EFFECT OF SCIENCE WRITING SKILLS
TO UNDERSTANDING THE CONCEPT OF HEAT AND SOUND ENERGY PRIMARY SCHOOL STUDENTS

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Abstract

Objective science teaching in primary one of which is for students to understand science concepts well. Writing science is one of the activities that integrate writing with content and learning science. Through science students can write, store, and process the information learned so students are easier to understand and remember the concept. The goal is to get a picture of: science student writing skills; the ability of understanding the concept of thermal energy and the sound of students; the relationship between science writing skills with an understanding of the concept of the student; how much influence the writing skills of science on understanding the concept of heat energy and sound students. Student in question is a fourth grade student Baiturrahman. The approach of this research is quantitative approach, the method used is experiment with the design of the One-Shot Case Study where there is only one experimental group and given a posttest at the group. For data collection skills of writing science researchers using the Interactive Science Notebook along with the assessment rubric. As for the data used instrument in the form of understanding the concept of multiple choice test and adescription.

Keywords: Learning Science, Writing Skills science, understanding of scientific concepts, concepts of heat energy and sound, Interactive Science Notebook.

INTRODUCTION

Learning science should be taken of scientific inquiry(scientificinquiry)to foster the ability to think, work and scientific attitude and communicating it as an important aspect of life skills. Therefore, learning science in elementary / MI emphasizes providing direct learning experience through the use and development of process skills and scientific attitude. (Ministerial Regulation No. 22 of 2006 regarding the contents).

The learning process in primary school should always be directed to an effort to assist and facilitate the students to develop the potential and its knowledge of the science then communicating it to achieve the learning objectives of science itself. One way to develop knowledge and facilitate students' understanding of science concepts, writing. This is consistent with Van de Walle (in Roicki 2002, hlm.1) which states that:

Students not only need to be Able to think on their own and share Reviews their learning with a group, but They also need to write about learning opportunities , embedding the learned concepts into the students' mind and providing a reflective tool for further understanding.

As described by the development team Writing Across the Curriculum of Michigan Science Teachers Association (MSTA) and The Office of School Improvement that writing can help students find new knowledge, sorting through previous knowledge, making relationships and uncover new ideas that they wrote.

In reality today, especially in primary school students are still not familiar with the activity of writing as a way of learning. Based on observations and interviews with the investigators Baiturrahman fourth grade teacher, teachers rarely use the activity as a way of learning to write specialized in science learning. Teachers often use the lecture and question
and answer activity, whereas writing is only used when the work done, or just to record material on the board.

Activities writing science students can be packaged and developed in diverse forms that the students were more interested in writing. Researchers using the Interactive Science Notebook as a means for students to write their material and scientific activity. Young (in Ed. Toppen, 2014, p. 261) explains that the style of this notebook using the right and left hemispheres. The right side of the book is an input of information that students get through listening or reading, and the left side is a response that describes abiding by the students regarding the information on the right side. In the Interactive Science Notebook (ISN) student record information, laboratory activities, tasks, and worksheets.

Based on previous exposure, the researchers are interested in preparing the research study entitled "Science Writing Skills Influence on Thermal Energy Concept Training and Sound Elementary School Students". Researchers apply science writing activity using the ISN to identify and prove how the influence of science on understanding the writing skills of students in elementary school concept. Based on the background that has been described, can be identified problem is: There is the notion that writing skills can be developed only in learning the language, lack of awareness of the benefits of the activity of writing teachers in learning activities, especially science, the rarity of habituation wrote in science teaching in primary schools.

In particular, the research objectives are: To describe eight aspects of writing skills science students with Interactive Science Notebook, describes understanding students' concept of thermal energy and sound, describing the relation of writing skills of science on understanding the concept of the student, describe how much influence the writing skills of science on understanding the concept of student.

**RESEARCH QUESTIONS**

There are several questions on this research, they are:

a. How does an eight aspect of science writing skills of students with Interactive Science Notebook?

b. How understanding students' concept of thermal energy and sound?

c. How does the writing skills of science on students' understanding of the concept?

d. How much influence the writing skills of science on students' ability of understanding of the concept?

**WRITING SKILLS**

"Writing is a skill language used to communicate directly, face to face with others" (Tarin, 1994, 3). In writing, the writer expressed the idea, feeling that they had in mind in writing.

The approach in writing twofold approach to process and product approach. David Numan (in Murtadho, 2013) suggests 'approach to process more emphasis on activities in the classroom to support writing skills, while the product approach focuses on the end result of the process of teaching and learning'.

The writings of a student who intended to fulfill the task with the aim of readers is a teacher would be different from a student who writes as a hobby and as entertainment. In connection with the objectives of the author in making his writings, Hugo Hartig (Hipple in Tarin, 1994, p. 25) summarizes some of the purpose of writing is:

1. Assignment purpose (destination assignment)
2. Altruistic purpose (goal altruistic)
3. Persuasive purpose (goal persuasive)
4. Informational purpose (goal information, destination information)
5. Self-expression purpose (the purpose of self-declaration)
6. Creative purpose (creative purpose)
7. Problem-solving purpose (troubleshooting purposes)

WRITING SCIENCE

Writing is an alternative science that integrates learning and writing activities inquiry-based science learning. Where the act of writing is used as a way to learn or writing-to-learn. This emphasizes the writing activity on not just the result of a process approach. Science writing activities aim to help students to learn about science-based inquiry. Writing science was developed around 1998. The development and research on science writing is done by experts - education in developed countries like America. Developers write science among which Betsy Rupp Fulwiler and his team who are teachers who are members of the Science Writing Lead Teachers who develop Writing in Science for Primary School with Science Notebook Program. This development is done in the Seattle Public School which is supported by the Stuart Foundation, the National Science Foundation, The Nasholm Family foundation and Lee and Valarie Hood (Fulwiler, 2007; Ramage & Stokes, 2012)

Michigan Science Teacher Association and The Office of School Improvement is also developing a program of Writing Across the Curriculum or writing across the curriculum. Same thing with writing science in writing across the curriculum writing activities are used as a way to study according to the exposure of Michigan Science Teachers Association and The Office of School Improvement (tt, p. 3) "teacher across the disciplines the use of writing to learn and writing to demonstrate knowledge to enhance the learning of students in all of disciplines."

"MSTA and OSI (tt, pp. 3-5) illustrated that writing activities carried out during or at the end of the learning process to stimulate students' thinking activities in order to develop an idea and concept. Furthermore, through this activity students can show the extent of their understanding to synthesize an information and explain an idea and concept. Writing across the curriculum is designed for students to learn a piece of content knowledge through a variety of ways, one of them with writing. This method has been adapted by teachers in America by integrating with a variety of learning contexts especially science learning context. Students write to learn about science or to demonstrate their scientific knowledge. Writing makes students learn and develop his mind so that more meaningful than just memorizing facts and examples, types of activities, etc. (MSTA and OSI, tt; Hand, 2013). The principle of the development of this science writing by MSTA and OSI (tt, hlm.3) is as follows:

a. Writing Learning Promote
b. Integration of writing and the writing process students promote participation, a diversity of student voices, and engage students while promoting as critical thinkers Reviews their texts as important resources and thinking tools.
c. Effective writing instructions integrates discipline
d. the opportunity to write in every class develops good writers
e. using writing as part of the instruction can be used in every classrooms
f. only by practicing in the thinking and writing conventions of an academic discipline will students begin to Effectively berkomunikasi discipline within that

INTERACTIVE SCIENCE NOTEBOOK
Interactive Science Notebook is a notebook that uses the concept of brain work right and left brain. The right side of the book contains records of information as they can from lecture activities while learning or from other sources. While the left is the page to describe the students’ understanding of the information they can. This book can help students remember and revisit the information they have written.

Kiewra (in Wist, tt, hlm.7) explained:
"theright side from the notebook can be use for notes provide by the teacher; this is the side that students use to study for assessment. Teachers that provide student with Reviews their notes were shown to have better achievement that students personaly Whose Reviews those recorded them”.

This notebook can be used to help students filter the information they can and develop their understanding of the concept. Young (in Toppen, 2014, hlm.259) revealed there are several important reasons why using the Interactive Science Notebook. First students can record information, images and data. Second, Interactive Science Notebook can provide BIBLIOGRAPHY for each subject as a source of consultation, and the third, Interactive Science Notebook is a means of communication with teachers and parents / guardians, other than that students can improve their writing skills, thereby connecting science with other subjects in curriculum.

FINDINGS AND DISCUSSION

The findings of science writing skills is there is one of the factors that may affect students' understanding of the concept of science students, especially the concept of heat and sound energy at Baiturrahman fourth grade students. That is internal motivation. It affirms Floyd, McGrew, & Evans (in Abernethy, 2014) that writing has a positive impact on the long-term retention of students and help students understand the content of the material. Students who write well about the learning materials they have a better understanding. This is consistent with the statement Barata (2014, p. 702) that writing can determine the success of students in participating in the learning process. Because the writing, one can describe the pattern of his mind to the ideas that it generates. By writing, the accumulation of experiences will be added to new knowledge.

Science writing skills and understanding of the concept of having a high degree of correlation with correlation coefficient 0.789. It shows that there is a linear relationship between writing skills and an understanding of science concepts.

Science writing skills also have a considerable influence on the understanding of concepts, which amounted to 62.2% and the rest influenced by other factors, both internal factors in students, as well as external factors. Science writing skills have a great influence because of the skill of writing is a complex skill. Students who write well, then before he listened to good learning and reading to find information about what to write. So that students can really absorb the material and understand the concept well.

However, the results of this study are limited to science learning, action- oriented writing. Because of the potential and learning styles of different students. So when learning tailored to individual learning styles, it is possible the results of students' understanding of the concept has changed.

CONCLUSION

Based on the findings, we can conclude that science writing skills Baiturrahman fourth grade students can not be said to be good. Although there are some students who have high writing skills, but many students’ writing skills are lacking of deep knowledge. This is because, the students just starting out and not used to writing science with Science
Interactive Notebook. But the overall average writing skills of students in the fourth grade science is included in the medium category. The ability of understanding the concept of thermal energy and the sound of fourth grade students Baiturrahman considered to be good. This is evident from the average score of students in the high category, and many students have high scores on tests of understanding the concept of heat energy and sound.

Science writing skills can be used as predictors of students’ understanding of the concept. It assumed without science writing skills, the ability of students’ understanding of concepts that are in the very low category. Besides the writing skills of science have a relationship and a strong positive influence on students’ understanding of the concept. If the science of writing skills can be improved, then the ability of students’ understanding of the concept can be increased.

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