Group Investigation (GI) With Cooperative Learning Model Based On Natural Explore Approach in Biodiversity Topicto Increase Students Motivation and Learning Outcomes in SMA Negeri Aceh Tamiang

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Abstract,*This study aims to determine the application of the GI (Group Investigation) learning model based on the Surrounding Nature approach to increase students' motivation and learning outcomes on biodiversity topic. The research method used was quasi-experimental and the research design was pretest-posttest group design. The results showed that the application of the Group Investigation (GI) cooperative learning model based on the Surrounding Nature approach was able to increase students' motivation and learning outcomes. Overall from this study it can be concluded that motivation and learning outcomes can be improved through the Group Investigation (GI) model based on the Surrounding Nature Approach*
Keywords: *Group Investigation, Learning Motivation, LearningOutcomes*

I. Introduction

Learning is essentially a process of interaction with all situations that exist around the individual. Learning can be seen as a goal-directed process and a process of acting through various experiences. Learning is also a process of seeing, observing, and understanding something (Sudjana, 2010).

Learning activities are carried out by two people, namely teachers and students. The teacher's behavior is teaching and the student's behavior is learning. Teaching behavior and learning behavior are related to learning topics. The relationship between teachers, students and teaching topics is dynamic and complex. To achieve success in learning activities, there are several components that can support, namely the objective component, the topic component, the teaching and learning strategy component, and the evaluation component. Each of these components influence each other.

One of the most important components that must be owned by teachers is a component of teaching and learning strategies so that the desired learning objectives are achieved. In relation to teaching and learning strategies, it is necessary to develop a learning model that can increase students' motivation and cognitive learning outcomes.

Teacher determines learning model and approach is needed, the learning takes place in accordance with the learning topic to be taught and in accordance with the level of students' thinking development. Teachers are required to be creative and innovative in choosing and using learning models and approaches.

Biology is a branch of science that studies the phenomena of living things. Biology learning is very closely related to natural phenomena that occur around students. A student can find a concept from studying the environment around him. Learners will gain more educational values if they discover concepts about the natural surroundings through scientific process activities. This has consequences for the pattern of learning (Mulyani et al, 2008).

Biological objects are real phenomena, so exploratory methods are the right way to study them (Christijanti & Marianti, 2006). One way to study biology and its phenomena is by exploring the natural surroundings. The Surrounding Nature Exploration Approach is a learning approach that utilizes the natural environment around students' lives, both the physical, social, technological and cultural environments as objects of biology learning whose phenomena are studied through scientific work (Marianti and Kartijono, 2005).

According to Engripin (2015) actually all teaching models are good, but the subject matter must be adjusted to the model to be used so that it can help achieve better learning outcomes. The teaching and learning process will run better if the teacher is willing to use various variations in using the teaching model, so that in using the specified teaching model it cannot be separated from other models as a complement, for example

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innovative learning models are equipped with other models that are in accordance with the topic presented. One type of good learning model used is the cooperative learning model.

Cooperative Learning encourages students to interact actively and positively in groups so that there is an exchange of ideas and examination of their own ideas in an atmosphere that is not threatened, in accordance with the philosophy of constructivism (Slavin, 2007).The learning model that fits this is the Group Investigation (GI) learning model. Suartika, et al (2013) say that the GI learning model lays the foundation on John Dewey's educational psychology, in which he believes that students will experience meaningful learning if they are able to demonstrate the steps of scientific inquiry (Tsoi et al, 2004).

Based on the results of interviews with biology teachers at SMA Negeri 1 Sekerak and SMA Negeri 1 Bandar Pusaka located in Aceh Tamiang,and cognitive tests in 2018 especially on biodiversity topic, many students have not reached the Minimum Completeness Criteria, which is 70. In when the learning process takes place students are often indifferent to the learning topic even though this topic is one of the indicators tested on the National Examination.

One of the causes of the low mastery of the concept of Biodiversity, students are still difficult to distinguish the level of diversity of genes, species and ecosystems, this results in the motivation of students in learning to be reduced so that the results achieved are not optimal and have an impact on students' learning, and it will affect to student learning outcomes.

Teachers must facilitate so that students get meaningful information, especially on Biodiversity topic, thus providing opportunities for students to find and apply ideas. One of the uses used in this research is to conduct group investigations and use the environment directly as a motivational booster to improve student learning outcomes.From the results of interviews with teachers and observations at SMA Negeri 1 Sekerak and SMA Negeri 1 Bandar Pusaka, both schools have school areas and environments that are suitable for learning using the approach but have not been used optimally. One of the efforts to maximize the use of the school environment is to apply the GI learning model based approach to help students have motivation to learn and to improve student learning outcomes and be able to achievethe Minimum Completeness Criteria.

II.   Method

The approach used in this study is a quantitative approach, where all information is expressed in numbers and analyzed based on statistical analysis. This type of research is experimental research. The method used in this research is quasi-experimental and the research design is the pretest and posttest group design (Sugiyono, 2014). The pretest-posttest group design can be seen in Table 1.1.

Tabel 1.1 *Pretest-Postest Group Design*

O_1 x O_2

Keterangan :
O_1 = Pengukuran kemampuan awal (*Pre-Test*)
O_2 = Pengukuran kemampuan akhir (*Post-Test*)(Arikunto, 2006)

The population in this study were all students of class X science at SMA Negeri 1 Sekerak and SMA Negeri 1 Bandar Pusaka with a total population of 68 students, 34 students each. Samples were taken by total sampling. Total Sampling is a sampling technique where the number of samples is the same as the population (Sugiyono, 2014). The reason for taking total sampling is because according to Sugiyono (2014) the total population is less than 100, so the entire population is used as a research sample. Samples taken from this study were 68 people.

The instrument used in this study was a questionnaire to measure the motivation of students in learning by using the Attention, Relevance, Confidence, Satisfaction (ARCS) motivation questionnaire by John Keller. The number of statements given were 36 statements. Motivation questionnaires were given to students after the learning process took place. Meanwhile, to measure cognitive learning outcomes, students were given a test in the form of 40 multiple-choice questions with a score of 2.5 for one question which was arranged based on the scope of the Biodiversity topic. The test was conducted twice, namely pretest and posttest, at the beginning of the study to determine the ability and initial understanding of students and at the end of the study to determine the impact of treatment.

III.   Results And Discussion

1. Students Learning Motivation

Students' learning motivation is measured by four categories, namely attention, relevance, confidence and satisfaction. Based on the indicators of students' learning motivation which contains 36 statement items consisting of 4 indicators, data on students' learning motivation scores are obtained. The learning motivation of students at SMA Negeri 1 Sekerak and SMA Negeri 1 Bandar Pusaka can be seen in Figure 1.1.
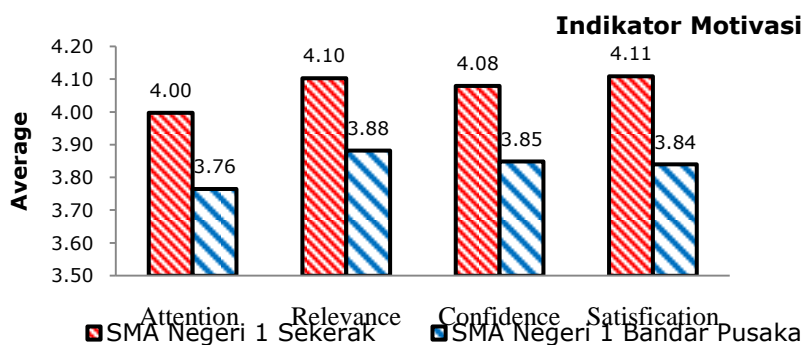
Figure 1.1 The Average Value of StudentsLearning Motivation

Based on Figure 1.1, it can be seen that in SMA Negeri 1 Sekerak the highest student learning motivation is the satisfaction indicator with a value of 4.11 and the lowest indicator is the attention indicator with a value of 4.00. While in SMA Negeri 1 Bandar Pusaka the highest learning motivation is found in the relevance indicator with a value of 3.88 and the lowest indicator is the attention indicator with a value of 3.76.

The highest indicators are indicators of satisfaction and relevance. Students are satisfied with the learning outcomes they have achieved considering that the school has a supportive environment in learning to explore the surrounding nature. Thus, students immediately understand the topic because it relates directly to the real world and feels able to do things that will be taught by the teacher during the learning process.

So what students learn both topicly are interconnected with everyday life. And for indicators of relevance, students can directly relate the topic obtained to the state of the environment around the school. The school environment has direct benefits in the daily lives of students. Students' motivation will rise and develop if they feel that what they are learning meets personal needs, is useful and is in accordance with the values they believe in or hold.

The Group Investigation (GI) learning model is a learning model that helps teachers relate the topic being taught to the real environment of students and encourages students to make connections between their knowledge and its application in everyday life. The Group Investigation (GI) learning model has an effect on learning motivation which can be seen from the enthusiasm and activeness of students in the learning process. Some indicators of learning motivation such as: **a)** interest and attention of students to the lesson; **b)** the enthusiasm of students to carry out their learning tasks; **c)** the responsibility of students in carrying out their learning tasks; **d)** the reaction shown by students to the stimulus given by the teacher; **e)** feeling happy and satisfied in doing the given task (Sudjana, 2010).

The growth of good motivation from students in the application fosters a spirit of learning and in the end will improve learning outcomes. Based on these results, motivation is an important factor as stated by Keller (2010), motivation is considered as a fairly important factor that can affect learning outcomes.

2. Improving Student Learning Outcomes

Data on student learning outcomes on biodiversity topic is obtained through objective tests in the form of multiple choice questions as many as 40 questions with five alternative answer choices, so that initial ability data is obtained by providing cognitive learning outcomes pretest. The results of the pretest of students are important for the teacher to know before starting the learning process, this is because the abilities of each student are different. If students already have the initial knowledge to be taught, it will be easy for students to accept the topic to be taught, because the initial abilities of students affect their learning outcomes. After the teaching and learning process was carried out, the researcher gave a final test in the form of a post-test at the end of the lesson. Giving posttest aims to determine the level of understanding of students on biodiversity topic after being taught with the GI learning model based with roamming.

The learning outcomes of students in this study included pretest, posttest, and N-gain to determine the increase in student learning outcomes in the two experimental classes. To see the average initial ability and final ability of students can be seen in Table 2.1.

Tabel 1.2 The Average Value of Pretest, Posttest, Gain and N-Gain

SMA Negeri 1 Sekerak				SMA Negeri 1 Bandar Pusaka			
Pretest	Posttes	Gain	N-Gain	Pretest	Posttes	Gain	N-Gain
60.07	85.06	24.99	69.16	55.18	82.32	27.15	67.39

The average value of student learning outcomes is shown in Figure 1.2.
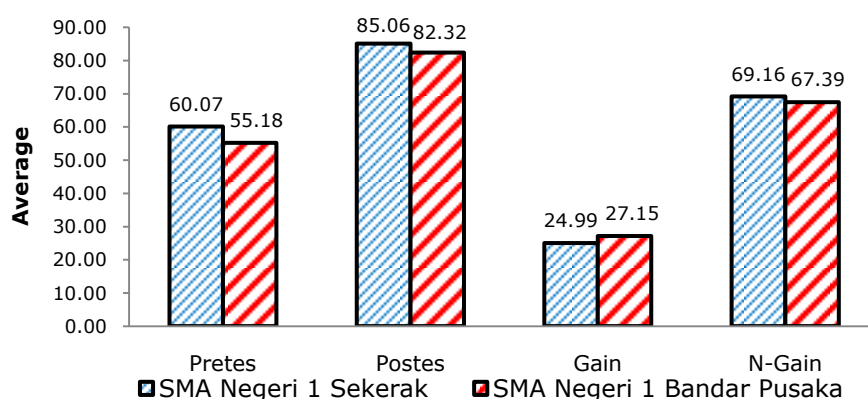

Figure 1.2 The Average Velue ofPretest, Posttest, Gain and N-Gain

At SMA Negeri 1 Sekerak, the average pretest score was 60.07 and the posttest average score was 85.06. At SMA Negeri 1 Bandar Pusaka, the average pretest score was 55.18 and the posttest average was 82.32.It can be concluded that the data on student learning outcomes has a good effect in both schools which are taught using the The Surrounding Nature Approach -based GI learning model. The difference in the value of the initial ability and final ability is the result of a real achievement as an influence of the student learning process applied by the teacher.

Based on the N-Gain data, it shows that there is an increase in the value of learning outcomes in both schools that are taught with the GI learning model based on the surrounding nature approach on biodiversity topic. Thus, the hypothesis formulated "There is an increase in student learning outcomes after the application of the Group Investigation (GI) cooperative learning model based on the Surrounding Nature approach for Biodiversity topic" is accepted.

The application of the GI learning model based on the Surrounding Nature approach requires students to be serious about doing a task well. By learning the GI model based on, it can build knowledge or understanding of the learning that has been carried out so that by itself student learning outcomes can increase, as well as to train themselves to get used to doing assignments as well as possible so that the learning process can be built on its own and students can solve problems by themselves. problem well rendered. This is in line with the opinion of Asita, Efendi, and Fajri (2014) which stated that the GI model is very helpful by means of ordinary discussions without looking for other sources.

Hadi (2015) further stated that the GI used in biology learning gives student learning outcomes, especially in biology lessons, to improve well, fostering initiative in each student because they are required to carry out investigative tasks in groups and can complete them well. The GI model in its use looks very helpful for students in doing a task given by the teacher to each group, where in each group share information or exchange ideas about the topic being discussed by them so that each student automatically is also motivated in his desire to find out more. know about the problems that exist in the subject matter given by the teacher.

The learning outcomes of students who are taught with the the surrounding nature approach-based GI learning model are better. This is because the application of learning with the the surrounding nature approach and GI model allows students to carry out practical activities directly in the natural surroundings or in the environment around the school, so that students are trained to find their own knowledge of the experiences carried out. The experience gained by students by practicing directly the topic that has been taught by the teacher is more quickly attached than just listening to the topic taught by the teacher with a lecture.

3. TheStudent Learning Motivation and Student Learning Outcomes
The relationship between learning motivation and student learning outcomes is carried out using Pearson's Product Moment correlation to see the relationship between the two. The relationship between motivation and learning outcomes is known by using a correlation test through the SPSS program.

a. SMA Negeri 1 Sekerak
The correlation test of the relationship between learning motivation and learning outcomes at SMA Negeri 1 Sekerak with the level of motivation shows a significant correlation with a correlation number of 0.38 or 38% and about 62% is determined by other factors. Based on the results of calculations with the correlation test, it can be stated that there is a relationship between motivation and learning outcomes with a low correlation category, meaning that if the learning motivation of students increases, the learning outcomes obtained will also be good.

b. SMA Negeri 1 Bandar Pusaka

The correlation test of the influence of learning motivation with learning outcomes at SMA Negeri 1 Bandar Pusaka shows a significant correlation with a correlation number of 0.36 or 36.43% and about 63.56% is determined by other factors. Based on the results of calculations with the correlation test, it can be stated that there is a relationship between motivation and learning outcomes with a low correlation category, meaning that if the learning motivation of students increases, the learning outcomes obtained will also be good.

The relationship between motivation and learning outcomes has a low correlation, which can be caused by various factors, one of which is the intrinsic factor. Factors that come from within the student which is a biological drive in the form of curiosity. Students have not been able to grow the drive from within themselves because they are still accustomed to the learning process with conventional methods. Therefore, it is necessary to familiarize and adjust the learning process by using different methods so as to increase the motivation of interest in learning which is able to influence learning outcomes so that it continues to increase.

Extrinsic factors are also the influence of low learning motivation with student learning outcomes. One of them is caused by the family environment, students tend to work after school to meet the needs of their families. According to Merson (in Tu'u, 2004) states that the factors that influence learning motivation include intelligence, talent, interests, attention, motives, health, learning methods, family environment, association, school, and other supporting facilities. Therefore, cooperation is needed in all aspects from schools, teachers, communities and especially parents.

IV.   Conclusion

Based on this, the implications that can be given are to achieve an in-depth understanding of Biology knowledge and optimal understanding of concepts and increase learning motivation in Biology learning in high school, the Group Investigation type cooperative learning model can be implemented by giving problems or questions that are conceptual and contextual, which is conventionally facilitated by the teacher. Because these questions aim to generate metacognition and higher order thinking. As we know, the purpose of education should not only emphasize the acquisition of learning knowledge (memorization of facts), but also to improve and develop high-level learning outcomes. So essentially this type of group investigation cooperative learning trains students to solve problems in real life (Widiarsa et al, 2014).

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