Bioeduca: Journal of Biology Education
http://journal.walisongo.ac.id/index.php/bioeduca
ISSN 2714-8009 (*print*), 2715-7490 *(online)*

Volume 6, Nomor 2, Tahun 2024
Hal. 153 – 162

Improving Students' Learning Motivation Through Differentiation Learning Based on Cooperative Learning

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Article Information

Submitted: 18 – 05 – 2024
Received: 30 – 08 – 2024
Published: 30 – 09 – 2024

ABSTRAK

Pada abad ke-21, pembelajaran berfokus pada pemaksimalan potensi siswa dalam menghadapi tantangan global saat ini. Untuk itu, diperlukan strategi pembelajaran yang sesuai dengan tuntutan, salah satunya adalah pembelajaran berdiferensiasi berbasis *Cooperative Learning*. Tujuan dari diadakannya penelitian ini adalah untuk mengetahui peningkatan motivasi belajar biologi peserta didik setelah diterapkannya pembelajaran berdiferensiasi. Penelitian ini adalah penelitian tindakan kelas. Subjek penelitian ini adalah peserta didik kelas XI dengan jumlah keseluruhan 36 peserta didik. Sedangkan objek penelitian ini adalah motivasi belajar biologi peserta didik setelah mengikuti pembelajaran dengan menerapkan pembelajaran berdiferensiasi berbasis *Cooperative Learning*. Metode pengumpulan data yang digunakan untuk mengumpulkan data motivasi belajar biologi peserta didik adalah metode kuesioner. Teknik analisis data yang digunakan dalam penelitian tindakan kelas ini adalah teknik analisis deskriptif kuantitatif. Dari hasil penelitian dibuktikan dengan adanya peningkatan motivasi belajar dari hasil analisis angket pada siklus I menunjukkan 82,14% dan siklus II menunjukkan 86,57% Dengan demikian, hasil tersebut menunjukkan bahwa dengan penerapan pembelajaran berdiferensiasi berbasis *Cooperative Learning* dapat meningkatkan motivasi belajar peserta didik kelas XI SMA N 4 Semarang pada materi sistem koordinasi.
Kata kunci: Motivasi Belajar, Pembelajaran Berdiferensiasi, *Cooperative Learning*.

Publisher

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ABSTRACT

In the 21st century, education focuses on maximizing students' potential to face current global challenges. Therefore, appropriate learning strategies are needed to meet these demands, one of which is differentiated instruction. The aim of this study is to determine the increase in students' motivation to learn biology after the implementation of differentiated instruction. This study is a classroom action research. The subjects of this research are 36 eleventh-grade students. The object of this research is the students' motivation to learn biology after participating in differentiated instruction based on

Cooperative Learning. The data collection method used to gather information on students' motivation to learn biology is the questionnaire method. The data analysis technique used in this classroom action research is descriptive quantitative analysis. The results of the study proved an increase in learning motivation, as indicated by the questionnaire analysis results showing 82.14% in the first cycle and 86.57% in the second cycle. Thus, these results indicate that the implementation of differentiated instruction based on Cooperative Learning can increase the learning motivation of eleventh-grade students at SMA N 4 Semarang in the coordination system material.

Keywords: Learning Motivation, Differentiated Learning, and Cooperative Learning.

INTRODUCTION

Education is an effort to improve the intelligence of the nation's life. Through education, it is expected to create human resources that have the potential to improve the quality of the nation. Education is one of the indicators of the quality of the nation that can be assessed by other countries, because countries with a good education system will experience extraordinary development. Lately, the Indonesian nation has faced challenges to realize the 21st century movement. This movement must have various skills, namely communication, cooperation, critical thinking, and creative thinking. If this generation has these skills, it is expected to have a positive impact on the nation. According to the Law on the National Education System of Indonesia Number 20 of 2003, the purpose of national education is to develop the potential of students to become human beings who are faithful, pious to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. In relation to educational goals, according to Helzon, et al. (2018), a teacher must be able to think creatively and innovatively when teaching his students to achieve existing educational goals through interesting learning.

Learning that is interesting is defined as various learning given by teachers to students by linking it to the real life situations of students so that students can understand the lesson and understand others. Learning Biology is not only the mastery of a collection of knowledge, but also the learning process. In learning Biology, one of the factors that influences the success of the learning process depends on students' learning motivation. According to Elmda (2017), fostering students' learning motivation is a very important thing for teachers in relation to achieving educational goals and the success of the learning process. Learning motivation is one of the keys to success in achieving learning goals, and teachers must try as hard as possible to motivate students to learn. Students who have strong learning motivation will have many opportunities to carry out learning activities (Khodijah, 2014) explains the definition of learning motivation as a driver that changes the energy within a person in the form of real activities to achieve the goals. In other words, learning motivation can be interpreted as various opportunities and

directions for behavior that include needs, interests, attitudes, values, aspirations and incentives. The need and drive to satisfy the need can be the main source of learning motivation. The need for knowledge, understanding of the material and the drive within oneself to achieve the goal of achievement are the main provisions for students to have strong learning motivation..

Based on the results of interviews with biology teachers at SMA Negeri 4 Semarang who teach Phase F and the results of observations, students at the school are accustomed to using smartphones in learning activities. The characteristics of students have high cognitive abilities. Based on the results of observations of students of Phase F of SMA Negeri 4 Semarang, students have the ability to enjoy dynamic learning, namely the ability to express themselves freely, for example in making presentation products and delivering them in class. However, most students find it difficult to study in groups and work on Student Worksheets (LKPD). This is proven by the results of interviews with several students who feel bored if they are given assignments using Student Worksheets (LKPD) alone. In addition, students also dislike learning that is less interesting, they prefer learning that is integrated with games or technology-based games.

Based on the problem, teachers must always innovate in the teaching process and need to create a learning environment that is appropriate to the classroom environment, one of which is by implementing differentiated learning. Differentiated learning in the process provides a wide space for students to explore and demonstrate their knowledge. As a result, students are encouraged to be creative indirectly. In order to facilitate the achievement of learning objectives, the differentiated learning model is highly recommended for continued implementation. The development and growth of each student who are psychologically different are the basis for thinking about differentiated learning. There are four types of differentiation in this differentiated learning model, namely learning environment, context, process, and product. (Marlina, 2019).

Curriculum implementation is carried out in the learning process through various learning strategies. According to Fitrianli (2017), teachers must ensure that there is a relationship between the suitability of the learning strategy with the material features and characteristics of students. This aims to achieve the expected completion and increase students' ability to learn. The right learning strategy can make learning easier so that the goals can be achieved easily (Ramlawati et al., 2017). For that, as one of the manifestations of the strategy, a learning model is needed that is able to make students construct their own knowledge so that it can increase students' motivation to learn and be able to understand the concept of knowledge. Thus, students will be more motivated to follow the series of lessons carried out in class.

One of the efforts that teachers can make to foster active learning of students is by implementing an attractive learning model. In choosing a learning model, teachers must at least pay attention to things related to student conditions, learning materials and learning resources and the objectives to be achieved (Ulfa & Saifuddin, 2018). This aims to ensure that the learning model implemented can be effective and able to

support learning. The cooperative learning model is one of the models that can be applied to increase student activity. The cooperative learning model according to Savage is an approach that emphasizes cooperation in groups (Rusman, 2017). The cooperative learning model focuses on social interaction where students will be actively involved in learning and train students to work together in a group (Anlitra, 2021). So this encourages students to be actively involved in learning and working together to solve problems and complete tasks given by the teacher.

METHODS

This research was conducted at SMAn 4 Semarang, Peldurunlganl District, Semarang City. This research was conducted in three semesters, namely from March to April 2024. The subjects in this research were 36 students in class F-Lam 1 consisting of 8 males and 28 females. The object of this research was students' motivation to learn Biology after they were willing to take part in the Cooperative Learning-based Differentiation Learning. This research is included in the class research (PTK) list, which consists of four stages in one research cycle: research, implementation, observation/assessment, and reflection. This class research is carried out collaboratively, meaning that this research collaborates or cooperates with class teachers of F Lam-1 SMA NL 4 Selmarang. The design of this class research activity cycle can be seen in Figure 1:

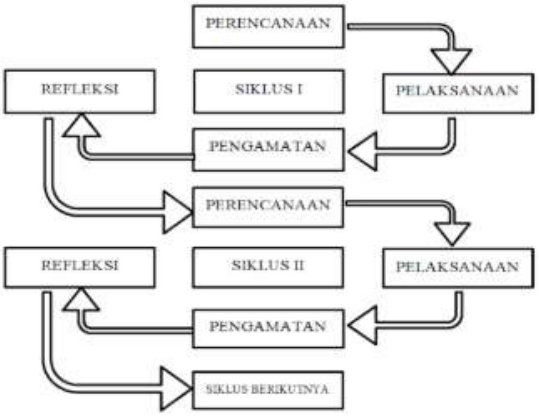

Figure 1. PTK cycle

The data collected by the researcher is data on students' biology learning motivation. The method used to collect data on students' biology learning motivation is the questionnaire or questionnaire method. The questionnaire or questionnaire method is a data collection method that aims to obtain answers from respondents by submitting statements (Hazmiwati, 2018). The following is a grid of learning motivation questionnaires which can be seen in Table 1.

Table 1. Learning motivation questionnaire grid

No	Sub Variabel	Indicator	Number
1	Success label orientation	a. Be selective in matters relating to the improvement of superior performanceKegiatan pencapaian prestasi unggul	1,2,3,4,5,6
2	Anticipate failure	b. Cermat menentukan target prestasi	7,8,9,10,11,12

		c. Efforts to overcome obstacles to achieving success	
3	Inovation	a. Finding an easier and shorter way b. Likes to ask questions	13,14,15,15,17
4	Responsibiliy	a. Perfect completion of the task b. Confident and persistent in completing tasks	18,20,21,22

(Widyoko, 2015)

The method used to analyze the students' motivation to learn response is by calculating the results of the learning motivation scale. Quantitative descriptive analysis is used to analyze data in this class of research. The formula for calculating the results of the learning motivation scale is as follows.:

$$NP = \frac{R}{SM} x\ 100\%$$

Description:

NP : The value of the sale that is sought or expected
R : The score obtained by students
SM : Ideal maximum score of the questionnaire

The guideline for the implementation success indicator is the assessment of students' biology learning motivation in each cycle. The criteria for the success indicator can be seen in table 2.

Table 2. Product results criteria

	Presentasi (%)
Very Good	86-100
Good	76-85
Enough	60-75
Low	55-59
Very Low	<55

(Purwanto, 2013)

RESULT AND DISCUSSION

This research was conducted in 2 cycles with the number of studies being 2 times in each cycle. In each cycle there are stages starting from research, implementation, observation and reflection. Furthermore, in each cycle, a learning motivation questionnaire was given to find out how far the students' motivation was in following the lesson. This research was conducted in cooperative learning-based learning in coordination system material. Before implementing the learning cycle, students are first given diagnostic tests related to the coordination system material to find out how far the students' initial knowledge is, so that teachers can design learning activities that are tailored to the students' knowledge. In addition, the diagnostic tests carried out are not only about the material, but also learning style tests are carried out to find out how each student learns in the class. This learning style test is used to divide learning groups so that students can learn homogeneously according to their learning styles and can follow the learning process according to their interests and learning styles. According to Sulistyanli, et al. (2020), it is very important for teachers to know the learning styles of their students because this will allow teachers to organize each class according to the unique needs of each student.

At least, teachers will try to implement various learning models that are based on the learning styles of their students. Furthermore, in implementing the learning cycle, it consists of four main steps, namely: (1) planning (planning), (2) action or action (acting), (3) observation (observing), and (4) reflection (reflecting).

Cycle I

In cycle I, the learning is carried out in two meetings with a time allocation of 2 x 40 minutes. The material discussed in cycle I is about the sensory system. The learning is carried out according to the syntax of the Cooperative Learning model of the Gallery Walk type with different learning processes. The Cooperative Learning activity begins with the teacher giving an explanation of the sensory system material, this bridges the students in carrying out a project based on the Gallery Walk. After the selection was carried out, the students were divided into 5 working groups, the students were free to choose the members of each group, each consisting of 7-8 people and to determine which sensory device they would choose..

The teacher reminds each group member to prepare the tools and materials used to make the sensory system poster. Next, students work on the poster by dividing the tasks into groups of each member. All group members collect information that can be seen from the students, some write, read, draw, and some decorate the poster that will be displayed. Students write the content that will be included in the poster in the form of an explanation of the structure, organs and mechanism of the sensory organs that they are learning. All group members who exchanged ideas in making the poster.

The next stage, after all group members have completed the posters that have been made. Students show the results of their discussions on the tables of each group and instruct the results to be posted in places that have been indicated by the teacher. Next, at the stage of the Cooperative Learning Model (Gallery Walk) type, students are reminded to divide the tasks for 2 members to guard each group's post and the other members to visit the other group's post. Each group discussed different materials. Group 1 discussed the visual sense organs, group 2 discussed the sense organs, group 3 discussed the sense organs, group 4 discussed the sense organs of smell, and group 5 discussed the sense organs of touch..

In the steps of the cooperative learning model of the Gallery Walk type, students are guided by the teacher so that the activity of visiting other group posts goes well. If there are some students who do not pay attention to the teacher's instructions. Next, the students who visit observe, follow, and record what they have seen on the poster on a piece of paper. The results of the information that has been obtained are written on a piece of paper. After completion, complete the assignment that has been given by the teacher. In the last activity, students are guided to make conclusions orally. The teacher gives questions about what materials have been learned today. Furthermore, the teacher and students hold a reflection at the end of the lesson by continuing what new things have been learned today, whether today's lesson was successful, what things they liked the most during the lesson, and

students are given questions about learning motivation after participating in the Cooperative Learning Gallery Walk type lesson. The learning activity was closed by reading a prayer and greetings from the teacher..

Based on the results of the pre-cycle observations conducted by the researcher, the researcher conducted a cooperative learning activity of the Galleries Walk type. The following are the results of the questionnaire on students' learning motivation before and after using the cooperative learning activity of the Galleries Walk type. The results of the analysis of students' learning motivation questionnaire in cycle I are seen in table 3.

Table 3. Results of Learning Motivation Analysis Cycle I

Kategori keberhasilan motivasi belajar	Value (%)	Frekuensi	Result
Very Good	86-100	7 (19,44%)	Good
Good	76-85	29 (80,55%)	
Enough	60-75	0 (0%)	
Low	55-59	0 (0%)	
Very Low	<55	0 (0%)	
Average	**82,14%**		

Based on table 4, it is shown that the average result of learning motivation in cycle I is 82.14% in the good category. Furthermore, reflection is carried out after the learning activities in cycle I. This activity is carried out to review the activities so that it can be used as a reference for the next cycle..

Cycle 2

In cycle II, the learning is carried out in two meetings with a time allocation of 2 x 40 minutes. The material discussed in cycle II is about the Hormone System. The learning is carried out according to the Make a Match type Cooperative Learning model syntax with different learning processes. The Cooperative Learning activity begins with the teacher giving an explanation of the hormone system material. After conducting a question and answer session with the students, the teacher then conveys the learning objectives to be achieved.

The next learning activity is the teacher divides the students into 2 groups by dividing 1 large hormone group and 1 large target cell group. After the students are divided into two groups, the teacher asks each student in the hormone group to write down what hormones are in humans and the target cell group to write down the target cells in the hormone system. The next step after students have observed their respective cards is to find a pair of cards that match the cards they have. Students who get the hormone card that influences them to find their target cell. This stage is a cooperative learning model, namely Make a Match type learning, namely students find a pair that matches, in the search for a pair they are given 1 minute.

Students who have found their partners are asked to form groups. Meanwhile, students who have not found their partners, the teacher will help them find their partners. Furthermore, students explain how hormones function and target sites. For example, the ADH hormone functions for growth and target cells in bones. In the

presentation activity, it can be seen that all students are enthusiastic about explaining the results of their work. The activity of selecting the results is a stage of the Make a Match type Cooperative Learning model.

The teacher provides reinforcement on the results of the Make a Match that has been carried out. While the teacher is providing reinforcement, students listen carefully to the teacher's explanation. Then the teacher reflects on the lesson by asking all students whether today's lesson was successful, what they liked the most during the lesson, and students are given an example of learning motivation after participating in the Make a Match type Cooperative Learning lesson. The learning activity is closed by asking one of the students to lead a prayer and greetings from the teacher.

Based on the results of the observation of cycle I conducted by the researcher, the researcher conducted a cooperative learning Make a Match type lesson. The following are the results of the student learning motivation questionnaire before and after using the cooperative learning Make a Match type lesson. The results of the analysis of the student learning motivation questionnaire in cycle II are seen in table 4.

Table 4. Results of Learning Motivation Analysis Cycle II

Learning motivation success categories	Value (%)	Frekuensi	Result
Very Good	86-100	17 (47,22%)	Vey Good
Good	76-85	19 (52,7%)	
Enough	60-75	0 (0%)	
Low	55-59	0 (0%)	
Very Lowo	<55	0 (0%)	
Average	**86,57 %**		

Based on table 4, it is shown that the average result of learning motivation in cycle II is 86.57% in the very good category. Furthermore, reflection is carried out after the learning activities in cycle II.

The results of the class research in improving students' learning motivation by using cooperative learning-based differentiation learning starting from pre-cycle, cycle I to cycle II have shown improvement. This can be seen from the results of the questions worked on by students after carrying out cooperative learning-based differentiation learning. Based on the results of the questionnaire in cycle I, it was found that there was a decrease and in cycle II, there was an increase of 4.43%. The results of improving students' learning motivation can be seen in table 5.

Table 5. Results of the improvement of students' learning motivation

No	Siklus	Motivation result	Increasing	Kategori
1	Pra Cycle	78,57 %		Good
2	Cycle I	82,14%	3,57%	Good
3	Cycle II	86,57%	4,43%	Very Good

Based on table 5, it can be seen that the research on the class conducted by using cooperative learning-based differentiated learning can increase learning motivation in students, especially in students of Phase F Lam-1 at SMA Negeri 4 Selmarang.

SUMMARY

Based on the results of research and implementation of cooperative learning-based differentiation, it can improve the motivation of students to learn in Phase F in learning the coordination system. The improvement is obtained through the stages of the cooperative learning model based on the Gallely Walk type and the cooperative Make a Match type. In cycle I, the results obtained were 82.14%, which means that the students experienced a decrease in learning motivation of 3.57% compared to the previous cycle using cooperative learning-based learning. Meanwhile, the results of the action in cycle II also experienced an increase in students' learning motivation, namely 86.57%, so that it experienced an increase of 4.43% compared to cycle I. This has explained that cooperative learning-based differentiated learning is able to increase students' learning motivation.

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