



Implementation of Collaborative Learning Methods in Improving Elementary School Students' Thinking Skills

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ABSTRACT

This research aims to analyze the effectiveness of collaborative learning methods in improving elementary school students' thinking skills. For collaborative learning to be effective, instructors must view teaching as a process of developing and enhancing students' learning abilities. The teacher's role is not to convey information, but to act as a learning facilitator. The research method used was quasi-experimental with a non-equivalent control group design. The sample consisted of 40 students in grades 5 and 6 who were divided into experimental groups and control groups. The experimental group took part in learning using a collaborative method, while the control group took part in conventional learning. The instruments used are thinking skills tests and questionnaires. The results showed that there was a significant increase in students' thinking skills in the experimental group compared to the control group. These findings imply that collaborative learning methods can be an effective strategy for developing students' thinking skills in the context of elementary school education.

Keywords: Collaborative Learning, Thinking Skills, Elementary Education

1. Introduction [Bookman Old Style 11pt bold]

Education in the modern era requires innovative and effective approaches to prepare students to face global challenges. One important skill that needs to be developed is critical thinking skills, which enable students to analyze, evaluate, and make appropriate decisions in various situations. (Adela & Army, 2021) For collaborative learning to be effective, instructors must view teaching as a process of developing and enhancing students' learning abilities. The teacher's role is not to convey information, but rather to act as a facilitator of learning. This involves creating and managing meaningful learning experiences and stimulating students' thinking through challenging times.

Creative thinking skills are those that can generate varied and different answers from those already available. Creative thinking can enhance talent and develop talents according to the needs of the 21st century (Samad & Wondal, 2020). According to Munandar (2009, 2012), there are four criteria for creative thinking: fluency in generating ideas. According to Nurwidodo (2020), there are several strategies for conducting thinking skills training, including preparing several questions and encouraging students to participate in learning activities by observing topics and materials, both through primary data obtained accurately and through their thoughts on new strategies to obtain new information in learning.

This collaborative learning method has emerged in various ways that can be developed to improve students' thinking skills, through individual or collaborative students to achieve academic goals that have been supported by several studies. This collaborative learning is based on a learning method where students will

recognize various levels of cooperation, both small groups and large groups, which will be carried out in each lesson. Students have responsibility for the lesson as well as their own lessons and the next group. The learning outcomes of a student will determine the success of other students. According to Guntur et al., (2020), there is some evidence that this cooperative learning can improve critical thinking of students and use better information than students who do tasks quietly and individually. This collaborative learning will encourage students to get the opportunity to express opinions and discuss having responsibility for themselves or in groups so that they get more critical thinking. Collaborative learning can theoretically improve students in empowering higher-order thinking. Collaborative learning can improve students' critical thinking by asking questions, analyzing, synthesizing, interpreting, reasoning, and drawing conclusions (Suhaimi & Permatasari, 2021). During collaborative learning,

2. Methods

The quasi-experimental method was implemented using a non-equivalent control group design. This research involved 40 students from grades 5 and 6, divided equally into two groups: the experimental group and the control group, with 20 students in each. The experimental group participated in learning activities through a collaborative learning method, while the control group received conventional instruction. The purpose of this design was to evaluate the effectiveness of collaborative learning in enhancing students' cognitive skills. The instruments used in this study were a thinking skills test and a questionnaire. The thinking skills test consisted of questions designed to assess students' ability to analyze, evaluate, and make decisions based on given problems. These questions required critical thinking and problem-solving abilities, providing insight into how students process information and apply logic in various contexts. The questionnaire was used to gain further understanding of students' learning experiences and perceptions toward the instructional method they received. By comparing the outcomes from both groups, this research aimed to identify the potential impact of collaborative learning strategies on students' cognitive skill development, thereby offering empirical evidence to support innovative approaches in classroom instruction for upper elementary students.

3. Findings and Discussions

When implementing collaborative learning, the activities to be carried out clearly define academic tasks. Students are instructed to pay close attention to the teacher's comments from each group member and be willing to reconsider their own judgments and opinions. (Hanik & Harsono, 2020) The process of student interaction in collaborative learning is crucial in empowering each other's thinking, reasoning, analyzing, and elaborating on learning material (Warsah et al., 2021). Furthermore, social interaction can help students understand each other, complement their competencies, and empathize. Collaborative learning facilitates students' increased focus on learning, increases motivation, encourages continuous learning, and improves the quality of learning.

Empowering creative thinking in learning is intended to train students to address various problems in a rapidly changing world (Häkkinen et al., 2017). The use of collaborative learning involves conceptualizing and connecting existing concepts to the real world. (Daud et al., 2012; Ramirez & Monterola, 2019) In the collaborative learning process, students activate the knowledge they have acquired through group discussions, generating various assumptions about the problems they face. Afterward, students propose possible solutions based on literature relevant to the given problem.

After the task was explained, group members pulled up chairs in a tight circle and began working on the worksheet. They were given 30 minutes to discuss solutions within the group and reach a consensus. After 30 minutes, the solution sheets were distributed. Participants discussed their answers in their groups for 15 minutes. Finally, students were tested on the material they had learned. The treatment consisted of two parts: a lecture and a worksheet. Initially, the author delivered a general lecture to both treatment groups. The lecture was conducted simultaneously for both groups to avoid the influence of extraneous variables such as time, day of the week, room lighting, and so on. The lecture lasted 50 minutes. It was based on series DC circuits and parallel DC circuits. Next, one group was randomly assigned to an "individual learning group" and the other to a "collaborative learning group." The two sections work in separate classrooms.

The same worksheet was given to both treatment groups. It consisted of practice and critical thinking items. A variety of cognitive operations were utilized within the worksheet. It began with factual questions asking about electrical units. Next, the questions involved simple applications of Ohm's and Watt's laws or exponentiation formulas. The factual and simple application questions were analogous to the practice and practice questions on the posttest. Subsequent questions required information analysis, concept synthesis, and solution evaluation. These questions were analogous to the critical thinking questions on the posttest. When designing the critical thinking items, it was ensured that they required extensive thought. Both sections were administered with equal treatment time.

The results showed a significant improvement in students' thinking skills in the experimental group compared to the control group. After participating in collaborative learning, the average score of the control group only increased by 8%. After statistical analysis of the test scores, it was found that students participating in collaborative learning performed significantly better on the critical thinking test than students studying individually. According to Rizky (2023), students' intellectual development can be higher when they work collaboratively compared to individual learning. Various groups, each with their own experience and knowledge, will collaborate positively in the teaching and learning process. Febriani (2020) stated that cooperative teaching and learning methods will increase the level of problem-solving strategies because students will be faced with different situations. Several support systems for students will enable them to internalize external understanding and enhance critical thinking skills.

Questionnaire analysis showed that students in the experimental group had positive perceptions of the collaborative learning method. They felt that this method facilitated better interaction and exchange of ideas, and helped them develop good thinking skills. The research results showed that collaborative learning media would encourage students to have opportunities to analyze, synthesize, and evaluate learning outcomes. An overly formal atmosphere would make students feel awkward, while an informal environment would encourage students to interact and discuss. Group interaction encourages students to learn skillfully and share experiences with one another. Compared to individual learning, which only involves answering simple questions, collaborative learning requires each student to express their opinions and provide reasons. Therefore, opinions must be carefully obtained. Participants in the collaborative learning group were asked for written comments about their learning experience. To analyze the open-ended informal responses, they were divided into three categories: first, benefits focusing on the collaborative learning process; second, benefits focusing on social and emotional aspects; and third, negative aspects of collaborative learning.

Most participants felt that group work helped them better understand the material and stimulated their thinking processes. Furthermore, shared responsibility reduced anxiety associated with problem-solving. Participants commented that humor also played an important role in reducing anxiety. (Damanik, 2023) Metacognitive skills in collaborative learning are defined as the group's ability to reflect on the group's cognitive abilities as well as the ability to plan, monitor, and evaluate group activities during collaborative learning to acquire group knowledge together (Biasutti & Frate, 2018).

4. Conclusion

Based on the research results, it can be concluded that collaborative learning methods are effective in improving elementary school students' thinking skills. The interaction and exchange of ideas in collaborative groups helps students develop better analytical, evaluation, and decision-making skills. These findings provide practical implications for educators and stakeholders in designing and implementing innovative learning strategies to develop students' critical thinking skills. The results showed a significant improvement in students' thinking skills in the experimental group compared to the control group. After participating in collaborative learning, the average score of the control group only increased by 8%. After statistical analysis of test scores, it was found that students participating in collaborative learning performed significantly better on critical thinking tests than students studying individually.

Although this study reviews and summarizes previous research on collaborative, creative, and metacognitive learning, it is not the end of the study. Further implementation research on this learning approach is needed so that future researchers can uncover more in-depth results. As a recommendation for future researchers, those reporting research on the implementation of collaborative learning should report their research comprehensively, especially regarding basic statistical information and other supporting information, so that more research can be eligible for analysis.

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