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Contribution of the Collaborative Project-Based Flipped Classroom Learning Model to Improve Collaboration Skills and Student Learning Outcomes in the Fifth Grade Science Subject at SDN 2 Wosu

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A B S T R A C T

This study aims to analyze the contribution of the collaborative project-based flipped classroom learning model in improving the collaboration skills and learning outcomes of Grade V students in the Natural and Social Sciences (IPAS) subject at SDN 2 Wosu. This learning model integrates technology-based independent learning with active collaborative learning in the classroom. The method used in this study is a descriptive qualitative approach, employing data collection techniques that include observation, interviews, questionnaires, documentation, and learning outcome tests. The results of the study indicate that implementing a collaborative project-based flipped classroom can encourage students to be more active in discussions, increase group interaction, and foster shared responsibility in completing project tasks. The increase in student learning outcomes is also seen significantly from the pretest to post-test scores. Thus, this model can be an innovative alternative in IPAS learning that not only focuses on mastering the material but also on developing students' social and critical thinking skills.

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INTRODUCTION

Education in the 21st century demands a paradigm shift from teacher-centered learning to student-centered learning. In this context, teachers are required to not only transfer knowledge but also guide students to develop critical, creative, collaborative, and communicative thinking skills. This challenge is increasingly relevant in the digital and globalization era, where students must be prepared to face real-world problems with an innovative approach. Therefore, the application of a learning model that is able to integrate technology and collaborative activities is an urgent need in today's education system. On the other hand, the Independent Curriculum implemented in Indonesia encourages teachers to create meaningful, enjoyable, and relevant learning for students' lives. The Natural and Social Sciences (IPAS) subject, as an integration of IPA and IPS, requires students to understand natural and social phenomena holistically and be able to apply them in everyday life. However, in the implementation in the field, many teachers still have difficulty in implementing learning that can develop 21st-century skills. One of the problems faced is the low collaboration ability of students and the less-than-optimal learning outcomes in the IPAS subject, as found at SDN 2 Wosu. Initial observations show that the science learning process at SDN 2 Wosu is still conventional, where teachers dominate teaching and learning activities, while students tend to be passive and less actively involved in the learning process. This condition results in low learning motivation and student involvement in collaborative activities. Student learning outcomes have also not reached the expected target, where most students have not met the Learning Objective Achievement Criteria. Therefore, a learning model is needed that is able to overcome these problems and at the same time support the implementation of the Independent Curriculum optimally. The flipped classroom learning model, based on collaborative projects, is here as a solution to overcome these challenges. This model provides students with opportunities to study materials independently outside the classroom through digital media, and then use class time for collaborative activities such as discussions, problem-solving, and joint projects. Thus, students can be better prepared to follow learning in the classroom because they already have a basic understanding of independent learning activities. Additionally, student involvement in group projects can enhance their ability to collaborate, communicate effectively, and take responsibility for the group's outcomes.

LITERATURE REVIEW

Based on this background, this study aims to analyze how the contribution of the flipped classroom learning model based on collaborative projects improves the collaboration skills and learning outcomes of Grade V students in the subject of Science at SDN 2 Wosu. This study is expected to contribute to the development of innovative learning practices and in accordance with the demands of 21st century education.

METHODOLOGY

This study uses a descriptive qualitative approach to provide an in-depth description of the implementation of the collaborative project-based flipped classroom model. This study was conducted at SDN 2 Wosu, Bungku Barat District, Morowali Regency in the even semester of the 2024/2025 academic year. The subjects of the study included the principal, grade V teachers, and grade V students. Data collection techniques were carried out through observation, in-depth interviews, documentation, questionnaires, and learning outcome tests. Observations were conducted to observe student interactions during the learning process, especially in a collaborative context. Interviews were conducted with the principal, teachers, and students to find out their views on the learning model applied. Documentation instruments were used to obtain supporting data such as Teaching Modules, teaching materials, and student assessment results. Learning outcome tests consist of pretests and post-tests to measure improvements in students' cognitive understanding. The data analysis technique in this study follows the interactive model of Miles and Huberman, which includes the stages of data reduction, data presentation, and conclusion. Data validity is maintained by triangulation of sources and techniques. The entire process is carried out systematically to ensure the accuracy and integrity of the data collected.

RESULTS AND DISCUSSION

The results of the study showed that the implementation of the collaborative project-based flipped classroom learning model significantly had a positive impact on students' collaboration skills and learning outcomes. From the results of the questionnaire and observations, it was found that more than 80% of students showed an increase in aspects of active involvement in group discussions, fair division of tasks, mutual respect between members, and willingness to express ideas and opinions openly. This is in line with the views of Sufajar & Qosyim (2022), who stated that indicators of collaboration skills include an active attitude in discussions, responsibility in completing group assignments, and willingness to accept other people's opinions. The implementation of the flipped classroom allows students to access teaching materials before face-to-face learning. The results of interviews with teachers showed that students were more prepared to follow the teaching because they had an initial understanding of the material studied independently at home. This condition supports the statement by Murafer et al. (2021) that the flipped classroom offers learning flexibility and encourages students to become more independent. When students have mastered the basic material, learning in class can be focused on discussion, collaboration, and problem-solving activities. Thus, learning activities become more meaningful, and students are actively involved. Based on the test results, the average pretest score of students was 45 and increased to 84 in the post-test. This increase indicates a significant improvement in students' understanding of science and science material. The percentage of students who achieved learning completion also increased drastically from 11% to 89%. This finding is in line with the results of Supriyatni's (2021) study, which shows that the use of the flipped classroom model can significantly improve learning outcomes. In this context, the flipped classroom learning model combined with collaborative projects is not only effective in improving mastery of the material but also in shaping students' cooperation skills and social responsibility. Collaborative projects also contribute greatly to shaping students' character and social skills. Rizkasari et al. (2022) explained that rrrrr-based learning can improve students' social skills through group work, communication, and joint decision-making. In the implementation at SDN 2 Wosu, students not only work together to complete tasks but also learn to manage conflicts, listen to other people's opinions, and build group agreements. This reflects the development of 21st-century skills as emphasized by Nurhayati et al. (2024) that collaboration is an essential competency in today's education. Thus, the implementation of the collaborative project-based flipped classroom model not only provides academic improvement but also transformation in students' attitudes and social skills. The teacher acts as a facilitator who accompanies the learning process, not as

the main source of information. Students become active subjects in the learning process, which is in line with the spirit of the Merdeka Curriculum, which focuses on meaningful and contextual learning. Therefore, this model is very relevant to be applied widely as an alternative learning that is adaptive to the development of the times.

CONCLUSIONS AND RECOMMENDATIONS

The implementation of the flipped classroom learning model based on collaborative projects has made a significant contribution in improving students' collaboration skills and learning outcomes in the subject of science at SDN 2 Wosu. This model encourages students to learn independently, be active in group activities, and develop social responsibility in completing joint projects. The success of this model shows that learning integrated with technology and collaborative activities can create a more meaningful, enjoyable learning atmosphere, and in accordance with the needs of 21st-century students. It is recommended that teachers in elementary schools begin to adapt this approach as an alternative to conventional learning that can overcome the challenges of conventional learning.

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