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# Use of model inquiry and media learning based on Microsoft power points in improving student cognitive ability in science study class IV Inpres Matungkas

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**Abstract**
This research was conducted for students' cognitive abilities through the selection of appropriate learning and media models in science learning in elementary schools. Previously it was known that the data obtained by researchers was in the process of learning science. Teachers tended to use the lecture learning model. The teacher does not use the right learning model, and the students' cognitive abilities are low. Pre-cycle data is the value of students who achieved an average of 64%, the lowest score is 45, the highest score is 75, which is completed by 6 students, which is not completed by 14 students.
This study can be considered successful if the activities of teachers and students during learning using the Inquiry and media learning model of this study at the end of the cycle there are at least ≥ 75% if each student is said to complete learning (individual completeness) and a class is said to be complete learning (classical completeness) if there are ≥ 75% in the class, they have experienced an increase in cognitive abilities, according to the KKM standard (Minimum Completion Criteria) of 70%. The results of this study indicate changes in learning activities, where 20 students were able to reach even more than the specified KKM of 70%. Thus the inquiry learning model and microsoft power point based media provide an increase in students' cognitive abilities in the sensory material and how to maintain it in the first cycle with a KKM completeness level of 67% of students who complete 12 people and 8 people who have not finished. From the first cycle data, then the researcher proceeded to cycle II. From the data obtained in the second cycle experienced a significant increase because the achievement of completeness exceeded KKM, which is 75% of the KKM that has been determined 70%. Thus researchers can ensure that the use of inquiry learning models and Microsoft power point based media is appropriate because it can improve students' cognitive abilities in sensory material and how to maintain fourth grade students in Matungkas Inpres Elementary School, North Minahasa Regency.

**Keywords:** inquiry learning model, microsoft power point, cognitive ability

## Introduction
Education is a long-term investment that requires great effort, this is recognized by all people or a nation for the sake of its future survival. Likewise, Indonesia places great hopes on education in life. The problem of the low quality of schools has been very often complained by the community. This role of the teacher is one element that is considered very decisive. In other words, the low quality of schools is seen as having a direct connection with the low quality of teachers. Parents see the school, especially the quality of the teacher. Because low teacher quality causes low quality schools. Most teachers are considered of low quality. Through education various aspects of life are developed with the process of learning and learning. Various problems in the learning process need to be harmonized and stabilized so that learning conditions are created in accordance with the goals to be achieved and can be obtained as optimally as possible so that educational success can be achieved. Factors that influence the learning process, both externally and internally. External factors include teachers, material, patterns of interaction, media and technology, learning situations and systems. There are still educators who lack mastery in the material and in evaluating students demand the exact answers he explained. In other words students are not given the opportunity to think creatively. The teacher also has limitations in accessing new information that allows to know the latest developments in his field and the possibility of further developments than has been achieved now.
For this reason, an effort is needed in order to improve the quality of education and teaching, one of which is to choose a strategy or method for delivering learning material so that students can improve their learning outcomes. For example by guiding students to be actively involved in the learning process, and being able to help students develop according to their intellectual level will further strengthen students' understanding of the concepts taught. This understanding requires interest and curiosity. Without interest indicates that students do not have curiosity in learning activities. For that, the teacher must provide direction in the form of curiosity so that with the help of students can get out of learning difficulties, (Sudjana, 2001) [9]
Planting a science, can not be separated from how the learning process is carried out, both by students and by learners. To create a learning process that is effective, efficient and has attractiveness, it needs necessary learning resources and media (designed) to support higher quality learning. This is consistent with what Degeng revealed (2013), that efforts to improve the quality of learning are by the science of designing learning.
According to Asih W. Wisudawati & Eka Sulistyowati (2017) [2] Science or natural science plays a very important

role in the realm of human life. This is because our lives depend on nature, substances depend on nature, and all kinds of symptoms that occur in nature. Science is a science group, has special characteristics, namely studying natural phenomena that are factual, either in the form of reality or events and causal relationships. The branches of science that include members of the current sscience family include Biology, Physics, Science, Astronomy / Astrophysics, and Geology.

Based on observations in the fourth grade of SD Inpres Matungkas has 20 students consisting of 7 female students and 13 male students in the learning process of sensory devices and how to maintain them, the teacher uses the lecture method, question and answer and assignments in the learning process. In science learning there are still many students who are not active in classroom learning, only a small number are active in class. In addition, no student dares to ask questions that have not been understood. Students participate in learning if the teacher is fishing so that students think but students who want to think about the teacher's questions are only a small portion of the students while others just choose to be quiet. And the teacher has difficulty in conditioning students in effective learning, so it is very influential on the learning outcomes of science with KKM only reaching 64% of the expected results of 70%.

Based on the background of the problem, the problem can be identified as follows: In the science learning process the teacher tends to use the lecture learning model. The teacher does not use the right learning model to improve students' cognitive abilities. Low cognitive abilities of students. Based on the identification of problems, the formulation of the problem in this study are: How is the use of the inquiry learning model and Microsoft-based power point media in science learning in the 4th grade SD Inpres Matungkas? How can the use of inquiry learning models and Microsoft power point-based media improve students' cognitive abilities in fourth grade SD SD Inpres Matungkas lessons?

Hamruni (2012) argues that the inquiry learning model is a series of learning activities that emphasizes the process of thinking critically and analytically to find and find their own answers to a questionable problem. The process of thinking itself is usually done through question and answer between the teacher and students. This learning model is often also called the heuristic strategy, which comes from Greek, namely heuriskein which means I find it. The inquiry learning model departs from the assumption that from birth to the world humans have the urge to discover their own knowledge. Sanjaya (2008) [8], states that there are several things that are the main characteristics of inquiry learning methods. First, inquiry learning methods emphasize student activity to the maximum to find and find, meaning that the inquiry approach places students as the subject of learning. Second, all activities carried out by students are directed to find and find themselves from something in question, so that it is expected to foster a self-confidence attitude. This means that in the inquiry learning model puts the teacher not as a source of learning, but as a facilitator. Third, the inquiry learning model is developing intellectual abilities as part of mental processes, consequently in student inquiry learning is not only required to master the lessons, but how they can use their potential. Trianto (2011) [10] suggests that: "The learning model is a plan or a pattern that is used as a guide in planning classroom learning or learning in tutorials and for determining learning devices including books, films, computers, curricula and others". Nunuk Suryani *et al*. (2018) [7] stated that Microsoft Power Point is a program developed by Microsoft in a data processing application package, Microsoft Office. The Microsoft power point application was first developed by Bob Gaskins and Dennis Austin as presenters for a company called Forethought, Inc. which then changes its name to power point.

This action research intends to make improvements to the science learning process specifically to improve student learning outcomes with sensory material and how to maintain it, using Inquiry learning models so that the learning process is more dynamic, contextual and integrated, also develops the teaching profession in classroom learning by looking at student condition. The learning model is used to improve the learning outcomes of the sensory tools and how to maintain them using the inquiry learning model which is expected to increase student learning outcomes. The learning outcomes of science are the grades of students from the tests given by researchers, on the material of the sense organs and how to maintain them.

In action research, researchers or teachers can see their own learning practices, or with other teachers can carry out research. Then together examine the problems and plan what actions can be taken so that problems in learning can be overcome. This shows the characteristics of participatory-collaborative action research which involves other people to carry out activities, and jointly joins to develop practical studies and learning actions. This means that efforts to improve the learning process and results cannot be done alone, but rather requires good cooperation with the parties involved. Because collaboration in an action research group is not a pressure on researchers, it is very important for a dynamic and creative research effort.

**a) Planning**

In this stage, the process planning of a computer-based learning model is designed as detailed and effectively as possible after knowing the problems in learning experienced. The planning is as follows:

1. Learning Implementation Plan (RPP)
2. Implementation of inquiry learning models
3. Microsoft Power Point Media
4. Student worksheets, assessment sheets
5. Observation guidelines

**b) Action**

This stage is the realization of an action that has been planned

**c) Before.**

Science learning is carried out using inquiry learning models and Microsoft power point media. At this stage the researcher is directly involved in learning as well as making observations on the development of cognitive abilities of students in class IV SD Inpres Matungkas lessons on material " Sensory tool and how to maintain it '.' Stage of Action Observation (Observing)

Observation of action (observing) is done to recognize and evaluate the developments that have occurred with the action. At this stage, observations are made during the action process given. At that time, in addition to giving action, the researcher also recorded all the events or things that happened in the classroom during the learning process that took place, namely by observing the learning process of

the science of the students. This is done to see so that researchers can see whether the actions given are in accordance with what has been planned, and to find out the extent of improvement in science learning outcomes in elementary schools, especially the material about sensory devices and how to maintain them with the action in this case is by using inquiry learning models. In addition to filling out the observation sheet, the researcher documents all learning activities with photographs and recording all student activities. This documentation is done so that the data needed in the study can be captured completely, accurately and real.

**d). Reflecting**

Stages of action reflection is an effort to thoroughly examine the actions taken, based on the data that has been collected, then conduct an evaluation to perfect the next action. The results of this reflection become a reference for revision to determine planning again in cycle II.

Furthermore, the second cycle was carried out based on data analysis from the first cycle, an explanation of the results of the analysis and conclusions regarding the percentage of problems or not resolved in the learning, and other factors that were considered as not yet achieved the targets in this study. This study can be considered successful if the activities of teachers and students during learning using the Inquiry and media learning model of this study at the end of the cycle there are at least ≥ 75% if each student is said to complete learning (individual completeness) and a class is said to be complete learning (classical completeness) if in the class there are ≥ 75%, they have experienced an increase in cognitive abilities, according to KKM standards (Minimum completeness criteria) which is 70%.

Implementation Table of Cycle I Actions and Cycle II Material: Sensory devices and how to maintain them.

This research was conducted in the even semester of the 2018/2019 academic year, namely in January - March 2019. The first month was the time of research in the field, followed by data processing and data analysis in the following month. The researcher determines this action research to be carried out. SD Inpres Matungkas is a school located in the village of Matungkas, Subdistrict of Dimembe.

Data analysis techniques in this study include quantitative and qualitative data analysis techniques. Quantitative data analysis in the form of numbers that include the test scores of the results of students' cognitive abilities in science learning on sensory material and how to maintain it using Inquiry learning models and Microsoft power point based media. Qualitative data analysis pay attention to the selection of relevant data with the aim of improving learning, describing observational data, and drawing conclusions regarding the use of Microsoft power point based learning models.

**Results and Discussion**

This classroom action research was conducted in 2 (two) cycles in Matungkas Inpres Elementary School with a total of 20 students consisting of 13 male 7 women to search for data, analyze and process it to obtain learning outcomes, student learning activities. The researcher collected data in the form of students' cognitive abilities using assessment instruments, observation instruments, student worksheets. The description data on the cycle is important for measuring the level of students' abilities and actions to be taken. It is known that the number of students is 20 people consisting of 13 male 7 women. The value obtained shows students' cognitive lows this is evidenced at the level of achievement of cognitive abilities of students the average value achieved is 64%, meaning that these results are still below the KKM that has been set at 70%. The researcher analyzed the highest value and the lowest value, and found that the lowest value was 45%, while the highest value was 75%.

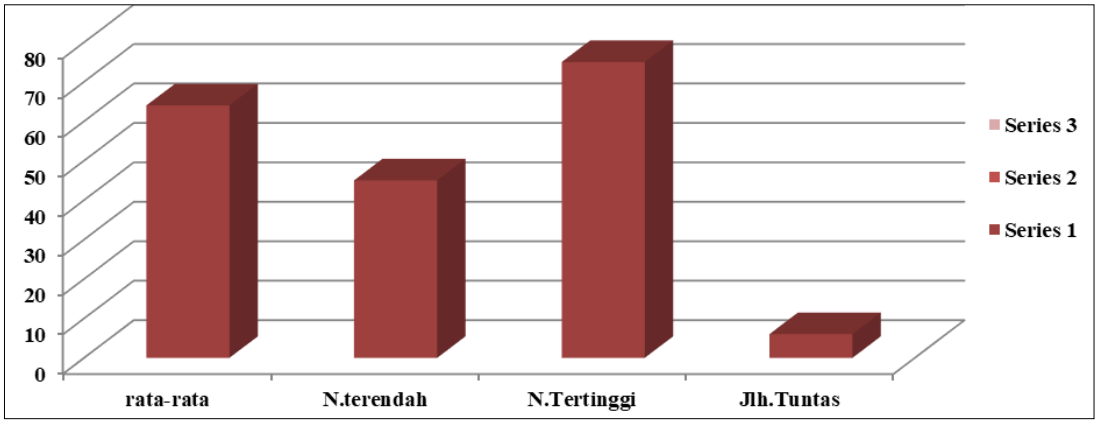


**Fig 1:** Graph of Cognitive Capabilities of Pre-Cycle Students.

The results of the study showed changes in learning activities, where 20 students were able to reach even more than the specified KKM of 70%. Thus the inquiry learning model and microsoft power point-based media provide an increase in students' cognitive abilities in sensory material and how to maintain it in the first cycle with KKM 67.75% completeness rounded up to 68% of the total 12 students and 8 people who have not finished. From the first cycle data, then the researcher proceeded to cycle II. From the data obtained in the second cycle experienced a significant increase because the achievement of completeness exceeded KKM, which is 75% of the KKM that has been determined 70%.

**Table 1:** Results of Cycle I Cognitive Ability

| No | Aspect | Cognitive Achievement (%) |
|---|---|---|
| 1 | Average achieved | 68 |
| 2 | Lowest value | 60 |
| 3 | Highest score | 75 |
| 4 | Students complete | 40 |
| 5 | Students do not complete | 60 |

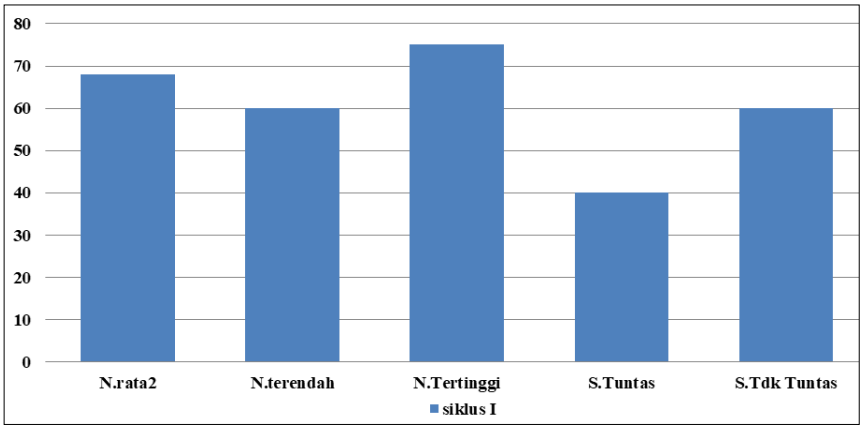


**Fig 2:** Graph of Cycle I Cognitive Capabilities

**Table 2:** Results of Cycle II Cognitive Capabilities

| No | Aspect | Cognitive Achievement (%) |
|---|---|---|
| 1 | Average achieved | 75 |
| 2 | Lowest value | 70 |
| 3 | The highest score | 85 |
| 4 | Students complete | 100 |
| 5 | Students are not complete | 0 |

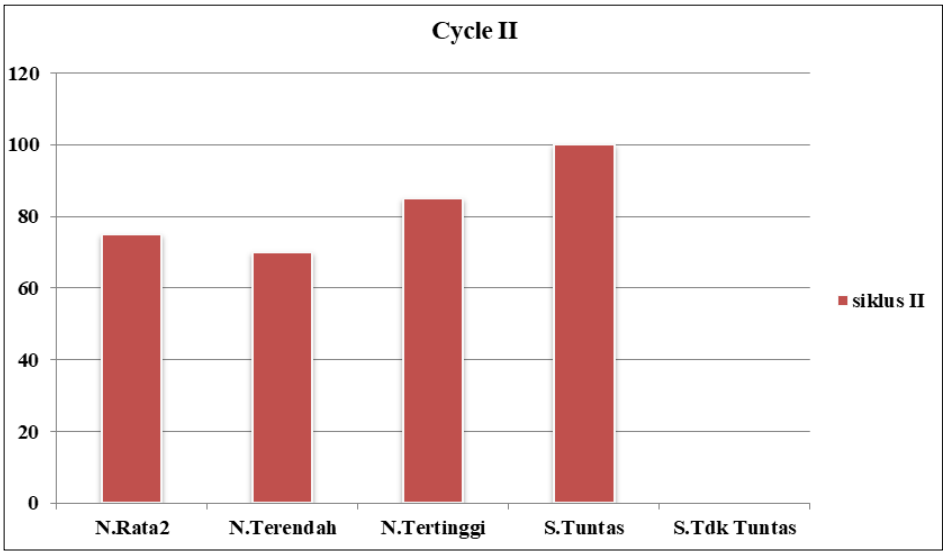


**Fig 3:** Cycle II Cognitive Capabilities

Based on the description above, the use of inquiry learning models and Microsoft power point media is effective for improving students' cognitive abilities. Thus, it is expected that the teacher who will teach in the sense material material and how to maintain it can use the inquiry learning model and Microsoft Power Point media.

After researchers carry out research and carry out the implementation of learning in a systematic, planned, measurable manner, also carry out the learning process in accordance with the learning design. From the data obtained in the 64% Pre cycle, the first cycle is 67.75 rounded 68%. KKM. Of course KKM has not been reached, the researcher continues the research in the second cycle, and the results are 74.65% (75%). That is, students have succeeded and completed the sensory material and how to maintain it in class IV.

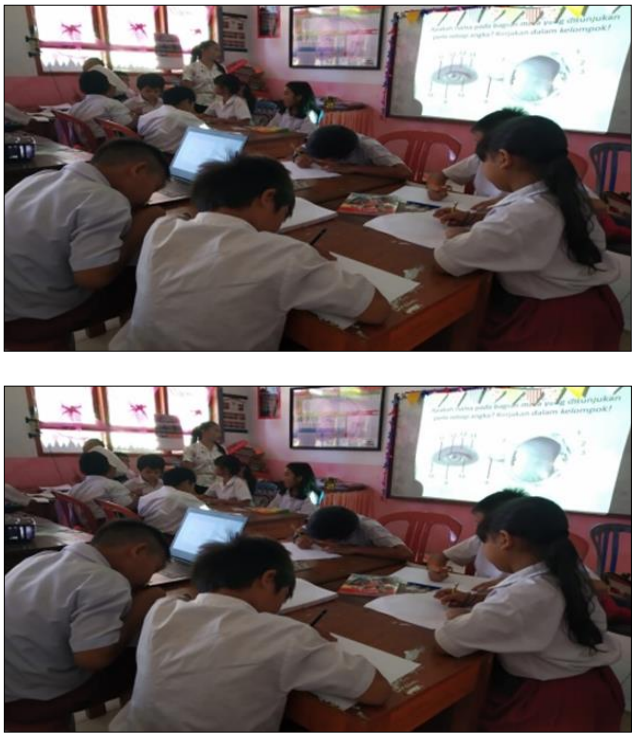

**Fig 4:** Learning Process Cycles I and II

## Conclusion

Thus researchers can ensure that the use of inquiry learning models and Microsoft power point based media is appropriate because it can improve students' cognitive abilities in sensory material and how to maintain fourth grade students in Matungkas Inpres Elementary School, North Minahasa Regency.

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