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Improving Learning Activities and Outcomes Using the Inquiry Learning Model and Number Head Together

Iswatun Hasanah, Ike Hananik
Program Studi PGSD, FKIP, Universitas Lambung Mangkurat
Email : iis.atun23@gmail.com, ike.hananik@ulm.ac.id

ABSTRACT

This research was motivated by low student engagement and poor learning outcomes in science education, particularly among fifth-grade students at SDN 1 Palangkau Baru. The predominant use of teacher-centered methods limited student participation and hindered the development of scientific thinking. The aim of this study was to enhance learning activities and outcomes by applying the Inquiry Learning and Numbered Heads Together (NHT) models. Using a Classroom Action Research approach, the study was conducted over two cycles involving ten students. Data collection was carried out through observations and tests, and the analysis combined qualitative and quantitative methods. The results showed a notable improvement in teacher activity (from 78% to 89%), student activity (from 40% to 80%), and learning outcomes (from 70% to 90% mastery). These findings demonstrate that integrating Inquiry Learning and NHT effectively increases student engagement, encourages collaboration, and supports independent learning. The implication is that teachers and school administrators should consider adopting this combination of instructional strategies to foster active participation and improve academic performance in science subjects. The approach also offers a replicable model for enhancing learning in other contexts or subjects.

Keywords: *Learning Activities, Learning Outcomes, Inquiry Learning, Number Head Together*

INTRODUCTION

Education has the task of producing a good generation, a more cultured human being, human beings as individuals who have a better personality (Biesta, 2015; Bowen, 2018; Twenge, 2014). The essence of the educational process is the teaching and learning process and teachers are the main key (Loughran & Menter, 2019; Osiesi, 2020; Sriatun et al., 2024). Teachers do not only play a role in transferring the knowledge they have (Borger & Tillema, 2021; Özdilekler et al., 2018). However, teachers also play the role of an educator to continue and develop values that grow in society (Hord & Tobia, 2015; Reis Monteiro & Monteiro, 2015). Teachers are a very decisive component in the implementation of the learning process in the classroom as a micro-element of educational success (Susanto, 2013). In addition to teachers, the curriculum also plays an important role in the learning process. The curriculum can be said to be the heart of education for the implementation of an effective and efficient learning process to achieve existing educational goals in order to achieve national education goals. According to Bintari (2014) that the 2013 Curriculum has fulfilled two dimensions of the curriculum, the first is the plan, and the second is the arrangement of the objectives, content, and teaching materials, as well as the methods

used for learning activities. In the 2013 curriculum, learning is student-centered and integrates a variety of subjects and competencies within a variety of themes. So that learning feels more meaningful because it provides direct experience to students which will later have a good impact on student learning outcomes. In addition, thematic learning also requires students to be active in learning (Shobirin, 2016).

Natural sciences (IPA) is one of the five compulsory subjects in the 2013 curriculum. Science is a subject in elementary school that is intended so that students have organized knowledge, ideas and concepts about the environment, and have a broad relationship related to human life. This is obtained from experience through a series of scientific processes, including investigation, preparation and presentation of ideas to understand the surrounding nature. Science is a science that studies events that occur in nature by conducting observations, experiments, conclusions and the preparation of theories so that students have knowledge. In science learning, there are also three types of learning outcomes that want to be developed, from the knowledge, attitudes that are commonly known as scientific attitudes and skills known as process skills in science learning. It is hoped that these three elements can appear in students, so that students can experience the learning process in a complete way to understand natural phenomena through problem-solving activities, scientific methods and imitating the way and attitude of scientists work in finding new facts. Students who should have a scientific attitude start from exploring problems through asking detailed questions about the problems described, identifying various information and finding out for themselves how to solve the problem.

But in reality, in school, there are still many students who have not been trained in digging up information through questions, still fixated on the old habit, namely one-way learning which is only centered on the teacher, students are less able to develop lessons except with direct help from the teacher, and only rely on the information available in the book and wait for the teacher to direct them in solving problems.

Looking at the existing reality based on the results of an interview with a grade V teacher of SDN 1 Palangkau Baru, namely Mrs. Jubaidah, S.Pd.I. Information was obtained that students had difficulty learning science, students' understanding of concepts in science learning was still low. This is evidenced by data from grade V students for the 2020/2021 school year semester 1, where out of 10 students, only 6 students have achieved learning completeness or only 60% of students have achieved KKM classically. Conditions like this are certainly very unexpected because student learning outcomes are low below the KKM set by the school. If this is allowed to continue, it will have an impact on students' understanding and learning outcomes.

The cause of these problems is that most students are still not active in science learning (Owens et al., 2020). Another factor is the learning atmosphere in the classroom which is still teacher-centered because it does not use varied learning strategies so that students feel bored and become passive during learning which causes student learning outcomes to be low.

Based on these problems, the problem-solving plan is to use *the Inquiry Learning* and *Number Head Together* models. The *inquiry learning* method is a learning method that involves students in the process of collecting data and testing hypotheses (Arends in Handoyono, 2016). The *inquiry learning* method is a learning method that provides opportunities for students to actively engage in the learning process through inquiry, thereby training students to be creative and think critically to discover knowledge on their own.

The NHT-type cooperative model is a cooperative learning model that prioritizes students' activities in searching, processing, and reporting information from various sources which is finally presented in front of the class. Trianto stated that the NHT model is used to involve more students

in studying the material covered in a lesson and checking their understanding of the content of the lesson. . The hallmark of the NHT model is that teachers assign certain numbers to students at random without first telling who will represent their group. In this way it will guarantee the total involvement of all students as well as increase individual responsibility in group discussions. This type of NHT cooperative learning will make students not bored in learning activities and students can share with their friends to solve problems given by teachers, because teachers are only facilitators to develop student knowledge, and are able to make students able to take responsibility even better which will ultimately improve student learning outcomes for the better (Sastrawan et al., 2014).

One of the persistent problems in elementary education is the low level of student engagement and poor learning outcomes, particularly in science subjects. This issue is often attributed to monotonous, teacher-centered instruction that limits student interaction and fails to encourage independent thinking. In the case of SDN 1 Palangkau Baru, many students struggled to understand science concepts, as evidenced by underwhelming performance data, with only 60% of fifth-grade students reaching the minimum mastery criteria. This situation necessitates innovative instructional strategies to promote active learning and improve comprehension.

Improving the quality of science education at the elementary level is essential for fostering critical thinking, problem-solving, and a scientific mindset from an early age. The 2013 Curriculum emphasizes student-centered and thematic learning, yet many classrooms still rely on conventional methods. As a result, students remain passive and overly dependent on the teacher for direction, limiting their ability to develop scientific inquiry and communication skills.

The need to implement effective and engaging learning models becomes more urgent as national education goals shift toward competency-based learning. Without adopting dynamic and collaborative approaches such as Inquiry Learning and Numbered Heads Together (NHT), the learning process risks becoming superficial. These models are designed to enhance student participation, encourage teamwork, and promote independent exploration, which are vital in helping students internalize scientific concepts more effectively.

Limbong & Harahap (2020) demonstrated the effectiveness of the NHT model in improving learning outcomes in science, with a final student achievement rate of 90.32%. Their study concluded that active student participation in cooperative settings could significantly boost performance in science-related topics. Similarly, Hafa et al. (2017) applied the Inquiry Model in a fifth-grade classroom and recorded a dramatic increase in student activity and outcomes, with a final achievement of 96% in student engagement metrics.

Arlinda et al., (2019) combined several cooperative models including NHT, Group Investigation, and Snowball Throwing to teach civic education content. Their findings showed a 91% increase in student activity by the final session, confirming that cooperative models help students become more engaged and accountable during learning. These models also foster communication, discussion, and critical thinking—skills that traditional lecture-based instruction often fails to develop.

Additionally & Agusta (2015) used a combination of Inquiry Learning, SAVI, and Team Game Tournament (TGT) to teach ecosystem content, achieving 100% learning mastery by the end of the cycle. These studies reinforce the argument that integrated, student-centered learning approaches can greatly enhance both understanding and retention of material, especially in abstract subjects like science.

Although various studies have shown the positive effects of Inquiry Learning and NHT models separately, limited research explores the impact of combining these two models within the context of thematic science instruction at the elementary school level. Furthermore, existing literature often overlooks how teacher activity, student engagement, and learning outcomes interact in a single classroom action research framework, particularly in rural or under-resourced schools.

The novelty of this research lies in its integration of Inquiry Learning and the Numbered Heads Together (NHT) model to improve science learning outcomes within a thematic curriculum. This study not only examines student learning outcomes but also evaluates teacher facilitation and student activity across multiple learning sessions. By using classroom action research, it offers a holistic understanding of how specific instructional strategies can be optimized in real-time to enhance both teaching quality and student comprehension.

The primary objective of this study is to improve student learning activities and outcomes in science by implementing a combination of Inquiry Learning and the Numbered Heads Together (NHT) models in a fifth-grade classroom. The study also aims to assess how these models influence teacher performance and student engagement during the learning process.

This research provides valuable insights for educators, school administrators, and curriculum developers by demonstrating practical strategies to enhance active learning in science education. The findings can serve as a reference for future classroom action research and inform teacher training programs focused on cooperative and inquiry-based learning. Ultimately, it supports national efforts to shift toward student-centered learning environments that foster higher-order thinking skills and scientific literacy.

METHOD

The type of research used is Class Action Research, with qualitative and quantitative research emphasis on research. According to Arikunto (2014), there are four stages that are commonly passed to conduct research, namely: (1) Planning, (2) implementation, (3) observation, and (4) reflection.(2014)

The first stage carried out in this study is planning, in this case what the researcher does is to design lesson plans and prepare teaching materials, prepare teacher and student observation sheets along with their rubrics, and prepare LKK and LKPD. The second stage of implementation is the implementation of the research planning carried out. The third stage of observation, at this stage observation is carried out on the activities of students and teachers in the teaching and learning process using observation sheets that include teacher and student activities. The last stage is reflection, as an effort to find out the advantages and disadvantages that occur from the implementation of class action research activities.

This class action research was carried out at SDN 1 Palangkau Baru in grade V with a total of 10 students, consisting of 3 male students and 7 female students. Research was conducted on ecosystem materials using the Inquiry Learning and Number Head Together models.

The factors studied in this study are the factors of teachers, students and learning outcomes. The teacher factor is seen how the subject matter is prepared using the *Inquiry Learning and Number Head Together models* applied by teachers, so that in learning children can be active and fully participate in the learning process based on the assessment criteria that have been set. The teacher divides the group, the teacher gives the assignment to the group, the teacher determines the problem, the teacher asks questions, the teacher guides the formulation of the hypothesis, the

teacher asks for proof of the hypothesis, the teacher calls the student's number to report the results of the discussion, the teacher gives a response, the teacher concludes with the students.

The student factor is the subject of class action research. The overall student activities that are studied are student activities from the beginning of learning to the end of learning, namely student activities forming groups, student activities with directions / explanations from teachers, student activities collaborating with groups in formulating hypotheses, student activities discussing to collect information and test hypotheses, student activities presenting the results of discussions in front of the class based on the number called, Student activities provide conclusions with the teacher.

The importance of learning outcomes as a factor to be studied is to determine the improvement of student learning outcomes after using the *Inquiry Learning and Number Head Together models* through learning outcome test evaluation questions which are carried out at the end of each discovery through the Student Worksheet (LKS). Students are said to be complete and successful if they obtain ≥ 70 or more than their Classical completeness reaches 80%.

Observation data on the activities carried out by teachers during learning is taken using the teacher's activity observation technique to find out that the teacher is very good, good, quite good, and not good. Data on student activities was taken using student activity observation techniques to determine student activity during learning through the rubric of student activity assessment with criteria of not good, good, good and very good. Data on student learning outcomes was taken by conducting tests using question items at the end of learning.

There is an increase in Teacher Activities. Teachers' activities in learning science ecosystem materials using a combination of *the Inquiry Learning and Number Head Together learning models* are said to be successful if they achieve a score of 30-36 on the observation sheet with the very good category.

There is an increase in student activity in the learning process through the combination of *the Inquiry Learning and Number Head Together learning model* The student activity indicators are said to be successful when viewed from the following 2 perspectives: (i) The student activity indicators in all aspects of their activities are categorized as successful if they achieve scores of 15-19 and 20-24 on the observation sheet with the interpretation of student activity in the following categories:Active and Very Active, (ii) Indicators of student activity in classical completeness are considered successful if students who are categorized as mostly active and reach ≥ 80%. Indicators of student learning outcomes success can be seen individually, if student learning outcomes in ecosystem materials score more than or reach the Minimum Completeness Criteria (KKM) set by the school, which is 70 (KKM). Classically, student learning completeness is successful if 80% of the number of students who get a score of ≥70.

RESULTS AND DISCUSSION

The results and discussion of the Class Action Research meeting 1 and 2 on the observation of teacher activities, student activities and learning outcomes can be presented as follows:

A. Teacher Activities

The results of observation of teacher activities in meetings 1 to 2 are as follows:

Table 1. Recapitulation of Observation Results of Teacher Activities

	Meeting 1	Meeting 2
Score	28	32
Percentage	78%	89%
Criterion	Good	Excellent

Based on the table above, teachers' activities during meeting 1 to meeting two have improved well, namely meeting 1 obtained a score of 28 with a percentage of 78% with *good criteria.* During the 2nd meeting it has increased with a score of 32 and a percentage of 89% with *very good criteria*.

In the first aspect, namely the teacher's activity dividing the group, each student in the group gets a number with a score of 3 because the teacher has given directions to form a group clearly, the teacher divides the group heterogeneously, the teacher has also distributed each number to the students. It's just that at this meeting the division of groups was still irregular because some students seemed to disagree and protest with their group members. However, it has been improved during the 2nd meeting, namely that the teacher has conditioned the students' condition regularly when dividing groups. And has obtained a score of 4.

In the second aspect, namely the teacher's activity giving assignments and each group doing it gets a score of 3 because the teacher has presented learning materials and examples, explaining the assignments done in language that is easy for students to understand, and encouraging students to be actively involved in discussions.

In the third aspect, the teacher's activity determines the problem to be found through stories, films, pictures, and so on. Got a score of 4 because the teacher has displayed pictures in front of the students, asked problems in language that is easy for students to understand, gave students the opportunity to ask questions and the teacher also re-explained things that were difficult for students to understand.

In the fourth aspect, the teacher's activity asks questions to students. The questions asked are in the nature of seeking or requesting information on data about the problem. Got a score of 3 because the teacher had asked questions in easy-to-understand language, the questions asked did not come out of the topic of the problem discussed, the teacher also responded to the answers given by the students. In the 2nd meeting, it obtained a score of 4 because the teacher also paid attention to all students when asking questions.

In the fifth aspect, namely the teacher's activity helps guide students in formulating a hypothesis gets a score of 3 because the teacher has clarified the problems given to students, asked questions that can encourage students to formulate hypotheses, and provided instructions for formulating hypotheses.

In the sixth aspect, the teacher's activity is to ask questions that are in the nature of asking for data to prove the hypothesis. Got a score of 3 because the teacher has asked questions about the source of student information, asked questions about the process of

processing student information. As well as ensuring that the answers are in accordance with the problems given.

In the seventh aspect, namely the teacher's activity of calling one of the students' numbers and the number called out of his group, reporting or explaining the results of their cooperation got a score of 3 because the teacher called the student number randomly, made sure that students paid attention to their friends who advanced, and conditioned the class so that they would not make a fuss when submitting the discussion report, it was just that all students still did not get the opportunity to advance.

In the eighth aspect, namely the teacher's activity in responding to the results of the student discussion, the student received a score of 3 because the teacher had commented on the results of the student discussion, the teacher gave appreciation and the teacher verified the results of the student discussion.

In the ninth aspect, namely the teacher's activity to provide conclusions together, students get a score of 3 because the teacher encourages students to conclude the learning results together, the teacher explains things that students do not understand, and the teacher provides reinforcement. However, it has not motivated students. And it was corrected during the 2nd meeting, namely that the teacher had motivated the students, so that they obtained a score of 4.

Based on the results of observations of teacher activities in Cycles I and II carried out on ecosystem materials using a model *Inquiry Learning* and *Number Head Together* in grade V students of SDN 1 Palangkau Baru, it can be concluded that the teacher's activities have increased and have succeeded in achieving the level of completeness."*very good"*. This success is also supported by previous research, one of which is a research conducted by Limbong & Harahap (2020) with the research title "Improving Learning Outcomes Through the Number Head Together (NHT) Learning Model in Science Subjects on the Subject of Earth Surface Appearance in Keasl III SD Negeri 106148 Bulu Cina T.A 2018/2019". This study shows that teachers' activities increased by 88.61% at the end of the meeting.

Then the research conducted by Hafa et al., (2017) with the research title "The Application of the Inquiry Model to Improve Science Learning Activities and Outcomes in Grade V Students". This study showed that the increase in teacher activity at the end of the meeting was 94%. Research conducted by Arlinda et al, (2019) Noorhapizah and Agusta entitled "Improving Student Learning Activities with the Theme of Objects Around Us PPKN Content Using Group Investigation (GI), Number Head Together (NHT) and Snowball Throwing Learning Models in Grade V Students of SDN Pangeran 1 Banjarmasin" showed that teacher activity at the end of the meeting reached a percentage of 95%.(2017)(2019)

B. Student Activities

The results of the observation of student activities in meetings 1 to 2 are as follows:

Table 2. Recapitulation of Student Activity Observation Results

	Meeting 1	Meeting 2
Frequency	4	8
Percentage	40%	80%
Category	Quite Active	Active

Based on the table above, it can be seen that the student activity in meeting 1 with a percentage of classical activeness of 40% with the category of quite active. In meeting 2, student activities in meeting 2 were 80% with the active category. These results show a significant improvement.

In the first aspect of the 1st meeting, namely students forming groups, reaching the 100% active category, in this category students are already active in Students listening to the teacher's directions in forming a group. Students have been active in forming groups based on the teacher's direction. Students set the seating position. In the 2nd meeting, namely the students formed a group reaching the active category of 60% and the very active category of 40%, in this active and very active category, students have actively listened to the teacher's directions in forming a group. Students have been active in forming groups based on the direction of the teacher. Students set the seating position. Students have also formed groups in an orderly manner.

In the second aspect in the 1st meeting, namely the student activity with directions / explanations from the teacher, reached the fairly active category of 60% and the Active category of 40%. In the Active category, students are actively observing the images displayed in front of the class, students are actively paying attention to the teacher's explanation, students are actively taking notes on important things from the teacher's explanation, students are actively asking questions about things that are not understood. In the fairly active category, there are still some students who do not pay attention to explanations, do not note important things and are embarrassed to ask if there is something that is not understood. At the 2nd meeting, students with directions/explanations from the teacher reached the category of quite active 20%, the active category 60% and the very active category 20%. In the Active and very Active category, students are actively observing the images displayed in front of the class, students are actively paying attention to the teacher's explanation, students are actively taking notes from the teacher's explanation, students are actively asking questions about things that are not understood. In the fairly active category, there are still some students who do not pay attention to explanations, do not note important things and are embarrassed to ask if there is something that is not understood.

In the third aspect in the 1st session, namely the activities of students working together with the group in formulating hypotheses to achieve the moderately active category of 50% and the active category of 50%. In the active category, students have actively identified problems according to the problems presented, students are actively involved with the group in formulating hypotheses, students respect the opinions of their friends, students actively write down the hypotheses that have been made. Then in the fairly active category, there are only a few students who have identified problems according to the problems presented, are involved with the group in formulating hypotheses and there are still those who do not write down the hypotheses that have been made. At the 2nd meeting, the students' activities collaborated with the group in formulating a hypothesis to achieve the moderately active category of 30% and the active category of 70%. In the active category, students have actively identified problems according to the problems presented, students are actively involved with the group in formulating hypotheses, students respect the opinions of their friends, students actively write down the hypotheses that have been made. Then in the fairly active category, there are only a few students who have identified problems according to the problems presented, are involved with the group in formulating hypotheses and there are still those who do not write down the hypotheses that have been made.

In the fourth aspect of the 1st meeting, namely the activities of students discussing to collect information and test hypotheses, achieving the category of Moderately Active 70% and the Active category 30%. In the active category, several students have actively collaborated in collecting data or information in accordance with the problem being studied, collecting data or information from various sources, being involved in testing hypotheses in groups, and observing and recording hypothesis testing activities. In the moderately active category, quite a number of students are not yet active in collaborating in collecting data or information in accordance with the problem being studied, collecting data or information from various sources, engaging in testing hypotheses in groups, and observing and recording hypothesis testing activities. In the 2nd meeting, the students' activities discussed to collect information and test the hypothesis to reach the moderately active category of 60%, the active category 30% and 10% for the very active category. In the active and very active category, several students have actively collaborated in collecting data or information in accordance with the problem being studied, collecting data or information from various sources, being involved in testing hypotheses in groups, and observing and recording hypothesis testing activities. In the moderately active category, quite a number of students are not yet active in collaborating in collecting data or information in accordance with the problem being studied, collecting data or information from various sources, engaging in testing hypotheses in groups, and observing and recording hypothesis testing activities.

In the fifth aspect of the 1st meeting, namely the student's activity presenting the results of the discussion in front of the class based on the number called, reaching the moderately active category of 80% and the active category of 20%. In the active category, only a few students who have been active in advancing convey the results of their discussions, using clear and easy-to-understand language, confidently conveying the results of their discussions, and who give responses to the results of their friends' discussions. Meanwhile, in the fairly active category, quite a few students who have not been active in advancing to convey the results of their discussions, using clear and easy-to-understand language, confidently conveying the results of their discussions, and who provide responses to the results of their friends' discussions. At the 2nd meeting, the students' activities presented the results of the discussion in front of the class based on the number called, reaching the category of moderately active 70%, the active category 10% and the very active category 20%. In the active and very active category, only a few students who have been active in advancing convey the results of their discussions, using clear and easy-to-understand language, confidently conveying the results of their discussions, and who give responses to the results of their friends' discussions. Meanwhile, in the fairly active category, quite a few students who have not been active in advancing to convey the results of their discussions, using clear and easy-to-understand language, confidently conveying the results of their discussions, and who provide responses to the results of their friends' discussions.

In the sixth aspect of the 1st meeting, namely student activities to provide conclusions with the teacher. Reaching the category of 100% active enough. In this category, all students are still not active in making conclusions, explaining conclusions, connecting conclusions related to the material, recording conclusions. At the 2nd meeting, the student activities gave a conclusion with the teacher. Reaching the fairly active category of 60%, the active category of 20% and the very active category of 20%. In the active and very active category, some students are already active in making conclusions, explaining conclusions, connecting

conclusions related to the material, and recording conclusions. Then in the fairly active category, students are still not active in making conclusions, explaining conclusions, connecting conclusions related to the material, recording conclusions.

Based on the results of observations of student activities in Cycles I and II carried out on ecosystem materials using the Inquiry Learning and Number Head Together model in grade V students of SDN 1 Palangkau Baru, it can be concluded that student activities have increased and have succeeded in achieving the "active" completeness criterion.The success of the achievement of student activities is due to the teacher's activities in carrying out learning that are very good. Teachers have facilitated and motivated students to be actively involved in the learning process. Teachers always reflect on the results of observation of student activities at each meeting. Student activities that are not yet in the criteria are very active into reflections and improvement plans for future meetings. The success of student activities is not only influenced by the teacher, but also influenced by the selection of the right learning model. This can make students active in participating in learning, able to interact with each other and cooperate with each other so that learning goals can be achieved.

This success is also supported by previous researchers. The research was conducted by Limbong & Harahap (2020) with the research title "Improving Learning Outcomes Through the Number Head Together (NHT) Learning Model in Science Subjects on the Subject of Earth Surface Appearance in Keasl III SD Negeri 106148 Bulu Cina T.A 2018/2019". This study showed that student activity increased by 88.46% at the end of the meeting. Then the research conducted by Hafa et al (2017) with the research title "Application of Inquiry Model to Improve Science Learning Activities and Outcomes in Grade V Students". This study showed that the increase in student activity at the end of the meeting was 96%. Research conducted by Arlinda et al., (2019) Noorhapizah and Agusta entitled "Improving Student Learning Activities on the Theme of Objects Around Us PPKN Content Using Group Investigation (GI), Number Head Together (NHT) and Snowball Throwing Learning Models in Grade V Students of SDN Pangeran 1 Banjarmasin" showed that student activity at the end of the meeting reached a percentage of 91%.(2019)

C. Learning Outcomes

The completeness of student learning outcomes in meetings 1 to 2 is as follows:

Table 3. Recapitulation of Completeness of Student Learning Outcomes

	Meeting 1	Meeting 2
Individual Completeness	7	9
Classical Percentages	70%	90%
Criterion	Incomplete	Conclusion

In the table above, it can be seen that student learning outcomes have improved. At meeting 1, the number of students who completed was 7 out of 10 people with a percentage of 70% but had not reached the specified completeness criteria. Then at meeting 2, the number of students who completed was 9 out of 10 people with a percentage of 90%. The results at meeting 2 have met the success indicators.

In the 1st meeting, there were 7 students or 70% of students who completed their learning outcomes, while 3 students or 30% of students were still incomplete, this was because the students had not reached the predetermined KKM, which was ≥70. This shows that the classical completeness of student learning outcomes has not been successful, because the

classical completeness that has been set is ≥80%. In student learning outcomes, there are 3 students who have not reached the KKM that has been determined, namely 70, this is due to the lack of accuracy of students in answering evaluation questions at the end of learning. In the 2nd meeting, there were 9 students or 90% of the students completed their learning outcomes. This shows that the classical completeness of student learning outcomes has been successful, because the classical completeness that has been set is ≥80%.

Based on the assessment of student learning outcomes at meetings I and II conducted on ecosystem materials using the Inquiry Learning and Number Head Together model in grade V students of SDN 1 Palangkau Baru, it can be concluded that student learning outcomes classically increased in each meeting and succeeded in achieving success indicators, namely ≥80% of students got a score of ≥70.

The success of achieving student learning outcomes is because teachers have carried out learning very well, students have been very active in participating in learning, as well as the application of the right learning model in overcoming problems. As Sumantri stated, (2015) meaningful learning is learning that seeks to relate the information to be taught with relevant concepts contained in the student's cognitive structure.

Using a learning model in the teaching and learning process in the classroom is one way to improve student learning outcomes. As Fathurrahman (2015) has said, the learning model is a conceptual framework that teachers use as a guideline in carrying out learning activities. In more detail, it can be stated that the learning model is a conceptual framework that describes and describes the systematic procedure in connecting learning and learning experiences to achieve certain learning goals and the function of these guidelines in learning planning for teachers in carrying out learning activities in the classroom that affect the learning outcomes of students.(2015)

The success of this research is supported by several previous researches, one of which is a research conducted by Sahriani (2017) with the research title "The Application of *Number Head Together* Learning to Improve Science Learning Activities of Students in Class V of SD Negeri 090 Panyabungan". The results of this study showed that the completeness of student learning was 88.8% at the last meeting.

The research conducted by Limbong & Harahap (2020) with the research title "Improving Learning Outcomes Through *the Number Head Together* (NHT) Learning Model in Science Subjects on the Subject of Earth Surface Appearance in Keasl III SD Negeri 106148 Bulu Cina T.A 2018/2019". This study showed that students' classical completeness was 90.32% at the last meeting.

The research conducted by Aslamiah & Agusta (2015) entitled "Efforts to Improve Student Learning Outcomes on the Theme of Ecosystem with Science Content Using a Combination of Inquiry Learning, SAVI and Team Game Tournament (TGT) Learner Model in Class 5B of SDN Sungai Miai 7 Banjarmasin" showed the completeness of student learning outcomes by 100% at the last meeting.(2015)

Based on the information above, it can be seen that every meeting there is an increase in all the factors studied. A graph of the tendencies of all the aspects examined can be seen in the figure below.

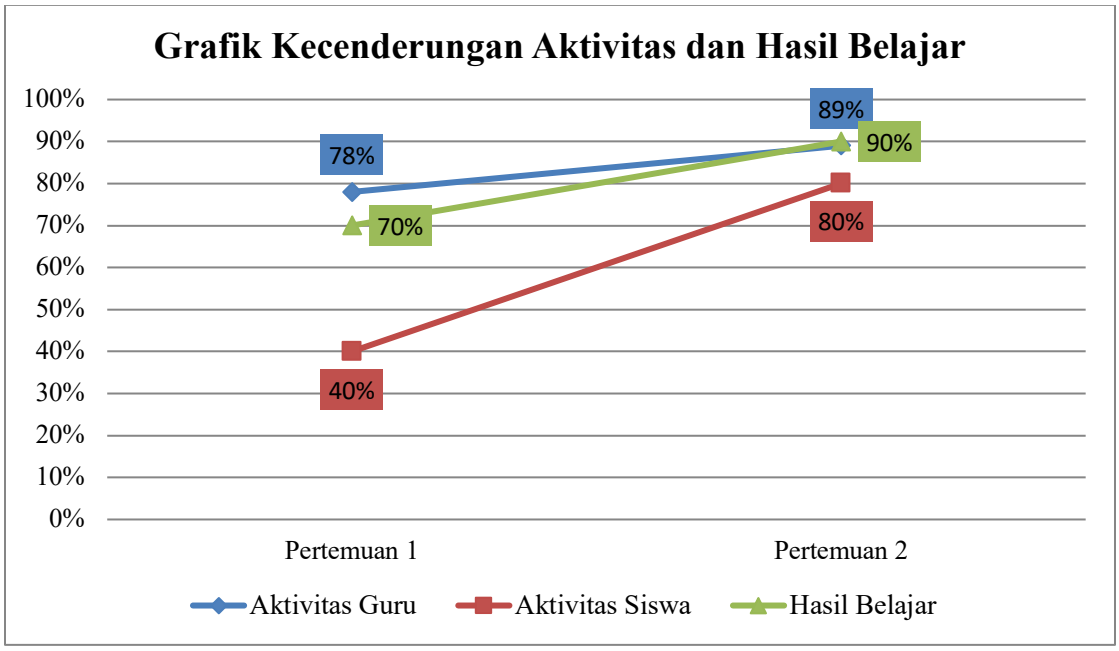

Figure 1. Activity Trends and Learning Outcomes Graph

It can be seen that every aspect of both teacher activities, student activities and learning outcomes has improved. Teacher activity has increased, indicating that the quality of learning carried out by teachers has also improved, this is also related to increasing student activity which causes student learning outcomes to also increase. Based on the findings, the research that has been carried out can be said to be successful.

CONCLUSION

Based on the results of the classroom action research conducted on fifth-grade students at SDN 1 Palangkau Baru, it can be concluded that the application of the Inquiry Learning and Numbered Heads Together (NHT) models in teaching science, particularly on ecosystem topics, significantly improved teacher performance, student engagement, and student learning outcomes—meeting the expected criteria for activeness and mastery. These improvements demonstrate that combining inquiry-based and cooperative learning strategies fosters a more interactive and effective classroom environment. As such, school principals are encouraged to use the findings as a reference for guiding and fostering teacher innovation to enhance instructional professionalism. For teachers, this research offers a practical model for refining classroom practices and improving student outcomes through active learning. Additionally, future researchers are advised to expand upon this study by exploring the integration of other cooperative or digital learning models in different subjects and grade levels, or by applying the combined model in varied educational settings to assess its scalability and long-term impact on cognitive and affective student development.

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