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Improving Teachers' Teaching Activities Through the Application of Make A Match, Think Pair Share, and Numbered Head Together Learning Models in IPAS Subjects

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Abstract: This study aims to analyze the increase in teachers' teaching activities in Natural and Social Sciences (IPAS). The research uses the Classroom Action Research (PTK) approach with the Kemmis and McTaggart spiral design which includes the stages of planning, action, observation, and reflection. The data collection technique is carried out through observation and documentation with the instrument of the teacher's activity observation sheet. The data was analyzed descriptively quantitatively based on the teacher's activity score in each cycle. The results of the study showed an increase in teacher activity in each cycle, namely from a score of 50 with a good category in cycle I, increased to 70 with a good category in cycle II, and reached a score of 73 with a very good category in cycle III. These findings show that the gradual implementation of the cooperative learning model can improve the quality of teachers' teaching activities and create more interactive, collaborative, and student-centered learning.

Keywords: Teacher Teaching Activities, Cooperative Learning, Think Pair Share, Numbered Heads Together, IPAS

Abstrak: Penelitian ini bertujuan untuk menganalisis peningkatan aktivitas mengajar guru dalam pembelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS). Penelitian menggunakan pendekatan Penelitian Tindakan Kelas (PTK) dengan desain spiral Kemmis dan McTaggart yang meliputi tahap perencanaan, tindakan, observasi, dan refleksi. Teknik pengumpulan data dilakukan melalui observasi dan dokumentasi dengan instrumen lembar observasi aktivitas guru. Data dianalisis secara deskriptif kuantitatif berdasarkan skor aktivitas guru pada setiap siklus. Hasil penelitian menunjukkan adanya peningkatan aktivitas guru pada setiap siklus, yaitu dari skor 50 dengan kategori cukup pada siklus I, meningkat menjadi 70 dengan kategori baik pada siklus II, dan mencapai skor 73 dengan kategori sangat baik pada siklus III. Temuan ini menunjukkan bahwa penerapan model pembelajaran kooperatif secara bertahap dapat meningkatkan kualitas aktivitas mengajar guru serta menciptakan pembelajaran yang lebih interaktif, kolaboratif, dan berpusat pada peserta didik.

Kata kunci: Aktivitas Mengajar Guru, Pembelajaran Kooperatif, Think Pair Share, Numbered Heads Together, IPAS

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Introduction

Education is a systematic effort to improve the quality of human resources through an effective and meaningful learning process (Permatasari & Tandiayuk, 2023). In the implementation of the Independent Curriculum, Natural and Social Sciences (IPAS) subjects in elementary schools require teachers to be able to integrate activity-based learning, collaboration, and critical thinking (Fadila et al., 2025). IPAS not only emphasizes on mastery of concepts, but also on the active involvement of students in the learning process (Ramdani et al., 2021). Therefore, teachers' teaching activities are a key factor in creating interactive, innovative, and student-centered learning (Tang, 2023).

However, learning practices in elementary schools still show that teachers' teaching activities tend to be dominated by lecture methods and individual assignments. This condition causes low two-way interaction, lack of student participation, and the implementation of the cooperative learning model is not optimal. Teachers' teaching activities that have not been maximized have an impact on the lack of development of students' critical and collaborative thinking skills in science learning.

Research by (Harahap et al., 2021) on the effectiveness of cooperative learning models in the classroom, research by (Ozturk, 2023) on the influence of cooperative learning models on learning outcomes, Various previous studies have examined the effectiveness of cooperative learning models in improving learning quality. The Make A Match model developed by Lorna Curran has been proven to be able to increase learning activity and motivation through matching question cards and answers in pairs (Lindayanti et al., 2023). The Think Pair Share model introduced by Frank Lyman emphasizes the process of individual thinking, discussion in pairs, and sharing results with the class thereby increasing student participation (Lyman et al., 2023). Meanwhile, Numbered Heads Together developed by Spencer Kagan encourages individual responsibility in group work through a system of numbering and random summoning (Tamara, 2025).

A number of studies have shown that each of these models is effective in improving student learning outcomes and activeness. However, most research still focuses on improving student learning outcomes, not on improving teachers' teaching activities as the main variable. In addition, research that combines or applies the three models gradually in one context of social studies learning in elementary schools is still limited. Thus, there is a research gap related to how the application of a variety of cooperative learning models can improve the quality of teachers' teaching activities systematically and sustainably.

The novelty of this article lies in the focus of research that places teachers' teaching activities as the main indicator of the success of actions, as well as the application of three cooperative learning models (Make A Match, Think Pair Share, and Numbered Heads Together) gradually in the Classroom Action Research (PTK) cycle in science subjects. This approach makes a conceptual contribution that the variety of cooperative learning models not only has an impact on students, but is also able to improve the professionalism and quality of teachers' pedagogical activities.

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Based on this description, the problems of this research are: (1) how the application of the Make A Match, Think Pair Share, and Numbered Heads Together learning models can improve teachers' teaching activities in science subjects; and (2) whether there is an increase in teacher teaching activities in each action cycle. The action hypothesis in this study is that the application of the three cooperative learning models can systematically improve teachers' teaching activities in science learning. The purpose of this study is to analyze and describe the improvement of teachers' teaching activities through the application of Make A Match, Think Pair Share, and Numbered Heads Together learning models in science subjects in elementary schools.

Method

This research uses a Classroom Action Research (PTK) approach with the aim of increasing teachers' activities in the IPAS learning process through the application of a cooperative learning model. The research design refers to the spiral model developed by Kemmis and McTaggart which consists of four stages in each cycle, namely planning, acting, observing, and reflecting. The research was carried out at SD Negeri 11 Lahat in the even semester of the 2025/2026 school year. The subjects of the study are teachers and students of grade V in the science subject. The focus of this research is the activities of teachers during the learning process. The research was carried out in three cycles. In cycle I, teachers apply the Make A Match learning model to the material "Knowing Light". At the planning stage, teachers prepare learning tools and media in the form of question cards and answer cards. In the implementation stage, students are asked to match matching matching pairs of cards, then present the results in front of the class.

In cycle II, the Think Pair Share (TPS) model was applied with the material "Properties of Light". The teacher asks students to think individually, discuss with their partners, and share the results of the discussion with the whole class. In cycle III, the Numbered Heads Together (NHT) model was used with the material "Mirror and Light Reflection". The teacher divides the students into heterogeneous groups, assigns a number to each member, as well as gives questions to discuss together. Students with the number called represent the group to answer and present the results of the discussion. The data collection technique in this study uses observation and documentation. Observations are carried out to assess teacher activities in each cycle using observation sheets that have been compiled based on learning implementation indicators, including learning readiness, material delivery, classroom management, use of learning models, as well as closing and evaluation activities. Documentation is used to complete the data in the form of learning tools and observation results.

The data was analyzed in a quantitative descriptive manner by calculating the teacher's activity score in each cycle. The scores obtained are then categorized into the criteria of excellent, good, adequate, and poor. The indicator of research success is determined if the teacher's activity reaches the good or very good category and shows an increase in each cycle.

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Results and Discussion

Result

Results of teacher observations

From the existing data, it can be seen that there is a significant increase in cycles I, II, and III with the results of teachers' observations during the teaching process in the IPAS Class V subject of SD Negeri 11 Lahat.

1) In cycle I using the Make A Match model with material to know Light, the make a match learning model is applied by the teacher determining the materials needed in the form of question cards and answers, then distributed to students to match the card pairs, after students can match the cards are asked for future presentations. The results of the teacher's observation research in the first cycle were classified as sufficient with a total of 50. This model really needs to be considered in the game, because if the method is not prepared correctly, it is a waste of time, then the shortcomings that exist in cycle I can be corrected in cycle II.
2) In cycle II, a TPS model was used with light properties material. This model is implemented by teachers asking students to pair up, think individually, and share their answers with their partners and the entire class. This shows that teachers have been active in delivering subject matter, providing examples, and involving students in learning activities. However, teachers still show that there are shortcomings in carrying out the learning process, especially in preparing the class to be better prepared to start the process of teaching and learning activities. The results of this study show that the number of teacher activity scores achieved is 70 which is included in the good category and there is an increase compared to cycle I. This proves that teacher activities still need to be improved to achieve more satisfactory and maximum results that can be improved in cycle III.
3) In cycle III, the NHT model was used with mirror material and light reflection. This model applies the division of diverse groups, giving the same number, giving the same questions and assignments in each group to students with the same number and different questions with different numbers in each group. Furthermore, students work together to solve problems which will later be presented according to their numbers. The teacher gives a score to each student and gives him or her an award. The results of this study show that the number of teacher activity scores achieved is 73 which is included in the category of very good and has started to increase a lot compared to cycles I and II. This proves that teachers' activities in cycle III are very conducive to teaching and make students more active in learning, critical thinking, creativity, and a sense of social responsibility.

Discussion

The results of this classroom action research show that there is an increase in teacher activity in social studies learning through the application of a cooperative learning model in stages in each cycle. The increase in teachers' observation scores from 50 (adequate) in cycle

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I, to 70 (good) in cycle II, and 73 (very good) in cycle III indicates that reflection and continuous improvement have a positive impact on the quality of the learning process.

In cycle I, the application of the Make A Match model to the material recognizing light showed results that were still quite sufficient. Theoretically, the Make A Match model is part of cooperative learning that emphasizes the activity of finding a pair of question cards and answers to actively increase student involvement (Kusumaningtyas & Mirtasari, 2024). This model is effective in creating a fun and interactive learning atmosphere. However, (Ghaith & Awada, 2022) assert that the success of cooperative learning is largely determined by classroom management, clarity of instruction, and readiness of learning tools. The results of the study show that the obstacle in the first cycle lies in the time management and technical of the game that is not optimal, so that the effectiveness of learning has not been maximized. These findings reinforce that learning model innovation needs to be balanced with teachers' pedagogical readiness.

In cycle II, the application of the Think Pair Share (TPS) model to light properties showed a significant increase in the good category. The TPS model provides opportunities for students to think individually, discuss with partners, and share the results with the class. According to (Ismail et al., 2023), TPS is effective in increasing student participation because each individual has the responsibility to convey the results of his or her thoughts. The increase in teacher observation scores in cycle II showed an improvement in the strategy of delivering material and learning interactions. Teachers are beginning to be able to facilitate more targeted and systematic discussions. However, there are still weaknesses in the classroom conditioning before learning begins. This shows that the managerial aspect remains an important factor in the successful implementation of the cooperative model.

In cycle III, the application of the Numbered Head Together (NHT) model to mirror material and light reflection showed the most optimal results in the very good category. The NHT model emphasizes the responsibility of individuals in groups through a system of random numbering and summoning (Siburian et al., 2025). This strategy encourages each group member to be active because each student has an equal opportunity to represent his or her group. The results showed that the classroom atmosphere became more conducive, interaction increased, and students showed better critical thinking skills and social responsibility. Scoring and awarding also increase students' motivation to learn, in line with the theory of reinforcement in learning (Bonghawan & Macalisang, 2024).

Comparatively, the increase in teacher activity from cycle I to cycle III shows that the NHT model is more effective in creating participatory and structured learning than Make A Match and TPS in the context of this study. This is due to a combination of group cooperation, individual responsibility, and a direct evaluation system that encourages the active involvement of all students. In addition, the reflection process in each PTK cycle plays an important role in correcting previous weaknesses, as stated by (Yusron et al., 2023) that PTK aims to improve learning practices in a sustainable manner through systematic actions and reflection.

Thus, the findings of this study strengthen the theory that a variety of cooperative learning models applied reflexively and continuously are able to improve the quality of teacher activities and create more effective learning. The implementation of the NHT model in cycle III is an alternative strategy recommended to increase student involvement and teacher professionalism in science learning in elementary schools.

Conclusion

Based on the results of the Classroom Action Research (PTK) carried out in three cycles at SD Negeri 11 Lahat, it can be concluded that the application of the cooperative learning model is gradually able to increase teacher activities in the learning process of IPAS class V.

In cycle I through the application of the Make A Match model to the material on knowing light, the teacher's activity obtained a score of 50 with the sufficient category. These results show that the implementation of learning has not been optimal, especially in the aspect of time management and technical preparation of activities. Reflection in cycle I is the basis for improvement in the next cycle.

In cycle II with the application of the Think Pair Share (TPS) model to light properties, teachers' activities increased with a score of 70 in the good category. Teachers have shown more active involvement in delivering material, setting examples, and involving students in the learning process. However, improvements are still needed in terms of classroom conditioning so that the learning process runs more effectively.

In cycle III through the application of the Numbered Heads Together (NHT) model to mirror materials and light reflection, teachers' activities increased again with a score of 73 in the excellent category. Learning takes place more conducive, structured, and is able to encourage active student participation. Teachers not only play the role of delivering material, but also as facilitators who are able to develop students' critical thinking, creativity, and social responsibility skills.

Thus, it can be emphasized that the application of the cooperative learning model through Make A Match, Think Pair Share (TPS), and Numbered Heads Together (NHT) is continuously effective in improving the quality of teachers' activities in IPAS learning. An increase in the score from 50 to 70 and then 73 indicates a significant improvement in each cycle. The right learning model and continuous reflection are the key to success in improving the quality of the learning process in the classroom.

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