



Implementation of the make a match model in ecosystem materials to increase students' learning motivation



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ABSTRACT

Motivation is one aspect that determines student success in learning. This research aims to increase the learning motivation of class X IPS 2 students at SMA Negeri 3 Pontianak by implementing the make a match model in ecosystem material. This research is classroom action research which consists of two cycles with stages of planning, implementation, observation, and reflection. The subjects of this research were 26 students in class X IPS 2, consisting of 10 men and 16 women. The instruments used in this research were observation sheets on learning implementation and student learning motivation questionnaires. Data analysis in this study used descriptive statistical techniques. The percentage of implementation of the learning stages in cycle I was 90.00% and in cycle II it increased to 97.69% with very good criteria. Student learning motivation in cycle I was 70.38% with medium criteria and in cycle II it increased to 78.82% with high criteria. It can be concluded that the implementation of the make-a-match model can increase students' learning motivation on ecosystem material.

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INTRODUCTION

Education is one of the most important needs to prepare the nation's next generation who can compete in the 21st century. Through education, humans become development subjects who can be educated, trained, and develop their potential (Mikran, Pasaribu, & Darmadi, 2018). According to Law Article 3 No. 20 of 2003 concerning the National Education System states that national education aims to develop the potential of students to become human beings who believe

in and are devoted to God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic citizens and responsible.

Improving the quality of learning is a fundamental demand experienced by the world of education today. According to Mashartanto, Purnama, & Mulyana (2022) to produce a quality young generation, quality education is needed. Achieving quality education requires effort and hard work. According to Aliputri (2018), education and teaching is a process that occurs with conscious goals. The aim in question can be interpreted as an effort to provide a formulation of results according to expectations after carrying out the learning activities carried out. To achieve this goal, there are various influential aspects, one of which is motivation.

Motivation is an impulse within a person which is a response to an action. Motivation within a person can arise due to a stimulus, such as the existence of certain ideals and goals (Pajarudin, 2019). Motivation to learn is very useful for students' success in the future, starting from elementary, middle school, and college levels (Elvianasti et al., 2022). In implementing learning, low student learning motivation is a challenge faced by teachers. This is because motivation will determine the learning outcomes that students participate in (Emda, 2017). According to Rahman (2021), several factors influence learning motivation, both from the environment and from the students themselves. The desire to succeed and the drive to fulfill one's needs and aspirations also influence student motivation. This can be supported by a conducive environment or fun activities.

Biology is one of the lessons taught in high school. One of the materials in biology learning where misconceptions often occur is ecosystem material (Nurfadilah & Rochintaniawati, 2021). Ecosystems are one of the materials contained in the science of ecology. The scope of ecology includes individuals, populations, communities and ecosystems, energy in ecological systems, biogeochemical cycles, habitat, and ecosystem conservation (Rahmawati et al., 2021).

Based on the results of observations from the implementation of learning carried out in class This shows that students in class X IPS 2 have low learning motivation. The characteristics of students who have low learning motivation are that students do not fully pay attention to the teacher's explanations, have low curiosity, students are less active, give up easily, and do not want to try to achieve achievements (Amalia, 2017). The solution that teachers can take is to implement a learning model that is fun and can meet students' learning needs.

One aspect that influences the success of a subject is how a teacher carries out learning (Fuad, 2018). Before learning is carried out, teachers must be careful in determining the appropriate learning model to be applied. According to Arianti (2019), one of the successes of a teacher in teaching is determined by the activities of students who are actively involved in learning. According to Ramadhani (2021), a good learning process can not only be seen from students who understand the learning material but also how a student can learn in a fun way and is actively involved during the learning process.

According to Fitriyana, Ningsih, & Panjaitan (2020), teachers must be able to apply appropriate learning models and involve students' physical and intellectual activities so that they can create enjoyable learning. One learning model that is worth trying is the make a match model. According to Harminingsih (2017), the make a match model has advantages and disadvantages compared to other learning models, including being able to instill the ability to work together, interact, train quick thinking, and students can learn in a fun class atmosphere. One of the studies that proves that the make a match model can increase students' learning motivation is research conducted by Sari & Arifin (2020) which shows that the application of the make a match model can increase the percentage of students' learning motivation from 71.78% in cycle I to 76.32% in cycle II in class IV MI Miftahul Ulum Kraton on theme 6.

Based on this description, the researcher conducted classroom action research by applying the make a match model in class X IPS 2 SMA Negeri 3 Pontianak. In its application, researchers will

make adjustments between the make a match model and the material that will be discussed in class in biology learning, namely ecosystems. Each student will be divided into two large groups, namely the group holding the statement and answer cards. After that, each student will try to find the right pair with the cards they have. The activities carried out during the implementation of the make a match model are expected to increase the learning motivation of class X IPS 2 students at SMA Negeri 3 Pontianak on ecosystem material.

RESEARCH METHODS

Research Design

This research is classroom action research conducted at SMA Negeri 3 Pontianak. According to Sanjaya (2016), classroom action research is a type of scientific activity written in a structured manner to find solutions to problems encountered by teachers in the classroom. The actions in this research are implemented in a learning cycle that consists of 4 stages, including planning, implementation, observation, and reflection (Arikunto, 2013). The flow of classroom action research can be seen in Figure I.

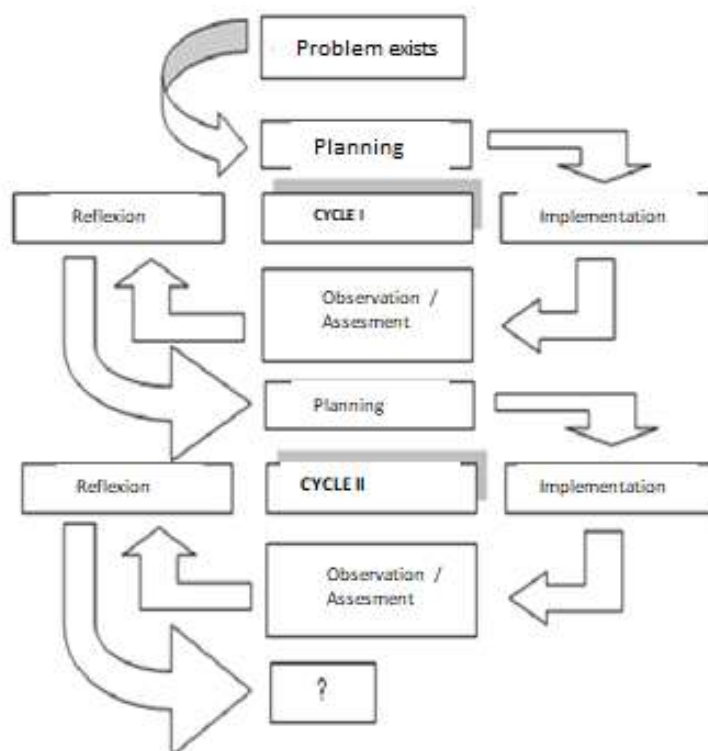


Figure I. Classroom Action Research Flow (Arikunto, 2013)

The research implementation consisted of two cycles. Each learning cycle begins with planning first, then continues with implementation along with observation. At the end of each cycle, reflection is carried out to evaluate the achievement of success indicators as well as improving learning. The success indicators in this research refer to Ardiawan & Septinawati (2014) by considering the level of student motivation. Research is said to be successful if, in the implementation of the learning cycle, the percentage of students with a high level of motivation is at least 70% so it is sufficient to carry it out until the second cycle.

Population and Samples

The subjects in this research were 26 students in class X IPS 2 at SMA Negeri 3 Pontianak for the 2022/2023 academic year. The subjects consisted of 10 male students and 16 female

students. The object of the research is to increase every aspect of students' learning motivation during biology learning.

Instruments

The instruments used in this research were observation sheets and student motivation questionnaire sheets. Data collection in this research was carried out using observation and survey techniques. This research was assisted by two observers consisting of one biology teacher at SMA Negeri 3 Pontianak and one fellow student. Observations were carried out by two observers by filling in an observation sheet regarding the implementation of learning carried out by the teacher by implementing the make a match learning model. Meanwhile, the survey technique used in this research aims to collect factual information through questionnaires (Monika & Adman, 2017).

Data on student learning motivation was collected through questionnaires distributed to each student. The learning motivation questionnaire instrument used in this research is a modification of the questionnaire compiled by Sudiby, Jatmiko, & Widodo (2016). Broadly speaking, there are four aspects of motivation to learn biology that are the focus of this classroom action research: (1) Choice or interest in tasks/activities; (2) Efforts or efforts made to succeed; (3) Perseverance or tenacity and the time spent on a task; and (4) Self-confidence while involved in activities. The learning motivation questionnaire used in this research consisted of 25 statement items.

Procedures

This research was carried out in two learning cycles consisting of four stages, namely: (1) Planning; (2) Implementation; (3) Observation (observation); and (4) Reflection. The research begins with the planning stage which is carried out by preparing the instruments needed during learning and research. After all the instruments are ready to be used, the learning implementation stage continues by implementing the make a match model. At the end of the lesson, students will be asked to fill out a questionnaire to collect data on student learning motivation. Simultaneously with the implementation stage, an observation stage was also carried out by two observers to observe the implementation of each learning stage. After the implementation and observations have been completed, it is continued with the reflection stage to evaluate the learning activities that have been carried out.

Data Analysis

The data analysis technique in this research uses descriptive statistical techniques. To see the implementation of learning activities using the make a match model, data obtained from observations calculated the average value and percentage. The results obtained were then compared with the assessment criteria referring to Pertiwi (2020) and presented in Table 1.

Table 1. Criteria for Learning Implementation Assessment using the Make a Match Model

Percentage %	Assessment criteria
91-100	Very well
76-90	Good
61-75	Enough
51-60	Not enough
<50	Very less

Data on student learning motivation results were obtained from the percentage value for each aspect of motivation. The criteria for assessing student learning motivation used in this research refer to Ratnasari, Amelia, & Suhartono (2020) which are presented in Table 2.



Table 2. Criteria for assessing student learning motivation

Percentage %	Assessment criteria
$X \geq 71$	High
$41 \leq X < 71$	Medium
$X < 41$	Low

The research success indicators refer to Ardiawan & Septinawati (2014) by considering the classical value of student learning motivation. Research can be said to be successful if the percentage of students with classically high motivation reaches 70%.

RESULTS

Teachers have a very important role in the learning implementation process. Achieving high levels of learning implementation will influence student learning motivation. In this research, there are three main stages of implementing learning using the make a match model. The percentage data on the stages of learning implementation carried out in cycle I and cycle II are presented in Table 3.

Table 3. Percentage of Learning Implementation Stages with the Make a Match Model

Stages of Make a Match	Cycle I%	Cycle II%
Initial activity	80.00	96.66
Core activities	90.00	96.42
End activities	100	100
Average	90.00	97.69
Criteria	Good	Very Good

Based on Table 3, it is known that the percentage of learning implementation stages using the make a match model has increased. Improvement occurred at two stages of learning implementation, namely initial activities and core activities in cycle II which increased to very good criteria. Apart from that, based on the results of research conducted in cycle I and cycle II, it was found that the percentage of student learning motivation also increased, which is presented in Table 4.

Table 4. Student Learning Motivation with the Make a Match Model

Aspects	Indicators	Cycle I (%)	Cycle 2 (%)
Choice of interest tasks or activities	1. Interested in taking part in biology learning activities.	73.21	81.87
	2. Choose to do biology learning assignments rather than other assignments.	66.35	78.84
	3. Immediacy in doing biology assignments.	76.92	82.21
	4. Use free time to carry out activities related to biology.	65.38	58.65
The efforts made to succeed	1. Tend to make efforts to succeed.	76.92	87.50
	2. Make greater mental effort during biology learning.	74.04	82.69
	3. Using cognitive strategies in learning biology.	67.31	75.00
Perseverance or tenacity and the time spent on a task	4. It is not easy to give up studying biology when you encounter obstacles	75.96	87.50
	5. Work longer on challenging biology assignments or activities.	59.29	65.71



Feeling confident when involved in activities	1. Believe that hecano understands biology.	69.71	77.40
	2. Enjoy doing biology learning assignments.	64.42	76.92
	3. Don't worry about facing the upcoming biology test.	77.88	90.38
Average		70.38	78.82
Criteria		Medium	High

Based on Table 4, it is known that the average percentage of student learning motivation increased in cycle II. Apart from that, the percentage of students who have high motivation criteria has also increased. The percentage of criteria for assessing student learning motivation is presented in Table 5. Based on Table 5, it is known that the percentage of students who have high motivation criteria has increased in cycle II and has reached the standard indicators of success. Therefore, this classroom action research is sufficient to be carried out in two learning implementation cycles.

Table 5. Criteria for assessing student learning motivation using the make a match model

Student Learning Motivation Level	Cycle I (%)	Cycle II (%)
High	53.84	88.46
Medium	46.15	11.53
Low	0	0

DISCUSSION

Cycle I

The learning implementation in cycle I was carried out on April 5, 2023. The initial stage of this research was the planning stage which was carried out by preparing the instruments. The instruments used are learning implementation plans using the make a match learning model, student worksheets, evaluation questions, learning implementation observation sheets, and student learning motivation questionnaire sheets. In the second stage, researchers carried out learning using a make a match model discussing sub-material about biogeochemical cycles.

The third stage is the observation stage which is carried out during the learning process. The results of the observations made are: (1) The teacher still asks questions classically; (2) The teacher is still preparing make a match cards in class when students are having discussions; and (3) When explaining the material the teacher is too focused on standing near the blackboard.

The final stage is the reflection stage on the learning activities that have been carried out. The results of the reflection are: (1) The teacher should ask questions by pointing or saying the students' names; (2) The teacher can prepare the number of make a match cards according to the number of groups before entering class so that they can focus on assisting when students have discussions; and (3) The teacher can move around the class when giving material so that he is not standing near the blackboard.

The percentage of implementation of the learning stages using the make a match model in cycle I was 90% with good criteria. However, the percentage of students who have high motivation criteria is only 53.84% and have not achieved the success indicators. This could be due to the fact that at the initial activity stage and core activities, the teacher had not implemented learning optimally. According to Pakaya (2020), initial activities play a role in generating students' learning motivation, while core activities are the foundation of the entire learning process. Therefore, teachers need to make improvements in the implementation of subsequent learning.



Cycle II

The learning implementation in cycle II was carried out on April 12, 2023. The initial stage of this research was the planning stage which was carried out by preparing the instruments. The instruments used are learning implementation plans using the make a match learning model, student worksheets, evaluation questions, learning implementation observation sheets and student learning motivation questionnaire sheets. In the second stage, researchers carried out learning using a make a match model discussing sub-materials about various ecosystems and ecosystem changes.

The third stage is the observation stage which is carried out during the learning process. The results of the observations made are: (1) The teacher no longer just stands near the blackboard when explaining the material; (2) The teacher relates the material to the surrounding environment so that it can attract students' attention; (3) The teacher has prepared make a match cards according to the number of groups before entering class so that they can focus more on accompanying students during discussions; and (4) Teachers can manage time appropriately.

The final stage is the reflection stage on the learning activities that have been carried out. The results of the reflection are: (1) Students have been more actively involved during the learning process; (2) Teachers can include ice-breaking activities to restore students' focus; (3) Learning activities have run more effectively; and (4) Teachers should be able to manage time appropriately so that learning activities do not appear to be carried out in a hurry.

The percentage of implementation of the learning stages using the make a match model in cycle II increased to 97.69% with very good criteria. Apart from that, the percentage of students who have high motivation criteria has reached more than the standard success indicators, namely 88.46%. This can be because the teacher has made improvements to the learning implementation stages so that each stage carried out is optimal and better than cycle I.

Increasing Student Learning Motivation

Based on Table 4, overall student learning motivation has increased through the implementation of the make a match learning model. During the learning process, it was seen that students experienced changes in their behavior, becoming more active, and enthusiastic in carrying out assignments and working together to find the right pair of cards. According to Sari & Arifin (2022), the make a match model provides students with the opportunity to understand the subject matter being studied easily, be actively involved in learning, increase the sense of responsibility and communication between fellow students so that it can have a positive impact on student learning motivation.

In this research, there are four aspects used to measure student learning motivation. The first aspect is the student's choice or interest in biology learning tasks/activities. This aspect has increased in the implementation of cycle II learning with high criteria. This is because the make a match model can provide students with the opportunity to play while learning so that students become more interested in participating in learning activities. What is meant by playing while learning is that each student must try to find pairs of cards quickly and accurately. These results are in line with research conducted by Ari & Wibawa (2019) which shows that the use of the make a match model can increase the learning motivation of fifth-grade elementary school students in Gugus II, Tembuku District.

The second aspect is the effort or efforts made to succeed. This aspect can improve because at the end of learning using the make a match model the teacher gives a reward to the first group that can find pairs of cards quickly and correctly. Providing these rewards can raise enthusiasm to compete with other groups so that students try to become winners. According to Oktapiani &

Choli (2019), in the learning process, giving rewards is a form of motivation for students to achieve the best possible results.

The third aspect is persistence or tenacity and the time used to do the task. According to Dirgari, Panjaitan, & Kusmawati (2023), the aspect of persistence is important because learning success cannot possibly be achieved in a short time. This aspect has increased in the implementation of cycle II learning with high criteria. This can happen because before the make a match game begins, students must understand the material studied first to find the right pair of cards. Apart from the teacher's explanation, to understand the material students must work on the practice questions contained in the student worksheets. The persistence of students in studying and working on student worksheets is an effort to be successful in finding pairs of a match cards. According to Sudiby, Jatmiko, & Widodo (2016), students who are motivated to learn will have the perseverance to achieve success.

The fourth aspect is self-confidence when involved in activities related to biology learning. This aspect has increased in the implementation of cycle II learning with high criteria. Students who have tried diligently to study will have self-confidence because they already understand the material. According to Sudiby, Jatmiko, & Widodo (2016), students who feel they are competent will not feel worried so they can enjoy the tasks given by their teacher. The results obtained in this research indicate that the implementation of the make a match model can increase students' self-confidence. Student self-confidence can arise because students enjoy ongoing learning activities. These results are in line with research conducted by Antara, Ujiti, & Jayanti (2019), that the application of the make a match model has a significant effect in increasing students' self-confidence.

CONCLUSION

The research that has been conducted shows that the implementation of learning through the implementation of the make a match model has increased from 90% in cycle I to 97.69% in cycle II with excellent criteria. The percentage of students' learning motivation also increased from 70.38% in cycle I with medium criteria to 78.82% in cycle II with high criteria. It can be concluded that implementing the make a match model in ecosystem material can increase student learning motivation. It is hoped that the research results can be an alternative for teachers in designing and implementing biology learning which can increase students' learning motivation.

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