https://doi.org/10.60041/jap/v3i1.181
ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

Systematic Literature Review: Project Based Learning Learning Model To Improve Students' Learning Interest In Science Subjects In Elementary Schools

Hikmatul Azizah[1*], Deri Firmansah[2],Yuli Yanti[3]
[1, 2, 3]Pendidikan Guru Madrasah Ibtidaiyah, Universitas Islam Negeri Raden Intan Lampung
*Email: penulis hikmatulazizah099@gmail.com

Received 25/04/2025 ; Revised 04/05/2025; accepted 04/05/2025 ; published 05/05/2025

Abstrak

Rendahnya minat siswa sekolah dasar terhadap mata pelajaran IPA/Sains, yang berakibat pada kurangnya partisipasi aktif dalam pembelajaran dan pencapaian hasil belajar. Penerapan model pembelajaran berbasis proyek atau yang dikenal dengan Project-Based Learning (PjBL) dianggap sebagai salah satu alternatif yang dapat mengatasi masalah tersebut. Pembelajaran sains menjadi menarik dan kontekstual bagi siswa. Tujuan dari penelitian ini adalah untuk melihat bagaimana model PjBL dapat membantu meningkatkan minat siswa terhadap mata pelajaran IPA/Sains di sekolah dasar. Pendekatan Systematic Literature Review (SLR) digunakan dalam penelitian ini, dan teknik pengumpulan data dilakukan melalui Publish or Perish dan Google Scholar. Dari total 200 artikel yang ditemukan, dilakukan proses seleksi berdasarkan kriteria inklusi dan eksklusi, hingga diperoleh 10 artikel yang relevan untuk dianalisis lebih lanjut. Hasil penelitian menunjukkan bahwa penerapan model PjBL secara konsisten mampu meningkatkan minat belajar siswa melalui keterlibatan aktif, pembelajaran kontekstual, dan kolaborasi dalam menyelesaikan proyek. Faktor-faktor yang mendukung keberhasilan PjBL antara lain relevansi proyek dengan kehidupan siswa, penggunaan media pembelajaran yang tepat, dukungan masyarakat, dan perencanaan yang sistematis. Implikasi dari penelitian ini menunjukkan bahwa guru sekolah dasar perlu mempertimbangkan penggunaan model PjBL sebagai strategi pembelajaran utama, terutama pada mata pelajaran sains/ilmu pengetahuan alam, untuk membangun minat belajar yang lebih kuat dan berkelanjutan di kalangan siswa.

Keywords: *Systematic Literature Review, Project Based Learning, Minat Belajar, Sains, Sekolah Dasar*

Abstract

Low interest of elementary school students in science/science subjects, which results in a lack of active participation in learning and achievement of learning outcomes. The application of the project-based learning model, also known as Project-Based Learning (PjBL), is considered an alternative that can address this problem. Science learning becomes interesting and contextual for students. The purpose of this study is to see how the PjBL model helps increase students' interest in science/science subjects in elementary school. The Systematic Literature Review (SLR) approach was used in this study, and data collection techniques were used through Publish or Perish and Google Scholar. From a total of 200 articles found, a selection process was carried out based on inclusion and exclusion criteria, until 10 relevant articles were obtained for further analysis. The results of the study show that the consistent application of the PjBL model is able to increase students' learning interest through active involvement, contextual learning, and collaboration in completing projects. Factors that support the success of PjBL include the relevance of the project to student life, the appropriate use of learning media, community support, and systematic planning. The implications of this study suggest that primary school teachers need to consider the use of the PjBL model as the main learning strategy, especially in science/science subjects, to build a stronger and more sustainable interest in learning among students.

Keywords: Systematic Literature Review, Project Based Learning, Learning Interests, Science, Elementary School

INTRODUCTION

Elementary education is an important foundation in shaping students' character, mindset, and cognitive skills (P. Wati et al., 2024). At this stage, strengthening critical thinking and problem-solving competencies is a priority, especially through Natural Sciences (IPA)

ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

subjects (Manurung & Marini, 2023). However, the results of field observations and various studies show low student interest in science subjects, especially in elementary schools (E. Wati et al., 2022). This low interest in learning has an impact on a less in-depth understanding of concepts, low student activity in learning, and suboptimal learning achievement (Nuralyanti et al., 2023). This problem is reinforced by various study findings showing that the conventional teacher-centered learning approach has not been able to meet the learning needs of students who demand real contexts, direct experiences, and meaningful activities (Astuti et al., 2021). Therefore, the application of a more innovative and contextual learning model is very important. The approach that is considered successful in solving this problem is the project-based learning model. Students are motivated by this model to actively participate in learning activities that aim to improve communication skills, critical thinking, creativity, collaboration, and communication skills.

In the context of the Indonesian education curriculum, the terms Natural Sciences (IPA) and Natural and Social Sciences (IPAS) are used interchangeably depending on the applicable curriculum policy (Sadiah et al., 2024). In the 2013 Curriculum (K13), IPA is presented as a separate subject that focuses on mastering scientific concepts such as physics, biology, and chemistry (Djufri & Ardhian, 2021). However, in the Merdeka Curriculum, IPA is combined with Social Sciences in one integrated subject called IPAS. IPAS uses a cross-disciplinary and thematic approach that aims to improve overall literacy in science and social (Andreani & Gunansyah, 2023). As a result, the term IPA/IPAS is used to refer to all subjects in this study, adjusting to the dynamics of the curriculum used in elementary schools.

According to previous research by Dwi, project-based learning can increase students' interest and engagement in science lessons (Dwi, 2023). Risandy et al., stated that Project Based Learning encourages student engagement through contextual and challenging projects (Risandy et al., 2023). Subagio et al., also found that this model can significantly increase students' desire to learn compared to traditional approaches (Subagio et al., 2021). Meanwhile, R and Atmojo emphasized that Project Based Learning is effective in developing problem-solving skills and increasing students' interest in science materials (R & Atmojo, 2024). However, a more systematic and comprehensive study is still needed to synthesize these findings and provide a complete picture of the effectiveness of Project Based Learning in the context of science/science learning in Elementary Schools.

Based on this background, this study aims to conduct a Systematic Literature Review (SLR) of the application of project-based learning models to improve students' interest in science/science subjects in elementary schools. This study will identify, evaluate, and synthesize the results of previous studies in order to gain a deeper understanding of the benefits, challenges, and effective strategies in implementing Project Based Learning. It is expected that this research will provide significant contributions to the development of learning practices in Elementary Schools, especially on how to make science/science learning more contextual and interesting for students. This study is also intended to be a reference for educators, curriculum developers, and policy makers on how to optimize the use of project-based learning models to increase student interest in science/science subjects in elementary schools.

RESEARCH METHODS

This study aims to find, analyze, and synthesize previous research findings on how effective project-based learning models are in increasing students' interest in science/science subjects in elementary schools. The approach used is the Systematic Literature Review (SLR),

https://doi.org/10.60041/jap/v3i1.181
ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

which was chosen because it provides a systematic, transparent, and comprehensive framework in reviewing relevant literature. Through this method, researchers can critically and structuredly evaluate existing empirical evidence in order to gain a deep understanding of the contributions and challenges of implementing the Project Based Learning model in the context of elementary education.

This research begins with the formulation of several main questions that are the focus of the study, namely: (1) how is the project-based learning model able to increase students' interest in learning science/science subjects at the elementary school level; (2) what factors influence the success of implementing the project-based learning model in this context; and (3) what challenges or problems often arise during the process of implementing the model in the elementary school environment. These three questions are the basis for compiling an analytical framework and selecting relevant literature in the systematic study conducted.

The data collection process was carried out using a number of keywords such as "Project-Based Learning," "Learning Interests," "Science," "Science and Social Sciences," and "Elementary School." Article searches were conducted through the Google Scholar indexed scientific database with a publication period between 2015 and 2025. The inclusion criteria set in this study include: (a) articles discussing the application of project-based learning models in the context of science/science learning in elementary schools; (b) articles published within the last ten years; and (c) articles available in Indonesian or English. On the other hand, articles that do not meet these criteria can be excluded from the analysis if they are considered irrelevant to the focus of the study, are not available in full-text versions, or come from sources that do not have adequate scientific credibility.

From the initial search results, 200 articles were found, then filtered based on abstracts and relevance to 85 articles, and after applying inclusion and exclusion criteria, 10 articles remained for further analysis. The data extraction process was carried out using a synthesis table that included the identity of the study, the methods used, the main findings, and the supporting and inhibiting factors for the implementation of Project Based Learning. Furthermore, the data was analyzed thematically to identify patterns, similarities, and differences in the findings. The results of the study are presented descriptively and systematically in order to provide a complete understanding of the effectiveness of the Project Based Learning learning model in increasing interest in learning science/science in Elementary Schools.

RESULTS AND DISCUSSION

This study began with the identification of 200 articles published between 2015 and 2025 through a comprehensive literature review, which included the process of data collection and screening. After going through a selection stage with the application of inclusion and exclusion criteria, ten relevant articles were selected for analysis. This article discusses how to use a project-based learning model to increase student interest in science/science subjects in elementary schools.

ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

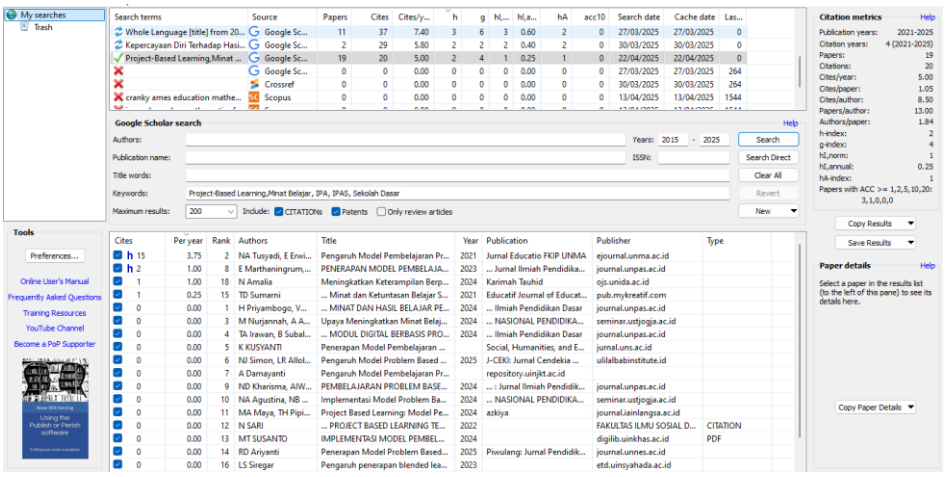

Figure 1. PoP Search Results

Based on the search results using the Publish or Perish software with the keywords "Project Based Learning, Learning Interest, Science, Science, Elementary School" in the period 2015 to 2025, a number of articles were obtained from Google Scholar which were then selected using inclusion and exclusion criteria. From a total of 200 articles found, the researcher filtered and selected 10 articles that were most relevant to the focus of the study, namely the Project Based Learning (PjBL) learning model in increasing students' interest in learning science/science subjects in elementary schools. The selected articles came from various accredited national journals and had gone through a review process that considered topic suitability, publication quality, and data up-to-dateness. All articles analyzed presented important findings that supported that the PjBL approach made a positive contribution to increasing students' interest in learning, especially in science subjects at the elementary school level.

Table 1. Previous Research Results

Author Name and Year of Publication	Research Title	Research result
The Last Supper (2021)	The Influence of Project Based Learning Model on Science Students' Learning Interest	tcount = 24.254 > ttable = 2.004 PjBL has a positive effect on interest in learning science
The Story of Meilinda Dwi Handayani, Heri Maria, Novia (2023)	Implementation of Project Based Learning Model in Increasing Interest in Learning Science in Grade IV Elementary School	Cycle I: Average 76 (quite interested), 87% of students. Cycle II: Average 90.53 (very interested), 100% of students. PjBL effectively increases interest in learning

ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

The film stars Erica, Erica, and Erica (2024).	Implementation of Project Based Learning (Pjbl) Learning Model to Improve Students' Interest and Learning Outcomes in the Science Subject of Water Cycle Material for Class V of Pengkol 01 Sukoharjo Elementary School in the 2024/2025 Academic Year	Interest in learning increases from moderate to high. Learning completion increased significantly
Rizki Alifiyanto (2024)	The Effectiveness of the PjBL Learning Model on the Interest in Learning Science in Grade IV Elementary School Students	Average interest in PjBL: 89.88 vs conventional: 81.54. PjBL has a significant positive impact.
Yusron Abda'u Ansya (2023)	Efforts to Improve the Interest and Learning Achievement of Grade IV Elementary School Students in Science Learning Using the PjBL (Project-Based Learning) Strategy	Strategy: relevant projects, discussions, exploration, maple integration. Engage the community, use technology, formative evaluation.
Fidela Laksita Dwiannisa, Dwi Wijayanti, Andi Setiyawan (2024)	Increasing Students' Interest in Learning Science Lessons Through the PjBL Model in Class V of SDN Sidoarum	PjBL increases enthusiasm for learning science. The material becomes easier to understand.
Isfathia Nurhasanah, Arfilia Wijayanti, Ryky Mandar Sary (2024)	The Effectiveness of Project Based Learning (Pjbl) Model Assisted by Concrete Media on the Interest and Learning Outcomes of Science in Grade V Elementary Schools	Interest in learning increases (60%). Affective, cognitive, psychomotor scores reach 70%
Maryam Nurjannah, Ardian Arief, Lina Dewi Pusparini (2024)	Efforts to Increase Interest in Learning Science in Grade IV Students at SD N 1 Padokan Through the PjBL Learning Model	Pre-action: 60% Cycle I: 71% Cycle II: 79% Significant increase in student engagement
Saidatul Irfana, Syailin Nichla Choirin Attalina, Aan Widiyono (2022)	The Effectiveness of Project Based Learning (Pjbl) Learning Model in Increasing Student Interest and Learning Outcomes in Elementary Schools	Interest: tcount = 15.878 > ttable = 1.688 Learning outcomes: tcount = 6.964 > ttable = 1.688
Diane Lutfia Rachma, Wainingrum Wainingrum, Ani Rusilowati (2024)	Increasing Students' Interest in Learning Science through the Project Based Learning (PjBL) Learning Model Assisted by Audiovisual Media	Cycle I: 75.36% (moderate category) Cycle II: 81.04% (high category) Total increase: 12.97%

Table 1 presents a summary of various studies that examine the implementation of the Project Based Learning (PjBL) model in science/science learning at the Elementary School level. The main focus of each study is on efforts to increase students' interest in learning through the application of project-based learning models. This table includes various class settings, teaching materials, and variations in the implementation approach of PjBL, such as the use of concrete or audiovisual media, and its implementation in the context of thematic learning. These studies used various methods, both qualitative, quantitative, and classroom action, with designs that were adjusted to the characteristics of elementary school students. Overall, the studies show that PjBL can improve a more active, contextual, and meaningful learning environment. Studies show that the project-based learning model is effective in increasing elementary school students' interest in science/science subjects.

DISCUSSION

This article presents research findings on the effectiveness of project-based learning models in increasing students' interest in learning science/science subjects at the elementary school level. The discussion focuses on various factors that support the successful implementation of PjBL, as well as the challenges that arise in its application in the classroom, as reflected in a number of studies that have been analyzed.

Student Learning Interest in Science/Social Sciences Learning

Students' learning interest greatly influences the success of the learning process, especially in Natural Sciences and/or Social Sciences (IPA/IPAS) subjects at the Elementary School level. Alifiyanto stated that learning interest is a persistent tendency in students to be actively and consistently involved in learning activities (Alifiyanto, 2024). Piaget's constructivism theory underlies the project-based learning (PjBL) model in science/IPAS learning. This theory views students as active agents in the knowledge construction process. Through this approach, students are encouraged to be directly involved in authentic experiences and problem-solving activities, thus enabling meaningful and contextual learning. Several studies have shown that PjBL can increase students' learning interest. Research by Tusyadi et al., showed a significant increase in students' learning interest after the implementation of PjBL, where student participation increased along with their involvement in contextual and relevant projects (Tusyadi et al., 2021). Meanwhile, Handayani et al., reported a significant shift in student interest from the category of "quite interested" to "very interested" after two cycles of implementing PjBL (Handayani et al., 2023). This shows that PjBL not only makes learning fun and useful, but also makes students more interested and more actively involved.

Interestingly, the findings obtained by Handayani showed a stronger increase in interest quantitatively from cycle I to cycle II, which can be interpreted that project-based learning takes time to really show its impact on students' learning interest (Handayani et al., 2023). Meanwhile, Priyambogo, et al. emphasized a strategic approach involving community support and integration between subjects, where the increase in students' learning interest is not only seen in terms of quantitative results, but also from external factors such as parental involvement and the role of the community in supporting the success of the project (Priyambogo et al., 2024). These findings illustrate that the effectiveness of PjBL depends not only on the structure and design of learning, but also on the context of its implementation, both in the classroom and in relation to the students' surroundings.

These differences indicate that although PjBL has been proven effective in increasing learning interest, its implementation can vary depending on how the project is adapted to the local context, available resources, and support received from parties outside the school, such as family and community. Based on these findings, it is recommended that teachers in elementary schools integrate the PjBL model in science/science learning as a strategy to increase students' learning interest. In addition, special training on contextual project design and project-based classroom management also needs to be provided to teachers to ensure the optimal effectiveness of the implementation of this model. It is also important to involve the community and parents in supporting the project-based learning process so that its positive impact is maximized.

Supporting Factors for the Successful Implementation of the Project Based Learning Model in Science/Social Sciences Learning

Various fundamental factors influence the success of the project-based learning (PjBL) model in science/science learning. Rachma et al., emphasized the importance of authenticity of tasks, active student involvement, and the role of teachers as facilitators who encourage students to actively participate in projects (Rachma et al., 2024). In this context, Ansya found that projects that are relevant to students' daily lives can foster strong emotional involvement, which has a direct impact on students' interest and understanding of the material (Ansya, 2023). Meanwhile, Nurhasanah et al., showed that the use of concrete media, such as teaching aids or exploratory materials, is very helpful in clarifying abstract concepts, especially in science learning, and making the material more interesting and easier for students to understand (Nurhasanah et al., 2024).

However, a slightly different approach can be seen in Rachma's findings. which highlights the importance of audiovisual media in PjBL. According to research by Rachma et al., the use of media such as video or animation allows students to see abstract science concepts in a more real and accessible form (Rachma et al., 2024). This is in line with Piaget's constructivism theory which emphasizes the importance of direct experience in building student understanding, but with a more modern approach in terms of technology, this is explained by research by (Tusyadi et al., 2021).

A striking difference can be found when comparing these findings with the study by Nurjannah, which showed a significant increase in students' learning interest, from 60% to 79% after implementing PjBL-based projects for two cycles (Nurjannah et al., 2024). This finding indicates that systematic and gradual planning plays a very important role in managing the project-based learning process. The progressive increase recorded in this study emphasizes the application of a well-structured model, while other findings focus more on emotional involvement and the use of concrete media.

The different contexts in these studies show that the success of PjBL does not only depend on one factor, such as the use of media or the relevance of the project to students' lives, but is also influenced by how the project is designed and implemented as a whole. From this it can be concluded that although PjBL has the same theoretical basis, namely increasing student engagement and understanding through direct experience, its implementation can vary depending on the context and approach used by each researcher.

Based on these findings, it is recommended that teachers design projects based on students' local contexts, and use concrete and audiovisual media to facilitate students' understanding of more complex science concepts. In addition, professional training for teachers in terms of project design, collaborative classroom management, and the application

https://doi.org/10.60041/jap/v3i1.181
ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

of interactive media is needed so that the implementation of PjBL can run optimally. Structural support and resources from schools also need to be improved to ensure that teachers can carry out their role as facilitators more effectively.

Obstacles in Implementing the Project Based Learning Model in Science/Social Sciences Learning

Project-based learning (PjBL) models have been proven effective in increasing students' interest and understanding of science/science materials. However, there are several problems with implementing it in elementary schools. Based on the findings of Dwiannisa et al., the limited time available for project implementation is often an obstacle, considering that PjBL requires quite long planning and implementation (Dwiannisa et al., 2024). This is in line with Wati et al. who emphasized that educational innovation requires readiness of systems, resources, and implementer skills in order to succeed optimally. Time constraints in elementary schools, which are more focused on time allocation for conventional learning, can hinder the success of PjBL implementation (P. Wati et al., 2024). However, when compared to Irfana's research, which shows that teachers' low understanding of project design and management is also a major factor affecting the quality of PjBL implementation, the problem of limited human resources (in this case, teachers) further clarifies the existing challenges (Irfana et al., 2022). This shows that even though a project can be well designed, if it is not supported by adequate teacher competence in project management, the effectiveness of learning will be reduced.

In addition, the problem of limited facilities and infrastructure, such as concrete media, teaching aids, and practical materials that are obstacles in Dwiannisa et al., received further attention in the findings of Rachma et al., which emphasized the importance of using audiovisual media in supporting project-based learning (Dwiannisa et al., 2024; Rachma et al., 2024). Although physical limitations such as teaching aids are a barrier, the use of technology, such as audiovisual media, can be an effective alternative in overcoming these limitations, especially in science learning that requires visualization of abstract concepts.

The discussion between the findings of Dwiannisa et al., who focused more on structural barriers and Irfana et al., who emphasized the importance of teacher training and competence, showed that the obstacles in implementing PjBL are multidimensional (Dwiannisa et al., 2024; Irfana et al., 2022). This shows that not only infrastructure and time need to be improved, but it is also important to strengthen teachers' pedagogical competence and provide them with appropriate training. In this context, Nurhasanah et al., noted the importance of involving parents and local communities in enriching the project context (Nurhasanah et al., 2024). This provides a broader perspective on how resource limitations can be overcome by involving the community as part of the learning process. Through this collaboration, students can gain additional resources and deepen their understanding through more relevant real-life contexts.

Based on this analysis, it is suggested that to optimize the implementation of PjBL in science/science learning, schools should provide ongoing training to educators to improve their understanding of project management and design. In addition, there needs to be a policy that allows flexibility in learning time and the use of technology to replace the limitations of physical media. Support from parents and local communities is also an important aspect to enrich the project experience, while policy support from the government is also needed to strengthen the infrastructure and resources that support the implementation of this model.

CONCLUSION

The results of the study indicate that the project-based learning (PjBL) model is effective in increasing students' interest in science/science subjects in elementary schools. This approach provides an active, contextual, and meaningful learning experience. The success of PjBL implementation depends on the active involvement of students, the authenticity and relevance of the project, and the competence of teachers as facilitators. The support of concrete and audiovisual media helps to understand abstract concepts, while systematic project design ensures that learning objectives are achieved. However, a number of obstacles such as time constraints, lack of teacher understanding of project management, and minimal supporting facilities are still obstacles. This study also has methodological limitations because it only uses secondary data from previous studies through the Systematic Literature Review (SLR) approach. However, the results of this study still provide an important contribution as a basis for developing further research related to the implementation of PjBL in elementary schools.

Research shows that educators in elementary schools should consider implementing project-based learning (PjBL) models in the science/science learning process. This model has been proven to be able to increase students' interest in learning through a contextual, active, and meaningful approach. For further researchers, it is recommended to conduct further studies with qualitative and quantitative approaches through direct observation in the field in order to obtain primary data and deeper analysis regarding the effectiveness of implementing the PjBL model in various real conditions.

REFERENCE

Alifiyanto, R. (2024). Efektivitas Model Pembelajaran PjBL Terhadap Minat Belajar IPAS Pada Siswa Kelas Iv Sekolah Dasar. *Dialektika Jurnal Pendidikan*, *8*(1), Article 1. https://doi.org/10.58436/dfkip.v8i1.1673

Andreani, D., & Gunansyah, G. (2023). Persepsi Guru Sekolah Dasar tentang Mata Pelajaran IPAS pada Kurikulum Merdeka. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, *11*(9). https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/54388

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. https://doi.org/10.30872/jimpian.v3i1.2225

Astuti, P. H. M., Bayu, G. W., & Aspini, N. N. A. (2021). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Hasil Belajar Matematika Siswa. *Mimbar Ilmu*, *26*(2), Article 2. https://doi.org/10.23887/mi.v26i2.36105

Djufri, E., & Ardhian, T. (2021). Pengaruh Model Pembelajaran Inkuiri Terbimbing Terhadap Keterampilan Proses Sains dan Hasil Belajar IPA Siswa. *Jurnal Ilmiah Profesi Guru (JIPG)*, *2*(1), Article 1. https://doi.org/10.30738/jipg.vol2.no1.a11047

Dwi, N. (2023). Penerapan Model Pembelajaran Problem Based Learning (PBL) Untuk Meningkatkan Minat Belajar Siswa Pada Materi Evolusi. *Journal of Natural Sciences Learning*, *2*(2), Article 2.

Dwiannisa, F. L., Wijayanti, D., & Setiyawan, A. (2024). Peningkatan Minat Melajar Siswa Pada Pelajaran IPA Melalui Model PjBL di Kelas V SDN Sidoarum. *Prosiding Seminar Nasional Pendidikan Profesi Guru*, *3*(1), 345–354.

Handayani, M. D., Zulfianti, H. M., & Ekowati, N. (2023). Penerapan Model Project Based Learning Dalam Meningkatkan Minat Belajar IPAs Kelas IV SD. *Prosiding Seminar Nasional Pendidikan Profesi Guru*, *2*(1), 1179–1186.

Irfana, S., Attalina, S. N. C., & Widiyono, A. (2022). Efektifitas Model Pembelajaran Project Based Learning (Pjbl) dalam Meningkatkan Minat dan Hasil Belajar Siswa di Sekolah Dasar. *Journal of Professional Elementary Education*, *1*(1), Article 1. https://doi.org/10.46306/jpee.v1i1.7

Manurung, A., & Marini, A. (2023). Penerapan Problem Based Learning dalam Upaya Mengembangkan Kemampuan Berpikir Kreatif Mahasiswa. *Jurnal Ilmiah Pendidikan Citra Bakti*, *10*(1), Article 1. https://doi.org/10.38048/jipcb.v10i1.967

Nuralyanti, P., Andriana, E., & Rokmanah, S. (2023). Revitalisasi Pembelajaran: Solusi Terhadap Rendahnya Minat Belajar Peserta Didik Kelas V Sdn Sumber Agung. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, *9*(5), Article 5. https://doi.org/10.36989/didaktik.v9i5.2207

Nurhasanah, I., Wijayanti, A., & Sary, R. M. (2024). Keefektifan Model Project Based Learning (Pjbl) Berbantu Media Konkret Terhadap Minat dan Hasil Belajar Ipas Kelas V Sekolah Dasar. *Educational: Jurnal Inovasi Pendidikan & Pengajaran*, *4*(4), Article 4. https://doi.org/10.51878/educational.v4i4.3828

Nurjannah, M., Arief, A., & Pusparini, L. D. (2024). Upaya Meningkatkan Minat Belajar IPAS Peserta Didik Kelas IV di SD N 1 Padokan Melalui Model Pembelajaran PjBL. *Prosiding Seminar Nasional Pendidikan Profesi Guru*, *3*(1), 2103–2109.

Priyambogo, H., Pratiwi, V. U., & Antana, A. S. (2024). Penerapan Model Pembelajaran Project Based Learning (Pjbl) untuk Meningkatkan Minat dan Hasil Belajar Peserta Didik Pada Mata Pelajaran IPAS Materi Siklus Air Kelas V Sekolah Dasar Negeri Pengkol 01 Sukoharjo Tahun Ajaran 2024/2025. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *9*(3), Article 3. https://doi.org/10.23969/jp.v9i3.18695

R, S. D., & Atmojo, S. (2024). Efektivitas Model Problem Based Learning (Pbl) Terhadap Kemampuan Pemecahan Masalah dan Motivasi Siswa Pada Pembelajaran IPA di Kelas V Sd Negeri 1 Padokan. *Lensa (Lentera Sains): Jurnal Pendidikan IPA*, *14*(1), Article 1. https://doi.org/10.24929/lensa.v14i1.399

Rachma, D. L., Wainingrum, W., & Rusilowati, A. (2024). Peningkatan Minat Belajar IPA Peserta Didik melalui Model Pembelajaran Project Based Learning (PjBL) berbantuan Media Audiovisual. *Prosiding Seminar Nasional Pendidikan Dan Penelitian Tindakan Kelas*, 316–324.

Risandy, L. A., Sholikhah, S., Ferryka, P. Z., & Putri, A. F. (2023). Penerapan Model Based Learning (PBL) dalam Pembelajaran Tematik Terpadu di Kelas 5 Sekolah Dasar. *Jurnal Kajian Dan Penelitian Umum*, *1*(4), Article 4. https://doi.org/10.47861/jkpu-nalanda.v1i4.379

Sadiah, T. L., Farhurrohman, M., Leksono, S. M., Ds, Y. N., & Firmansyah, Y. (2024). Analisis Media Pembelajaran Digital Pada Kurikulum Merdeka. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *9*(1), Article 1. https://doi.org/10.23969/jp.v9i1.12746

Subagio, L., Karnasih, I., & Irvan, I. (2021). Meningkatkan Motivasi Belajar Siswa dengan Menerapkan Model Discovery-Learning dan Problem-Based-Learning Berbantuan Geogebra. *Jurnal Pendidikan Matematika Raflesia*, *6*(2), Article 2. https://doi.org/10.33369/jpmr.v6i2.15733

ISSN 2985-8623 /Print/
ISSN 2985-7902 /Online/

Tusyadi, N. A., Erwin, E., & Pranata, K. (2021). Pengaruh Model Pembelajaran Project Based Learning Terhadap Minat Belajar Siswa IPA. *Jurnal Educatio FKIP UNMA*, *7*(4), Article 4. https://doi.org/10.31949/educatio.v7i4.1500

Wati, E., Harahap, R. D., & Safitri, I. (2022). Analisis Karakter Siswa pada Mata Pelajaran IPA di Sekolah Dasar. *Jurnal Basicedu*, *6*(4), 5994–6004. https://doi.org/10.31004/basicedu.v6i4.2953

Wati, P., Nusantara, T., & Utama, C. (2024). Efektivitas PjBL-STEM Terhadap Keterampilan Berpikir Kritis dan Motivasi Belajar Siswa Sekolah Dasar. *Cetta: Jurnal Ilmu Pendidikan*, *7*(2), Article 2. https://doi.org/10.37329/cetta.v7i2.3264