

Implementation of Integrated PBL and NHT Model to Enhance Elementary School Students' Cooperatives Skills

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1. Abstract

This research is motivated by the observed deficiency in the cooperative skills of first-grade students. The primary objective of this research is to augment the dimension of collective cooperation among first-grade students. This will be achieved through the implementation of an integrated instructional approach, combining *Problem-Based Learning* and *Numbered Head Together* models. The research design employed in this research is Collaborative Classroom Action Research (CCAR) using the Kemmis and McTaggart model in two cycles. The research subjects consisted of 18 first-grade students. This research was conducted during the even semester of the academic year 2022/2023. Data collection was carried out through observation, interviews, and documentation. The data analysis techniques used were both qualitative and quantitative. The results of this research indicate that the integration of *Problem Based Learning* with the *Numbered Head Together* model can enhance the dimension of cooperation among the first-grade students. This can be demonstrated by the percentage of cooperative skills in the pre-cycle, which was 58.25% with a qualification of insufficient. It then experienced an improvement in cycle I, reaching 71% with a qualification of adequate. In cycle II, there was further improvement, reaching 84.75% with a qualification of good.

Keywords: *Problem Based Learning, Numbered Head Together, cooperatives*

2. Introduction

Education is a learning process that encompasses knowledge, skills, and character development carried out by a group and passed down from one generation to another, aiming to prepare the next generation as the future successors of the nation (Nisa, 2020). Law Number 20 of 2003 concerning the National Education System, Article 1, explains that education is a conscious and planned effort to create a learning atmosphere and learning process in which learners actively develop their potential to have spiritual and religious strength, self-control, personality, intelligence, noble character, and skills needed for themselves, society, nation, and state. Furthermore, in Article 3, it is mandated regarding the functions and purposes of education, stating that national education serves to develop the abilities and shape the character and civilization of the dignified nation in order to enrich the intellectual life of the nation. The aim is to develop the potential of learners so that they become individuals who are faithful and devoted to the One God, possess noble character, are physically and mentally healthy, knowledgeable, competent, creative, independent, and become democratic and responsible citizens. To develop education, it is also necessary to have good and high-quality human resources. Besides having good academic achievements, students must also possess high-quality characters.

Character education is a process in which the formation of character in a child must be instilled from an early age so that the child can undergo emotional, spiritual, and personality development that can have a positive impact (Sherli, 2022). Character education should be instilled starting from kindergarten, elementary school, junior high school, high school, and even at the university level. This is because in the present time, Indonesia is starting to lose its identity (Desti, 2020). There are five principles in strengthening character education, namely nationalism, integrity, independence, cooperation (gotong royong), and religiosity. The reinforcement of cooperative character education can be achieved by

effectively instilling character values to students through educational institutions during the learning process. By doing so, cooperative character education has the potential to transform the behavior, thinking, and actions of the students, thus contributing to the development of Indonesia's future generation to be better and more integral individuals (Uktolseja, 2022; Hendarman, 2018). The cooperative character reflects behaviors of mutual respect and helping one another. It encompasses several indicators, including solidarity, mutual assistance, appreciation, cooperation, empathy, anti-discrimination, anti-violence, and a voluntary attitude (Supriyoko et al., 2022).

Based on the observations conducted from April 11, 2023, to April 13, 2023, it is evident that the cooperative character of the students is still low. This issue is attributed to the fact that the learning process remains conventional or *teacher-centered*. Conventional or teacher-centered learning tends to be boring, rigid, and results-oriented, which makes students passive as it emphasizes outcomes over experiences or the learning process. Such a learning approach also lacks the incorporation of the meaning of cooperative character education in the students during the learning process. Besides the conventional teaching methods, another common issue is that teachers often underutilize various learning models in delivering the material. Hence, teachers need to foster the cooperative traits of the students.

The problem can be addressed if the learning model used can enhance the cooperative characteristics of the students. By employing an engaging learning model that encourages active and enjoyable participation, such as integrating the PBL model with NHT, the cooperative traits of the students can be improved.

The *Numbered Head Together* (NHT) *cooperative* learning model is a group-based learning approach where each group is responsible for its assigned task, ensuring that there is no separation among students within a group, allowing them to actively give and

receive information from one another (Trianto, 2015). All students within the group are required to understand and master the materials and answers to the questions provided by the teacher. At the end of each learning session, each group can present the results of their discussions to the class, facilitating the exchange of information among groups. This model can also enhance cooperative characteristics (gotong royong) among the students.

Problem Based Learning (PBL) is chosen because this learning model places greater emphasis on the students' activities in seeking solutions and solving real-life problems (Hendriana, 2018). Problem Based Learning (PBL) is a learning approach based on contextual problems that require investigative efforts to solve the issues at hand (Kosasih, 2014). The PBL model is one of the recommended learning models in the implementation of K13 (Curriculum 2013), incorporating the steps of the scientific approach, which encourages students to be more proficient in observing, questioning, experimenting/data collection, associating/reasoning, and communicating (Widiyanti & Nisa, 2021). The PBL learning model challenges students to "learn how to learn," working collaboratively to find solutions to real-world problems. The given problems are used to motivate students to enhance their curiosity in the intended learning. Problems are presented before students research the related concepts or materials that are necessary to solve the given problems (Ritonga et al., 2022).

The NHT cooperative learning model and the PBL learning model each have their own advantages and disadvantages. The PBL learning model can train students to think scientifically, which typically involves activities such as observation or data collection required to formulate hypotheses (Sani, 2014; Nisa, 2020). The shortcomings of the PBL learning model can be overcome when combined with the NHT learning model, as the NHT learning model has the advantage that no student dominates the group due to the limitation imposed by numbered heads.

3. Methods

3.1. Participants and Context

This research employs a qualitative method known as Collaborative Classroom Action Research (CCAR). The research follows the model proposed by Kemmis and McTaggart, which consists of four stages: planning, action, observation, and reflection (Prihantoro, Agung, 2019:56). The subjects of this research are first-grade elementary school students, totaling 18 students. The collaborative classroom action research was conducted in two cycles. Each cycle involved the stages of planning, action, observation, and reflection.

3.2. Material

The research instrument is a tool or facility used by the researcher to collect data more effectively. In this research, the research instrument used is an observation sheet, which serves to assess the activities carried out by the researcher during the research process.

3.3. Data Collection and Analysis

Data Collection Techniques are the most strategic steps in research because the primary objective of research is to obtain data. The data collection techniques employed in this research include observation, which was used to gather information on the activities during the learning process. Additionally, this research followed the interactive analysis model proposed by Miles and Huberman (in Sugiyono, 2015:338), consisting of four stages: data collection, data reduction, data presentation, and drawing conclusions.

4. Results and Discussion

Based on the results of observations conducted during the pre-cycle, the average percentage of students' cooperative skills was 58.25%, categorized as insufficient. In cycle 1, the average percentage of students' cooperative skills increased to 71%, categorized as

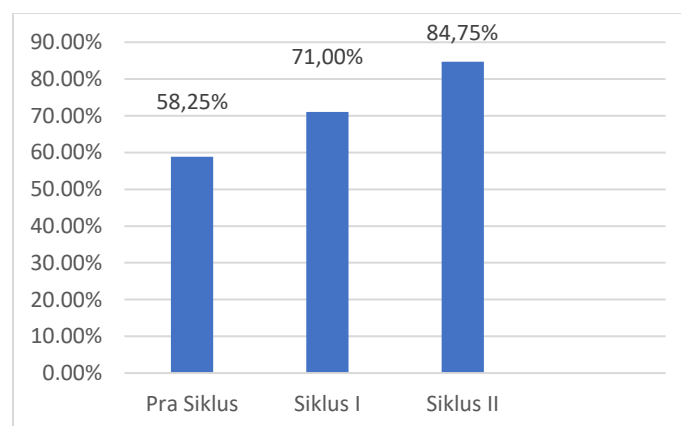
adequate. Meanwhile, the observation results for students' cooperative skills in cycle II obtained a percentage of 84.75%, falling within the interval of 76-85, categorized as good.

Table 1. Analysis of Cooperative Dimensions Data

Cycle	Cooperative Skills
Pre-Cycle	58,25%
Cycle I	71%
Cycle II	84,75%

In the graph, it can be observed that there is an increase in the percentage of students' cooperative skills from the pre-cycle stage to cycle II. The improvement from the pre-cycle to cycle I is 12.75%, while the increase from cycle I to cycle II is 13.75%.

Figure 1. Analysis of Cooperative Skills Data



Discussion

The implementation of PBL integrated with NHT in order to enhance the cooperative skills of the 18 students in Class I at Margoyasan Public Elementary School was conducted, comprising 7 boys and 11 girls. This research was carried out over 2 cycles, with each cycle

consisting of 2 sessions. Throughout the research, several indicators of cooperative behavior were observed and manifested. The teacher monitored the students' activities during the school lessons to ensure the integration of the cooperative values. The learning process conducted from cycle I to cycle II consists of the *Problem-Based Learning* method with the following instructional steps: (a) orienting the learners to the problem, (b) organizing the learners in their learning process, (c) guiding student investigations, (d) developing and presenting the results of their work, (e) analyzing and evaluating the problem-solving process (Haryanti, 2017: 59). The implemented learning approach is also integrated with the steps of the *Numbered Heads Together* (NHT) learning model, as the NHT cooperative learning model is a group-based learning approach where each group is responsible for its assigned task. This ensures that there is no separation among students within a group, allowing them to actively give and receive information from one another (Trianto, 2015).

The implementation of *Problem-Based Learning* (PBL) integrated with NHT (Numbered Heads Together) for first-grade students is appropriate because it involves active student engagement, not just passive note-taking, but also collaborative processes. The conducted learning process also creates an atmosphere where students engage in questioning, answering, and group discussions with the guidance of the teacher, aimed at enhancing and improving the dimension of students' cooperation (*gotong royong*), resulting in an increased acquisition of knowledge.

a) Pre-cycle

Subject The subjects examined in the research consisted of 18 student participants. An issue concerning the low level of students' sense of cooperation (*gotong royong*) was identified. This issue was observed through the pre-cycle results of the students' participation. During the pre-cycle of the learning process, a lack of cooperation among

the students was evident. The students still tend to work on group tasks individually, and in a group of 3-4 students, only 1 or 2 students actively participate in the group work. Additionally, the students have not yet recognized their own needs that require the help of others. These issues have been identified as the focal points for improving the learning process through Classroom Action Research (CAR). The integration of the problem-based learning model with NHT is expected to enhance students' cooperative attitudes, which will be further improved in the subsequent cycles.

b) Cycle 1

The implementation of actions in Cycle I involves the planning phase, in which the researcher carries out the planning process. This includes developing teaching modules aligned with the instructional material, preparing the lesson plan following the stages of the problem-based learning model, compiling teaching materials, and preparing instructional media that support the content to be taught. Furthermore, in the Implementation phase, the researcher conducted Cycle I according to the initial planning. During this phase, the teacher also observed the learning process. At the final stage, a reflection on the outcomes of the implemented teaching was carried out, aligning with the actions provided to the students. From the application of Cycle I, which involved using the problem-based learning model integrated with NHT, the following observations were made.

The results of the observation conducted by the researcher in Grade I, implementing PBL integrated with NHT to enhance students' cooperation, indicate that the teacher cultivates the value of cooperation through daily activities during the learning process. Character-building activities during the learning process, aimed at fostering the spirit of cooperation, include aspects of mutual assistance, where the teacher

encourages students to engage in peer tutoring. This is done to enable students who excel in a particular subject to assist their peers who may need additional support.

The teacher will divide the students into several groups, and each group will be assigned specific tasks. Group members will then distribute the given tasks among themselves and take responsibility for their respective job distributions. In this context, the teacher can observe how the students demonstrate a sense of responsibility in terms of solidarity within their groups. Based on the learning outcomes obtained from utilizing the problem-based learning model integrated with NHT, it can be observed from the results of observations and assessments that students' cooperative attitudes have improved. Previously, some students were hesitant to work individually, but they have now become more willing to collaborate in group tasks. However, there are still a few students who are reluctant to participate in group work. Consequently, the applied teaching model has had a positive impact on enhancing students' cooperative attitudes.

c) Cycle II

The implementation of actions in cycle II was carried out following the same planning process as the previous cycle, wherein the researcher conducted actions aimed at enhancing students' cooperative attitudes during the learning process. The researchers carried out the planning process, which involved developing teaching modules aligned with the instructional material. Subsequently, they prepared the lesson plan following the stages of the problem-based learning model. Additionally, they compiled teaching materials and readied instructional media that could create an enjoyable learning atmosphere for the students. Moreover, the implementation was conducted through playful learning, thereby showcasing the researcher's innovation and creativity in applying the problem-based learning model to the first-grade students.

During the implementation phase, the researchers conducted the learning process based on the previously prepared lesson plan, in accordance with the problem-based learning model. Throughout this stage, the researchers also observed and monitored the learning activities for later evaluation. In the reflection component, the researchers engaged in self-reflection of the conducted activities, assisted by the input and feedback provided by the students, such as through the use of reflection sheets. In the implementation of the intervention provided during cycle II, the researchers incorporated a quiz-based learning media, which was conducted in groups. In this method, one group was selected as the representative to step forward and answer the questions when their group number was called. The group that obtained the highest score would be declared the winner.

Based on the results of observations, it is evident that students' cooperative attitudes have improved, as they are now capable of collaborating on group tasks without discrimination. Upon further examination, a comparison between the pre-cycle, cycle I, and cycle II reveals a progressive enhancement in students' cooperative attitudes when applying problem-based learning or problem-based learning integrated with NHT.

This is in line with Barkley's opinion (as cited in Mawarni, 2017), stating that one of the advantages of combining teaching models is that students not only acquire factual knowledge and a broad range of general intellectual and cognitive skills, but also undergo significant transformations in attitudes, psychosocial aspects, and moral dimensions. Supported by the opinion of Siew et al. (2017), who asserted that students taught through the combined application of PBL and NHT models, assigned to heterogeneous learning groups, are capable of fostering interpersonal interactions with peers possessing diverse knowledge and backgrounds. The cooperative learning model

of NHT creates a conducive environment for developing performance skills as students engage in the PBL process. Students are challenged to collaboratively select the best materials and solutions for real-life problem-solving within the Project-Based Learning (PBL) and Numbered Heads Together (NHT) learning environment, and record their ideas on worksheets. Through this approach, students discover new ways to represent and generalize their experiences.

5. Conclusion

Based on the research findings and discussions conducted, it can be concluded that the implementation of Project-Based Learning (PBL) integrated with Numbered Heads Together (NHT) can enhance students' cooperative attitudes in Grade I. The analysis indicates that the average percentage of students' cooperative abilities in the pre-cycle was 58.25%. During the first cycle, this percentage increased to 71% with a qualification level of "sufficient." In the second cycle, there was a further improvement, reaching 84.75% with a qualification level of "good." Overall, the observational results show a highly significant improvement in students' cooperative abilities when applying the teaching approach of PBL integrated with NHT.

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