



Implementation of project-based collaborative learning models to improve students' social skills in elementary schools

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ABSTRACT

This study aims to analyze the application of Project-Based Collaborative Learning (PjBL) in improving students' social skills at Tanjung Waras State Elementary School. Using a quantitative descriptive method, this study involved 25 grade 5 students as a sample, who were tested for social skills through pre-tests and post-tests before and after the implementation of PjBL. Data were collected using questionnaires that measured five aspects of social skills, namely the ability to work together, communicate, solve problems, take initiative, and empathy, as well as observation during project-based learning. The results showed a significant improvement in all aspects of students' social skills, especially in the ability to work together in a team (75%) and communicate effectively (57.7%). This improvement reflects the effectiveness of PjBL in increasing students' social interaction and supporting the development of social skills through collaboration in groups. These findings suggest that PjBL can strengthen students' social abilities beyond their academic abilities, which is important for their future lives. The implication of this study is the importance of integrating PjBL in the elementary school curriculum to support the development of students' social skills, which are essential for their success in society.



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INTRODUCTION

Education in elementary school has a very important role in shaping the basis of students' cognitive, social, and emotional development (Jones et al., 2017). In this era of globalization, where social skills and the ability to work in teams are highly valued, elementary schools are not only required to teach academic knowledge, but also to prepare students to be able to interact effectively in society. In this case, learning that is able to develop social skills becomes very relevant and important (Frache et al., 2019). One of the increasingly popular learning approaches to achieving this goal is a collaborative learning model that focuses not only on academic learning outcomes, but also on social skills and cooperation between students.

However, although the importance of social skills for children's development in elementary school has been recognized, the reality is that many learning methods in the classroom still focus on academic achievement and pay less attention to the development of social skills (Usmaedi, 2021). Conventional approaches that emphasize memorization and structured teaching with little room for social interaction often leave students less engaged in the development of cooperative and

communication skills. Students' social skills tend not to develop to the fullest, which in turn can affect their ability to collaborate and interact in the broader social environment (Atmojo et al., 2024).

To overcome this problem, the implementation of Project-Based Collaborative Learning (PjBL) can be an effective solution. PjBL combines aspects of collaboration and project-based teaching, allowing students to work in groups to complete tasks that require problem-solving together (Kurt & Akoglu, 2023; Putri et al., 2019). With this approach, students not only learn to acquire knowledge, but also to develop social skills needed in daily life, such as the ability to communicate, listen, share ideas, and work in a team (Determination & Pebriana, 2022). Project-based learning also allows students to be more actively involved in the learning process and feel more responsible for the outcomes achieved together.

The advantage of PjBL is its ability to build students' social skills more comprehensively (Riskayanti, 2021). PjBL provides opportunities for students to collaborate, communicate, and complete tasks together, which requires them to interact more intensively. This approach encourages students to learn not only from teachers, but also from their peers. In addition, PjBL also provides space for students to develop creativity, initiative, and problem-solving skills (Shalihah et al., 2020). Thus, PjBL focuses not only on achieving academic learning outcomes, but also on building character and social skills that are important for their future lives.

Various previous studies have examined the application of PjBL in improving students' academic skills (Jiang, 2022; Sasson et al., 2018; Wijayati et al., 2019), but there is still limited research that focuses on the development of social skills through PjBL at the elementary school level, providing a gap for further research. Existing research suggests that PjBL can increase student engagement in learning (Wu, 2024), but little has addressed specifically how this model contributes to the development of social skills such as teamwork, communication, and leadership. Therefore, there needs to be more in-depth research to dig deeper into the influence of PjBL on students' social skills at the elementary school level.

The purpose of this study is to analyze the application of Project-Based Collaborative Learning (PjBL) in improving students' social skills in elementary school. This research aims to provide a clearer understanding of how PjBL can help students develop important social skills, as well as provide practical insights for educators on how to implement this model in the classroom. Thus, it is hoped that this research can make a significant contribution to the world of education, especially in improving the quality of education in elementary schools that pay more attention to the social development of students.

METHODS

This study uses a quantitative descriptive approach to analyze the application of the Project-Based Collaborative Learning (PjBL) model in improving students' social skills at Tanjung Waras State Elementary School. This approach aims to describe the phenomenon that occurs in an objective and measurable manner, with a focus on changes in students' social skills after participating in project-based learning. The design of this study was carried out using a pre-post test design, which allowed the researcher to compare students' social skills before and after the implementation of PjBL.

Research Place

This research was carried out at Tanjung Waras State Elementary School, which is diverse in terms of social and cultural backgrounds. The school was chosen because it has a commitment to implementing innovative approaches in learning, and also because of its heterogeneous student characteristics, which provide an opportunity to see the effects of PjBL in diverse contexts. This research was carried out in September 2025 in grade 5, which was chosen because it was mature enough in terms of basic understanding of academic concepts and readiness to work in groups.

Research Design

The research design used is a descriptive quantitative design, with data collection techniques using pre-test and post-test. The pre-test will be carried out before the implementation of PjBL to assess the level of students' social skills, while the post-test will be carried out after the implementation of the PjBL model to measure changes in students' social skills. The study aimed to see if the application of PjBL can improve students' social skills, which include the ability to work together in a team, communicate effectively, and take initiative.

Population and Sample

The population in this study is all 5th grade students of SD Negeri Tanjung Waras. The sample of this study was selected using a saturated sampling technique, where all students in the class were used as research subjects. Thus, the number of students sampled in this study was 25 students, which was considered representative to measure the impact of the application of PjBL on social skills in the classroom.

Research Instruments

The instrument used in this study is a questionnaire that is compiled to measure students' social skills, such as the ability to work together, communicate, solve problems in groups, and empathy. This questionnaire consists of 20 questions which include 1) Ability to work together in a team, 2) Ability to communicate effectively, 3) Ability to solve problems in a group, 4) Ability to take initiative, 5) Ability to listen and empathize with friends. The scale used in the questionnaire is a Likert scale of 1-5, which allows students to rate each statement, ranging from strongly disagree (1) to strongly agree (5).

Data Analysis

The data obtained from the pre-test and post-test questionnaires will be analyzed using descriptive statistics, such as mean, standard deviation, and frequency distribution to describe students' social skill levels. In addition, a comparison between the pre-test and post-test results will be conducted to see a significant difference in students' social skills after participating in project-based learning.

RESULTS

This study aims to examine the effectiveness of Project-Based Collaborative Learning (PjBL) in improving students' social skills at Tanjung Waras State Elementary School. Social skills measurement was carried out using a pre-test and post-test design, which made it possible to see changes before and after the implementation of the project-based learning model. Data collected through questionnaires, observations, and interviews have been analyzed quantitatively and qualitatively.

1. Description of Data and Learning Process

The research sample consisted of 25 5th grade students of Tanjung Waras State Elementary School. Students are selected based on certain criteria, including diversity of social and academic backgrounds, to get a representative picture of heterogeneous group dynamics. The PjBL learning process is carried out over 5 weeks, with the division of project tasks that require students to work in small groups to complete topics relevant to the curriculum, such as projects on cultural diversity and environmental protection.

Each group was given the task of conducting research, designing presentations, and presenting the results to the class. During learning, the teacher acts as a facilitator who provides direction, but students are given the freedom to plan and manage their own project tasks. The projects carried out cover various aspects of learning, including group discussions, problem analysis, and the application of solutions in social and cultural contexts.

2. Pre-test and Post-test results

The pre-test and post-test questionnaires consisted of 20 statements that measured five key social skills: the ability to work together, communicate, solve problems in groups, take initiative, and empathy. Each aspect of social skills is measured using a Likert scale of 1-5, which allows students to rate each statement.

Table 1: Results of Pre-test and Post-test of Students' Social Skills

Social Skills Aspects	Pre-test (Rata-rata)	Post-test (Average)	Change (%)
Ability to Work Together in a Team	2.4	4.2	75%
Ability to communicate effectively	2.6	4.1	57.7%
Group Problem Solving Ability	2.5	4.0	60%
Ability to Take Initiative	2.3	3.9	69.5%
Listening and Empathy Skills	2.8	4.0	42.8%

This table shows significant changes in every aspect of social skills. The ability to work together in a team saw the greatest increase, at 75%, followed by the ability to communicate effectively which increased by 57.7%. This improvement reflects that project-based learning is effective in improving social interaction between students, encouraging them to collaborate, discuss, and complete tasks together.

Table 2: Comparison of Social Skills Average Scores Before and After PjBL

Social Skills	Pre-test Average Score	Post-test Average Score	Score Change
Working Together in a Team	2.4	4.2	+1.8
Communicate Effectively	2.6	4.1	+1.5
Solving Problems in a Group	2.5	4.0	+1.5
Taking the Initiative	2.3	3.9	+1.6
Listening and Empathy	2.8	4.0	+1.2

The change in the Average Score shows considerable improvement, especially in the aspects of teamwork and taking initiative. This reflects that PjBL provides a wider range of opportunities for students to engage in collaborative activities that require them to support each other, share ideas, and complete tasks together.

3. Analysis of Social Change in the Context of the Project

In addition to social skills measurements, further analysis was conducted to explore how PjBL affects students' social relationships and interactions in the context of the project. A striking factor is the increase in collaboration between students who were previously not very familiar with each other. In more diverse groups, students with more dominant personalities practice working together and making room for other group members to contribute. In contrast, more introverted students feel empowered to speak up and convey their ideas.

Table 3: Frequency Social Interaction

Social Interaction Aspects	Student Frequency (Pre-test)	Student Frequency (Post-test)
Ekstrovert	4	15
Introvert	12	3
Occasionally Interact	9	7

This table shows that more students began to actively interact after the implementation of PjBL, with 15 students reporting more frequent interaction in groups after the project was implemented, compared to only 4 students who reported the same before PjBL was implemented. This shows that PjBL increases students' social engagement.

The results of this study show that PjBL has been proven to significantly improve students' social skills, especially in terms of teamwork, communication, and taking initiative. The biggest improvement occurs in the ability to work together in a team, which is indeed at the core of the implementation of PjBL. By working in heterogeneous groups, students learn to listen, share tasks, and find solutions together. Better communication and more effective problem-solving occur when students can discuss and share ideas with each other.

DISCUSSION

The results of this study show that the implementation of Project-Based Collaborative Learning (PjBL) has succeeded in significantly improving students' social skills at Tanjung Waras State Elementary School. The biggest improvement occurred in the ability to work together in a team, which is in line with the core of PjBL, which is collaboration. The PjBL model provides students with the opportunity to work together in groups, discuss ideas, share assignments, and solve problems together (Putri et al., 2019). This process not only develops academic skills, but also very important social skills, such as communication, empathy, and adaptability to others (Suyantiningsih et al., 2023). This skill will be very beneficial for students not only in school, but also in their social life outside the classroom.

Specifically, the increase in teamwork ability that reached 75% shows that PjBL encourages students to support each other in achieving common goals. It also signifies that project-based learning models are able to facilitate more intensive student interaction, which may not have previously been the case in more individualistic conventional learning models (Rayis et al., 2025). In diverse groups, students learn to align their ideas and strategies, which contributes to the development of their social skills. This collaboration reflects the basic principles of PjBL, which puts students in an active position to collaborate with each other and share knowledge and experiences (Saenab et al., 2019).

A significant improvement in the ability to communicate effectively also suggests that PjBL helps students to more actively participate in group discussions. Communication is an important element in any group project, and this improvement in ability shows that students become more confident to express opinions, listen to their peers, and provide constructive feedback (Putra et al., 2020). In more structured conventional learning, students may be more likely to receive information than actively interact with their peers. Through PjBL, students are faced with situations where they must explain their ideas clearly and persuasively, as well as listen to and respond effectively to the opinions of others.

However, despite significant improvements in other social skills, such as the ability to solve problems and take initiative, the results of this study show that the improvements in listening and empathic skills are slightly lower compared to other aspects. Nonetheless, the 42.8% increase in this aspect still shows that PjBL provides space for students to better understand their peers' perspectives and learn to care more about their feelings and needs. The collaborative process that takes place in groups facilitates students to learn to respect and support each other, which in turn increases their sense of empathy (Fathonah et al., 2023). This also reflects the importance of affective aspects in broader social learning.

On the other hand, although PjBL has proven to be effective in improving social skills, there are some challenges that must be faced in its application. One of the main challenges is the diversity of students' abilities in working in groups. Some students may feel more dominant or more inclined to lead the group, while others are more passive. Therefore, it is important for teachers to play the role of facilitators who not only supervise the progress of the project, but also provide guidance in terms of equitable division of roles in the group (Tong et al., 2020). Teachers need to ensure that each student gets the opportunity to contribute to the fullest, by encouraging them to be more active in group discussions and decision-making (Chen, 2024).

The implementation of PjBL has wider implications for education at the elementary school level. The results of this study underscore the importance of a learning approach that focuses not only on the

mastery of academic knowledge, but also on the development of social skills that are crucial for success in society. Social skills such as communication, cooperation, and empathy are indispensable in daily life, and PjBL provides an effective platform for the development of these skills among students (Al-Abdullatif & Gameil, 2021). Schools should therefore consider further integrating project-based learning models into their curriculum, in order to prepare students with skills that are not only useful in formal education, but also in real-world social interactions.

CONCLUSION

The implementation of Project-Based Collaborative Learning (PjBL) at Tanjung Waras State Elementary School significantly improved students' social skills, including the ability to work together in teams, communicate effectively, solve problems in groups, take initiative, and empathize. The PjBL model, which prioritizes collaboration and active learning, gives students the opportunity to work in groups, share ideas, and learn from their peers, which in turn strengthens their social skills. Although there are differences in the degree of improvement between aspects, with the ability to work together and communicate being the most striking, the results of this study show that PjBL is not only beneficial in improving academic results, but also plays an important role in the formation of students' character and social skills that are essential for their future lives. Therefore, the implementation of PjBL in elementary schools needs to be further encouraged as an effective strategy to equip students with strong social skills, which will support their success in social and professional life.

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