Integration of Project-Based Collaborative Learning Model to Improve Critical Thinking and Psikosocial Skills of Junior High School Students

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ABSTRACT: Critical thinking and pschosocial skill are the abilites to achieve in 21st century. One effort to improve these abilities can be through project-based collaborative learning (PjBL). This quantitative study aims to determine the integration of the PBCL model on students' critical thinking and psychosocial skill on the Catholic Religious Education subjects. This research used a pre-test and post-test design. The research population were the eighth students of junior high school from three schools in Palangkaraya, totaling 30 students. The research instrument used 30 questions for critical thinking skill and 30 questions for psychosocial skill. The collected data was then analyzed using the t- test. The results of the analysis show that the PBCL model has a significant effect on students' critical thinking abilities and psychosocial skills on the on the Catholic Religious Education subjects. Thus, the PBCL model can be used as an alternative learning to improve critical thinking abilities and psychosocial skills.

INTRODUCTION

Developing critical thinking skills is crucial for student success in the 21st century. Critical thinking involves carefully analyzing and evaluating information, ideas, and arguments to reach logical conclusions and solve problems (Cottrell, 2020). It empowers students to make reasoned judgments, assess different perspectives, and gain deeper understanding rather than passively accepting facts and claims at face value. Research shows critical thinking is associated with positive student outcomes like academic achievement, knowledge retention, and transfer of learning (Marin & Halpern, 2011). In other hand, critical thinking is better followed by psychosocial skill. Psychosocial skills are interpersonal competencies that are critical for students to develop alongside academic skills. Psychosocial skills encompass social-emotional learning, including self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Taylor et al., 2017). Research demonstrates cultivating psychosocial skills leads to improved academic performance, motivation, and wellbeing in students from early childhood through higher education (Durlak et al., 2011).

The problem found in the field related to critical thinking and psychosicial skill is the lack of opportunities for students to develop critical thinking skills in the classroom. Some problems found that students are inactive during the learning and they aren't able to analyze deeply about the subjects they learn. Students' psychosocial skills are also lacking because learning activities do not adequately accommodate cooperation and collaboration in the form of group assignments. Many

teachers still rely heavily on traditional lecture-based methods, where students are expected to passively absorb information rather than actively engage in questioning, analyzing, and synthesizing ideas (Kokotsaki et al., 2016). This approach hinders the development of critical thinking abilities, such as problem-solving, decision-making, and evaluating arguments and evidence. Furthermore, the emphasis on rote memorization and test preparation often takes precedence over fostering critical thinking and inquiry-based learning (Lie, 2007). Students are often trained to memorize facts and formulas rather than encouraged to explore concepts in depth, apply knowledge to real-world situations, and develop their own perspectives and solutions. In terms of psychosocial skills, several field observations have highlighted the difficulties faced by Indonesian junior high school students. A study by Hamidah et al. (2020) found that many students struggle with communication skills, both in expressing themselves clearly and in active listening. This can hinder their ability to effectively collaborate with peers and engage in productive discussions.

Project-based collaborative learning is a teaching approach that emphasizes group work and hands-on projects to help students deepen their understanding of a topic or concept (Khalid et al., 2023). By working together on a project, students are able to share ideas, learn from one another, and develop important collaboration and communication skills (Noorul & Masitah, 2015). This approach also allows students to take ownership of their learning and apply their knowledge in a real-world context. In addition to fostering collaboration and communication skills, project-based collaborative earning can also increase student engagement and motivation (Georgina & Orifha, 2023). When students are actively involved in a project that is meaningful and relevant to them, they are more likely to be invested in their learning. This approach can also help students develop critical thinking and problem-solving skills as they work together to overcome challenges and achieve their project goals (Charles. & lem, 2014). Overall, project-based collaborative learning provides a dynamic and interactive learning experience that can benefit students in various ways. By working together on a project, students can learn how to effectively communicate their ideas, delegate tasks, and compromise with their peers (Yeol & Charles, 2015). This not only enhances their social skills but also prepares them for real-world situations where teamwork and cooperation are essential. Additionally, project-based collaborative learning allows students to apply their knowledge in a practical setting, making their learning experience more hands-on and memorable. Ultimately, this approach fosters a deeper understanding of the material and helps students develop the skills they need to succeed academically and professionally.

One key aspect of project-based collaborative learning is the emphasis on critical thinking and psychosocial skills (Siswandari et al., 2019) . By working together on a project, students are challenged to think critically about the problem at hand, analyze different perspectives, and come up with creative solutions (Paul & Deborah, 2019). This process not only helps students develop their critical thinking skills but also encourages them to think outside the box and consider multiple viewpoints (Dekker, 2020). Additionally, by engaging in collaborative discussions and debates, students learn how to defend their ideas, evaluate the arguments of others, and make informed decisions based on evidence and reasoning. In this way, project-based collaborative learning not only enhances students' social and teamwork skills but also equips them with the critical thinking skills necessary for success in today's complex and fast-paced world (Andrew et al., 2021). By working together on projects, students are able to leverage each other's strengths and expertise, leading to more innovative and comprehensive solutions. This type of collaborative learning also fosters a sense of community and belonging among students, as they learn to appreciate and respect the diverse perspectives and contributions of their peers (Jennie, 2016). Ultimately, project-based collaborative learning prepares

students to effectively navigate the challenges and opportunities of the modern workforce, where teamwork, critical thinking, and adaptability are essential skills for success.

Aims and Hypothesis

The aim of the research is to determine the integration of the PBCL model on students' critical thinking and psychosocial skill on the Catholic Religious Education subjects. It is hoped that this research can make a contribution to the world of education. The hypothesis in this research is that the integration of PCBL can increase the students' critical thinking and psychosocial skill.

METHODS

Design

This research adopts a quantitaive research approach with one group pre test and post test design (Sugiyono, 2008). The design was implemented to determine the integration of project based collaborative learning to increase students critical thinking and psychosocial skill.

Procedure and Participants

The research population were the eighth students of junior high school from three schools in Palangkaraya, totaling 30 students. They were given a pre test and post test questionnaire. The questionnaire consisted of 60 questions based of the indicators of critical thinking and psychosocial skill. The post test questionnaires were given after the treatments done. To integrated PCBL in learning, the steps are follows:

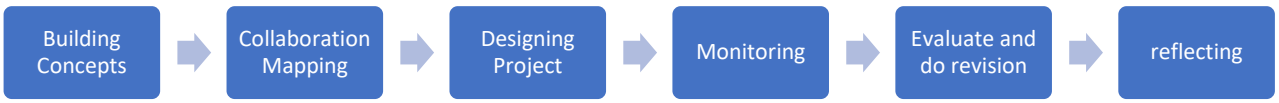

Figure 1. Research Design

Instruments

The instruments used for this research divided into two kinds of instrumen. They are critical thinking skills and psychosocial skills questionnaires and observation for project collaboration. The questionnaires were validated using Product Moment Pearson formula, resulting in 0.500 - 0.890. The reliability of the questionnaires was also calculated before being given to students. The reliability used Alpha Cronbach's formula for the critical thinking skills questionnaire and the result were 0.79 and 0.86 for the psychosocial skills.

Validity and Reability of questionaries

There were 60 questions with four answer options for each skill set in Likert scale. The questionnaires were developed from indicators of critical thinking skills and psychosocial skills. The questionnaires were validated using Product Moment Pearson formula, resulting in 0.500 - 0.890. The reliability of the questionnaires was also calculated before being given to students. The reliability used Alpha Cronbach's formula for the critical thinking skills questionnaire and the result were 0.79 and 0.86 for the psychosocial skills. Before integration, both groups completed a pre-test to see their critical thinking abilities and psychosocial abilities.

Data Analysis

To analyze the validity of the questionnaires used Product Moment Pearson formula, resulting in and The reliability of the questionnaires used Alpha Cronbach's formula. Data questionnaires were analyzed using the difference test formula (t-test) to see the differences in students' critical thinking

skills and psychosocial skills before and after the integration of project-based collaborative learning in the goup. The criteria for testing hypothesis use a 5% significance level. To analyze the observation data on the collaborative project, descriptive analysis was used.

RESULTS AND DISCUSSION

Results

Date Pre-Test of Critical Thinking

The results of the pre-test show that the students' critical thinking and psychosocial abilities are no more than 50% good or perfect. These results become a reference for researchers to integrate PCBL into learning to improve students' critical thinking and psychosocial skills. The results of the pretest of critical thinking is as follows.

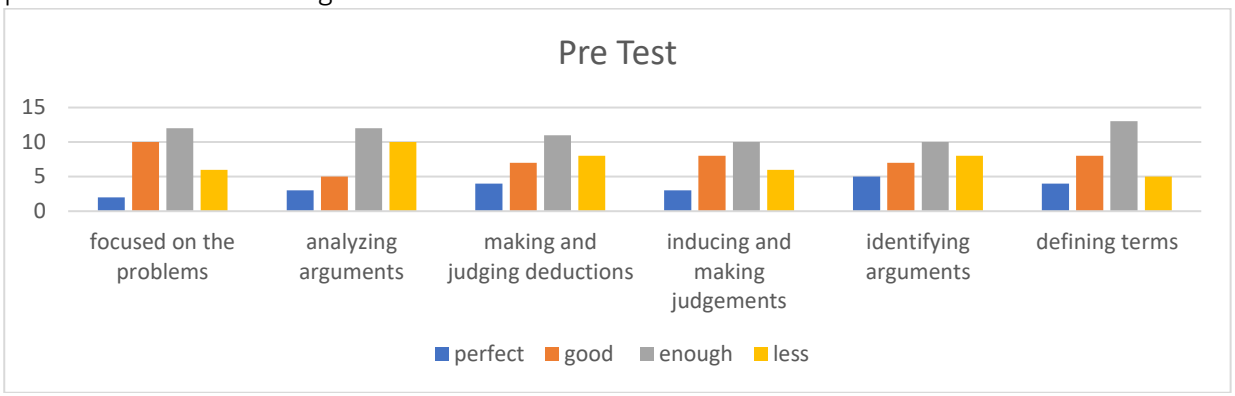

Figure 2. Pre-test of Critical Thinking

The results of the pretest of psychosocial skill is as follows.

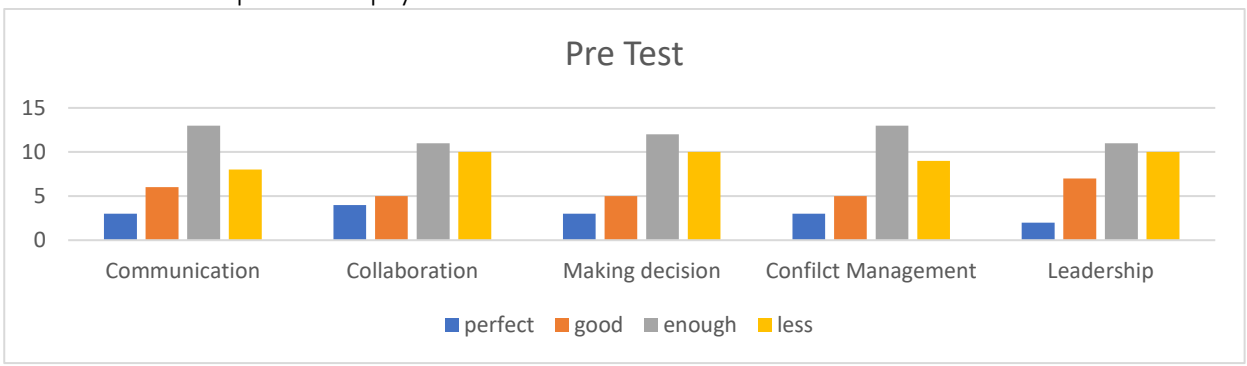

Figure 2. Pre-test df Psychosocial Skill

Observation Data

To integrate the project based collaborative learning model into learning activities, students are divided into 6 groups. Students are then given 2 treatments with the existing stages. During learning activities, the teacher observes students' critical thinking skills and psychosocial skills in creating products collaboratively. The average results of observations during 2 meetings are as follows.

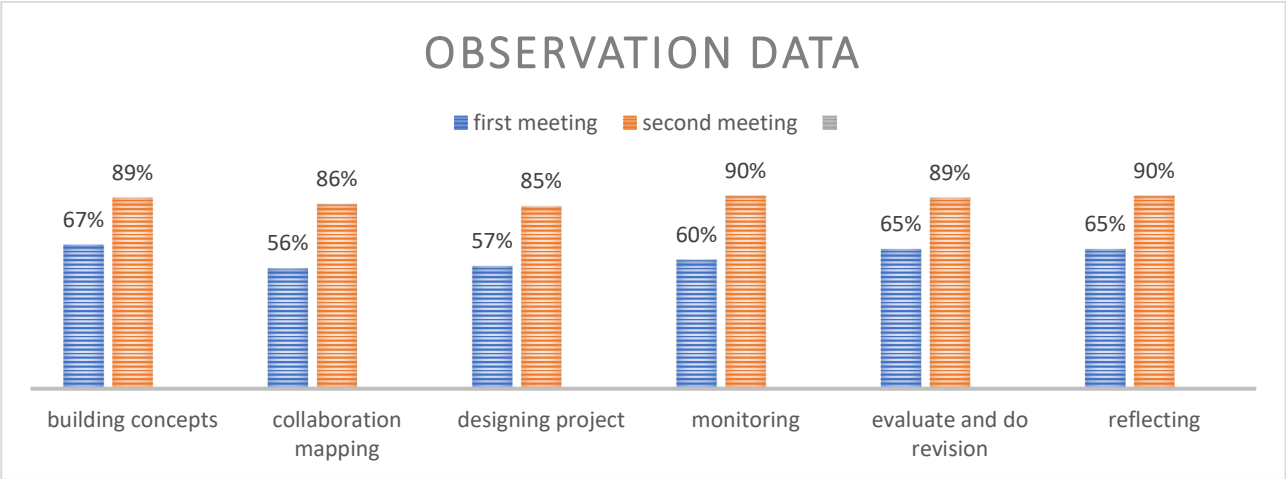

Figure 3. Observation data

Post Test

The results of the posttest of critical thinking is as follows:

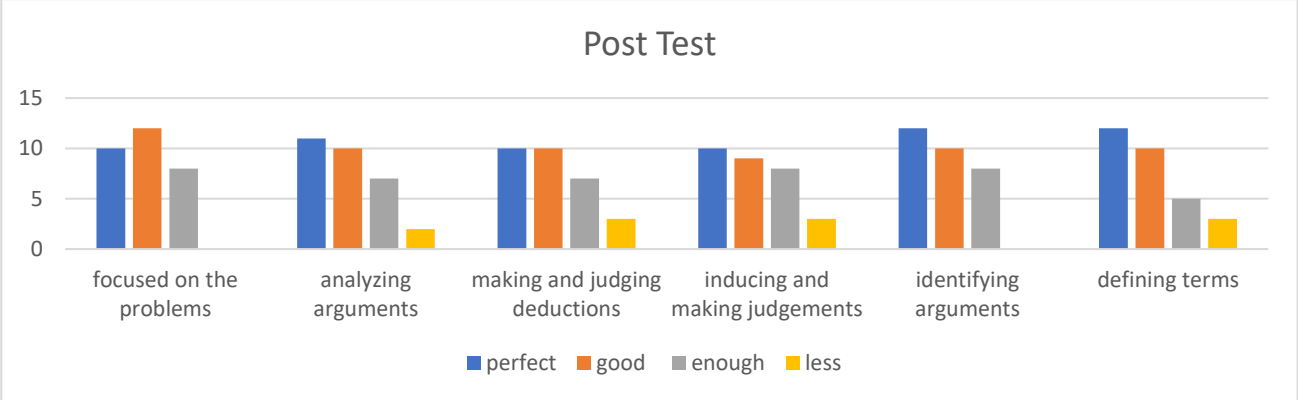

Figure 4. posttest of critical thinking

The result of the post test for psychosocial skill is as follows:

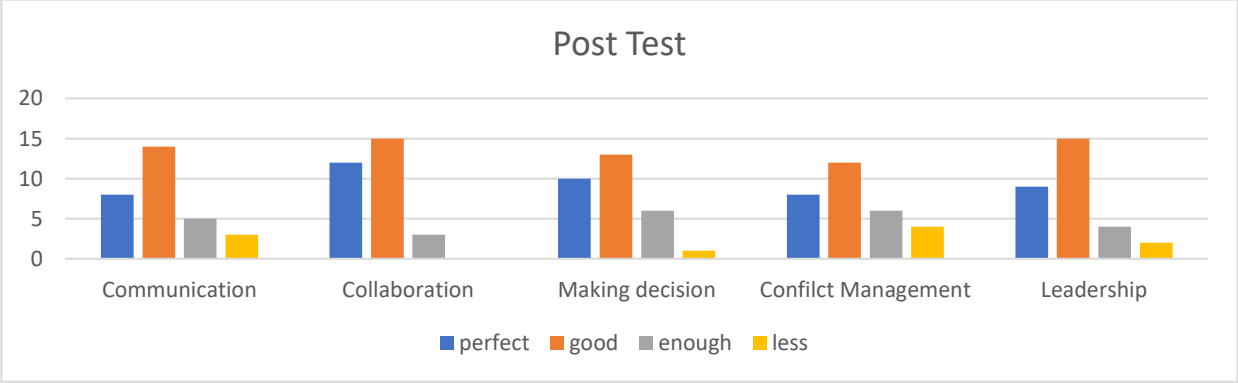

Figure 5. Posttest of psychosocial skill

The normality test is a statistical technique used to determine whether a particular data sample or variable comes from a population that has a normal distribution or not. Based on the normality test using the Kolmogorov-Smirnov calculation, it can be seen that the SPSS output analysis has a Sig value of 0,167 (Critical thinking data) and 0,170 (psychosocial data) and it is greater than 0.05. So it can be concluded that data are normally distributed. The result of the prerequisite test, the following criteria regarding the Paired Sample T-Test are used. If the significance value (2-tailed) <.05, then H_0 is rejected and Ha is accepted. If the significance value (2-tailed) > .05, then H_0 is accepted and Ha is rejected.

Table 1. Result of paired sample test of critical thinking

	Paired Differences			t	df
	M	SD	SE		
pretest - posttest	-11,333	5,397	0,985	-11,502	29

Table 2. Result of paired sample test of psychosocial skill

	Paired Differences			t	df
	M	SD	SE		
pretest - posttest	-9,333	5,397	0,985	-9,472	29

Based on the test results, it is revealed that the value of Sig. (-tailed) is .001, lower than .05. Therefore, H_0 was rejected and Ha was accepted. The result means that the integration of project-based collaborative learning can increase student's critical thinking and psychosocial skill.

DISCUSSION

Critical thinking skills are fundamental to project-based collaborative learning, enabling students to analyze information, evaluate arguments, and make informed decisions. According to (Facione, 2013), critical thinking encompasses skills such as interpretation, analysis, evaluation, inference, explanation, and self-regulation. In project-based learning, students must apply these skills to identify and solve complex problems, gather and evaluate relevant information, and develop well-reasoned solutions. As (Savery, 2006) notes, "Project-based learning is an instructional approach that initiates students to identify, through research, a real-world problem, develop a plan to address the problem, and implement their plan through an artifact or product". Critical thinking skills are crucial for navigating this process effectively.

Psychosocial skills, such as communication, teamwork, and emotional intelligence, are also essential in project-based collaborative learning. As students work together in groups to complete projects, they must communicate their ideas, negotiate roles and responsibilities, and navigate interpersonal dynamics. These skills are vital for successful collaboration and conflict resolution within project teams. As Dillenbourg (1999) states, "Collaborative learning is not simply a way of receiving instruction by allowing students to work together, but an opportunity for students to engage in problem-solving and knowledge construction through interaction with others".

The integration of critical thinking skills and psychosocial skills in project-based collaborative learning creates a powerful learning experience. Students not only develop subject-matter knowledge but also hone essential skills for the 21st century workplace. As noted by (Bell, 2010) "Project-based learning provides opportunities for students to develop complex skills, such as critical thinking, problem-solving, communication, and collaboration". By engaging in authentic, real-world projects, students learn to apply their knowledge and skills in practical contexts, fostering deeper understanding and transferability.

Moreover, project-based collaborative learning encourages student agency and ownership over the learning process. As students work together to identify problems, gather information, and develop solutions, they take an active role in their learning. This approach aligns with constructivist theories of learning, which emphasize the importance of learners constructing their own understanding through active engagement and social interaction (Vygotsky in Bell, 2010). By cultivating critical thinking and psychosocial skills, project-based collaborative learning empowers students to become self-directed learners and effective collaborators.

Implication

The integration of a project-based collaborative learning model to improve critical thinking and psychosocial skills among junior high school students has several significant implications. Teachers must adopt facilitative roles, guiding students through the project development process while encouraging active participation and critical reflection. Curricula need to be designed to include

authentic, real-world problems that require students to engage in deep inquiry, analysis, and collaborative problem-solving. This model equips students with critical thinking and psychosocial skills, such as teamwork, communication, and problem-solving, which are essential for success in the 21st-century workforce. Students' ability to navigate interpersonal dynamics and work effectively in teams is enhanced, preparing them for future academic and professional settings. By fostering agency and ownership, project-based learning can increase student motivation and engagement. This approach enables students to see the relevance of their learning to real-world contexts. Educational policymakers should prioritize training programs for teachers to implement project-based collaborative learning effectively. Investment in resources, including technology and materials facilitating collaborative projects, is crucial to support this instructional approach. Traditional assessment methods may need to be revised to evaluate both cognitive and psychosocial outcomes. Rubrics should include criteria for assessing collaboration, communication, and problem-solving skills.

Limitation

While the integration of project-based collaborative learning offers numerous benefits, it is not without limitations. Effective implementation requires significant resources, including time, materials, and teacher training, which may not be readily available in all schools. Many educators may lack experience or training in facilitating project-based learning, potentially leading to inconsistent implementation. Students with limited prior experience in teamwork or independent problem-solving may initially struggle with the demands of this learning model. Variability in students' participation and engagement can hinder group dynamics and overall project outcomes. Measuring critical thinking and psychosocial skills is more complex than assessing traditional academic knowledge. Reliable and valid assessment tools must be developed and standardized. In some educational contexts, rigid curricula or high-stakes testing environments may limit the feasibility of implementing project-based collaborative learning. Cultural attitudes towards collaborative learning and student autonomy may affect its acceptance and success. By acknowledging these implications and limitations, educators and policymakers can work towards more effective implementation and support of project-based collaborative learning to maximize its benefits for junior high school students.

CONCLUSION

This research was conducted to 30 students as the sample. Based on the test results, it is revealed that the value of Sig. (-tailed) is .001, lower than 0.05. Therefore, H_0 was rejected and Ha was accepted. The result means that the integration of project based collaborative learning can increase student's critical thinking and psychosocial skill. Critical thinking skills and psychosocial skills are inextricably linked and integrated to project-based collaborative learning. This educational approach provides a rich context for students to develop and apply these essential skills while engaging in authentic, real-world projects. By fostering critical thinking and psychosocial skills, project-based collaborative learning prepares students for success in the 21st century, where the ability to think critically, solve complex problems, and collaborate effectively is paramount.

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