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Local wisdom and national values: Quantifying the impact of project-based learning on Pancasila education outcomes

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Abstract: This study aims to evaluate the effectiveness of the Project-Based Learning (PjBL) model in enhancing the learning outcomes of Pancasila Education among Grade V students, particularly in terms of internalizing national values and fostering character development. A quantitative research design with an experimental approach was employed, where the learning outcomes of students were assessed using conventional methods before transitioning to the PjBL model. The study involved 36 Grade V students from SD Negeri Tangkisan Pos. Data analysis techniques included hypothesis testing, mean, median, and mode calculations to evaluate student progress. The results indicated that the PjBL model significantly improved student engagement and learning outcomes in Pancasila Education. Students in the PjBL group showed marked increases in both academic performance and practical application of Pancasila values, as evidenced by improved project assessments and scores. The PjBL model also fostered critical thinking, creativity, and collaboration. The study confirms that the PjBL model is an effective pedagogical approach for enhancing student learning outcomes in Pancasila Education, promoting not only academic achievement but also character development aligned with national values. The findings suggest that educators should integrate project-based learning into Pancasila Education to increase student engagement and deepen understanding of national values. Future practices should focus on providing teachers with the necessary training and resources to effectively implement PjBL in their classrooms.

Keywords: *Indonesia, Local Wisdom, National Value, Pancasila Education, PjBL.*

1. Introduction

Education is a planned process that not only includes curriculum development, but also human efforts to shape students' personalities to be in line with social norms. Education helps students develop knowledge, skills, values, attitudes, and behaviors that support life [1, 2]. Through teaching methods, training, research, and direct experience, education becomes an important means of advancing civilization and improving the quality of life of individuals and society. The educational process, the achievement of learning outcomes is greatly influenced by the learning tools used by educators. These tools become more effective when supported by a conducive learning environment [2]. At the elementary school level, especially grade V, Pancasila Education plays an important role in shaping the character and national values of students. However, the success of learning does not only depend on the material, but also the approach used, such as the application of a project-based learning model (Project-Based Learning/PjBL).

The Independent Curriculum, which is the main guideline in current educational practices, emphasizes the development of an adaptive and contextual curriculum. This curriculum includes lesson plans, materials, and learning experiences that serve as a guide for educators [3, 4]. One of its important components is teaching materials, which include materials used to support the learning process [5, 6]. solutions to increase student engagement and the quality of learning in the classroom.

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Research by Nusfiyah [7] revealed that the limitations in the mastery of technology by educators are an obstacle in preparing video-based teaching materials. On the other hand, research by Meldawati, et al. [8] highlighted the low creativity of students in making posters as project products. Meanwhile, Ariyaningrum and Sutejo [9] found that inadequate understanding of the material made it difficult for students to complete the project. These challenges indicate the need for structured, easily accessible, and contextual teaching materials. As a solution, the Pancasila Education book module was developed integrated with digital media such as YouTube. This module is equipped with teaching materials containing material for each chapter and instructions for completing student worksheets that are adjusted to the Merdeka Curriculum teaching module. The learning models applied include discovery learning, project-based learning (PjBL), and problem-based learning (PBL).

PjBL itself is implemented through six stages, namely providing initial questions, project planning with students, scheduling, project implementation, assessment, and final evaluation Meldawati, et al. [8]. In the context of the Pancasila Project, fifth grade students are encouraged to explore national and moral values through projects such as making videos, posters, or presentations. This allows them to understand more deeply the contents of Pancasila Education while developing 21st century skills such as cooperation, communication, and decision-making. However, obstacles in implementation remain. PjBL requires considerable time and resources [10, 11].

In addition, changes in student behavior as a result of this learning are an important indicator in assessing the effectiveness of teaching materials [12]. The expected learning outcomes from the implementation of the Pancasila Project include students' cognitive, affective, and psychomotor abilities. This reflects their mastery of Pancasila values and their ability to relate learning to everyday life [13]. Physiological and psychological factors of students also influence their learning outcomes [14, 15]. Thus, focusing on developing teaching materials that are in accordance with the PjBL approach is very important to improve student learning outcomes in Pancasila Education. Without supporting teaching materials, the learning process will experience obstacles, even when the learning model used is appropriate [3, 16, 17].

The availability of relevant and easily accessible teaching materials will help students develop their competencies optimally. Teaching materials such as modules, videos, or worksheets that are appropriate to the characteristics of students and their social environment can support more active and meaningful involvement in the learning process [18-20]. Therefore, the Pancasila Project is a strategic tool in measuring the learning outcomes of grade V students at SD Negeri Tangkisan Pos, as well as strengthening the implementation of Pancasila Education in a contextual and comprehensive manner. Based on the results of interviews with educators at SD Negeri Tangkisan Pos, it was found that they had not developed teaching materials that were in accordance with the PjBL model, especially in Pancasila Education learning.

Observations also show that the lecture method is still dominant, causing students to be less active. In fact, project-based learning allows students to be actively involved, think critically, and work collaboratively in completing thematic projects that are relevant to real life [21]. Observations conducted at SD Negeri Tangkisan Pos found that the teaching materials used were not in accordance with the PjBL model. The learning process was still dominated by the lecture method, which resulted in students being less active and less interested in the material. The results of observations and interviews showed that the development of project-based teaching materials was urgently needed to improve student engagement and learning outcomes in the Pancasila Education subject. The novelty of this study lies in the development of teaching materials based on the Pancasila Project which is specifically applied to grade V elementary school students. This module integrates easily accessible digital media (such as YouTube videos) with worksheets and teaching materials that are arranged according to the principles of PjBL and the Merdeka Curriculum. Thus, this study contributes to improving the quality of Pancasila Education learning through a structured and contextual project-based approach for elementary school students.

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2. Literature Review

The Merdeka Curriculum is designed to improve the quality of learning activities affected by the COVID-19 pandemic, which has caused a decline in the quality of learning implementation, with many activities carried out online or distance learning [22]. Since 1947, the education system in Indonesia has undergone various curriculum changes, resulting in a fairly simple curriculum. Currently, with the implementation of the 2022 curriculum, the changes aim to improve the previously existing syllabus [23]. One important focus in education is the environment, where actions aimed at understanding the importance of maintaining a healthy environment and instilling an attitude of caring for the environment must begin at the elementary school level. As stated by Intishar, et al. [24] as the next generation and agents of change, concern for the environment needs to be instilled from an early age in order to create greater awareness in maintaining environmental sustainability.

E-learning modules, according to Primayana [25] are learning tools or designs that are based on the curriculum and aim to achieve predetermined competency standards. Meanwhile, local wisdom is an inseparable part of the culture of the community that is passed down from generation to generation. Yonanda, et al. [26] explain that local wisdom is knowledge acquired by local communities through various experiences, which is then integrated with an understanding of the culture and natural conditions around them.

Local wisdom, according to Pranata, et al. [27] is knowledge that develops gradually in local communities and their surroundings, which is inherited collectively as a guide to life that has existed for a long time. Meliani [28] added that local wisdom emerged from a long process that took place with the community and its environment, becoming a local system that functions as a guide to life and culture that has existed since ancient times. In this context, Sakti, et al. [29] define local wisdom as values, norms, laws, and knowledge formed through religious teachings, beliefs, customary values, and experiences inherited from ancestors. This wisdom functions as a local knowledge system that is used to solve various daily problems in society.

Local wisdom, according to Kamakaula, et al. [30] includes the knowledge and understanding of indigenous peoples regarding relationships between humans, as well as their relationship with nature. This includes customs that shape interactions within ecological communities, thus creating balance and harmony in their environment. In the context of education, the Project Based Learning (PBL) learning model offers an innovative approach to increasing student engagement. As explained by Ramadhan and Nafisah [31] PBL helps students to be more active in developing their critical thinking skills through solving problems that are relevant to the current situation. Abidin [32] also added that the PBL model focuses on single-concept material, which facilitates assessment because of the emphasis on conceptual understanding. The Project Based Learning (PJBL) model not only activates student involvement but also stimulates their creativity. Hanif, et al. [33] emphasized that by considering diverse learning styles, project-based learning gives students the freedom to explore and understand material in ways that are meaningful to them, including through collaboration in experiments or experiments. Furthermore, Shofyana, et al. [34]) explained that PJBL allows students to understand concepts and principles by investigating problems, finding solutions, and realizing them in the form of projects. This creates a significant and in-depth learning experience for them.

The Discovery Learning learning model is an approach that invites students to actively explore and discover new information and knowledge. According to Cahyaningsih and Assidik [35] this learning focuses on the process in which students are expected to be able to discover new knowledge through experiments or direct observations, thus making learning activities more interactive and creative. Furthermore, Thalib, et al. [36] explained that in the Discovery Learning model, educators not only deliver material but also provide guidance that helps students connect the material with answers to questions or problems raised. This approach places students at the center of learning, encouraging them to actively participate and explore information independently, which ultimately improves their understanding and critical thinking skills.

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3. Method

This study adopts a quantitative approach, which is a systematic method of collecting and analyzing numerical data. The goal is to explain a particular phenomenon, test a hypothesis, or predict an outcome. Quantitative methods often use instruments such as tests, surveys, and questionnaires to collect data that can be measured objectively. In this study, data were obtained from a sample consisting of 36 fifth-grade students of SD Negeri Tangkisan Pos for the 2023/2024 academic year, which is a representation of the population. For data analysis, this study uses several statistical techniques, such as t-test, regression analysis, and analysis of variance (ANOVA), which aim to identify patterns, relationships, and differences between variables.

Quantitative methods, which have been used for quite a long time, are often referred to as traditional methods [37]. The instruments used for data collection in this study include interviews, observations, and questionnaires. The data analysis techniques applied include reliability tests, validity tests, normality tests, linearity tests, as well as analysis prerequisite tests and hypothesis tests. In addition, analysis is also carried out to find the mean, median, and mode in order to determine the development of student learning outcomes.

4. Results and Discussion

The figure below shows that previous studies have explored the development of teaching materials using the Project Based Learning (PJBL) learning model. In the figure, there are four clusters that illustrate the research gap. The first cluster includes PKN, learning outcomes, and public elementary schools. The second cluster focuses on elementary schools, learning outcomes, and the application of the PJBL model. Meanwhile, the third cluster links learning outcomes with PKN. The fourth cluster combines elementary schools, learning outcomes, teaching materials, and the PJBL model.

Thus, this figure provides a clear picture of the research areas that have been studied as well as those that still need to be explored further.

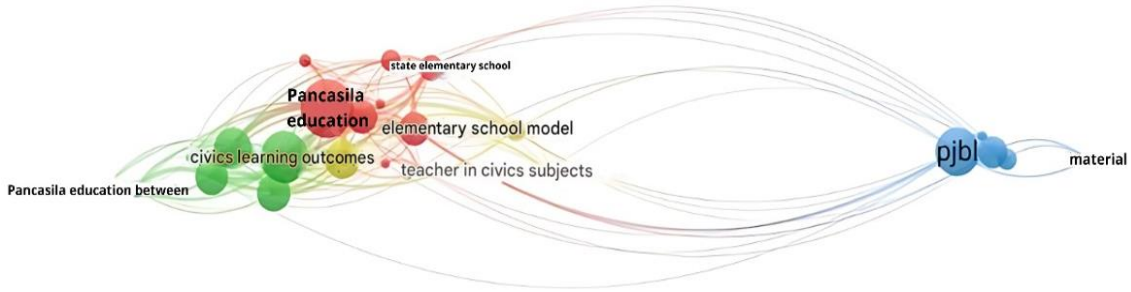

Figure 1.
Research GAP.

4.1. Research Result

The initial stage of the researcher conducted learning without applying the PJBL learning model and only applied learning with the interview method. What the researcher got from the learning process was that students were less involved. They often only listened to explanations from educators without any interaction or discussion. This led to a lack of understanding of the Pancasila values being taught. In a one-way learning process, students are not given the opportunity to think creatively or express their opinions. Monotonous learning does not trigger them to explore Pancasila values in a more interesting and applicable way.

Students show a lack of interest in learning Pancasila education. Inactivity and boredom during the learning process can affect their motivation to learn, so that they feel that there is no benefit from the material being taught. Evaluation of learning outcomes shows that many students do not achieve the expected understanding of Pancasila values. The grades obtained are often low, and they have difficulty

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applying Pancasila principles in everyday life. Uninteresting learning does not support the development of student character, such as attitudes of tolerance, mutual cooperation, and discipline. Without significant interaction, they do not learn how to implement Pancasila values in a social context.

The second stage of implementing Pancasila Education learning using the Project Based Learning (PjBL) method, there are several significant results from the learning process carried out by grade V students at SD Negeri Tangkisan Pos. Students show a significant increase in active participation during the learning process. By using the PjBL method, they are more involved in group discussions, expressing opinions, and asking questions. This involvement makes the classroom atmosphere more dynamic and interactive, in contrast to conventional learning which previously tended to be monotonous.

The projects produced by each group showed a high level of creativity. Students created various unique products, such as posters, videos, and multimedia presentations. They were able to express their ideas and understanding of Pancasila values in an interesting and informative way. Through the projects they did, students were able to understand and internalize Pancasila values better.

For example, when groups work on a project about "Gotong Royong," they not only learn the concept but also take real action by holding environmental clean-up activities around the school. This shows that they can relate concepts to real actions.

During the project, students learn to work together in groups. They learn to listen to each other, share tasks, and support each other in completing the project. This improves their social skills and ability to collaborate, which are very important in everyday life. In solving problems faced during the project, students are encouraged to think critically and find effective solutions. They learn to analyze situations, consider alternatives, and make the right decisions. These are very important skills to develop early on.

Student learning outcomes, as measured through final project assessments and observations, showed significant improvements compared to conventional learning. They not only understood the theory but were also able to apply the knowledge in practice. The average value of student learning outcomes increased, indicating that they were better prepared to face challenges in subsequent learning. Students provided positive feedback regarding their learning experiences. They enjoyed being able to collaborate with friends and felt more capable when they had to present projects in front of the class. Many of them expressed that they understood and appreciated the values of Pancasila better after undergoing this learning process. The following are the results of learning with conventional methods and the PJBL model:

Table 1.
Learning outcomes using the conventional method and PJBL model.

Conventional method			**PJBL methode**		
No	**Mark**	**Frequency**	**No**	**Mark**	**Frequency**
1	60-63	2	1	75-79	4
2	64-67	6	2	80-84	8
3	68-71	8	3	85-89	10
4	72-75	11	4	90-94	8
5	76-80	9	5	95-99	6

The results of the table above can show that the project learning model has an effect on improving student learning outcomes, with the results in the table researchers can find out the mean, median, and mode to better understand the development of student learning outcomes. The following is a table of medians, means and modes:

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Table 2.
Results of mean, median, and mode.

Information	Mean	Modus	Median
Conventional method	72	72-75	72
PJBL model	87	85-89	88

The next researcher conducted a research hypothesis prerequisite test and a research hypothesis test on the questionnaire that the researcher had distributed to students after the implementation of the PJBL learning model. Prerequisite and research hypothesis tests are integral parts of good research methods. Both contribute to the validity and reliability of research results, and assist researchers in making more informed and evidence-based decisions. Ignoring these steps can lead to incorrect conclusions and harm the overall research. Here is the test table:

Table 3.
Reliability test, validity, hypothesis prerequisite test, and hypothesis test.

No	Description 1	Result
1	Reliability test	0.848
2	Validity test	20 valid
3	Normality test	0.06
4	Literacy test	0.125
5	Simple linear regression test	0.000
6	Determination test	0.61

From the table of test results conducted by the researcher, the results showed that 20 questions in the questionnaire used by the researcher obtained 20 valid results. The reliability test showed that Crombach's Alpha 0.848> 0.06, with the decision that the questionnaire used was reliable. The normality test obtained an asymp sig of 0.06> 0.05, which stated that the questionnaire was stated to be normally differentiated. The linearity test 0.125> 0.6, the variables x and y have a linear relationship. The results of the determination test obtained an r squared of 0.619 or 61%. These results indicate that teaching materials affect as much as 61% of the learning outcomes of class students. While 39% is influenced by factors outside this study.

5. Discussion

The findings of this study highlight the significant impact of the Project-Based Learning (PjBL) model on improving student learning outcomes in Pancasila Education. The results demonstrate a clear contrast between the conventional lecture-based method and the PjBL model, showcasing the advantages of the latter in fostering active student participation, critical thinking, creativity, and the practical application of learning [38, 39]. This discussion aims to contextualize these findings within the broader educational landscape, compare them with existing literature, explore the implications for teaching and learning, and identify areas for further research.

The study revealed that the PjBL model significantly enhanced student engagement and learning outcomes compared to the traditional lecture-based method. Students in the conventional method exhibited passive learning behaviors, where they listened to the teacher without actively engaging with the material [40]. This lack of interaction limited their ability to fully grasp the Pancasila values and apply them in real-life contexts. The results of the evaluation, with most students scoring between 60 and 80, reflect the limitations of the lecture method in promoting deep learning and critical thinking.

On the other hand, the PjBL model transformed the learning experience by encouraging students to actively participate in the learning process. Through hands-on projects, group discussions, and real-world applications, students were able to internalize Pancasila values in a more meaningful way. The significant improvement in student scores, with most students scoring between 75 and 99, suggests that PjBL was more effective in promoting student learning. This aligns with previous studies [41, 42] that

have highlighted the effectiveness of project-based learning in enhancing student engagement and understanding.

The shift in student participation from passive to active learning can be attributed to the nature of PjBL, which encourages students to take ownership of their learning. By working on projects that require collaboration, problem-solving, and real-world application, students become more motivated and invested in the learning process. The findings of this study corroborate the results of other research [43, 44] that emphasizes the benefits of PjBL in promoting critical thinking and creativity. The increased student participation and higher quality of projects produced under PjBL indicate that this approach fosters a more dynamic and engaging learning environment.

One of the key features of PjBL is its emphasis on collaboration and the application of learning to real-world situations. In this study, students were required to work in groups and produce tangible outcomes, such as posters, videos, and presentations. For example, in the project on "Gotong Royong" (mutual cooperation), students did not only learn about the concept in theory but also applied it through an environmental clean-up activity. This real-world application helped students connect abstract concepts to their daily lives and see the relevance of what they were learning.

Research Ananda, et al. [45] and Tuanany, et al. [46] has shown that PjBL enhances students' ability to apply theoretical knowledge to practical situations. In the case of this study, students were able to demonstrate their understanding of Pancasila values by engaging in community-oriented activities. This not only reinforced their understanding of the material but also helped them develop important life skills, such as teamwork, leadership, and responsibility. The ability to relate classroom learning to real-world scenarios is a significant advantage of PjBL, as it makes learning more meaningful and applicable to students' lives.

Furthermore, collaboration played a critical role in the success of the PjBL model. Working in groups allowed students to share ideas, solve problems together, and learn from one another. These collaborative experiences are particularly valuable in fostering communication, cooperation, and social skills, which are essential in both academic and professional settings. Research by Hanham and Hendry [47] has shown that collaboration in PjBL not only improves academic performance but also strengthens interpersonal skills and prepares students for future teamwork in the workplace.

The results of the study showed that the PjBL model led to a significant improvement in student learning outcomes, as evidenced by the increase in average scores from 72 to 87. The improvement was not only reflected in higher test scores but also in the quality of student projects, which demonstrated creativity, depth of understanding, and practical application of Pancasila values. This improvement is consistent with the findings of other studies that have shown the positive impact of PjBL on student achievement [47].

The statistical analysis further supports the effectiveness of the PjBL model. The mean score, mode, and median all shifted significantly in favor of the PjBL method, indicating that students performed better across the board. The regression analysis revealed that 61% of the variation in student learning outcomes could be explained by the use of the PjBL model, further confirming its effectiveness in improving learning outcomes. This result is consistent with previous research by Wibowo and Ahmad [48] that has shown that project-based learning can lead to substantial improvements in student performance, particularly in terms of engagement, creativity, and application of knowledge.

The improvement in student scores also suggests that the PjBL model contributed to a deeper understanding of the material. Unlike the conventional lecture method, which often focuses on rote memorization, PjBL encourages students to engage with the material critically and creatively. This process of active engagement helps students retain and apply the knowledge more effectively, leading to better learning outcomes. The findings of this study reinforce the argument that project-based learning is an effective approach for enhancing student understanding and academic achievement.

The results of this study have important implications for teaching and learning, particularly in the context of Pancasila Education. The success of the PjBL model in improving student engagement and learning outcomes suggests that it could be a valuable pedagogical approach for other subjects as well.

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By incorporating more project-based learning into the curriculum, educators can foster a more interactive and engaging learning environment that encourages students to take an active role in their education.

Additionally, the positive impact of the PjBL model on student outcomes highlights the importance of integrating real-world applications and collaboration into the learning process. Educators should aim to design learning experiences that connect classroom knowledge to practical situations, as this will enhance student understanding and help them develop important life skills. The findings of this study also suggest that teaching materials should be designed to support PjBL, with a focus on providing students with resources that facilitate collaboration, critical thinking, and problem-solving.

Furthermore, the study underscores the need for professional development for educators to effectively implement PjBL. While PjBL has proven to be effective in this study, its successful implementation requires teachers to be well-prepared and supported. This includes providing teachers with the necessary training, resources, and time to plan and execute project-based lessons effectively.

While this study provides valuable insights into the effectiveness of the PjBL model, there are several limitations that should be addressed in future research. First, the study focused on a small sample size of 36 students from one school, which limits the generalizability of the findings. Future research could expand the sample size and include students from different schools and educational settings to determine whether the findings are applicable across a broader population.

Second, the study primarily relied on quantitative measures to assess student learning outcomes. While these measures are important, qualitative data, such as student interviews or open-ended responses, could provide deeper insights into students' experiences with PjBL and their perceptions of its impact on their learning. Future studies could incorporate qualitative methods to complement the quantitative data and offer a more comprehensive understanding of the effects of PjBL.

Finally, future research could explore the long-term effects of PjBL on student learning. While this study measured learning outcomes immediately after the implementation of the PjBL model, it would be valuable to investigate whether the benefits of PjBL are sustained over time and whether students continue to apply the knowledge and skills they gained through project-based learning in other contexts.

6. Conclusion

The findings of this study demonstrate the significant impact of the Project-Based Learning (PjBL) model on enhancing Pancasila Education learning outcomes among grade V students at SD Negeri Tangkisan Pos. Data analysis revealed a substantial improvement in student performance, with scores increasing from a range of 60-80 under conventional teaching methods to 75-99 after implementing the PjBL approach. The implementation of PjBL transformed the classroom dynamic from a passive, lecture-dominated environment to an active, collaborative learning community where students engaged deeply with Pancasila values through meaningful projects.

Statistical analysis underscores the effectiveness of this approach, with teaching materials developed under the PjBL model contributing 61% to student learning outcomes. This indicates that well-structured, contextual teaching materials significantly influence learning effectiveness. Through projects focused on Pancasila principles such as "Gotong Royong" (mutual cooperation), students not only gained theoretical understanding but also demonstrated practical application of these values in real-world contexts, fostering deeper internalization of national principles.

The PjBL approach proved particularly effective in nurturing important 21st-century skills, including critical thinking, creativity, collaboration, and communication. Students showed remarkable improvements in their ability to work cooperatively, solve problems collectively, and present their ideas confidently. These findings support the broader educational literature that emphasizes the benefits of contextual, experiential learning approaches in developing well-rounded individuals.

This research contributes to the growing body of evidence supporting innovative pedagogical approaches in Pancasila Education, suggesting that integrating local wisdom with project-based

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methodologies can significantly enhance student engagement and learning outcomes. Future educational practices would benefit from incorporating more interactive, project-oriented strategies that connect theoretical concepts with practical applications, particularly in subjects focused on character development and national values education.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

[1] R. Januarita, M. Mawardi, and O. Suryani, "Development of teaching materials to support merdeka curriculum learning on periodic system materials for Phase E," *Jurnal Pijar MIPA*, vol. 18, no. 4, pp. 486-492, 2023. https://doi.org/10.29303/jpm.v18i4.5203

[2] D. Pristiwanti, B. Badariah, S. Hidayat, and R. S. Dewi, "Definition of education," *Jurnal Pendidikan Dan Konseling (JPDK)*, vol. 4, no. 6, pp. 7911-7915, 2022. https://doi.org/10.31004/jpdk.v4i6.9498

[3] M. Amarta, A. Lestari, I. Cahyani, and M. Mustafiyanti, "The role and function of the curriculum in general and specifically," *ALFIHRIS: Jurnal Inspirasi Pendidikan*, vol. 2, no. 1, pp. 82-89, 2024. https://doi.org/10.59246/alfihris.v2i1.637

[4] Takwim and Fadriati, "Dynamics of independent curriculum in the learning process at the Ishlahul Ummah Integrated Islamic Elementary School," *Dirasah Journal of Islamic Education Studies and Management*, vol. 7, no. 1, pp. 145–152, 2024.

[5] D. G. Alfiyanti and Y. Erita, "The validity of teaching materials using the problem-based learning model of independent curriculum social sciences materials in mobility elementary schools," *Journal of Digital Learning and Distance Education*, vol. 2, no. 1, pp. 433-443, 2023. https://doi.org/10.56778/jdlde.v2i1.57

[6] Y. Nuhuyanan and M. F. Seknun, "The influence of using biology teaching materials with a contextual teaching and learning (CTL) approach on ecosystem material on student learning outcomes," *PEDAGOGIC: Indonesian Journal of Science Education and Technology*, vol. 3, no. 2, pp. 107-118, 2023. https://doi.org/10.54373/ijset.v2i2.400

[7] K. Nusfiyah, "Project-based learning (PjBL) learning model through video projects to improve students' creativity and skills," *Journal of Islamic Education*, vol. 2, no. 1, pp. 16-21, 2024. https://doi.org/10.61231/jie.v2i1.245

[8] M. Meldawati, A. Hamid, and M. Mahdian, "Implementation of the project-based learning (PjBL) model assisted by the Chemondroid module application on creative thinking skills in the material on compound nomenclature," *Journal of Chemistry and Education*, vol. 6, no. 2, pp. 54-63, 2022. https://doi.org/10.20527/jcae.v6i2.1710

[9] S. Ariyaningrum and D. Sutejo, "The use of the project-based learning (PjBL) model to improve the learning outcomes of fourth grade students on the material of spatial structures (cubes and cuboids) at the UPT SD Negeri Kesamben 06 Blitar," *Pendas: Jurnal Ilmiah Pendidikan Dasar*, vol. 8, no. 1, pp. 5212-5222, 2023. https://doi.org/10.23969/jp.v8i1.8923

[10] I. W. Karmana, "Application of the project based learning (PjBL) model to scientific literacy skills and student learning outcomes in science learning at school," *Panthera: Jurnal Ilmiah Pendidikan Sains Dan Terapan*, vol. 4, no. 2, pp. 79-92, 2024. https://doi.org/10.36312/panthera.v4i2.273

[11] J. Safitri, "Impact of Instagram posts, Instagram stories, and Instagram reels on brand awareness of Muslim clothing brand Zombasic," *Journal of Islamic Economics Lariba*, vol. 8, no. 2, pp. 289-302, 2022. https://doi.org/10.20885/jielariba.vol8.iss2.art9

[12] N. H. A. Nasution, S. H. Pulungan, and Y. Harahap, "Learners' perceptions and participation in digital-based learning: A review of the effectiveness of teaching materials and worksheets," *Jurnal Penelitian Pendidikan IPA*, vol. 9, no. 10, pp. 8791-8797, 2023. https://doi.org/10.29303/jppipa.v9i10.5287

[13] Y. Sumyadi, U. Umasih, and A. Syukur, "The effect of teacher teaching skills against learning outcomes," *Social, Humanities, and Educational Studies (SHES): Conference Series*, vol. 3, no. 2, pp. 293-297, 2020. https://doi.org/10.20961/shes.v3i2.46250

[14] A. Masrufa, "Supporting factors to improve student achievement," *INA-Rxiv.*, 2019.

[15] S. Arifin, "Spiritual intelligence (SQ) as a supporting factor for student learning outcomes," *La-Tahzan: Jurnal Pendidikan Islam*, vol. 12, no. 2, pp. 201-214, 2020. https://doi.org/10.62490/latahzan.v12i2.103

[16] L. Jafnihirda, D. Irfan, W. Simatupang, and M. Muskhir, "Design of interactive project based learning (PjBL) modules based on flipbooks," *Judikatif: Jurnal Desain Komunikasi Kreatif*, vol. 4, no. 2, pp. 76-81, 2022. https://doi.org/10.35134/judikatif.v4i2.61

[17] E. H. Sitanggang, H. Hasratuddin, and J. Juhana, "Development of teaching materials based on project based learning models to improve procedural text writing skills," *Jurnal Ilmiah Profesi Pendidikan*, vol. 8, no. 3, pp. 1534-1539, 2023. https://doi.org/10.29303/jipp.v8i3.1546

[18] N. R. Dani, F. Farida, and Y. Fitria, "Development of integrated thematic teaching materials based on life skills using the project based learning model in elementary schools," *Jurnal Basicedu*, vol. 5, no. 5, pp. 3431-3444, 2021. https://doi.org/10.31004/basicedu.v5i5.1367

[19] R. D. S. M. Izzania, "Development of STEAM-integrated project based learning (PjBL) teaching materials to facilitate the science literacy skills of grade VI elementary school students.," *Jurnal Pembelajaran Dan Pengajaran Pendidikan Dasar*, vol. 5, no. 1, pp. 146-157, 2022. https://doi.org/10.33369/dikdas.v5i1.15914

[20] L. Sari, T. Taufina, and F. Fachruddin, "Development of student worksheets (LKPD) using the PJBL model in elementary schools," *Jurnal Basicedu*, vol. 4, no. 4, pp. 813-820, 2020. https://doi.org/10.31004/basicedu.v4i4.434

[21] I. Viscu, "Optimizing the educational environment for implementing active learning methodologies," *Acta et Commentationes Sciences of Education*, vol. 37, no. 3, pp. 97-105, 2024. https://doi.org/10.36120/2587-3636.v37i3.97-105

[22] D. R. Rizaldi and Z. Fatimah, "Merdeka curriculum: Characteristics and potential in education recovery after the COVID-19 pandemic," *International Journal of Curriculum and Instruction*, vol. 15, no. 1, pp. 260-271, 2023.

[23] B. Setiawan and E. Suwandi, "The development of Indonesia national curriculum and its changes: The integrated science curriculum development in Indonesia," *Journal of Innovation in Educational and Cultural Research*, vol. 3, no. 4, pp. 528-535, 2022. https://doi.org/10.46843/jiecr.v3i4.211

[24] S. Intishar, F. Z. Azzahro, I. H. Aris, S. Syukrotus, Z. Isnawati, and A. F. Hidayatullah, "Implementation of environmental care education from early age," *Science Education Journal*, vol. 4, no. 1, pp. 19-25, 2020. https://doi.org/10.21070/sej.v4i1.668

[25] K. H. Primayana, "The effectiveness of using teaching modules in the independent curriculum in elementary schools," *Edukasi: Jurnal Pendidikan Dasar*, vol. 3, no. 2, pp. 171-180, 2022. https://doi.org/10.55115/edukasi.v3i2.2481

[26] D. A. Yonanda, Y. D. Haryanti, Y. D. Kurino, A. Rosidah, and I. Sofiasyari, "Local wisdom-based pictorial teaching materials: A strategy for boosting ecoliteracy in elementary school students," *Profesi Pendidikan Dasar*, pp. 98-113, 2023. https://doi.org/10.23917/ppd.v10i2.4752

[27] J. Pranata, H. Wijoyo, and A. Suharyanto, "Local wisdom values in the Pujawali tradition," *Budapest International Research and Critics Institute-Journal*, vol. 4, pp. 590–596, 2021. https://doi.org/10.33258/birci.v4i1.1642

[28] A. Meliani, "Local wisdom emerged from a long process that took place with the community and its environment, becoming a local system that functions as a guide to life and culture that has existed since ancient times," *Journal of Cultural Studies*, vol. 15, no. 2, pp. 123-134, 2022.

[29] S. A. Sakti, S. Endraswara, and A. Rohman, "Revitalizing local wisdom within character education through ethnopedagogy apporach: A case study on a preschool in Yogyakarta," *Heliyon*, vol. 10, no. 10, p. e31370, 2024. https://doi.org/10.1016/j.heliyon.2024.e31370

[30] Y. Kamakaula, A. Amruddin, Y. Demmanggasa, S. Saprudin, and R. J. Nugroho, "The role of local knowledge in natural resources conservation: An environmental anthropological perspective in traditional agriculture," *Global International Journal of Innovative Research*, vol. 1, no. 2, pp. 97–106, 2024. https://doi.org/10.59613/global.v1i2.13

[31] D. L. Ramadhan and D. Nafisah, "Project-based learning vs. problem-based learning: Uncovering effective learning methods," *Journal of Technology Education and Teaching*, vol. 1, no. 3, pp. 108-114, 2024. https://doi.org/10.62734/jtech.v1i3.424

[32] Z. Abidin, "The PBL model focuses on single-concept material, which facilitates assessment because of the emphasis on topic," *Journal of Education and Learning*, vol. 12, no. 4, pp. 245-256, 2020.

[33] S. Hanif, A. F. C. Wijaya, and N. Winarno, "Enhancing students' creativity through STEM project-based learning," *Journal of science Learning*, vol. 2, no. 2, pp. 50-57, 2019. https://doi.org/10.17509/jsl.v2i2.13271

[34] M. H. Shofyana, M. G. Aditama, H. I. Nugroho, and H. T. Asmoro, "Integrating local wisdom in project-based learning to improve post-pandemic English learning," *English Franca: Academic Journal of English Language and Education*, vol. 6, no. 2, pp. 291-306, 2022. https://doi.org/10.29240/ef.v6i2.5418

[35] E. Cahyaningsih and G. K. Assidik, "Application of the discovery learning model to increase interest in learning news text material," *Buletin Pengembangan Perangkat Pembelajaran*, vol. 3, no. 1, pp. 1–10, 2021. https://doi.org/10.23917/bppp.v3i1.19385

[36] A. Thalib, P. Winarti, and N. K. Sani, "Development of SERLI (discovery learning) practical modules for science learning in elementary schools," *Profesi Pendidikan Dasar*, vol. 7, no. 1, pp. 53-64, 2020. https://doi.org/10.23917/ppd.v1i1.10817

[37] W. Creswell John and J. D. Creswell, *Research design: Qualitative, quantitative, and mixed methods approaches*, 5th ed. (Los Angeles London New Dehli Singapore). Sage Publications, 2009.

[38] D. Nainggolan, H. F. Pontororing, and D. Tinus, "The implementation of project-based learning to improve student learning outcomes in study about 'Pengantar Pancasila," *Educouns Journal*, vol. 2, no. 2, pp. 132-138, 2021. https://doi.org/10.53682/educouns.v2i2.3478

[39] Y. Yunita, Musli, and Sukarno, "The influence of project-based learning models on the students' Pancasila character and religious moderation attitudes," *Journal of Education and Culture*, vol. 5, no. 2, pp. 123–135, 2023.

[40] N. M. Janah, N. A'ini, S. N. Yulianti, and D. Z. Tarsidi, "Outdoor learning: Changing the view of the boring subject of Pancasila education in elementary school," *Cakrawala: Journal of Citizenship Teaching and Learning*, vol. 2, no. 2, pp. 92-100, 2024. https://doi.org/10.70489/7pbpx295

[41] F. Salam, R. Mailok, N. Ubaidullah, and U. Ahmad, "The effect of project-based learning against students' engagement," *International Journal of Development Research*, vol. 6, no. 02, pp. 6891-6895, 2016.

[42] H. Sudarso, A. Nurhikmah, M. Deiniatur, M. Megawati, and A. F. Syam, "Analyzing the use of project-based learning in English education: Enhancing student engagement and communication skills," *Edu Cendikia: Jurnal Ilmiah Kependidikan*, vol. 4, no. 1, p. 4305, 2024. https://doi.org/10.47709/educendikia.v4i01.4305

[43] Y. Chang, J. Choi, and M. Şen-Akbulut, "Undergraduate students' engagement in project-based learning with an authentic context," *Education Sciences*, vol. 14, no. 2, p. 168, 2024. https://doi.org/10.3390/educsci14020168

[44] S. Wang, "Critical thinking development through project-based learning," *Journal of Language Teaching & Research*, vol. 13, no. 5, pp. 1007–1013, 2022. https://doi.org/10.17507/jltr.1305.13

[45] W. Ananda, A. Johari, and N. Nazarudin, "The effect of the project-based learning (PjBL) model based on an integrated STEM approach with entrepreneurial character on students' creative thinking ability," *Berkala Ilmiah Pendidikan Fisika*, vol. 12, no. 1, pp. 141-152, 2024. https://doi.org/10.20527/bipf.v12i1.17937

[46] N. Tuanany, S. Wael, and H. Tuaputty, "Integration of project based learning (PjBL) and picture and picture (PaP) learning models on process skills, critical thinking, and learning outcomes of Class X IPA students at SMA Muhammadiyah Masohi and SMA Negeri 15 Central Maluku," *RUMPHIUS Pattimura Biological Journal*, vol. 5, no. 1, pp. 007-011, 2023. https://doi.org/10.30598/rumphiusv5i1p007-011

[47] J. Hanham and A. Hendry, "Timing matters: Unpacking the dynamics of project-based groups through exploring proxy efficacy and collective efficacy," *International Journal of Educational Research*, vol. 126, p. 102387, 2024. https://doi.org/10.1016/j.ijer.2024.102387

[48] F. C. Wibowo and N. J. Ahmad, "Enhancing creative thinking skills through project-based learning assisted game open online physics instructional," *Jurnal Ilmu Pendidikan Fisika*, vol. 8, no. 3, pp. 278-286, 2023. https://doi.org/10.26737/jipf.v8i3.3868

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