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THE EFFECT OF PROJECT-BASED LEARNING MODELS ON SCIENCE LEARNING OUTCOMES OF FIFTH GRADE STUDENTS

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ABSTRAK

Penelitian ini bertujuan untuk mengetahuiPengaruh Model Pembelajaran Project Based Learning Terhadap Hasil Belajar Ipa Siswa Kelas V Uptd Sd Negeri 124385. Desain penelitian yang dilaksanakan adalah metode Pre-Experimental Designs. Dalam penelitian ini yang menjadi populasi adalah seluruh siswa kelas V UPTD SD Negeri 124385 Pematangsiantar. Pada penelitian ini, peneliti memilih menggunakan teknik pengambilan sampel dengan Total Sampling Berdasarkan hasil penelitian dan pembahasan dapat disimpulkan bahwa hasil kajian penelitian yang telah diseleksi demgan kriteria yang telah ditentukan bahwa berdasarkan hasil penelitian ada pengaruh model project based learning terhadap hasil belajar siswa diperoleh nilai pretest 48.40 dan nilai posttest 83.20 yang artinya terdapat pengaruh model project based learning pada Pembelajaran 1-2 Tema 3 Subtema 1 Bagaimana Tubuh Mengolah Makanan di Kelas V UPTD SD Negeri 124385 Pematangsiantar. Dapat disimpulkan bahwa dengan penggunaan model Project Based Learning, efektif untuk meningkatkan hasil belajar peserta didik. Penjelasan ini menunjukan bahwa Ha diterima dan H0 ditolak artinya terdapat Pengaruh Model Project Based Learning terhadap hasil belajar siswa pada subtema 1 pembelajaran 1 dan 2 dikelas V UPTD SD Negeri 124385 Pematangsiantar T.A 2024/2025.

Keywords:
Learning Model, Project Based Learning, Learning Outcomes

ABSTRACT

This study aims to determine the Effect of Project Based Learning Model on Science Learning Outcomes of Fifth Grade Students of UPTD Sd Negeri 124385. The research design implemented is the Pre-Experimental Designs method. In this study, the population is all fifth grade students of UPTD SD Negeri 124385 Pematangsiantar. In this study, researchers chose to use a sampling technique with Total Sampling Based on the results of the research and discussion, it can be concluded that the results of the research study that have been selected with predetermined criteria that based on the results of the study there is an influence of the project based learning model on student learning outcomes obtained a pretest value of 48.40 and a posttest value of 83.20 which means there is an influence of the project based learning model on Learning 1-2 Theme 3 Subtheme 1 How the Body Processes Food in Fifth Grade UPTD SD Negeri 124385 Pematangsiantar. It can be concluded that by using the Project Based Learning model, it is effective to improve student learning outcomes. This explanation shows that Ha is accepted and H0 is rejected, meaning that there is an influence of the Project Based Learning Model on student learning outcomes in sub-theme 1 of learning 1 and 2 in class V of UPTD SD Negeri 124385 Pematangsiantar in the 2024/2025 academic year.

1. Introduction

Education is a conscious effort to prepare students through guidance, teaching, and/or training activities for their roles in the future. According to Mulyasa (Kurniawan, Elmunsyah, & Muladi, 2018) , education is a means to prepare human resources for the current and future generations (Ramadianti, 2021) . In principle, education is organized as a process of acculturation and empowerment of students that lasts a lifetime by providing role models, building willpower, and encouraging student creativity in the learning process (Sari, Suryana, Bentri, & Ridwan, 2023) . Therefore, education is referred to as a systematic, gradual and continuous process, which is faithful when new developments occur to improve the quality of its implementation (Pranata, Lyesmaya, & Maula, 2024) .

The essence of education is learning, and good learning outcomes are naturally influenced by how that learning takes place (Kurnia & Muyassaroh, 2021) . Learning is a process of acquiring knowledge and experience that manifests in changes in a person's behavior and ability to behave in their environment (Kusadi, Sriartha, & Kertih, 2020) . For students, learning is a primary task because they are the subjects who attend school and always participate in the learning process in class (Irsyad & Anggraini, 2023) . Learning in elementary school children is a concrete operational learning stage, where the learning process of students should interact with real objects or events (Abih Gumelar, Maftuh, Hakam, & Budimansyah, 2023) . Specifically in science learning in elementary school, learning must emphasize direct learning in order to develop existing competencies according to Ramadianti (Fatimah & Makki, 2023)

c Learning is a process of interaction between students and educators who use certain models to achieve predetermined goals. Meanwhile, the teaching and learning process is the main school activity in which students learn and teachers teach in an interactive context and there is educational interaction between teachers and students, so that there are changes in students, whether changes in the level of knowledge, understanding and skills or attitudes. Through the teaching process, educational goals will be achieved not only in terms of forming changes in behavior in students, but also increasing the knowledge that exists in students. However, currently what is happening is that the education that children receive is still relatively using conventional strategies or models in the learning process which results in low student learning outcomes (Kultsum, Defianty, & Nadrah, 2022) .

Based on observations during the Field Experience Practice (PPL) activities conducted during the learning process in grade V of elementary school from October 16, 2023 to January 13, 2024, it was found that first, students lacked interest or motivation in learning in class. Second, there was a lack of student curiosity, students did not make an effort to learn more deeply and broadly about the material being studied, so students only captured what they heard from the teacher when explaining. Third, there was a lack

of creativity in the learning process in class. The learning process in Indonesia is more dominated by the teacher so that students are less active and motivated in learning. (Dr. Rian Vebrianto, 2021) .

Based on an interview with a fifth-grade teacher at SD Negeri 124385 Pematangsiantar on July 25, 2024, the learning outcomes of fifth-grade students in science learning are still not optimal or are classified as low because students are less active during teaching and learning activities, students are also often sleepy, too often ask for permission to leave the class so that they miss some of the material explained by the teacher. Another thing that causes low learning outcomes for fifth-grade students is the selection of inappropriate learning methods. (Abdin, Langi, & Wattimena, 2022) . In explaining learning materials, teachers often use the story method because teachers assume that by telling stories, students can understand the material, even though this causes students to often feel bored and even feel sleepy, not infrequently students actually tell their friends because they feel the teaching and learning process is less interesting, this causes students to become accustomed to just coming, sitting, taking notes and rarely asking things they don't understand so that students don't master the material well. This reality has been going on for quite a long time so it is quite difficult for students to achieve the desired learning outcomes (Pangesti, Fanani, & Prastyo, 2020) .

Based on the explanation above, it can be concluded that the lecture and storytelling methods used by teachers are not appropriate for students because they are monotonous and boring, so that students just come and sit and write. The results of my observations show that I, as a researcher, want to offer the use of the Project Based Learning model to be able to train students to find solutions to student problems regarding learning materials so that they are able to achieve good learning outcomes and exceed the Minimum Completion Criteria (KKM). The minimum completion criteria (KKM) that must be achieved in science subjects is 70. Seeing the low learning outcomes of students in a learning, it can be seen that the learning process that has taken place so far has not provided good results for students . To overcome this problem, new innovations are needed in learning activities, such as using learning models to improve student learning outcomes. A learning model is a series of learning activities that must be carried out by teachers and students so that learning objectives can be achieved effectively and efficiently and can be used together to achieve learning outcomes for students (Manik, Tambunan, & Purba, 2022) .

One such learning model is the Project-Based Learning Model. Using the Project-Based Learning model, the teaching and learning atmosphere becomes more active because it is student-centered. Students can learn directly from their own experiences by using projects as a learning medium. Students can plan, implement their plans, and inform or convey the projects they have created. This creates long-term memory of the results they have learned, which can later influence learning outcomes, especially science learning outcomes in the topic of How the Body Processes Food, which can be achieved well.

According to Samanthis (Abidin, 2020) , the Project-Based Learning Model is a learning model that provides teachers with the opportunity to manage classes by

involving project activities. Where the teacher acts as a facilitator so that students can find answers to leading questions. In this project-based learning model, students are able to explore material using many methods that are meaningful to them. Students are also accustomed to working together. Recording grades is done by measuring, observing and evaluating all learning outcomes, ongoing processes and student activity itself, so that learning resources can be expanded significantly. The use of the Project-Based Learning model has many influences, one example is on the science learning outcomes of students at the elementary school level (Damayanti, Purwaningrum, & Ulya, 2023) .

Based on the background above, the author is interested in studying a deeper understanding with the title; The Influence of the Project Based Learning Model on Science Learning Outcomes in Class V Students of UPTD SD Negeri 124385 Pematangsiantar.

2. Method

The type of research conducted by the researchers was experimental research with a quantitative approach. Sugiyono (Lidwina, Melyani, Rosmaiyadi, & Citroresmi, 2021) explains that the experimental research method can be defined as a research method used to determine the effect of certain treatments on others under controlled conditions. The research design used was a pre-experimental design, in accordance with the limited sample size.

The research design used is a one-group pretest-posttest design. This design only involves one class, namely an experiment that begins with a pretest before being given treatment then a posttest after being given treatment using the Project Based Learning model (Nurfadillah, Yulisma, & Hardi, 2023) . This research will be conducted at the UPTD of SD Negeri 124385 Pematangsiantar which is located at Jl. Sawi No. 2, Kebun Sayur Village, East Siantar District, Pematangsiantar City. The research time is carried out in the odd semester of November in the 2024/2025 Academic Year at SD Negeri 124385 Pematangsiantar.

Population is the entire research subject. According to Sugiyono (2010:117) population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. In this study, the population is all fifth grade students of UPTD SD Negeri 124385 Pematangsiantar (Simbolon, Sitorus, & Simaremare, 2024) .

The research sample is determined by the researcher before conducting the study. According to Sugiyono (Harahap, 2020) , a sample is a subset of the population and its characteristics. If the population is large, it is impossible for the researcher to study everything in the population. The conclusions learned from the sample can be applied to the population (Sukmawati, Imanah, & Rantauni, 2023) .

In this study, the researcher chose to use total sampling as a sampling technique. Total sampling is a sampling technique where the sample size is equal to the population. The reason for using total sampling is because the population size is less than 100. Therefore, the sample size in this study was 20 people within a month. Therefore, the

sample in this study were fourth-grade students of the UPTD SD Negeri 124385 Pematangsiantar.

Data analysis is a technique that involves processing data collected in a study to produce research results. According to Sugiyono (Rismawati, Idawati, & Fitri Yanty Muchtar, 2023), data analysis is the process of systematically searching for and organizing data obtained from interviews, field notes, and other materials so that it can be easily understood and the findings can be communicated to others.

3. Results and Discussion

Research Description

Researchers conducted a study on Monday, April 12-16, 2025, with the sub-theme of how the body processes food. The study aimed to examine the influence of the Project Based Learning model on the learning outcomes of fifth-grade students at the UPTD of SD Negeri 124385 Pematangsiantar. This study was conducted in fifth-grade students with 20 students, consisting of 9 boys and 11 girls (Budiyanti, Mohzana, & Aminah, 2023)

Research Instrument Test Results

This research is a quantitative study conducted in grade V at SD Negeri 124385 Pematangsiantar with a total of 20 students (Fitriyah & Ramadani, 2021) . The data collection technique used in this study was an instrument with multiple-choice questions with four answer options (a, b, c, and d). The questions given during the research had been validated in advance at the UPTD of SD Negeri 122384 Pematangsiantar. After the questions were validated, the research was continued with the implementation of the research in grade V at SD Negeri 124385 Pematangsiantar on theme 3 subtheme 1 learning 1 and 2 "How the Body Processes Food".

Data Analysis Techniques

Normality Test

The normality test aims to assess whether the distribution of data in a data group is normally distributed or not. Normality testing can be done using the Kolmogorov-Smirnov (KS) test. The basis for making decisions regarding normality testing is that if the significance value is > 0.05, the data is normally distributed. The results of the normality test calculation are presented in the following table:

Table 1. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Statistics	Df	Sig.	tatistics	df	Sig.
Pretest	.162	20	.181	.920	20	.101

The table above shows the effect of diorama media on science learning outcomes, with a pretest sig value of 0.181 and a posttest sig value of 0.200. These results indicate a sig value of 0.200>0.05. Therefore, it can be said that the pretest and posttest data used were normally distributed.

Homogeneity Test

Test In this study, a sample test was used to assess the influence of the PROJECT BASED LEARNING model on the learning outcomes of class V students in sub-theme 3 learning 1 UPTD 124385 Pematangsiantar, which can be seen as follows:

Table 2. T-Test Table

Paired Samples Test									
		Paired Differences					t	df	ig. (2-ailed)
		Mean	Std. eviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Posttest - Pretest	3 4,800	11,687	2,623	40,269	29,230	.3,316	19	,000

Based on Table 4.8 above, tcount = 13.316 is obtained with a significance level (2-tailed) of 0.000, significant probability <0.05. t_(count > 〖t〗 _table) = 13.316>1.729, then Ho is rejected and Ha is accepted. The way to determine ttable researchers use t distribution tables with a significance level of 0.05 and db = N-1 = 20-1 = 19, then ttable is obtained 0.05 = 1.729 (Nida Winarti, Maula, Amalia, Pratiwi, & Nandang, 2022) . This explanation shows that there is an influence of the Project based learning model on the learning outcomes of fifth grade students on the subtheme of the human digestive process at UPTD NEGERI 124385 Pematang Siantar.

Research Discussion

The research was conducted in the fifth grade of SD Negeri 124385 Pematangsiantar. Twenty students were used as the research sample. This research involved administering tests and keeping detailed records such as documentation. Before conducting the research, the researcher first conducted an instrument test at the UPTD of SD Negeri 1223845 Pematangsiantar. The sample was 20 students in the fifth grade and were given 30 questions to answer. After conducting the instrument test for the fifth grade students, in the validity test of the 30 questions tested, there were 25 questions that were declared valid and 5 questions that were invalid. Meanwhile, the results of the test reliability test obtained r count = 0.894 which is included in the very high reliability category. Testing the level of difficulty of the 25 questions, there were 8 questions in the easy category, 12 questions in the medium category, 5 questions in the difficult category. Then, the test of the discriminatory power of 30 questions contained 3 questions in the very good category, 12 questions in the good category, 5 questions in the sufficient category, and 5 questions in the poor category (Priyono & Khuriyana, 2020) .

Furthermore, the research was conducted on April 12-16 by providing material to be taught in the form of a lesson plan centered on theme 3 subtheme 1 learning 1 and 2 How the Body Processes Food. The action given first was to conduct a pretest to determine student abilities before conducting the actual research. The average pretest score was

48.40. After analyzing student results on the pretest, the project-based learning model was implemented in the classroom (Fahrezi & Nafia'ah, 2020) . To determine student progress after receiving treatment, students were given a posttest consisting of the same items or questions but with a random system (Gusteti & Neviyarni, 2022) . The average posttest score in grade V was 83.20. Based on the average posttest score, it can be seen that the average posttest score is higher than the average pretest score (Grahito Wicaksono, 2020)

Data analysis was carried out using normality test and homogeneity test. For the normality test using Kolmogorov-Smirnov Test to find out whether the data in this study is normally distributed or not using the SPSS version 21 statistical program. The sig value of the class pre-test and post-test meets the sig value of 0.200>0.05 so that the data can be stated as normally distributed. This explanation shows that there is an influence of the project based learning model on student learning outcomes in theme 3 subtheme 1 learning 1 in grade V of SD Negeri 124385 Pematangsiantar TA 2024/2025. The results of this study are in accordance with previous research conducted by Samosir, et al. (2022) obtained an average pretest value of 66.2 students and an average posttest value of 82.2. Proven in the results of the hypothesis test shows that t count > t table (10.33 > 2.045). So it is concluded that there is an influence of the project based learning model on student learning outcomes in the sub-theme of the importance of healthy food for the body.

4. Conclusion

Based on the results of the research and discussion, it can be concluded that the results of the research study that have been selected with the predetermined criteria that based on the results of the study there is an influence of the project based learning model on student learning outcomes obtained a pretest value of 48.40 and a posttest value of 83.20 which means there is an influence of the project based learning model on Learning 1-2 Theme 3 Subtheme 1 How the Body Processes Food in Class V UPTD SD Negeri 124385 Pematangsiantar. It can be concluded that by using the Project Based Learning model, it is effective in improving student learning outcomes. This explanation shows that Ha is accepted and H0 is rejected, meaning there is an influence of the Project Based Learning Model on student learning outcomes in subtheme 1 learning 1 and 2 in class V UPTD SD Negeri 124385 Pematangsiantar TA 2024/2025.

Suggestion

Based on the conclusions that have been outlined, the researcher provides suggestions for using diorama media as follows:

1. For teachers, using a fun model such as the Project Based Learning model can make learning more enjoyable and spark new enthusiasm for students in participating in the learning process.
2. For students, always get used to having the courage to express opinions and speak in public.
3. For schools, to be able to provide facilities and infrastructure that can support learning to improve student and school achievement.
4. For subsequent researchers, applying the Project Based Learning model in the material

References

Abdin, M., Langi, J. P., & Wattimena, A. (2022). Pengembangan Perangkat Pembelajaran Pendidikan Kewarganegaraan Berbasis Model Project Based Learning. *Prosiding Seminar Nasional Terapan Riset Inovatif (Sentrinov)*, *8*(2), 216–223. Https://Proceeding.Isas.Or.Id/Index.Php/Sentrinov/Article/View/1245

Abidin, Z. (2020). Efektivitas Pembelajaran Berbasis Masalah, Pembelajaran Berbasis Proyek Literasi, Dan Pembelajaran Inkuiri Dalam Meningkatkan Kemampuan Koneksi Matematis. *Profesi Pendidikan Dasar*, *7*(1), 37–52. Https://Doi.Org/10.23917/Ppd.V7i1.10736

Abih Gumelar, Maftuh, B., Hakam, K. A., & Budimansyah, D. (2023). Penerapan Pembelajaran Pendidikan Kewarganegaraan Berbasis Project Citizen Untuk Penguatan Karakter Gotong Royong. *Jurnal Moral Kemasyarakatan*, *8*(1), 37–45. Https://Doi.Org/10.21067/Jmk.V8i1.8318

Budiyanti, F., Mohzana, M., & Aminah, A. (2023). Penerapan Model Pembelajaran Pjbl Dengan Media Audio Visual Untuk Meningkatkan Kemampuan Menulis Teks Diskusi. *Jurnal Kajian Bahasa, Sastra Dan Pengajaran (Kibasp)*, *7*(1), 154–166. Https://Doi.Org/10.31539/Kibasp.V7i1.6875

Damayanti, D., Purwaningrum, J. P., & Ulya, H. (2023). Pengaruh Model Pembelajaran Connected Mathematics Project Terhadap Kemampuan Koneksi Matematis Berbantuan Desmos Pada Siswa Sma Kelas X. *Jipmat*, *8*(2), 163–173. Https://Doi.Org/10.26877/Jipmat.V8i2.15960

Dr. Rian Vebrianto, M. E. L. A. H. S. P. A. H. N. S. P. D. A. S. P. F. S. P. G. A. S. P. (2021). *Bahan Ajar Ipa Berbasis Model Pembelajaran Project Based Learning (Pjbl) Versi Daring*. Cv. Dotplus Publisher.

Fahrezi, I., & Nafia'ah, N. (2020). Meta-Analisis Pengaruh Model Pembelajaran Project Based Learning Terhadap Hasil Belajar Siswa Pada Mata Pelajaran Ipa Sekolah Dasar. *Jurnal Ilmiah Pendidikan Profesi Guru*, *3*(3), 408.

Fatimah, P., & Makki, M. (2023). Pengaruh Model Pembelajaran Project Based Learning (Pjbl) Terhadap Hasil Belajar Matematika. *Journal Of Classroom Action Research*, *5*(Specialissue), 51–57.

Fitriyah, A., & Ramadani, S. D. (2021). Penerapan Metode Project Based Learning. *Journal Of Education*, *3*(1), 7. Https://Doi.Org/10.26737/Jpmi.V1i1.76

Grahito Wicaksono, A. (2020). Penyelenggaraan Pembelajaran Ipa Berbasis Pendekatan Stem Dalam Menyongsong Era Revolusi Industri 4.0. *Lensa (Lentera Sains): Jurnal Pendidikan Ipa*, *10*(1), 54–62. Https://Doi.Org/10.24929/Lensa.V10i1.98

Gusteti, M. U., & Neviyarni, N. (2022). Pembelajaran Berdiferensiasi Pada Pembelajaran Matematika Di Kurikulum Merdeka. *Jurnal Lebesgue : Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika*, *3*(3), 636–646. Https://Doi.Org/10.46306/Lb.V3i3.180

Harahap, T. H. (2020). Pengaruh Model Pembelajaran Connected Mathematics Project (Cmp) Terhadap Kemampuan Engaruh Model Pembelajaran Connected Mathematics Project (Cmp) Terhadap Kemampuan Representasi Matematis. *Jurnal Matheducation Nusantara*, *3*, 31–39.

Irsyad, A. M., & Anggraini, D. (2023). Pengaruh Model Pembelajaran Project Based Learning Terhadap Keterampilan Menulis Teks Berita Siswa Kelas Vii Smp Negeri 2 Pariaman. *Jurnal Pendidikan, Bahasa Dan Budaya*, *2*(2), 114–121.

Kultsum, U., Defianty, M., & Nadrah, N. (2022). The Application Of Project-Based Learning (Pbl) In Teaching English For Specific Purposes (Esp) In Higher Education In Indonesia. *Tarbiya: Journal Of Education In Muslim Society*, *8*(2), 155–166. Https://Doi.Org/10.15408/Tjems.V8i2.25043

Kurnia, I. R., & Muyassaroh, I. (2021). Peningkatan Ecolıteracy Sıswa Dalam Budidaya Tanaman Melalui Project Based Learning Pada Pembelajaran Ips. *Jurnal Elementaria Edukasia*, *4*(1), 80–88.

Kurniawan, H. R., Elmunsyah, H., & Muladi, M. (2018). Perbandingan Penerapan Model Pembelajaran Project Based Learning (Pjbl) Dan Think Pair Share (Tps) Berbantuan Modul Ajar Terhadap Kemandirian Dan Hasil Belajar Rancang Bangun Jaringan. *Jurnal Pendidikan (Teori Dan Praktik)*, *3*(2), 80. Https://Doi.Org/10.26740/Jp.V3n2.P80-85

Kusadi, N. M. R., Sriartha, I. P., & Kertih, I. W. (2020). Model Pembelajaran Project Based Learning Terhadap Keterampilan Sosial Dan Berpikir Kreatif. *Thinking Skills And Creativity Journal*, *3*(1), 18–27. Https://Doi.Org/10.23887/Tscj.V3i1.24661

Lidwina, F. L., Melyani, Rosmaiyadi, & Citroresmi, N. (2021). Penerapan Model Pembelajaran Connected Mathematics Project (Cmp) Dengan Pendekatan Kontekstual Terhadap Kemampuan Penalaran. *Jurnal Pendidikan Matematika*, *4*(2), 1–11.

Manik, Y. V., Tambunan, L. O., & Purba, Y. O. (2022). Pengaruh Model Pembelajaran Connected Mathematics Project Terhadap Kemampuan Koneksi Matematis Siswa Di Smp Negeri 9 Pematangsiantar T.A 2022/2023. *Proximal: Jurnal Penelitian Matematika Dan Pendidikan Matematika*, *4*(1), 118–126.

Nida Winarti, Maula, L. H., Amalia, A. R., Pratiwi, N. L. A., & Nandang. (2022). Penerapan Model Pembelajaran Project Based Learning Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Kelas Iii Sekolah Dasar. *Jurnal Cakrawala Pendas*, *8*(3), 552–563. Https://Doi.Org/10.31949/Jcp.V8i3.2419

Nurfadillah, S., Yulisma, L., & Hardi, E. (2023). Implementasi Model Pembelajaran Project Based Learning (Pjbl) Menggunakan Pola Argumentasi Terhadap Kemampuan Analisis Siswa Pada Mata Pelajaran Ipa. *J-Kip (Jurnal Keguruan Dan Ilmu Pendidikan)*, *4*(3), 832–839. Https://Doi.Org/10.25157/J-Kip.V4i3.11406

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*, *16*(30s), 27–32. Https://Doi.Org/10.36456/Bp.Vol16.No30s.A2753

Pranata, A. Y., Lyesmaya, D., & Maula, L. H. (2024). Pengaruh Model Pembelajaran Project Based Learning Terhadap Kemampuan Berpikir Komputasi Pada Pelajaran Bangun Datar Siswa Kelas V. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *09*(01), 3142–3148.

Priyono, P., & Khuriyana, E. (2020). Akselerasi Peningkatan Kualitas Pendidikan Daerah Tertinggal Melalui Model Pembelajaran Higher Order Thinking Skill (Hots) Di Era Industri 4.0 (Studi Kasus Implemetasi Pilot Project Di Kabupaten Halmahera Barat). *Pancanaka Jurnal Kependudukan, Keluarga Dan Sumber Daya Manusia*, *1*(1), 55–64. Http://Pancanaka.Latbangdjogja.Web.Id/Index.Php/Pancanaka/Article/View/9

Ramadianti, A. A. (2021). Efektivitas Model Pembelajaran Project Based Learning Terhadap

Hasil Belajar Matematika Sekolah Dasar. *Primatika : Jurnal Pendidikan Matematika*, *10*(2), 93–98. Https://Doi.Org/10.30872/Primatika.V10i2.668

Rismawati, Idawati, & Fitri Yanty Muchtar. (2023). Pengaruh Model Project Based Learning (Pjbl) Berbasis Video Terhadap Kemampuan Berpikir Kreatif Pada Pembelajaran Ips Murid Sd Inpres 5/81 Ponre-Ponre Kabupaten Bone. *Jkp: Jurnal Pendidikan Khasanah*, *2*(1), 120–126. Https://Doi.Org/10.58738/Jkp.V2i1.218

Sari, A. M., Suryana, D., Bentri, A., & Ridwan, R. (2023). Efektifitas Model Project Based Learning (Pjbl) Dalam Implementasi Kurikulum Merdeka Di Taman Kanak-Kanak. *Jurnal Basicedu*, *7*(1), 432–440. Https://Doi.Org/10.31004/Basicedu.V7i1.4390

Simbolon, A. E., Sitorus, P. J., & Simaremare, J. A. (2024). Pengaruh Pembelajaran Berdiferensiasi Bermodel Project Based Learning Terhadap Kemampuan Mennulis Naskah Drama Siswa Fase F Di Sma. *Jpss: Jurnal Pendidikan Sang Surya*, *10*(1), 319–331.

Sukmawati, E., Imanah, N. D. N., & Rantauni, D. A. (2023). Implementation And Challenges Of Project-Based Learning Of Steam In The University During The Pandemic: A Systematic Literature Review. *Jinop (Jurnal Inovasi Pembelajaran)*, *9*(1). Https://Doi.Org/10.22219/Jinop.V9i1.25177