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# Implementation of Project-Based IPAS Learning Integrated With Pancasila Student Profile to Enhance Creativity and Social Care of Fifth-Grade Students at SDN 237 Pinrang

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#### **Abstrak**

Penelitian ini bertujuan untuk menganalisis penerapan pembelajaran IPAS berbasis proyek yang terintegrasi dengan Profil Pelajar Pancasila dalam meningkatkan kreativitas dan kepedulian sosial siswa kelas V SDN 237 Pinrang. Metode penelitian yang digunakan adalah penelitian tindakan kelas dengan pendekatan kualitatif dan kuantitatif yang dilaksanakan dalam dua siklus. Subjek penelitian adalah 28 siswa kelas V SDN 237 Pinrang. Teknik pengumpulan data menggunakan observasi, tes kreativitas, angket kepedulian sosial, wawancara, dan dokumentasi. Analisis data dilakukan secara deskriptif kualitatif dan kuantitatif dengan menggunakan statistik deskriptif. Hasil penelitian menunjukkan bahwa penerapan pembelajaran IPAS berbasis proyek terintegrasi Profil Pelajar Pancasila dapat meningkatkan kreativitas siswa dari rata-rata 68,5 pada siklus I menjadi 84,2 pada siklus II. Kepedulian sosial siswa juga mengalami peningkatan dari kategori sedang 67,3% menjadi kategori tinggi 89,7%. Implementasi pembelajaran ini melibatkan proyek-proyek yang relevan dengan kehidupan sehari-hari seperti pengelolaan sampah, konservasi air, dan kearifan lokal Pinrang yang mengintegrasikan elemen Profil Pelajar Pancasila. Simpulan penelitian ini adalah pembelajaran IPAS berbasis proyek terintegrasi Profil Pelajar Pancasila efektif meningkatkan kreativitas dan kepedulian sosial siswa melalui pembelajaran yang bermakna dan kontekstual.

**Kata Kunci**: IPAS, pembelajaran berbasis proyek, Profil Pelajar Pancasila, kreativitas, kepedulian sosial

## **Abstract**

This research aims to analyze the implementation of project-based Integrated Natural and Social Sciences (IPAS) learning integrated with Pancasila Student Profile in enhancing creativity and social care among fifth-grade students at SDN 237 Pinrang. The research method employed was classroom action research with qualitative and quantitative approaches conducted in two cycles. The research subjects were 28 fifth-grade students at SDN 237 Pinrang. Data collection techniques included observation, creativity tests, social care questionnaires, interviews, and documentation. Data analysis was conducted descriptively using both qualitative and quantitative methods with descriptive statistics. The results demonstrated that the implementation of project-based IPAS learning integrated with Pancasila Student Profile effectively enhanced student creativity from an average of 68.5 in cycle I to 84.2 in cycle II. Student social care also increased from moderate category 67.3% to high category 89.7%. The implementation involved projects relevant to daily life such as waste management, water conservation, and local wisdom of Pinrang that integrated elements of Pancasila Student Profile. The research concludes that project-based IPAS learning integrated with Pancasila Student Profile is effective in enhancing student creativity and social care through meaningful and contextual learning experiences.

Keywords: IPAS, Project-Based Learning, Pancasila Student Profile, Creativity, Social Care

## Introduction

Indonesian education has undergone significant transformation with the implementation of the Merdeka Curriculum, which emphasizes meaningful learning and character development through the Pancasila Student Profile. Integrated Natural and Social Sciences (IPAS) learning as an integrated subject in the Merdeka Curriculum plays a strategic role in developing students' abilities to understand natural and social phenomena holistically (Ministry of Education, Culture, Research, and Technology, 2022). However, the implementation of IPAS learning at the elementary school level still faces various challenges, particularly in integrating learning approaches that can optimally develop students' creativity and social care.

Initial observations at SDN 237 Pinrang revealed that IPAS learning was still dominated by conventional teacher-centered approaches. Students tended to be passive in the learning process and were less engaged in activities that could develop their creativity. Evaluation data showed that 68% of fifth-grade students had low-level creativity, while 72% of students demonstrated suboptimal social care toward their surrounding environment. This condition indicates the need for learning innovation that can optimize students' potential in creativity and social care aspects.

Project-based learning represents one of the learning approaches that has been proven effective in developing student creativity. According to Larmer et al. (2015), project-based learning can increase student engagement, develop 21st-century skills, and provide meaningful learning experiences. Research conducted by Wulandari & Sholihin (2020) demonstrated that implementing project-based learning could increase student creativity by 35% compared to conventional learning. Meanwhile, Pratiwi et al. (2021) found that project-based learning was also effective in developing student character, including social care.

The integration of Pancasila Student Profile in learning constitutes a distinctive characteristic of the Merdeka Curriculum aimed at developing student character in accordance with Pancasila values. Rachmawati et al. (2022) explained that the Pancasila Student Profile consists of six dimensions: faithful and pious to God Almighty and having noble character, global diversity, mutual cooperation, independence, critical reasoning, and creativity. These dimensions

align with the objectives of developing student creativity and social care in IPAS learning.

Creativity in the context of IPAS learning relates not only to students' ability to generate new ideas but also to their capacity to solve problems innovatively and apply knowledge in different contexts. According to Torrance (in Munandar, 2014), creativity comprises four main components: fluency, flexibility, originality, and elaboration. Meanwhile, social care in IPAS learning relates to students' ability to understand and respond to social and environmental problems around them with empathy and responsibility.

Previous research conducted by Suryani & Widodo (2019) on project-based learning in science subjects showed positive results in enhancing student creativity. However, this research had not comprehensively integrated social aspects and student character. Research by Andini et al. (2020) on the implementation of Pancasila Student Profile in learning demonstrated positive impacts on character development but had not specifically examined creativity and social care aspects in the context of IPAS learning.

Based on literature analysis and field conditions, the research problems can be formulated as follows: (1) How is the implementation of project-based IPAS learning integrated with Pancasila Student Profile in fifth-grade at SDN 237 Pinrang? (2) How does student creativity improve after implementing project-based IPAS learning integrated with Pancasila Student Profile? (3) How does student social care improve after implementing project-based IPAS learning integrated with Pancasila Student Profile?

The objectives of this research are to: (1) describe the implementation of project-based IPAS learning integrated with Pancasila Student Profile in fifth-grade at SDN 237 Pinrang; (2) analyze the improvement of student creativity after implementing project-based IPAS learning integrated with Pancasila Student Profile; (3) analyze the improvement of student social care after implementing project-based IPAS learning integrated with Pancasila Student Profile.

The scope of this research is limited to the implementation of project-based IPAS learning integrated with Pancasila Student Profile for fifth-grade students at SDN 237 Pinrang in the second semester of the 2023/2024 academic year. The aspects studied are limited to student

creativity and social care using indicators established in the research instruments.

The novelty of this research lies in the integration of project-based IPAS learning with Pancasila Student Profile specifically focused on developing creativity and social care of elementary school students. The differences from previous research are: (1) this research systematically integrates project-based learning approaches with six dimensions of Pancasila Student Profile; (2) the research focus on IPAS subjects which integrate natural and social sciences in the Merdeka Curriculum; (3) development of creativity and social care assessment instruments adapted to IPAS learning contexts and elementary school student characteristics; (4) implementation of projects relevant to Pinrang local wisdom as meaningful learning contexts.

#### Method

This research employed Classroom Action Research (CAR) methodology with mixed methods approach combining qualitative and quantitative approaches. The CAR model used was the Kemmis and McTaggart model consisting of four stages in each cycle: planning, acting, observing, and reflecting. The research was conducted in two cycles with each cycle consisting of three meetings.

The research was conducted at SDN 237 Pinrang, Watang Sawitto District, Pinrang Regency, South Sulawesi Province in the second semester of the 2023/2024 academic year, from February to April 2024. The research subjects were 28 fifth-grade students at SDN 237 Pinrang, consisting of 15 male students and 13 female students. The selection of research subjects was based on initial observations showing low levels of creativity and social care among students in IPAS learning.

The variables observed in this research included: (1) independent variable, namely project-based IPAS learning integrated with Pancasila Student Profile; (2) dependent variables, namely student creativity and social care. Creativity was measured based on fluency, flexibility, originality, and elaboration indicators, while social care was measured based on empathy, social responsibility, environmental care, and social participation indicators.

The learning model used was Project-Based Learning (PBL) integrated with six dimensions of Pancasila Student Profile. Learning stages included: (1) determining essential questions that integrate Pancasila Student Profile dimensions; (2) designing project planning involving student creativity; (3) creating project schedules that encourage independence and mutual cooperation; (4) monitoring students and project progress by developing critical reasoning abilities; (5) testing project results reflecting global diversity; (6) evaluating experiences by strengthening faith and piety.

The research design used a spiral design allowing continuous improvement based on reflection results from each cycle. Each cycle was designed to address problems found in the previous cycle and improve learning quality gradually.

Research instruments used included: (1) teacher and student activity observation sheets; (2) creativity tests adapted from the Torrance Test of Creative Thinking (TTCT); (3) social care questionnaires developed based on Hoffman's theory of empathy and social care; (4) interview guidelines for teachers and students; (5) documentation sheets for learning activities and student project results.

Data collection techniques were conducted through: (1) participatory observation to observe learning processes and student activities; (2) creativity tests conducted before and after learning implementation in each cycle; (3) administering social care questionnaires to students; (4) in-depth interviews with class teachers and selected students; (5) documentation including photos, videos, and student work products.

Data analysis techniques used descriptive qualitative and quantitative analysis. Qualitative data from observations and interviews were analyzed using Miles and Huberman's interactive analysis technique including data reduction, data presentation, and conclusion drawing. Quantitative data from creativity tests and social care questionnaires were analyzed using descriptive statistics by calculating means, percentages, achievement categories. Research success criteria were established if 80% of students achieved high categories for creativity and social care.

#### **Results And Discussion**

The implementation of project-based IPAS learning integrated with Pancasila Student Profile in fifth-grade at SDN 237 Pinrang was conducted through two cycles with

themes relevant to students' daily lives. In cycle I, the chosen project theme was "Waste Management in School Environment" which integrated materials about material cycles, waste impacts on the environment, and community roles in maintaining environmental cleanliness.

Learning implementation in cycle I showed fairly high student enthusiasm, although there were still several obstacles in its execution. Observation results indicated that 64% of students actively participated in group discussions, 68% of students demonstrated creativity in designing waste management solutions, and 71% of students showed care for the school environment. Obstacles found included students' limited critical reasoning abilities and lack of collaboration skills in group work.

Based on cycle I reflection results, improvements were made in cycle II with the project theme "Water Conservation and Pinrang Local Wisdom." This project was designed to

integrate knowledge about water cycles, the importance of water conservation, and local wisdom of Pinrang community in managing water resources. Improvements made included using more varied learning media, more heterogeneous group divisions, and providing clearer scaffolding to help students in critical reasoning.

Cycle II implementation results showed significant improvement. Observations indicated that 89% of students actively participated in learning, 87% of students demonstrated high creativity in developing projects, and 92% of students showed high social care toward environmental and community problems.

Student creativity measurement results using instruments adapted from the Torrance Test of Creative Thinking (TTCT) showed consistent improvement from pre-cycle to cycle II. Student creativity data are presented in the following table:

**Table 1. Student Creativity Enhancement** 

<b>Creativity Aspect</b>	Pre-cycle	Cycle I	Cycle II	Improvement
Fluency	62.3	66.8	82.1	31.8%
Flexibility	58.7	65.4	79.8	35.9%
Originality	55.2	69.1	86.3	56.3%
Elaboration	60.8	72.6	88.7	45.9%
Average	59.3	68.5	84.2	42.1%

The most significant student creativity improvement occurred in the originality aspect with 56.3% improvement, followed by the elaboration aspect with 45.9% improvement. This indicates that project-based learning is effective in encouraging students to generate original ideas and develop those ideas in detail.

Individual analysis showed that in the pre-cycle, only 7% of students (2 people) achieved high creativity category, 25% of students (7 people) moderate category, and 68% of students (19 people) low category. In cycle I, there was improvement with 18% of students (5

people) in high category, 46% of students (13 people) in moderate category, and 36% of students (10 people) in low category. In cycle II, the improvement became more significant with 82% of students (23 people) achieving high category, 18% of students (5 people) moderate category, and no students in the low category.

Student social care was measured using questionnaires developed based on four indicators: empathy, social responsibility, environmental care, and social participation. Measurement results showed consistent improvement as presented in the following table:

**Table 2. Student Social Care Enhancement** 

Indicator	Pre-cycle	Cycle I	Cycle II	Improvement
Empathy	61.4	68.7	87.2	42.0%
Social Responsibility	58.3	64.8	89.6	53.7%
<b>Environmental Care</b>	63.7	71.2	91.3	43.3%
Social Participation	55.9	64.5	90.8	62.4%
Average	59.8	67.3	89.7	50.2%

The highest social care improvement occurred in the social participation indicator with 62.4% improvement, followed by social responsibility with 53.7% improvement. This indicates that project-based learning integrated with Pancasila Student Profile is effective in encouraging students to be more actively participating in social activities and developing responsibility toward the environment and community.

Social care category distribution showed significant changes. In the pre-cycle, only 11% of students (3 people) had high social care, 32% of students (9 people) moderate category, and 57% of students (16 people) low category. In cycle I, there was improvement with 21% of students (6 people) in high category, 54% of students (15 people) in moderate category, and 25% of students (7 people) in low category. In cycle II, the improvement became more dramatic with 86% of students (24 people) achieving high category, 14% of students (4 people) moderate category, and no students in the low category.

#### **Discussion**

Research results demonstrate that implementing project-based IPAS learning integrated with Pancasila Student Profile proved effective in enhancing student creativity and social care. This success aligns with constructivism theory which emphasizes that learning becomes more effective when students actively construct their knowledge through direct and meaningful experiences (Vygotsky, 1978).

The integration of six Pancasila Student Profile dimensions in project-based learning provides rich contexts for student character development. The "creative" dimension directly supports student creativity development, while "mutual cooperation" and "global diversity" dimensions support social care development. This aligns with research by Wijaya et al. (2022) which found that integrating Pancasila Student Profile in learning can simultaneously enhance various aspects of student character.

Project-based learning provides authentic contexts for students to apply IPAS knowledge in solving real problems in their environment. The waste management and water conservation projects chosen in this research were relevant to students' daily lives and provided opportunities for them to make real contributions to school and community environments. Khoiriah et al. (2021) emphasized that contextual project-

based learning can increase student motivation and engagement in learning.

Creativity Enhancement Through Project-Based Learning

Significant student creativity improvement, especially in originality and elaboration aspects, demonstrates that projectbased learning provides wide space for students to express their ideas freely and develop them in detail. Torrance (2016) explained that creativity develops optimally in learning provide environments that freedom of expression and challenges appropriate to student abilities.

The originality aspect experiencing the highest improvement (56.3%) indicates that students were able to generate unique and unconventional ideas in completing assigned projects. This was possible because project-based learning encourages students to think divergently and seek alternative solutions to problems faced. Amabile & Kramer (2019) stated that creativity develops when individuals are given autonomy in choosing ways to complete tasks and are supported by environments that appreciate idea diversity.

The elaboration aspect improvement (45.9%) indicates that students were not only able to generate ideas but also develop them into detailed and comprehensive solutions. In the context of waste management projects, for example, students not only proposed making trash bins but also designed systems for processing organic waste into compost and education programs for other students.

Student social care improvement, particularly in social participation (62.4%) and social responsibility (53.7%) aspects, demonstrates the effectiveness of integrating Pancasila Student Profile in learning. The "mutual cooperation" dimension in Pancasila Student Profile explicitly encourages students to collaborate and care for collective welfare, while the "global diversity" dimension develops empathy and understanding of diversity.

Projects chosen in this research provided real opportunities for students to contribute to their communities. When students saw positive impacts from projects they worked on, such as reduced waste in the school environment or increased awareness among peers about water conservation, they developed stronger senses of meaningfulness and social responsibility. Hoffman (2020) explained that social care develops through direct experiences in helping

others and seeing positive impacts from their actions.

Student empathy improvement (42.0%) indicates that project-based learning integrated with Pancasila Student Profile helps students develop abilities to understand and feel others' feelings. When students work in groups to complete projects, they learn to listen to different perspectives, appreciate each group member's contributions, and provide support when needed.

Integrating Pinrang local wisdom in water conservation projects in cycle II provided additional dimensions in learning that strengthened students' cultural identity while developing appreciation for diversity. Students learned about Pinrang community traditions in managing water resources, such as traditional irrigation systems "pa'rureng" and wisdom in maintaining water springs.

Learning that connects academic content with local wisdom proves more meaningful for students because they can see direct relevance to their lives. Suastra (2017) stated that learning integrating local wisdom not only improves students' academic achievement but also strengthens cultural identity and sense of belonging to the environment.

Research results indicate that project-based IPAS learning integrated with Pancasila Student Profile has holistic impacts on student development. Besides enhancing creativity and social care, this learning also develops other 21st-century skills such as collaboration, communication, and problem-solving.

Observations during research showed that students became more confident in conveying ideas, more open to criticism and suggestions, and more capable of working together in teams. This aligns with Pancasila Student Profile objectives which not only develop cognitive aspects but also affective and psychomotor aspects of students in balance.

Lickona (2019) emphasized that effective character education must be integrated into all learning aspects and provide opportunities for students to practice learned values in real contexts. Project-based learning integrated with Pancasila Student Profile meets these criteria by providing opportunities for students to practice Pancasila values through meaningful projects.

## Conclusion

Based on research results and discussion, it can be concluded that implementing project-based IPAS learning integrated with Pancasila Student Profile proved effective in enhancing creativity and social care of fifth-grade students at SDN 237 Pinrang. Student creativity experienced significant improvement from an average of 59.3 in the pre-cycle to 84.2 in cycle II, with the highest improvement in originality (56.3%) and elaboration (45.9%) aspects. Student social care also improved from an average of 59.8 in the pre-cycle to 89.7 in cycle II, with the highest improvement in social participation (62.4%) and social responsibility (53.7%) aspects.

This learning implementation successfully integrated six Pancasila Student Profile dimensions through contextual projects relevant to student life. Waste management and water conservation projects integrating Pinrang local wisdom provided meaningful learning experiences and encouraged students to actively participate in solving environmental and social problems. Project-based learning provided wide space for students to express their creativity while developing character according to Pancasila values.

Research limitations include the limited number of research subjects to one class and relatively short research duration. Additionally, creativity and social care measurement instruments still require further validation to ensure reliability and validity in elementary school IPAS learning contexts. External factors such as parental support and community environment were also not measured comprehensively in this research.

Recommendations for future research include conducting research with larger samples and longer duration to validate these findings. Future research can also examine other aspects of Pancasila Student Profile such as critical reasoning abilities and student Developing independence. more comprehensive assessment instruments integrated with digital technology can also be a focus for future research. Additionally, research on the effectiveness of this learning at different education levels and other subjects needs to be conducted to expand the generalization of findings.

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## References

Amabile, T. M., & Kramer, S. J. (2019). *The progress principle: Using small wins to ignite joy, engagement, and creativity at work* (2nd ed.). Harvard Business Review Press. https://doi.org/10.1037/h0101045.

Andini, S., Budiyanto, M., & Arifin, I. (2020). Implementation of Pancasila student profile in elementary school learning. *Jurnal Basicedu*, 4(6), 1423-1430.

https://doi.org/10.31004/basicedu.v4i6.534.

Anugraheni, I. (2018). Meta-analysis of problem-based learning model in improving critical thinking skills in elementary schools. *Polyglot: Jurnal Ilmiah*, 14(1), 9-18. https://doi.org/10.19166/pji.v14i1.789.

Arikunto, S., Suhardjono, & Supardi. (2015). *Classroom action research* (Revised Edition). Bumi Aksara.

Astuti, A. P., Aziz, A., & Sumarti, S. S. (2019). Preparing 21st century teachers: Implementation of 4C character's pre-service chemistry teachers through chemistry pedagogical training. Journal of Physics: Conference Series, 1233(1), 012109. https://doi.org/10.1088/1742-6596/1233/1/012109.

Dewi, P. Y. A., & Primayana, K. H. (2019). Effect of learning module with setting contextual teaching and learning to increase the learning outcome. *International Journal of Education and Learning*, 1(1), 19-26. https://doi.org/10.31763/ijele.v1i1.26.

Fadillah, A., & Bilda, W. (2019). Project-based learning model on creative thinking ability and student learning outcomes. *Jurnal Bidang Pendidikan Dasar*, 3(2), 47-54. https://doi.org/10.21067/jbpd.v3i2.3442.

Hakim, L. (2018). Implementation of project-based learning model to improve learning outcomes. *PEDAGOGIK: Jurnal Pendidikan*, 5(2), 17-31.

https://doi.org/10.33650/pjp.v5i2.459.

Hoffman, M. L. (2020). *Empathy and moral development: Implications for caring and justice* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511805851.

Katz, L. G., & Chard, S. C. (2014). *Engaging children's minds: The project approach* (3rd ed.). Praeger Publishers.

Kemendikbudristek. (2022). Guidelines for developing Pancasila student profile strengthening projects. Directorate General of Early Childhood Education, Primary and Secondary Education.

Khoiriah, K., Jalmo, T., & Abdurrahman, A. (2021). The effect of project based learning model on creative thinking skills and science process skills. *Journal of Physics: Conference Series*, 1796(1), 012081. <a href="https://doi.org/10.1088/1742-6596/1796/1/012081">https://doi.org/10.1088/1742-6596/1796/1/012081</a>.

Larmer, J., Mergendoller, J., & Boss, S. (2015). Setting the standard for project based learning: A proven approach to rigorous classroom instruction. ASCD.

Lickona, T. (2019). Educating for character: How our schools can teach respect and responsibility (2nd ed.). Bantam Books.

Miles, M. B., Huberman, A. M., & Saldana, J. (2018). *Qualitative data analysis: A methods sourcebook* (4th ed.). SAGE Publications.

Munandar, U. (2014). Development of gifted children's creativity (3rd ed.). Rineka Cipta.

Nurlaela, L., & Ismayati, E. (2015). Creative thinking learning strategies to improve students' creative thinking abilities. *Jurnal Ilmiah Pendidikan Matematika*, 4(2), 143-154. https://doi.org/10.26877/jipmat.v4i2.1518.

Pratiwi, N. K., Dewi, N. L. P. E. S., & Paramartha, A. A. G. Y. (2021). Reflection of independent learning curriculum in character education perspective. *Jurnal Ilmiah Pendidikan Citra Bakti*, 8(2), 317-332. <a href="https://doi.org/10.38048/jipcb.v8i2.228">https://doi.org/10.38048/jipcb.v8i2.228</a>.

Rachmawati, N., Marini, A., Nafiah, M., & Nurasiah, I. (2022). Pancasila student profile strengthening project in implementing prototype curriculum in elementary school driving schools. *Jurnal Basicedu*, 6(3), 3613-3625.

https://doi.org/10.31004/basicedu.v6i3.2714.

Suastra, I. W. (2017). Balinese local wisdom and their implications in science education at school. *International Research Journal of Management, IT and Social Sciences*, 4(2), 48-57. <a href="https://doi.org/10.21744/irjmis.v4i2.397">https://doi.org/10.21744/irjmis.v4i2.397</a>.

Suryani, K., & Widodo, N. (2019). Application of project-based learning model to enhance student creativity in science subjects. *Jurnal Penelitian Pendidikan*, 19(3), 333-346. https://doi.org/10.17509/jpp.v19i3.20181.

Torrance, E. P. (2016). *The Torrance tests of creative thinking: Technical manual* (2nd ed.). Scholastic Testing Service.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wijaya, E. Y., Sudjimat, D. A., Nyoto, A., & Malang, U. N. (2022). 21st century education transformation as a demand for human resource development in the global era. *Prosiding* 

Seminar Nasional Pendidikan Matematika, 1, 263-278.

https://doi.org/10.17977/um039v1i12016p263. Wulandari, B., & Sholihin, H. (2020). Application of project-based learning (PjBL) model to enhance student creativity on digestive system material. *Jurnal Pendidikan Sains Indonesia*, 8(1), 81-89. https://doi.org/10.24815/jpsi.v8i1.15394.