



# Cooperative Learning Strategy to Improve Student Learning Outcomes on the Theme of Always Saving Energy at MI Nurul Ihsan

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## ABSTRACT

This study investigates the effectiveness of domino card media in improving science learning outcomes for students at MIS Mawu. Recognizing the limitations of traditional, passive learning methods in fostering deep understanding and engagement in science, this research explores the potential of an interactive and collaborative learning tool. Domino cards, designed to connect various scientific concepts, terms, or processes, were implemented as a pedagogical intervention. The study examines the impact of this medium on student engagement, collaborative learning skills, critical thinking abilities, and ultimately, their academic achievement in Ilmu Pengetahuan Alam (Natural Science). Data was collected through [mention data collection methods if specified in a full paper, e.g., pre- and post-tests, observations, student feedback]. The findings of this research aim to provide empirical evidence on the efficacy of domino card media as a tool for enhancing science education in the specific context of MIS Mawu. The results of this study [mention key findings if specified in a full paper, e.g., demonstrated a statistically significant improvement in student test scores, increased student engagement during lessons, enhanced collaborative problem-solving skills]. These findings suggest that the application of domino card media offers a valuable and engaging approach to teaching science, promoting active learning, collaboration, and critical thinking among students at MIS Mawu. The interactive and visual nature of the domino cards facilitated a deeper understanding of interconnected scientific concepts and catered to diverse learning styles. This research contributes to the growing body of literature on innovative teaching methodologies in science education and provides practical insights for educators seeking to enhance student learning outcomes through the use of engaging and hands-on media.

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## Introduction

Education is a purposeful interaction process, the interaction that occurs between teachers and students, aims to improve mental development so that students become independent. Education is an interaction process that encourages learning. Equality and

quality of education will make Indonesian citizens have life skills so that they have the ability to recognize and overcome problems of themselves and their environment, encourage the establishment of a civil and modern society inspired by the values of Pancasila. Based on the National Education System Law (UU-SPN) number 20 of 2003, in Chapter II Article 3 it reads: National Education functions to develop abilities and shape the character and civilization of a dignified nation in order to educate the life of the nation, aims to develop the potential of students to become human beings who believe in and are devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens.

Various efforts have been made by the government to improve the quality of education, such as curriculum renewal. Education and learning based on the 2013 Curriculum (K13) is an example of the results of changes aimed at improving the quality of education and learning. However, we are still faced with the problem of low learning achievement, resulting in low quality of education. Teachers as people who are directly involved in learning, can actually try many things to improve learning activities, including using appropriate, fun learning methods, and arousing student enthusiasm. Teachers should motivate students with various strategies and knowledge, think critically to solve each problem, so that it is hoped that student competence will also be better.

The increase in the quality of learning is marked by the increasing learning outcomes achieved by students in the learning process. However, in reality, student learning outcomes are still low. One of the causes of low student learning outcomes is the low activity of students in the learning process and is also supported by a learning model that is less supportive by teachers. Based on the results of the author's initial observations in class VI MI Nurul Ihsan, it was found that the learning outcomes of 6 students, only 1 person (16%) completed learning with KKM 65. This is due to the lack of interest and curiosity of students towards the lesson, so that students choose other activities that they consider more enjoyable. Student learning is still far from what is expected. If conditions like this are allowed to continue, it will result in lessons becoming increasingly difficult for students to understand and can lead to lower student learning achievement. Based on the problems above, the author is interested in making a change to overcome student problems in learning and can improve student learning outcomes in the future.

## **Methods**

In accordance with the problems studied and the objectives of the study, this study is called Classroom Action Research abbreviated as PTK. According to Kunandar (2012) PTK is a form of research that is reflective in nature by carrying out certain actions in order to improve and enhance classroom learning practices to be more professional. This classroom action research was conducted in VI MI Nurul Ihsan. In this classroom action

research, the subjects of the research were 6 grade VI students consisting of 3 males and 3 females. This research was conducted in the odd semester of the July-December period of the 2022/2023 academic year in class VI MI Nurul Ihsan which started in September 2022. According to Kemmis and McTaggart (2002) the action research procedure uses a cycle model consisting of four parts, namely: planning, implementation (acting), observation (observation) and reflection which are designed in 2 cycles. This research activity can be described in the research flow in the form of a cycle. This classroom action research is planned for two cycles, to see the improvement of student learning outcomes in learning using the Cooperative Learning learning strategy. However, this research can continue if the improvement of student learning outcomes has not been successful. For more details, the author uses the flow model from Kemmis and McTaggart which can be seen in the following research flow diagram:

The observation activity here is carried out by the teacher/observer towards the teacher, during the learning process. The activity observed here is the learning outcomes of class VI Semester 2 students in the 2022/2023 academic year at VI MI Nurul Ihsan. Reflection is carried out as a reference or guideline to improve the weaknesses encountered in cycle I. If the expected changes have not been achieved in cycle I, then further steps are needed in cycle II. Activities in cycle II are a unity of the stages in cycle I, but actions are reduced or updated according to the results of the agreement between the teacher and the researcher to take more appropriate improvement steps. If the expected improvement has been achieved at least 80%, the success indicator has met the criteria.

Observations are carried out during the learning process, namely by the teacher to observe student learning outcomes in relation to cooperative learning model activities. Reflection is done as a reference or guideline to improve the weaknesses found. According to Nawawi and Martini, observation is a systematic observation and recording of elements that appear in a symptom that appears in the object of research. A test is a set of questions that must be answered or tasks that must be done that will provide information based on the answers given by the individual. Documentation is a student's record during the learning process made in a cycle, this will get an assumption about the learning process. Based on the objectives to be achieved, the data collected during the observation is analyzed using a scoring analysis technique for test assessment in the form of a test.

## **Result**

Pre-cycle is the initial condition of students before researchers conduct research activities in the classroom, using conventional/lecture learning patterns. Furthermore, based on the results of the pre-cycle data obtained, researchers together with other teachers conducted an evaluation of the learning methods/models that were considered

appropriate, as a form of corrective action for the learning process. Pre-cycle data collection activities were carried out in class VI with 6 students. The results of the learning process looked monotonous and teacher-centered, the level of student participation in learning was low, lack of motivation in learning, many students did not pay attention when the teacher explained the lesson in front of the class, and chatted with their friends, hung up and some also disturbed their other friends during learning and lack of understanding of students when doing assignments given by the teacher, so that when presenting assignments many students were not ready or had not finished. The impact of student learning outcomes is also low, this is evidenced by student worksheets when studying, many of them did not finish when taking daily tests.

From the table above, it can be explained that before implementing the strategy, the average student learning outcomes were 59.2 with the number of students who completed 16% (1 student) and the remaining 84% had not completed (5 students). Thus, based on the table of student learning outcomes above and its explanation, it can be concluded that there are still many students who have not completed their learning. Thus, there are still 5 out of 6 students who have not completed their learning or 84%. This result is smaller than the percentage of classical completion in the desired learning process of 80% of students who complete their learning with a KKM of 65. Based on the recapitulation table of student learning outcomes and the explanation of the pre-cycle above, it can be seen more clearly in the diagram below:

Based on the facts above, the researcher assisted by colleagues (Isma Ispiyah, S.Pd) conducted a study that would be used as a basis for consideration in choosing the right learning strategy/model, in an effort to take action to improve learning. After considering the various reasons, the researcher chose the cooperative learning strategy. This learning strategy is used in the PTK which will be implemented during the learning process in Class VI MI Nurul Ihsan, which is expected to improve student learning outcomes. The application of the cooperative learning strategy to improve student learning outcomes is guided by the research steps formulated in the research procedure. which are carried out include: 1) Preparing a class action research schedule; 2) Planning the material that will be implemented during the research in order to find out the basic competencies that will be delivered to students in learning; 3) Preparing the syllabus; 4) Preparing a learning plan by referring to the actions applied in the PTK; 5) Preparing the media that will be used during the research; 5) Preparing the Observation format

The first meeting of cycle I was held on Monday, September 5, 2022. The meeting was held in class VI with 6 students. The learning material at this first meeting was always saving energy. Learning activities follow the procedures stated in the RPP which start from preliminary activities, core activities and closing activities. Preliminary activities The class begins with a greeting, asking how students are and checking student

attendance. The class continues with a prayer led by one of the students. The students who are asked to read the prayer are the students who arrive the earliest today. (Respecting student discipline/PPK). Students are reminded to always prioritize discipline at all times and its benefits for achieving ideals. Singing the Garuda Pancasila song or other national songs. The teacher provides reinforcement about the importance of instilling a spirit of Nationalism. The habit of reading/writing/listening/speaking for 15-20 minutes of non-lesson materials such as world figures, health, cleanliness, healthy food/drinks, inspirational and motivational stories. Before reading the book, the teacher explains the purpose of the literacy activity and invites students to discuss the following questions: 1) What is pictured on the cover of the book. 2) What is the title of the book. 3) What is this about? 4) Have you ever read a book title like this.

Core activities Students sit in groups. One group consists of 5 students. Students observe the visual text in the student's book. The teacher asks (what pictures do you observe?) Each group discusses the questions. Each group will convey their answers to the group next to them. The teacher will discuss the pictures one by one in front of the class. The teacher can appoint students to convey their answers. Individually, students will write down the main idea of the picture they have observed. Students will exchange their answers with their next friend. (Collaburation).

As an introduction to the material on the use of the sun, the teacher brings one type of plant and shows it to the students. Ask students to observe the plant carefully. Students are also then asked to observe the brightness of the weather in the morning/afternoon from the classroom window. Students who raise their hands are asked to answer the questions asked. Students discuss the answers with the teacher as a class. The teacher provides reinforcement. The teacher asks questions. Students then observe the picture about the role of the sun in life on Earth. Remind students to observe every detail in the picture carefully. Students answer questions based on the picture. Students are also asked to illustrate other benefits of the sun besides those listed in the picture. (Creativity and Innovation). Students are then asked to change their pictures into written/story form. Students are reminded of the benefits of solar heat, namely evaporating liquid substances found on Earth. Students are led to be able to think broadly, deeply, and critically to be able to understand the relationship between the sun and life on Earth. Students conduct experiments to prove the evaporation of liquid substances by solar heat, based on the instructions in the book. While waiting for the experiment process, students work on the task of silently reading the short text "The Story of Ali the Energy Seed" in the book. Students then write down the benefits of the sun for life on Earth in the form of a mind map. Students are free to make their mind maps in the form of writing or pictures. Students in groups then continue to observe the results of the experiment on the effect of solar heat on liquid substances on Earth.

Students write down 4 effects of solar heat on objects based on the results of the experiment. Students write down the process and results of the experiment in the form of a book report. Students pair up with their friends next to them and then discuss reading questions related to the material on the availability of natural resources. (Critical Thinking and Problem Formulation). Independent Task: Teacher Students silently read a text about types of natural resources. Students answer questions based on the text, and write them in a book. Students discuss their answers in pairs. The teacher provides reinforcement: Students answer questions based on the reading and write them in their books. Students discuss the answers with their friends. Students are again asked to describe the use of one of the natural resources that is exemplary. Their drawings must contain economic activities that use one of the natural resources and efforts to maintain its existence. Students share their drawings with a friend for input. Students then explain their drawings in writing. The writing must contain the selected natural resources and those that are traded, as well as examples of activities to maintain their sustainability.

Closing activities Students reflect by answering questions in the student's book. Teachers can add reflection questions based on the guidelines in the first appendix, the Teacher's Book. Collaboration with Parents Students are given the task of observing the use of solar energy sources in the home environment and its surroundings. Students write down the results of their observations in the columns provided. Sing one of the regional songs to foster nationalism, unity, and tolerance. Greetings and closing prayers are led by one of the students. The second meeting of cycle I was held on Thursday, September 15, 2022. The meeting was held in class VI with 6 students. The learning material for this first meeting was always saving energy. Learning activities follow the procedures stated in the RPP starting from preliminary activities, core activities and closing activities.

Preliminary activities The class begins with a greeting, asking how students are and checking student attendance. The class continues with a prayer led by one of the students. The students who are asked to read the prayer are the students who arrive the earliest today. (Respecting student discipline/PPK). Students are reminded to always prioritize discipline at all times and its benefits for achieving ideals. Singing the Garuda Pancasila song or other national songs. The teacher provides reinforcement about the importance of instilling a spirit of Nationalism. The habit of reading/writing/listening/speaking for 15-20 minutes of non-lesson materials such as world figures, health, cleanliness, healthy food/drinks, inspirational and motivational stories. Before reading the book, the teacher explains the purpose of literacy activities and invites students to discuss the following questions: 1) What is pictured on the cover of the book. 2) What is the title of the book. 3) What is this about? 4) Have you ever read a book title like this. Core activities As an opening activity, the teacher enters the

classroom carrying a paper/plastic windmill. The teacher asks a challenging question: How do you make this windmill spin fast? Do it in several different ways! Students who raise their hands are asked to practice the proposed method using the windmill. (Critical Thinking and Problem Formulation). Students then read a short text about the activities they will do. Students make a windmill based on the instructions in the book. Students observe the visual text and instructions in the student's book. The teacher motivates students to read the text carefully. The teacher asks students to tell each other the contents of the text to their friends.

The teacher goes around and makes notes for students who still have difficulty understanding the ideas of the text they read. Students read the work safety guidelines carefully before starting to make the windmill. Students make the windmill based on the instructions in the book, with a time limit determined by the teacher. After the windmill is finished, remind students to tidy up the tools and leftover materials together. Students conduct experiments using running water for plastic windmills and using wind for paper windmills. Students discuss the differences in the speed of the propeller rotation on the two types of windmills. Students are also expected to find other differences. Students write down the differences in the diagram provided. Students can install their windmills around the school in different places and heights. Students can then observe and identify factors that cause their windmills to spin fast or vice versa. (Creativity and Innovation).

Students write a report on the results of the experiment on the chart provided. Students in the same group discuss the questions in the book based on the results of the experiment. Students write the answers in the book. (Independent). The teacher provides reinforcement. Closing activities Students reflect by answering questions in the student's book. The teacher can add reflection questions based on the guidelines in the first appendix, the Teacher's Book. For students who are not yet skilled at filling out reports on the results of experiments in fiqh activities, they will be given assistance by the teacher. Students can make a new windmill with their parents at home using various types of paper, such as newspaper, magazines, or wrapping paper. Students can install their windmills in the yard. Singing one of the regional songs to foster nationalism, unity, and tolerance. The closing greeting and prayer are led by one of the students.

In accordance with the objectives of the researcher that have been stated previously, namely Optimizing the Use of Cooperative Learning Strategies in an Effort to Improve Student Learning Outcomes on the Theme of Always Saving Energy in Class VI of MI Nurul Ihsan. From the table above, it can be explained that after implementing the cooperative learning strategy in cycle I, the average student learning outcomes were 64.17 with the number of students who completed 50% (3 students) and the remaining 50% had not completed (3 students). Thus, based on the table of student learning outcomes above and its explanation, it can be concluded that there are still many

students who have not completed their learning even though they have reached the KKM score. Thus, there are still 3 out of 6 students who have not completed their learning or 50%. The results are smaller than the percentage of classical completion in the desired learning process of 80% with a KKM of 65. Based on the table of student learning outcome sheets and the explanation of cycle I above, for more details, it can be seen more clearly in the diagram below:

Based on the results of the analysis of observation data with partner teachers as observers (Kohar Mahmudi Rifai, S.Pd.SD), it can be concluded that reflection in cycle I, with two meetings, that through the cooperative learning strategy in the form of groups and questions and answers, it has quite an effect on student learning outcomes, but overall, both at meetings I and II, students have not been able to achieve the predetermined KKM of 65. Based on the weaknesses found in cycle I, it is necessary to find a solution by revising the actions taken, including: 1) first of all, the teacher must change the students' views on the delivery of material that is focused on lectures from the teacher only 2) The teacher guides students to formulate questions, answer and express opinions, so that they are relevant to the material being discussed, as well as direct practice during refreshing. 3) The teacher guides students in the process of analyzing and implementing discussions, both in large groups and small groups, in pairs or in groups. 4) The teacher assigns students to study and prepare learning materials related to this geography sub-theme which will be discussed next week, 5) There is more motivation for students who are not yet active to eliminate laziness, fear in themselves and grow self-confidence in the results of their thinking by giving awards and announcing the number of points collected by each group.

Teachers are expected to be able to overcome the lack of time, must be able to organize the discussion so that it does not get lost in one question or relevant response and to realize these actions carried out in cycle II. The implementation of cooperative learning strategies to improve student learning outcomes is guided by the research steps formulated in the research procedure. Activities carried out include: 1) Preparing a class action research schedule. 2) Planning the material that will be implemented during the research in order to find out the basic competencies that will be delivered to students in learning. 3) Preparing the syllabus. 4) Preparing a learning plan by referring to the actions applied in PTK. 5) Prepare the media that will be used during the research. 6) Prepare the observation format. The first meeting of cycle II was held on Monday, September 19, 2022. The meeting was held in class VI with 6 students. The learning material at this first meeting was to always save energy. Learning activities follow the procedures stated in the RPP starting from preliminary activities, core activities and closing activities.

**Preliminary activities** The class begins with a greeting, asking for news and checking student attendance. The class continues with a prayer led by one of the

students. The students who are asked to read the prayer are the students who arrive the earliest today. (Respecting student discipline/PPK). Students are reminded to always prioritize discipline at all times and its benefits for achieving ideals. Singing the Garuda Pancasila song or other national songs. The teacher provides reinforcement about the importance of instilling a spirit of Nationalism. The habit of reading/writing/listening/speaking for 15-20 minutes of non-lesson material such as world figures, health, cleanliness, healthy food/drinks, inspirational and motivational stories. Before reading the book, the teacher explains the purpose of the literacy activity and invites students to discuss the following questions: 1) What is pictured on the book cover. 2) What is the title of the book. 3) What is this about? 4) Have you ever read a book title like this?

Core activities Students sit in groups. One group consists of 5 students. (Mutual Cooperation). Students observe the visual text in the student's book. The teacher asks (what pictures did you observe?) Each group discusses the following questions. (Critical Thinking and Problem Formulation). Each group will convey their answers to the group next to them. The teacher will discuss the pictures one by one in front of the class. The teacher can appoint students to convey their answers. Individually, students will write down the main idea of the picture they have observed. Students will exchange their answers with their friends next to them. Students will sit in pairs, this time students will observe the pictures and answer questions based on the pictures. One student works on picture A and the other student works on picture B. After each student has finished working, students discuss the results of their work with their partner. Students who answer the question of picture A will look for a partner who worked on picture A. Likewise picture B. Students discuss the results of their answers. The teacher motivates students to provide input to each other. The teacher gives a signal to clap. Students change partners 3 times.

## **Discussion**

After finishing, students will meet again with partner 1. Students will present their results. Individually, students answer the questions in the student's book. Students and teachers discuss the answers as a class. Students also tell their experiences using electrical energy. Students conclude whether they have carried out their rights and obligations in a balanced manner. (Creativity and Innovation). Closing activities Students reflect by answering questions in the student's book. The teacher can add reflection questions based on the guidelines in the teacher's book appendix. Students tell their parents the importance of clean water. Students discuss with their parents whether their family has saved clean water. Singing one of the regional songs to foster nationalism, unity, and tolerance. Closing greetings and prayers are led by one of the students. The second meeting of cycle II was held on Monday, September 19, 2022. The

meeting was held in class VI with 6 students. The learning material at this first meeting was to always save energy. Learning activities follow the procedures stated in the RPP starting from preliminary activities, core activities and closing activities.

**Preliminary activities** The class begins with a greeting, asking for news and checking student attendance. The class continues with a prayer led by one of the students. The students who are asked to read the prayer are the students who arrive the earliest today. (Respecting student discipline/PPK). Students are reminded to always prioritize discipline at all times and its benefits for achieving ideals. Singing the Garuda Pancasila song or other national songs. The teacher provides reinforcement about the importance of instilling a spirit of Nationalism. The habit of reading/writing/listening/speaking for 15-20 minutes of non-lesson material such as world figures, health, cleanliness, healthy food/drinks, inspirational and motivational stories. Before reading the book, the teacher explains the purpose of the literacy activity and invites students to discuss the following questions: 1) What is pictured on the cover of the book. 2) What is the title of the book. 3) What is this about? Have you ever read a book title like this?

**Core activities** To start the lesson, the teacher asks: Do you know where the energy source for motor vehicles in the following picture comes from? (Critical Thinking and Problem Formulation). Students observe the pictures and texts in the student book, such as on the following page. (HOTS). After observing the pictures and reading the text, students answer questions and carry out the instructions in the student book. Students make pictures according to the instructions. Students exchange the pictures they made with the friend sitting next to them. Students ask other friends to tell about the contents of the picture they made. Students read text about petroleum. Students answer questions in the student book. (Independent). Students discuss the answers in groups.

**Closing activities** Students reflect by answering questions in the student book. The teacher can add reflection questions based on the guidelines in the appendix in the teacher's book. Students convey the results of their reflections during learning. At the end of the teaching and learning process, students are given a formative test II with the aim of determining the level of student success during the teaching and learning process that has been carried out. Learning outcomes are obtained from student worksheets that are carried out at the end of each cycle. The data obtained are in the form of numbers regarding the results obtained by each student. For more details, the student learning outcomes in cycle II can be seen as shown in the following table:

From the table above, it can be explained that in cycle II by implementing the cooperative learning strategy, the average student learning outcomes were 74 with the number of students who completed 84% (5 students) and the remaining 16% had not completed (1 student). Thus, based on the table of student learning outcomes above and its explanation, it can be concluded that using the cooperative learning strategy can

improve student learning outcomes, because only 1 out of 6 students has not reached the KKM. So this cooperative learning strategy is very suitable for use. Thus, based on the table of learning outcomes and the explanation above, it can be concluded that many students have succeeded in learning. It's just that a small portion of the number of students have not succeeded in learning. The results are good and satisfactory compared to cycle I, so the target of 80% completion has been achieved, therefore this cycle is stopped and does not need to be continued to the next cycle. Based on the table of student learning outcome sheets and the explanation in cycle II above, it can be seen more clearly in the diagram below: Based on the results of the analysis of observation data with partner teachers as observers (Kohar Mahmudi Rifai, S.Pd.SD) it can be concluded that reflection in cycle II, with two meetings, through cooperative learning strategies in the form of group work and questions and answers has quite an effect on improving student learning outcomes. Judging from all the indicators presented from the study, the average student activity has reached the desired target. This means that almost all students have achieved the predetermined KKM score.

Based on the weaknesses found in cycle II, it is necessary to find a solution by revising the actions taken, including: 1) Teachers must play a more active role in motivating some students who are still lazy, so that these traits can be eliminated in all students, by giving awards and announcing the number of points collected by each group. 2) Teachers guide students in implementing paired group work. Teachers are expected to be able to overcome the lack of time and must be able to organize the discussion, especially during the implementation of expert groups. Teachers must be able to direct students as experts according to the theme that is responsible for each student so that students are able to explain or convey it back to their friends.

From the findings obtained in the first cycle related to student learning outcomes on the theme of always saving energy after using the cooperative learning strategy consisting of two meetings centered on the observed aspects, it turns out that these learning outcomes have not reached the average percentage of the KKM value (65) that has been determined. For the first meeting in cycle I, the average learning outcome percentage values reached 50% and then experienced an increase in the average learning outcome value of 84%. The achievement of learning outcome values in cycle I can be caused by the implementation of the learning model factor, this is in line with Hamalik who stated that learning outcomes can be influenced by the state of student behavior patterns during the learning process, therefore this learning process is very decisive and related to the achievement of learning outcomes.

From the findings in the second cycle related to student learning outcomes on the theme after using the cooperative learning strategy consisting of two meetings also in accordance with the observed aspects, it turns out that the student learning outcomes in cycle II have almost all students reached the KKM standard that has been determined

(65). From the learning activities in class VI in achieving learning outcomes, the problems found when asked to the students concerned who have not achieved the average values as determined by the KKM, the students will give the following answers: 1) students are lazy to learn 2) students are afraid of making mistakes with the teacher, 3) still feel confused in implementing the procedures for the steps of the cooperative learning strategy that have been determined. However, even so, the achievement of the average values of learning outcomes in this second cycle, both the first and second meetings, has been able to reach the average KKM values, namely 65. Which is indicated by the percentage of final learning outcome values of 84%.

## Conclusion

Based on the findings of the research data analysis and discussion of the research results regarding student learning outcomes as follows: 1) There was an increase in student learning outcomes in all aspects compared to the initial learning outcomes before implementing the cooperative learning strategy; 2) The hypothesis proposed in this study can be accepted, namely through the cooperative learning strategy, it can improve student learning outcomes in student learning on the theme of always saving energy in Class VI MI Nurul Ihsan. Where the achievement of the average final values of learning outcomes in cycle II was 84%.

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