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The Effect of SIMAS ERIC Learning Model on Protist Material to Improve Students' Cognitive Learning Outcomes in Class X

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Abstract.
Various problems that cause low student learning outcomes are thought to be due to the lack of teacher innovation when teaching in the classroom, the selection of learning models or strategies that do not facilitate students' awareness and interest in learning, as well as other influencing problems. One of the models that can help teachers train students to plan lessons, monitor the learning process, and evaluate learning outcomes is the Simas Eric learning model with syntax skimming, mind mapping, questioning, exploring, writing, and communicating. This study aimed to determine the effect of the SIMAS ERIC learning model on cognitive learning outcomes of Biology students at SMAN 24 Bandung. This is a quasi-experimental research with a non-equivalent pretest-posttest control group design. The participants in this study were class X MIPA 1 and X MIPA 3 students at SMAN 24 Bandung. Data were collected through the results of observations of students' cognitive learning outcomes. Data analysis was done using the ANOVA technique, which shows the learning outcomes of the SIMAS ERIC model on protist material, affecting the cognitive learning outcomes of Biology students at SMAN 24 Bandung with an average cognitive learning outcome of experimental class students of 84.50%. The average cognitive learning outcome of control class students was 78.50%. The experimental class obtained a higher average cognitive learning outcome than the control class. The benefit of this research is that it can determine the effect of the Simas Eric model based on students' cognitive learning outcomes.

Keywords: SIMAS ERIC learning model, protist material, cognitive learning outcomes

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1. INTRODUCTION

According to Law no. 20 of 2003, national education is a planned effort to realize learning so that students can be active and can develop their own potential in learning activities [1]. Whereas in the 2013 curriculum, students are positioned as active subjects so that the teaching and learning process focuses more on students (Student Centered). Therefore, independent learning has become a demand for today's students. Murni

[2] stated that in the 2013 curriculum students were formed to observe/observe, ask questions and reason about the knowledge being studied. Giving subjects to students is based on integrated themes so that students are able to have knowledge about the environment, life, as well as a strong personal foundation in social and creativity.

In the world of education there is a process of interaction between teachers and students. Teachers are professional educators in educating, teaching, training, and evaluating students [3]. The teacher has an important role in guiding students as a motivator and stimulator. To develop the potential that exists within students, guidance from the teacher is needed so that students continue to develop [3]. The teacher is a very important factor in education, because the teacher plays many roles in the learning process, where the learning process is the core process of the world of education [4]. According to Aqib, the teacher is a figure who can be a role model for students [5]. Teachers can be said to be one of the determining factors for the quality of education because teachers interact directly with students in the learning process. Teachers know more about the characteristics of their students, so that there are many innovations in the learning process both in the curriculum, models, or learning strategies [6]. Therefore, a good teacher will certainly produce good graduates, namely those who achieve the learning objectives according to the KKM.

However, based on the results of interviews with teachers at SMAN 24 Bandung, it shows that when participating in the learning process there are still many students who lack the awareness to learn. For example 1) students are less prepared to take part in learning, 2) students pay less attention during learning such as daydreaming and playing HP, 3) students also don't do homework or copy their friends' work, and 4) don't take notes in the process learning. This results in low cognitive learning outcomes of students as seen from the Biology scores of students, most of whom have not reached the KKM of 75. This also shows that the level of awareness and independence in participating in learning, these students are still relatively low. This awareness determines a learner in evaluating his learning outcomes. If the teaching and learning process has been carried out well, these problems should occur minimally.

Various problems that cause low student learning outcomes are thought to be due to a lack of teacher innovation when conducting classroom learning, the selection of learning models or strategies that do not facilitate students' awareness and interest in learning, as well as other problems that affect learning. This condition results in an apprehensive average student learning outcomes. One illustration during the learning process that commonly occurs is the lack of interest in reading students to understand the concept of the material more deeply. Teaching and learning activities in class are

more focused on the ability of students to memorize information so that students are forced to just remember and hoard various information without being required to understand in more depth the information that has been given through reading materials. The implementation of such learning results in the thinking abilities of students who are less empowered.

One model that can help teachers to train students to plan lessons, monitor the learning process, and evaluate their learning outcomes is the Simas Eric learning model with the syntax of Skimming, Mind mapping, Questioning, Exploring, Writing and Communicating. Based on the description above, this study aims to determine the effect of Simas Eric's learning model on the cognitive learning outcomes of Biology students at SMAN 24 Bandung.

2. RESEARCH METHOD

This research is a quasi-experimental study with nonequivalent pretest posttest control group design. The independent variable used is the Simas Eric learning model while the dependent variable is the students' cognitive learning outcomes. The sample used was students in class X MIPA 1 and X MIPA 3 at SMAN 24 Bandung, each of which consisted of 35 students (17 male students, 18 female students in class X MIPA 1 and 18 male students). , 17 female students in class X MIPA 3) were selected using a random method. The research was carried out in the odd semester of the 2021/2022 academic year with the control class using the conventional learning model while the experimental class used the SIMAS ERIC learning model. Collecting data on cognitive learning outcomes of students through observation at each meeting. Test the hypothesis using the ANOVA test with the help of the SPSS 26 for Windows program followed by the T-Test after being tested for normality and homogeneity [7].

3. RESULTS AND DISCUSSION

Based on the results of the analysis of the assumption test for the normality test through the Shapiro-Wilk test, a value of 0.022 was obtained and the Kolmogorov – Smirnov test for the normality test was 0.071, these results indicate that the variance between groups is homogeneous and the data is normally distributed. Furthermore, to test the hypothesis, the results of the analysis show that the F value is 1.528 with a significance value of 0.224 > 0.05. It means that the Simas Eric learning model has a significant effect on the cognitive learning outcomes of students with low academic abilities. Other

data that supports the results of the analysis such as the average value of students' cognitive learning outcomes also shows that by applying the Simas Eric learning model the cognitive learning outcomes of low academic biology students are 23% higher than students of low academic ability with conventional learning. Brief presentation of the data analysis results can be seen in Tables 1 and 2.

Table 1: Normality test results.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	.182	20	.081	.920	20	.097
Post test	.205	20	.027	.892	20	.029

Table 2: Homogeneity test results.

	Sum of Squares	Df	Mean Square	F	Sig.
Pretest	Between Groups	1000.000	1	1000.000	1.968
	Within Groups	19310.000	38	508.158	
	Total	20310.000	39		
Post-test	Between Groups	360.000	1	360.000	1.528
	Within Groups	8950.000	38	235.526	
	Total	9310.000	39		

Based on the analysis of the T-Test test data, it shows that the application of the Simas Eric learning model has an effect on cognitive learning outcomes. The average corrected cognitive learning outcomes in experimental class students was 84.50%. Corrected average cognitive learning outcomes in control class students by 78.50%. The experimental class obtained a corrected average of higher cognitive learning outcomes than the control class (Table 3). These results indicate that experimental class students are more able to empower cognitive learning outcomes when compared to control class students.

Based on these findings, it can be said that the Simas Eric learning model has better potential than conventional learning in improving students' cognitive biology learning outcomes. These findings are also in line with the findings of Bahri [8], Thalib [9], Hariyadi [10], and Samudera [11] where this is supported by Putri's research [12] with research results showing that the average absorption rate of students with the application of

Table 3: Results of comparison of average improvement of students' biology cognitive learning outcomes.

	Mean	N	Std. Deviation	Std. Error Mean	Mean
Pair 1	Pretest Experiment	61.50	20	19.541	4.369
	Posttest Experiment	84.50	20	13.945	3.118
Pair 2	Pretest Control	51.50	20	25.189	5.632
	Posttest Control	78.50	20	16.631	3.719

the Simas Eric model is 80.61% and the average absorption rate of students with conventional learning is 72.44%. So it was concluded that the application of the Simas Eric model could improve students' cognitive learning outcomes on global warming material in class XI MAN 1 Pekanbaru. The results of the findings are believed to be because the learning model with Simas Eric is able to facilitate the process of understanding concepts well. If analyzed in depth, Simas Eric's stages contribute to students' understanding well, where Simas Eric's syntax consists of (Skimming, Mindmapping, Questioning, Exploring, Answering, and Writing). This was taken from the results of Erica Darmawan's research [13]which stated that the syntax of Simas Eric's learning model consisted of Skimming, Mindmapping, Questioning, Exploring, Answering, and Writing. First, Skimming students are informed to read the material provided. At this stage students are trained to find the main ideas of the material. Somadayo [14] added that the skimming technique can improve students' reading learning well, so as to improve and optimize the quality of learning in class. It was also explained that appropriate learning materials are the first step that must be determined by a teacher before carrying out learning so that success in learning activities can be achieved.

Second, Mind Mapping students are instructed to make a mind map from the skimming results that have been applied before. Mind mapping can make it easier for students to see a picture of an idea by optimizing the right brain in the form of pictures, colors and simple words. Research conducted by Darmayoga [15] shows that social studies learning outcomes for students who follow the Mind Mapping learning method are higher than those for students who follow conventional learning methods.

Third, Questioning students are trained to be able to make questions from the concepts given, this stage activity requires students to be able to ask questions based on these main ideas in the first stage. The results of Diana's research [16] confirm that questioning activities can focus students' attention more on the material being discussed so that students feel afraid or embarrassed if they cannot answer questions posed by other students. Question and answer activities can generate curiosity so

as to arouse students' interest and attention to a problem being discussed. Question and answer activities can diagnose learning difficulties as long as students follow the learning process.

Fourth, exploring students are given the opportunity by the teacher to find and explore information to answer questions. According to Darmawan [13] in his research using the term Exploring to describe student activities that require maximum effort so as to be able to accommodate questions that require more in-depth reading efforts.

Fifth, answering students are given the opportunity to find answers to these questions and make conclusions by re-reading more carefully and carefully in order to obtain the correct answer. This stage is believed to be able to train students to process information from the material properly so that they can conclude clearly. sixth, Writing students are given the opportunity to write down the knowledge obtained based on the results of Skimming, Mindmapping, Questioning, Exploring, and Answering. writing skills can improve learning to write sentences for biology students and this learning process.

Students do it in a fun way, so without realizing it, learning to write can be well absorbed. Retnosari [17] reinforced his research that based on the results of the study it was concluded that the application of the Science Writing Heuristic (SWH)-based Science practicum method in learning provided higher cognitive learning outcomes for students compared to conventional practicum methods on the subject of Nature and Changes in Material.

Based on the description above it can be said that students experience repetition in processing this information, this condition is believed to increase student understanding because the material provided can be stored properly in long term memory. In general, long-term memory can be imagined as a repository (warehouse) of all information that currently does not need to be used but has the potential to be retrieved if needed. According to Bower [18], several kinds of information stored in long-term memory include: a. spatial model of nature around us, b. knowledge of the laws of physics, cosmology, the nature of objects and everything related to them, c. our beliefs about people, ourselves, and about how to behave in various social situations, d. the values and social goals we seek, e. motor skills in driving, cycling and the like; problem-solving skills for various situations; our plans to achieve something. perceptual skills in understanding language or interpreting paintings or music. The information in the long-term memory system is stored in an organized manner in various ways. New information entering long-term memory does not require the creation of a new network, but is stored in the existing organization. The capacity and duration of long-term memory are

generally unlimited, but there are several things that can cause forgetfulness or failure to retrieve information that has been stored in long-term memory.

4. CONCLUSION

Based on the data analysis and calculations that have been described, it can be concluded that Simas Eric's learning model has an effect on the cognitive learning outcomes of Biology students at SMA Negeri 24 Bandung. For further research, it can be further developed, for example on effective and psychomotor learning outcomes of students.

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