Improving the Profile of Pancasila and Skills through the Integration of Project and Problem-Based Learning

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Abstract. Developing Pancasila student profile dimensions and 21st-century skills remains a significant challenge in modern education. This study aims to enhance 21st-century skills and strengthen the Pancasila student profile by integrating Project-Based and Problem-Based Learning methodologies grounded in research and community service. A mixed-methods approach was employed, with qualitative data collected from three informants selected through purposive sampling and quantitative data gathered from 68 respondents using total sampling. Data collection methods included questionnaires, observations, interviews, and documentation. Qualitative data is analyzed through the stages of reduction, display, and conclusion, while quantitative data is processed using descriptive statistics and correlation analysis through JASP software. Triangulation was applied to ensure the validity of the qualitative data, and statistical tests were used for the quantitative data. The results indicate that integrating project-based and problem-based learning in the Social Sciences Learning course, Research Methods, and Social Statistics significantly enhances the dimensions of the Pancasila student profile while improving 21st-century skills. This study highlights the effectiveness of combining innovative learning models to foster students' character and skill development.

INTRODUCTION

In modern higher education, learning innovations are paramount as lecturers prepare students for the complexities of 21st-century life. These innovations must keep pace with technological advancements and address the evolving characteristics and skill sets required of students today. The 21st century demands that students possess the "4C" skills collaboration, creativity, communication, and critical thinking—while maintaining a solid foundation in character development, which, in Indonesia, is encapsulated in the Pancasila student profile (Ayubi et al., 2024; Israpil &

Suardi, 2021; Muhajir et al., 2023; Munir et al., 2024; Nursalam & Suardi, 2022; Suardi, 2024; Suardi & Muhajir, 2022) .

Educators are increasingly adopting innovative learning models such as project-based and problem-based learning to cultivate these competencies. PjBL has been shown to improve collaboration, creativity, communication, and critical thinking skills by engaging students in real-world projects and teamwork (Dai et al., 2024a) (Serrano-Ausejo & Mårell-Olsson, 2024a). Similarly, Problem-Based Learning is recognized for enhancing problem-solving abilities, critical thinking,

and conceptual understanding while fostering creativity and writing skills (Yan et al., 2024a) (Munir et al., 2024). These methods are particularly relevant in the University of Muhammadiyah Makassar context, where the lecture process has not yet fully embraced the active, student-centered approaches needed to foster academic and personal growth.

A proposed solution to this gap combines project-based and problem-based learning enriched by research and devotion-based activities. This integrated model comprises multiple phases, including scientific project formulation, data collection, and reflection, which are aimed at developing students' academic skills and moral and social responsibilities, as aligned with the Pancasila student profile (Israpil & Suardi, 2021; Suardi, 2024; Vioreza et al., 2023a). The 16-phase structure of this combined approach includes stages such as data analysis, team organization, and final project reflection, all of which contribute to a deeper understanding and engagement in both theoretical and practical aspects of learning (Chang et al., 2024) (Widana et al., 2023a).

In courses such as Social Sciences Learning for Elementary Education, Research Methods, and Social Statistics at the University of Muhammadiyah Makassar, current teaching approaches remain primarily theoretical, focusing on abstract concepts rather than practical application. As a result, students do not need to reconnect educational theories with real-world social issues, which limits their ability to contribute meaningfully to society through research (Peng et al., 2024a). Combining project-based and problem-based learning, enhanced by devotion-based activities, offers a solution that aligns to strengthen 21st-century skills and the values of the Pancasila student profile.

While previous research has explored the benefits of project-based and problem-based learning individually, more needs to be explored regarding their combined application in research and devotion-based projects, particularly in the context of social sciences education in Indonesia. This study aims to fill that gap by investigating how this innovative approach can enhance students' abilities in collaboration, communication, creativity, and critical thinking while simultaneously reinforcing character education in line with Pancasila values (Ikhsan & Purwastuti, 2024a) (Hadiyanto, 2024a).

This research aims to develop and evaluate a combined learning model for Social Science courses at the University of Muhammadiyah Makassar, specifically in Elementary School Social Studies, Research Methods, and Social Statistics. This model aims to improve students' collaboration, communication, creativity, and critical thinking abilities while aligning with the moral and ethical standards set forth by the Pancasila student profile (Subiyantoro et al., 2023a).

Based on the background of the problem, the formulation of the problem that is the focus of this study is:

1. Whether project-based and problem-based learning can provide Strengthening the Pancasila Student Profile?

2. Can project-based and problem-based learning improve 21st-century skills?

3. How do students respond to implementing a combination of project-based and problem-based learning?

4. How does project-based and problem-based learning relate to the Pancasila Student Profile and 21st-century skills?

RESEARCH METHODS

This study employs a mixed-method research approach following a concurrent embedded design, where quantitative and qualitative methods are utilized simultaneously, albeit with different emphases. The study was conducted at the University of Muhammadiyah Makassar, focusing on various levels within the student body. The quantitative phase involved distributing a closed-ended questionnaire via Google Forms, while the qualitative phase relied on in-depth interviews. The primary participants for the qualitative component were three class leaders, selected using purposive sampling (Munir et al., 2024), and the quantitative component was conducted with 68 students, chosen through total sampling.

The research respondents can be 68 people from 3 classes; the details can be seen in the following table:

Frequency for Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Woman	63	92.647	92.647	92.647
Man	5	7.353	7.353	100.000
Missing	0	0.000		
Total	68	100.000		

Frequencies for Classes

Class	Frequency	Percent	Valid Percent	Cumulative Percent
SD4F	22	32.353	32.353	32.353
PPKN 21	21	30.882	30.882	63.235
SD4E	25	36.765	36.765	100.000
Missing	0	0.000		
Total	68	100.000		

For data collection, this study uses three techniques: questionnaires, observations, and interviews. The quantitative data were analyzed using questionnaire verification, data

tabulation, and percentage calculations. In contrast, the qualitative data analysis followed the stages of data reduction, data display, and conclusion drawing, as outlined by Miles and Huberman's interactive model (Ikhsan & Purwastuti, 2024b). Triangulation was employed to ensure the rigor of the findings by method and source (Dilekçi & Karatay, 2023a).

The validity and reliability of the data were meticulously tested. Qualitative validity was ensured through source and method triangulation (Vioreza et al., 2023b), which enhances the credibility of the findings by comparing the consistency of the data obtained through different methods and sources. On the other hand, quantitative validity was confirmed via validity and reliability tests using statistical software to assess the internal consistency of the questionnaire items.

This mixed-methods approach offers a robust framework for exploring both the numerical and experiential aspects of the research problem, aligning to generate a comprehensive understanding of the subject matter. Combining quantitative data from a large sample and qualitative insights from critical informants ensures both breadth and depth in addressing the research questions (Dai et al., 2024b) (Widana et al., 2023b).

RESULT

The lecture process in the Elementary School Social Science Learning Course,

Research Methods and Social Statistics through a combination of project-based and problem-based learning based on *scientific projects and service projects,* providing Strengthening the Pancasila Student Profile. The results of the questionnaire on 68 students from classes SD4F, SD4E and PPKN 21 can be seen in the following figure 1:
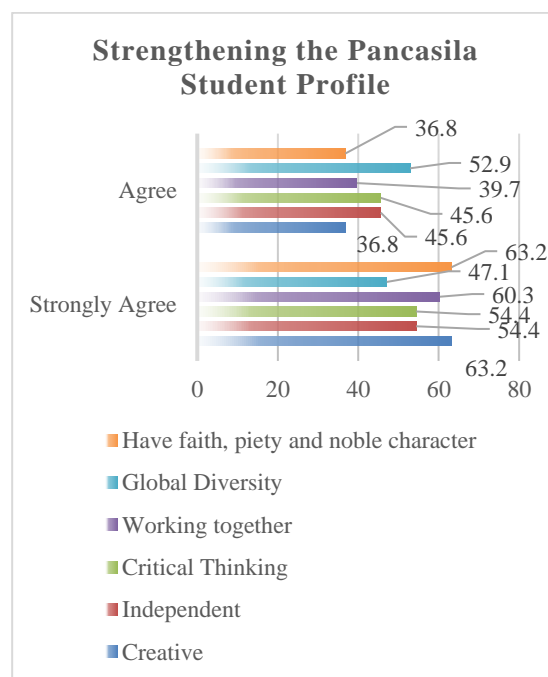

Figure 1. Strengthening the Pancasila Student Profile through a combination of project-based and problem-based learning.

According to Figure 1, the responses from 68 students in classes SD4F, SD4E, and PPKN 21 show strong agreement on the importance of strengthening the Pancasila Student Profile across all dimensions, though the specific response levels vary. The highest agreement was observed in the faith, piety, and noble character dimension, with 63.2% of students strongly agreeing, while creativity received the lowest strong agreement at

47.1%. These findings reflect the complex nature of fostering cognitive and moral development in education, consistent with previous studies highlighting the importance of character education in Indonesian schools (Munir et al., 2024) (Zein et al., 2023a).

The analysis of the creative dimension reveals that students recognized the need for flexibility in thinking as a critical component of creativity, with 77.9% agreeing that it enhances problem-solving. However, the relatively lower scores for producing original works (33.8%) and generating original ideas (25.5%) suggest that while students may be confident in adapting existing ideas, there is room for growth in encouraging innovative thinking (Dilekçi & Karatay, 2023b). This underscores the challenge of nurturing creativity as a multifaceted skill that requires both guidance and freedom in educational settings (Chang et al., 2024).

On the other hand, the faith, piety, and noble character dimension showed the most robust student agreement in terms of religious morality (80.9%), followed by morality towards humans (63.2%) and personal morality (52.9%). These results align with the broader goals of character education in Indonesia, which emphasizes integrating religious and moral values into everyday learning (Subiyantoro et al., 2023b). However, the relatively lower scores for morality towards nature (23.5%) and state morality (26.5%) suggest a need for more targeted

efforts in these areas, especially as global education frameworks increasingly emphasize environmental responsibility and citizenship (Vioreza et al., 2023b) (Widana et al., 2023b).

These findings indicate that while students perceive the Pancasila Student Profile dimensions as crucial to their personal and academic development, the varying response levels highlight specific areas that require further emphasis. Strengthening the creative dimension, for instance, may benefit from more project-based activities that encourage original thinking. In contrast, the moral dimensions require a broader focus on societal and environmental ethics to ensure a comprehensive educational experience (Fauziah et al., 2023a) (Zhang et al., 2024a).

The lecture process in the Elementary School Social Science Learning Course, Research Methods and Social Statistics through a combination of project-based and problem-based learning based on *scientific projects and service projects,* improving the skills of 21st century students. The results of the questionnaire on 68 students from classes SD4F, SD4E and PPKN 21 can be seen in the following figure 2:
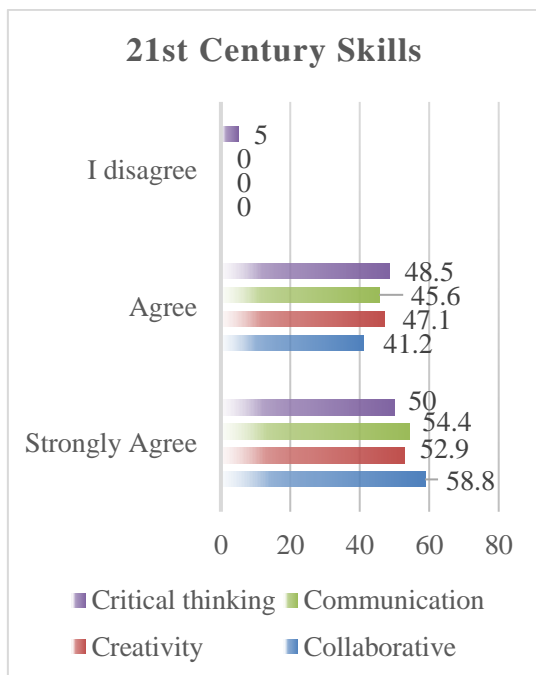
Figure 2. Improving the skills of 21st-century students through a combination of project-based and problem-based learning.

Based on Figure 2, the responses of 68 students from classes SD4F, SD4E, and PPKN 21 predominantly fall within the strongly agree and agree categories, with students acknowledging that scientific project activities and devotion projects contribute to the development of 21st-century skills. This finding aligns with other studies that highlight the role of project-based and problem-based learning in cultivating critical skills such as collaboration, creativity, and communication (Chang et al., 2024) (Serrano-Ausejo & Mårell-Olsson, 2024b). However, a minority of students expressed disagreement, suggesting potential areas for further refinement in the approach.

The collaborative skills dimension received the highest level of agreement, with 58.8% of students strongly agreeing and 41.2% agreeing that these projects improved their ability to work collaboratively. Research indicates that project-based and problem-based learning is particularly effective at enhancing teamwork and collaboration by engaging students in real-world tasks that require cooperative problem-solving (Zhang et al., 2024b) (Gasana et al., 2024a).

Breaking down the responses further, the improvement in collaborative skills was assessed through several indicators. Active contribution scored the highest at 71.6%, reflecting students' substantial involvement in group tasks, a key characteristic of 21st-century education models emphasizing active learning and participation (Vioreza et al., 2023b). Responsibility was another crucial indicator, with 47.8% of students demonstrating this trait, which suggests that project-based and problem-based learning encourage a sense of accountability in group settings (Bolick et al., 2024a).

Furthermore, appreciation of others' contributions scored 46.3%, indicating that students are learning to collaborate and developing emotional intelligence, an essential teamwork component. The ability to work productively was closely followed at 44.8%, reinforcing findings highlighting the productivity benefits of project-based learning environments (Dilekçi & Karatay, 2023). Finally, flexibility and compromise, critical elements of successful collaboration, were

reported at 26.9%, suggesting room for improvement in helping students adapt to different perspectives and solutions within a team (Hadiyanto, 2024b).

This breakdown underscores the multifaceted nature of collaborative skills development within project-based and problem-based learning frameworks. The results highlight these methods' effectiveness in fostering academic and interpersonal competencies necessary for success in 21st-century society (Peng et al., 2024b).

The lecture process in the Elementary School Social Science Learning Course, Research Methods and Social Statistics through a combination of project-based and problem-based learning based on *scientific projects and service projects,* received a positive response to the aspects of usefulness and fun in project activities. The results of the questionnaire on 68 students from classes SD4F, SD4E and PPKN 21 can be seen in the following table 1:

Table 1. Response to the Usefulness of Project Activities

Response to the Usefulness of Project Activities	Frequency	Percent	Valid Percent	Cumulative Percent
Very Helpful	47	69.118	69.118	69.118
Useful	21	30.882	30.882	100.000
Missing	0	0.000		
Total	68	100.000		

According to Table 1, 68 students from classes SD4F, SD4E, and PPKN 21 overwhelmingly found scientific project activities and devotion projects beneficial, with 69.1% stating these activities were very useful and the remaining 30.9% agreeing they were helpful. This response pattern highlights the impact of these projects in fostering critical skills and relationships, which aligns with studies on project-based and problem-based learning (Chang et al., 2024) (Gasana et al., 2024b).

Several factors contribute to these favorable outcomes. First, the projects encourage interaction between students, teachers, principals, and parents, creating a supportive learning community. Interaction with multiple stakeholders enhances the learning environment and develops students' communication and interpersonal skills, critical components of 21st-century education (Serrano-Ausejo & Mårell-Olsson, 2024b) (Peng et al., 2024b).

The projects also promote collaboration, an essential aspect of project-based and problem-based learning frameworks, which involve team-based tasks that mirror real-world problem-solving scenarios. This collaborative element is crucial for developing students' ability to work

productively in group settings, a skill highly sought in academic and professional contexts (Dai et al., 2024b) (Zhang et al., 2024b).

Another key outcome is the motivation and interest these projects generate in students. By providing opportunities to learn new things in a hands-on environment, the projects stimulate curiosity and intrinsic motivation, which are vital for sustaining engagement and improving learning outcomes (Hadiyanto, 2024b). Students gain practical experience and build the confidence to tackle complex problems independently.

Moreover, these activities strengthen the Pancasila Student Profile by embedding moral and ethical values into the learning process (Munir et al., 2024) (Zein et al., 2023b). The project's alignment with Pancasila Student Profile dimensions, such as independence and cooperation, ensures that students excel academically and grow as responsible citizens. It is essential to face social challenges in the future.

In terms of 21st-century skills, the projects particularly enhance students' abilities in problem-solving, which is a critical component of project-based and problem-based learning (Li & Tu, 2024a). These methods emphasize inquiry-based learning, encouraging students to identify and solve problems and enhancing their critical thinking skills (Carabregu-Vokshi et al., 2024a). Furthermore, by engaging in research, students gain practical skills directly applicable to academic and professional settings, such as writing articles and creating project posters, which are critical tasks that solidify their learning experience (Yan et al., 2024b).

Overall, Table 1's findings reinforce that project-based and devotion-based learning activities are helpful and transformative in helping students develop a wide range of competencies crucial for success in the 21st-century knowledge economy.

Table 2. Response Fun in Project Activities

Response to Fun in Project Activities	Frequency	Percent	Valid Percent	Cumulative Percent
Very Happy	38	55.882	55.882	55.882
Happy	29	42.647	42.647	98.529
Less happy	1	1.471	1.471	100.000
Missing	0	0.000		
Total	68	100.000		

As shown in Table 2, the responses from 68 students across classes SD4F, SD4E, and PPKN 21 indicate high satisfaction with scientific project activities and devotion projects, with 55.8% of students reporting they were pleased and 42.6% stating they were happy. Only a tiny percentage (1.4%) expressed dissatisfaction. This

overwhelmingly positive response can be attributed to several factors central to project-based and problem-based learning approaches (Chang et al., 2024) (Gasana et al., 2024b).

One key reason learning was perceived as fun is that students could acquire new skills during the projects. Learning activities that combine real-world problem-solving with hands-on tasks, as is typical in PjBL, foster skill development in areas such as responsibility and self-confidence, both of which are critical for students' overall growth and their ability to take initiative in learning (Vioreza et al., 2023b) (Munir et al., 2024).

The use of SPSS software for data analysis, for example, allowed students to engage with practical tools that are essential for research, further enhancing their critical thinking and problem-solving skills. Engaging students with such tools improves their analytical abilities and makes the learning process more relevant to real-world applications (Dai et al., 2024b) (Hadiyanto, 2024b).

Another factor contributing to the students' enjoyment is the emphasis on creativity and interaction. The projects encouraged students to think outside the box and collaborate with peers, teachers, and even community members, which helped improve their interactive skills and fostered creativity (Li & Tu, 2024b). Interaction with diverse stakeholders is a fundamental aspect of PjBL, as it mirrors the collaborative nature of real-world work environments and helps students develop social skills critical for professional success (Serrano-Ausejo & Mårell-Olsson, 2024b).

Furthermore, the projects provided students with new experiences and the opportunity to face challenging situations. By working through these challenges, students improved their cooperation skills and built self-confidence as they successfully navigated complex problems. This aligns with findings from previous studies, which emphasize that project-based and problem-based learning are particularly effective in creating a dynamic learning environment that motivates and engages students (Zhang et al., 2024b); (Bolick et al., 2024b). Finally, interacting with various people gives students a broader perspective and increases their knowledge and motivation to learn. The social interaction component of PBL is a crucial driver of student satisfaction, as it fosters a sense of community and belonging, further enhancing engagement (Fauziah et al., 2023b).

These findings highlight the effectiveness of scientific project activities and devotion projects in developing 21st-century skills and creating a learning environment that is both enjoyable and profoundly enriching for students, consistent with the goals of modern educational practices (Peng et al., 2024b).

The results of the questionnaire test on 68 students from classes SD4F, SD4E and PPKN 21 can be seen in the following table 3:

Table 3. Spearman's Correlations

			Spearman's rho		p	Covariance
Self Assessment	-	Strengthening the Pancasila Student Profile	0.112		0.363	0.588
	-	21st Century Skills	0.072		0.557	0.193
	-	Benefit Response	-0.018		0.883	0.033
	-	Pleasure Response	0.166		0.177	0.119
Strengthening the Pancasila Student Profile	-	21st Century Skills	0.873	***	< .001	4.032
	-	Benefit Response	0.556	***	< .001	0.641
	-	Pleasure Response	0.639	***	< .001	0.839
21st Century Skills	-	Benefit Response	0.517	***	< .001	0.430
	-	Pleasure Response	0.702	***	< .001	0.673
Benefit Response	-	Pleasure Response	0.568	***	< .001	0.141

* $p < .05$, ** $p < .01$, *** $p < .001$

The results from Table 2 reveal significant correlations between strengthening the Pancasila student profile, 21st-century skills, and student responses of usefulness and pleasure in project-based learning environments. Using Spearman's Correlation analysis via JASP, the Pancasila student profile exhibited a strong correlation with improvements in 21st-century skills, with a Spearman's rho value of 0.873 and a significance value of 0.001, indicating a highly significant relationship (Zein et al., 2023b); (Vioreza et al., 2023b). This result aligns with the broader educational goals of fostering cognitive and character development, as emphasized in Indonesia's education reforms (Munir et al., 2024).

Further analysis showed that the usefulness response had a moderate correlation with the strengthening of the Pancasila profile (Spearman's rho = 0.556, p = 0.001), and the pleasure response was also significantly correlated (Spearman's rho = 0.639, p = 0.001). This suggests that students who perceive the projects as applicable are more likely to find enjoyment in them, reinforcing the idea that engagement and relevance are crucial to student satisfaction and the overall success of learning models like project-based and problem-based learning (Dilekçi & Karatay, 2023b) (Gasana et al., 2024b).

DISCUSSION

The findings also revealed the relationship between 21st-century skills and students' perceived usefulness and pleasure. The Spearman's rho values of 0.517 for usefulness and 0.702 for pleasure highlight the close connection between skill development and positive student experiences. As students enhance their collaborative, critical thinking, and problem-solving abilities, hallmarks of 21st-century learning, they tend to perceive these activities as more valuable and enjoyable (Chang et al., 2024); (Zhang et al., 2024b). This finding underscores the effectiveness of these learning models in improving academic outcomes and fostering a sense of fulfillment and motivation among students (Remmik et al., 2024).

Moreover, the correlation between usefulness and pleasure responses, with a Spearman's rho value of 0.568 (p = 0.001), reinforces the importance of a fun learning environment. This is consistent with research showing that when students are engaged and find value in their learning, their overall satisfaction and learning outcomes improve (Sircar et al., 2024). Project-based and problem-based learning allows students to tackle meaningful, real-world problems, heightening their engagement and willingness to participate actively in their learning (Peng et al., 2024b).

These results collectively demonstrate that strengthening the Pancasila student profile through scientific project activities and devotion projects plays a critical role in improving students' 21st-century skills. As students recognize the practical value and enjoyment of these projects, they are more likely to view the learning process as beneficial and engaging, reinforcing cognitive and character development in an integrated manner (Fauziah et al., 2023b).

Integrating project-based and problem-based learning within the Social Sciences Learning Course for Elementary Education, Research Methods, and Social Statistics has significantly improved the Pancasila student profile and 21st-century skills. The Pancasila student profile, which emphasizes independence, cooperation, global diversity, critical reasoning, faith, and noble character, was notably strengthened through the project activities. This alignment with the Pancasila philosophy is particularly relevant in the current context of Indonesia's educational reforms, as the country strives to cultivate a generation equipped with both intellectual competencies and solid national character (Munir et al., 2024) (Zein et al., 2023b).

The findings of this study indicate that project-based activities are effective in instilling critical elements of the Pancasila student profile, such as moral and ethical values, critical reasoning, and cooperation, all of which are essential for Indonesia's "Golden

Generation" in 2045. Project-based and problem-based learning fosters academic development and moral growth as students engage in community-oriented projects and collaborative problem-solving tasks (Subiyantoro et al., 2023b). This is consistent with the broader educational shift toward Society 5.0, emphasizing human-centered innovation driven by technology and moral responsibility (Widana et al., 2023b).

The study also reveals that moral habitus, the internalization of moral character through repeated actions, is most effectively cultivated when students engage in research-based learning and share their findings with key stakeholders, such as school principals, teachers, and parents. This process enables students to develop a deep sense of responsibility and ethical leadership, essential components of the Pancasila values and the 21st-century skillset (Vioreza et al., 2023b). Creativity, faith, and noble character are enhanced through this approach, as students are encouraged to reflect on their research outcomes and their broader societal impact.

In addition to character development, project-based and problem-based learning has improved students' 21st-century skills, specifically collaboration, creativity, communication, and critical thinking. This study supports previous findings that show project-based activities are highly effective in enhancing these skills (Carabregu-Vokshi et al., 2024b); (Serrano-Ausejo & Mårell-Olsson,

2024b). Students engaged in collaborative research projects demonstrated notable improvements in their ability to collaborate, communicate their ideas, think critically about complex problems, and devise creative solutions (Dai et al., 2024b). The collaborative nature of PjBL is particularly effective in developing these skills, as students must rely on teamwork to complete their projects, fostering interpersonal communication and collective problem-solving (Peng et al., 2024b).

The positive outcomes observed in character development and 21st-century skills are primarily attributable to students' high engagement and enjoyment in learning. Research has shown that students are more motivated and perform better academically when they enjoy learning activities, especially in project-based and problem-based environments (Hadiyanto, 2024b). This study corroborates those findings, with students expressing enthusiasm for each stage of the project-based and problem-based learning processes, leading to better learning outcomes and greater personal satisfaction (Zhang et al., 2024b).

In conclusion, integrating project-based and problem-based learning has proven to be a practical pedagogical approach for strengthening both the Pancasila student profile and students' 21st-century skills. The results of this study emphasize the importance of combining academic rigor with character

education to prepare students for the challenges of the Society 5.0 era, equipping them with the tools they need to succeed professionally and personally.

CONCLUSION

Integrating project-based and problem-based learning, grounded in research and devotion, in the Social Sciences Learning course, Research Methods, and Social Statistics has significantly strengthened the Pancasila student profile, particularly in the dimensions of creativity and faith, piety, and noble character. Furthermore, the combined approach has effectively enhanced students' 21st-century skills, with collaborative skills emerging as the most prominent. These findings suggest that the combined learning models foster cognitive and skill development and support the holistic character education embedded in the Pancasila profile. For future research, exploring the impact of a devotion-based PjBL model with a more focused investigation on student creativity and productivity is recommended to gain deeper insights into how these learning models can further enhance specific student outcomes.

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