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THE INFLUENCE OF SELF-LEARNING ON NATURAL SCIENCE LEARNING OUTCOMES

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Abstract:
The purpose of this research is to determine the influence of self-learning on natural science learning outcomes. This research used quasi-experimental methods. The research population is all students in grade five of State Elementary School in all the sub-district of Sragen. The sampling technique which has been used was *multistage sampling*. Validation of questionnaires is using *expert judgment*. Based on the analysis of data, there are differences in the influence of students who have high self-learning and low self-learning on natural science learning outcomes. Thus, the author suggests to teachers preferably the using innovative learning models and the maximizing the utilization of media in learning in order to increase the self-learning of students in natural science learning outcomes.

Keywords: self-learning, natural science learning, academic motivation, multistage sampling

1. Introduction

Natural Science is the study of nature with all its contents. In simple terms, Natural Sciences is a collection of systematically arranged knowledge about natural phenomena. Natural Sciences as a discipline and its application in society make the education of Natural Sciences becomes important. In learning of Natural Sciences, with the paradigm of learning, teachers must be able to act as mentors, leaders, and facilitators of learning for students. In this case, the teacher should conduct the election approaches or models of appropriate learning that allows students to be actively involved as the main actors in the learning. Furthermore, Iskandar (2001:18-19) argues that learning the lessons of

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Natural Science is more concerned with thinking ability than the memorizing ability. In addition, the ability to make observations carefully, using the principle, solving simple experiments, compiling data, and suggesting allegations are also important.

According to the curriculum KTPS, one of the aims of Natural Science subjects in Elementary Schools is that the students have the ability to develop process skills to investigate the nature around, solve problems, and make decisions. In order for these objectives to be achieved, the Natural Science needs to be taught by the right way and involves the students independently through the process and with scientific attitude. Natural Sciences are taught not only by giving theories to be memorized by students. For children who are still the level of thinking is concrete and if the level of knowledge about something is just told because they have not been able to absorb things that are abstract. Therefore, it required a learning activity that is able to independently engage students; so these students have the experience, find knowledge about something more memorable.

Based on the observation result in the fifth grade of elementary schools in the Gemolong district, students learning outcomes in natural science learning are too low. Natural Sciences learning outcomes strongly influenced by internal factors of students, one of them is the self-learning student. Self-learning is educational purposes, while the individual process is a process of development and realization of the self-learning process, the process of diversification, the development, and expansion of the personality which the essence lies in "self" (Sugiharto, 2004). Self-learning is active learning; activities are driven by the intention or motive to master a competency in order to solve a problem and will be built with the knowledge or competencies already possessed. (Mudjiman, 2009)

The characteristics of self-learning by Sardiman in Kurniawan (2011) include: 1) there is a tendency to think, behave, and act on its own, 2) have a strong desire to achieve goals, 3) make a plan and try to tenacious, persevering to realize their dreams, 4) capable to think, full of initiative and not just mimic. In learning activities, self-learning is very important because it is a personal attitude that is required by every individual. According to Utari Sumarmo (2006:5) with self-learning, students tend to learn better, be able to monitor, evaluate, and organize learning effectively, saving time efficiently, will be able to direct and control themselves in thought and action, and do not feel dependent on others emotionally. Students who have self-learning are able to analyze complex problems, able to work individually or in cooperation with the group, and brave to express ideas.

Students have a high awareness of self-learning, then these students do self-learning activity without depending on anyone else, have the will and responsibility to solve the problem of their own learning. So with a high self-learning can improve

learning outcomes. This is supported by the research conducted by Setyaningsih (2014), in her study concluded that students who have a high self-learning have better learning outcomes than students who have low self-learning. It shows that self-learning affects student learning outcomes.

2. Methods

This research used quasi-experimental methods. This research population is all students in grade five of State Elementary School in all the sub-district of Sragen. The sampling technique which used was *multistage sampling*. Validation of questionnaires is using *expert judgment*. In this research, there are two free variables, students' learning independence and one determining variable is students' learning achievement. To collect the data the researcher use questionary method. The test method is used to collect data of the natural science learning achievement.

Before class is treated, first it is necessary to hold a prerequisite test of student's preliminary achievement with Lilliefors test and homogenized test variant using the Barlett method. Furthermore, preliminary balanced test is conducted using one way analysis variant with different cell to know whether samples on group of experiment one, group of experiment two and controlling group derives from a balanced student's preliminary learning achievement; while the data analysis technique the learning achievement using t-test method (Budiyono, 2013:168-177).

3. Results and Discussion

Based on the results of data analysis, H_0 was rejected because $\text{ttable} > \text{t}\,(0{,}05;\ 42), (9{,}61 > 3.00)$, means that there are differences in learning outcomes of Natural Science in students who have self-learning high and low. The results of t-test indicate that there are differences in learning outcomes Natural Sciences students who have self-learning, high and low. Based on the result of each category self-learning by looking at the average marginal concluded that the learning outcomes Natural Sciences students who have self-learning high better than students with low self-learning.

These results are consistent with the hypothesis of the study that students with high self-learning have better learning outcomes of students with low self-learning. The results of this study are relevant to the research conducted by Susilo (2013). A student is required to master the learning and should be able to construct its understanding so that in learning more meaningful. The activities of self-learning students begin with awareness on students. Students who have high self-learning would have self-

awareness in doing the task, not procrastinate the time, was able to discipline themselves to control and evaluate themselves. When faced with problems, students with high self-learning are not easy to give up in facing problems.

Yamin (2011) states that students with high self-learning have initiative and high motivation in learning have great curiosity, as well as the strong desire to learn. Thus the students with self-learning high will be more active in the learning process, more frequent discussions or ask if they are having difficulty, not easily give up when difficulties because the students who have the self-learning high takes initiative to learn and able to find the cause of learning difficulties, have the initiative to overcome the difficulties, and have a steadiness or believe in their own abilities. They also use other learning resources and try to find as many reference sources related to learning materials are provided. It is a positive effect that increased insight and their knowledge, then their study results increase.

Research conducted by Purwanto (2012) show that the higher of self-learning student, then the students have better learning outcomes because students with a high degree of self-learning are more diligent and more active during the learning process. Different from the student's medium self-learning, they are underprivileged to monitor, evaluate, and organize their learning effectively in studying the material, but they still have awareness of learning. While students with lower levels of self-learning tend to be passive because they lacked the awareness to do well and it's hard to be able to regulate, control, as well as the evaluate it to follow the activities carried out by his friend. Thus, students who have a low self-learning are lacking can get maximum results. At high student self-learning, students are more active in learning and they were in discussions with some friends to add information and knowledge of the issues facing them. It is relevant to research conducted by Kurniasih (2010) concluded that results for students with high self-learning are better than students low self-learning. It can be concluded that students with high self-learning better than students with low self-learning.

5. Conclusion

There is a difference between the students with high learning independence compared with low learning independence on the learning achievement. The students who have high learning independence have better learning achievement than students who have low learning independence.

Teachers should pay attention to the existence of self-learning owned by the students so that the learning can be attempted the steps that can accommodate a variety of student self-learning, in order to foster self-confidence of students, so the self-

learning which owned by the students will increase. Having regard to the self-learning of the students, so the teacher is able to carry out learning activities more effectively.

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