masalah Matematika Siswa Kelas IV. *Indonesian Journal of Educational Research and Review*, *2*(2), 210–218. https://doi.org/10.23887/ijerr.v2i2.17629.

Jaya, P. A. E. S. (2023). Penerapan Model Pembelajaran Flipped Classroom dengan Integrasi Diferensiasi Produk untuk Meningkatkan Aktivitas dan Hasil Belajar Ekonomi Siswa Kelas XII IPS 1 SMA Negeri 2 Busungbiu. *Ekuitas: Jurnal Pendidikan Ekonomi*, *11*(1). https://doi.org/10.23887/ekuitas.v11i1.63595.

Khomsatun, N., Solehuddin, M., & Mulyadi, M. (2023). Implementasi Profil Pelajar Pancasila dalam Pembelajaran PAI Kelas X di MAN 2 Gresik. *Risda: Jurnal Pemikiran Dan Pendidikan Islam*, *7*(1), 14–42. https://doi.org/10.59355/risda.v7i1.103.

Kusnandar, D. (2019). Pengaruh Model Problem Based Learning terhadap Hasil Belajar Kognitif dan

Motivasi Belajar IPA. *MADRASCIENCE: Jurnal Pendidikan Islam, Sains, Sosial, Dan Budaya*, *1*(1), 17–30.
Kuswanto, K., Usmanto, H., Simaremare, T. P., & Anderson, I. (2022). Penerapan Model Problem Based Learning untuk Meningkatkan Minat Belajar Pancasila pada Mahasiswa PPKn Universitas Jambi. *Indonesian Journal of Educational Science (IJES)*, *4*(2), 121–130. https://doi.org/10.31605/ijes.v4i2.1508.
Laksmi, N. L. P. A., & Suniasih, N. W. (2021). Pengembangan Media Pembelajaran E-Comic Berbasis Problem Based Learning Materi Siklus Air pada Muatan IPA. *Jurnal Ilmiah Pendidikan Dan Pembelajaran*, *5*(1), 56–64. https://doi.org/10.23887/jipp.v5i1.32911.
Magdalena, I, Hidayah, A., & Safitri, T. (2021). Analisis Kemampuan Peserta Didik Pada Ranah Kognitif, Afektif, Psikomotorik Siswa Kelas II B SDN Kunciran 5 Tangerang. *Nusantara*, *3*(1), 48–62.
Magdalena, Ina, Afianti[2], N. A., & Yanti, A. A. (2020). Penilaian Hasil Belajar Siswa Dengan Kurikulum 2013 Di Sd Islam Asysyakirin. *Jurnal Pendidikan dan Dakwah*, *2*(3), 466–476.
Mantek, M., Zebua, L. I., & Sujarta, P. (2019). Penerapan Model Problem Based Learning (PBL) Untuk Meningkatkan Penguasaan Konsep Materi Keanekaragaman Hayati. *Jurnal Education and Development*, *7*(3), 126. https://doi.org/10.37081/ed.v7i3.915.
Mardani, N. K., Atmadja, N. B., & Suastika, I. N. (2021). Pengaruh Model Pembelajaran Problem Based Learning (PBL) terhadap Motivasi dan Hasil Belajar IPS. *Jurnal Pendidikan IPS Indonesia*, *5*(1), 55–6. https://doi.org/10.23887/pips.v5i1.272.
Marta, H., Fitria, Y., Hadiyanto, H., & Zikri, A. (2020). Penerapan Pendekatan Contextual Teaching and Learning pada Pembelajaran IPA untuk Meningkatkan Hasil Belajar dan Motivasi Belajar Siswa Sekolah Dasar. *Jurnal Basicedu*, *4*(1), 149–157. https://doi.org/10.31004/basicedu.v4i1.334.
Mikran, M., Pasaribu, M., & Darmadi, I. W. (2018). Penerapan Model Pembelajaran Kooperatif Make A Match untuk Meningkatkan Hasil Belajar Siswa Kelas VIIA SMP Negeri 1 Tomini Pada Konsep Gerak. *JPFT (Jurnal Pendidikan Fisika Tadulako Online)*, *2*(2), 9–16.
Nasution, N. S. (2020). Pembelajaran Outdoor Dalam Meningkatkan Hasil Belajar Ekosistem Dan Penanaman Karakter Cinta Lingkungan Pada Siswa Smp Negeri 1 Labuhan Deli. *Serunai: Jurnal Ilmiah Ilmu Pendidikan*, *6*(1), 15–28. https://doi.org/10.37755/sjip.v6i1.285.
Nofziarni, A., Hadiyanto, H., Fitria, Y., & Bentri, A. (2019). Pengaruh Penggunaan Model Problem Based Learning (Pbl) Terhadap Hasil Belajar Siswa Di Sekolah Dasar. *Jurnal Basicedu*, *3*(4), 2016–2024. https://doi.org/10.31004/basicedu.v3i4.244.
Nomleni, F. T., & Manu, T. S. N. (2018). Pengembangan media audio visual dan alat peraga dalam meningkatkan pemahaman konsep dan pemecahan masalah. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, *8*(3), 219–230. https://doi.org/10.24246/j.js.2018.v8.i3.p219-230.
Okpatrioka, O., & Nusantari, A. (2022). Penerapan Metode Eksperimen Pada Mata Pelajaran IPA Materi Sifat Cahaya Sekolah Dasar. *Educenter: Jurnal Ilmiah Pendidikan*, *1*(3), 174–183. https://doi.org/10.55904/educenter.v1i3.65..
Pangesti, W. A., Fanani, A., & Prastyo, D. (2020). Pengaruh Model Project Based Learning Terhadap Motivasi Belajar Siswa. *Buana Pendidikan: Jurnal Fakultas Keguruan Dan Ilmu Pendidikan Unipa Surabaya*, *16*(30), 27–32. https://doi.org/10.36456/bp.vol16.no30s.a2753.
Pramestika, N. P. D., Wulandari, I. G. A. A., & Sujana, I. W. (2020). Enhancement of Mathematics Critical Thinking Skills through Problem Based Learning Assisted with Concrete Media. *Journal of Education Technology*, *4*(3), 254. https://doi.org/10.23887/jet.v4i3.25552.
Pratiwi, B., & Hapsari, K. P. (2020). Kemampuan Berpikir Tingkat Tinggi dalam Pemanfaatan Youtube sebagai Media Pembelajaran Bahasa Indonesia. *Jurnal Ilmiah Sekolah Dasar*, *4*(2), 282–289. https://doi.org/10.23887/jisd.v4i2.24238.
Pujiastuti, I. (2021). Impementasi Project Based Learning Dalam Pembelajaran Abad 21 Pada Mata Pelajaran Geografi Kelas XI IPS SMA Nasional 3 Bahasa Putera Harapan Purwokerto. *Proceedings Series on Social Sciences & Humanities*, *1*, 1–13. https://doi.org/10.30595/pssh.v1i.66.
Puspitasari, A. D. (2019). Penerapan Media Pembelajaran Fisika Menggunakan Modul Cetak dan Modul Elektronik Pada Siswa SMA. *JPF (Jurnal Pendidikan Fisika) Universitas Islam Negeri Alauddin Makassar*, *7*(1), 17–25. https://doi.org/10.24252/jpf.v7i1.7155.
Salombe, Y. S., & Harjono, N. (2022). Efektivitas Model Problem Based Learning dan Discovery Learning dalam Meningkatkan Kemampuan Berpikir Kritis Siswa Kelas 5 SD pada Pembelajaran Tematik. *JIIP - Jurnal Ilmiah Ilmu Pendidikan*, *5*(11), 4597–4702. https://doi.org/10.54371/jiip.v5i11.1110.
Santika, I. G. N., Suastra, I. W., & Arnyana, I. B. P. (2022). Membentuk karakter peduli lingkungan pada siswa sekolah dasar melalui pembelajaran ipa. *Jurnal Education and Development*, *10*(1). https://doi.org/10.37081/ed.v10i1.3382.
Saputri, M. A. (2020). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Kemampuan Berfikir Kritis Siswa Kelas V Sekolah Dasar. *Jurnal Pendidikan Dan Konseling (JPDK)*, *2*(1),

92–98. https://doi.org/10.31004/jpdk.v2i1.602.
Semara, T. A., & Agung, A. A. G. (2021). Pengembangan Video Animasi pada Muatan Pelajaran IPA Kelas IV Sekolah Dasar. *Mimbar Ilmu*, *26*(1), 99. https://doi.org/10.23887/mi.v26i1.32104.
Sholihah, F. N., & Pertiwi, N. A. (2019). Penerapan Project Based Learning untuk Meningkatkan Hasil Belajar Mahasiswa pada Matakuliah Dasar-dasar Sains. *Edubiotik: Jurnal Pendidikan, Biologi Dan Terapan*, *4*(2), 68–74. https://doi.org/10.33503/ebio.v4i02.448.
Sitompul, N. N. S. (2021). Pengaruh Model Pembelajaran Problem Based Learning terhadap Peningkatan Kemampuan Berpikir Kritis Matematis Siswa SMP Kelas IX. *GAUSS: Jurnal Pendidikan Matematika*, *4*(1), 45–54. https://doi.org/10.30656/GAUSS.V4I1.3129.
Sukmana, I. K., & Amalia, N. (2021). Pengaruh Model Pembelajaran Project Based Learning terhadap Peningkatan Motivasi Belajar dan Kerja Sama Siswa dan Orang Tua di Era Pandemi. *Edukatif: Jurnal Ilmu Pendidikan*, *3*(5), 3163–3172. https://doi.org/10.31004/edukatif.v3i5.1068.
Ulfa, M. (2019). Peningkatan kemampuan berpikir kritis siswa melalui e-modul berbasis PBL pada materi sistem pernapasan. *Jurnal Pendidikan IPA Indonesia*, *8*(1), 91–97.
Wahyuni, N. K. D., Japa, I. G. N., & Astawan, I. G. (2021). Pembelajaran IPA Tema 7 dengan Perangkat Pembelajaran Model Koperatif Tipe Inquiri. *MIMBAR PGSD Undiksha*, *9*(2), 301–312. https://doi.org/10.23887/jjpgsd.v9i3.39644.
Wahyuni, S. (2019). Pengaruh Model Pembelajaran Project Based Learning terhadap Kemampuan Pemahaman Konsep Mahasiswa Mata Kuliah Kapita Selekta Matematika Pendidikan Dasar FKIP UMSU. *EduTech: Jurnal Ilmu Pendidikan Dan Ilmu Sosial*, *5*(1). https://doi.org/10.30596/edutech.v5i1.2982.
Wahyuningtyas, R., & Kristin, F. (2021). Meta Analisis Penerapan Model Pembelajaran Problem Based Learning dalam Meningkatkan Motivasi Belajar. *Mimbar PGSD Undiksha*, *9*(1), 49–55. https://doi.org/10.23887/jjpgsd.v9i1.32676.
Wati, M. (2022). Pengaruh Model Pembelajaran Problem Based Learning Berbantuan Media Mobile Learning Terhadap Kemampuan Kolaborasi Matematika Siswa Kelas IV SD. *Indonesian Journal of Educational Science (IJES)*, *5*(1), 56–64. https://doi.org/10.31605/ijes.v5i1.1834.
Wiguna, I. K. W., & Tristaningrat, M. A. N. (2022). Langkah Mempercepat Perkembangan Kurikulum Merdeka Belajar. *Edukasi: Jurnal Pendidikan Dasar*, *3*(1), 17. https://doi.org/10.55115/edukasi.v3i1.2296.
Wulandari, A. (2020). Implementation of the 2013 Curriculum Based on a Scientific Approach (Case Study at SD Cluster II Kintamani). *International Journal of Elementary Education*, *4*(3), 422. https://doi.org/10.23887/ijee.v4i3.28172.
Zakiah, N. E., & Fajriadi, D. (2020). Management of authentic assessment in mathematics lessons to develop 4C skills. *Journal of Physics: Conference Series*, *1613*(1). https://doi.org/10.1088/1742-6596/1613/1/012050.
Zulfa, T., Tursinawati, T., & Darnius, S. (2023). Pengaruh Model Problem Based Learning (PBL) terhadap Hasil Belajar IPA Siswa di Sekolah Dasar. *Jurnal Basicedu*, *7*(4), 2098–2107. https://doi.org/10.31004/basicedu.v7i4.5451.