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The Use of The Lectora Inspire Assisted POE Learning Model on Body Defense System Material

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ABSTRACT

The POE (Predict-Observe-Explain) model is a constructivism-based learning model that allows students to build their own knowledge. The purpose of this study was to assess the effect of the Lectora Inspire-assisted POE learning model on students' critical thinking skills. The research sample was 32 students of class XI MIPA 1 as the control class and 32 students of XI MIPA 3 as the experimental class. This type of research is a quasi-experimental research design with nonequivalent control group design where in this study one group was given learning treatment using the Predict-Observe-Explain (POE) model assisted by Lectora Inspire and the other group was not given any treatment. The data was obtained through a description test. Based on the results of hypothesis testing using T-test analysis, the value of Tcount = 4.309. The value of Tcount = 4.309 > Ttable = 1.999 at a significance level of 0.05 then Ho is rejected, meaning that there is an influence of the Lectora Inspire-assisted POE learning model on students' thinking skills on the body's defense system material.

Introduction

Learning activities are one of the supports for achieving quality education. Learning biology requires students to acquire knowledge through data collection, analysis, being scientific, rational and thinking critically so that students can be trained in solving the problems (Nurfiyani et al., 2019). In order for the learning process to achieve educational goals, it is necessary to carry out learning planning, one of which is the selection of a learning model that must be appropriate. Choosing an inappropriate model can hinder students from receiving information and data, so that students' thinking abilities cannot be maximized. Teachers must be able to design effective and meaningful learning, plan carefully and organize the learning to be carried out, choose the most suitable learning approach, establish learning procedures to achieve competence, and determine success criteria for the learning carried out (Mulyasa, 2011).

Critical thinking ability is one of the skills that must be developed in learning in the 21st century. (King et al., 2012) defines that the ability to think critically (critical thinking) is the ability to see something in depth and understand it thoroughly through the thought

process. According to (Facione, 2020) indicators of critical thinking skills are interpretation, analysis, inference, evaluation, explanation, and self-regulation.

Based on a preliminary study at one of the high schools/MA in Majalengka Regency, in biology subjects, it was found that the body's defense system material is material that is considered difficult and has the lowest average student score, namely 65 to 70, where this value does not reach the KKM score (Minimum Completeness Criteria) that is above 75. Learning activities do not involve students in building their own knowledge. The learning process that is less effective in developing students' interests, talents, and potential can be the cause of the low level of students' critical thinking skills (Anisa et al., 2021)

In order for the learning process to be optimal, models and supporting media are needed that can develop students' thinking skills and make it easier for students to construct their knowledge. (Fitrianingsih et al., 2021) said that POE is a constructivism-based learning model that allows students to build their own knowledge through experience. The POE learning model also facilitates students to exchange ideas about scientific problems and stimulates students' ability to predict phenomena, make observations, then explain the results. The use of learning models must be supported by the right media. (Ummi, 2018) explained that Lectora Inspire is an electronic-based software developed by Trivantis Corporation which is used to create online and offline training courses, assessments, and presentations.

The use of the POE model and its effect on students' critical thinking skills has been studied before, but no research has applied the POE model assisted by Lectora Inspire media. So, the purpose of this study was to determine the effect of the Lectora Inspire-assisted POE model on students' critical thinking skills in the body's defense system material.

Method

This research refers to a quantitative approach. The research method used in this research is quasi-experimental research. In this study, two treatment groups were used, namely the experimental class (using the Predict-Observe-Explain (POE) learning model assisted by Lectora Inspire), and the control class (without using the Predict-Observe-Explain (POE) learning model assisted by Lectora Inspire).

The research design used in this study is the nonequivalent control group design. The population in this study is all students of class XI in the even semester of the 2021/2022 academic year at MAN 1 Majalengka, a total of 360 students. The sample used in this study used purposive sampling. Where the sample used is not randomly selected but determined based on certain criteria.

This study used two classes as samples, namely class XI MIPA 1 as many as 32 students as a control class without using the POE model. Class XI MIPA 3 as many as 32 students as an experimental class using the POE learning model assisted by Lectora Inspire. So that the sample used in this study amounted to 64 students.

Results and Discussion

Students' critical thinking skills in the body's defense system material are measured by giving test questions in the form of descriptions which are carried out before learning (pretest) and after learning (posttest). Research analysis data were obtained from the acquisition of scores from the pretest and posttest results in the experimental class using the

Lectora Inspire assisted POE model and the control class not using the Lectora Inspire assisted POE model can be seen in table 1 below:

Table 1. average score of Students' Critical Thinking Ability

	average scores		
	Pretest	**Posttest**	**Gain**
Experiment class	23	61	38
Control class	22	43	21

Table 1 shows that there are differences in the control class and the experimental class. The control class has a gain score of 21, while the experimental class has a gain score of 38. After obtaining the pretest and posttest scores, a prerequisite test is carried out, namely the normality test and homogeneity test. Then a hypothesis test is carried out to determine the effect of the POE learning model assisted by Lectora Inspire on the ability students' critical thinking on the body's defense system material. Table of statistical analysis results can be seen in table 2 as follows:

Table 2. Pretest and posttest analysis results

Data analysis		Pretest		Posttest	
		Experiment Class	**Control Class**	**Experiment Class**	**Control Class**
average scores		23	22	61	43
Normality	X_{count}	0,123	0,181	0,140	0,162
	X_{table}	0,240	0,240	0,240	0,240
	description	Normal	Normal	Normal	Normal
Homogeneity	F_{count}	1,53		1,27	
	F_{tabel}	1,82		1,82	
	description	Homogeny		Homogeny	
T test	T_{count}	0,369		4,191	
	T_{table}	1,999		1,999	
	description	H_0 accepted, Ha rejected		Ho rejected, Ha accepted	

In table 2 it is known that the normality test and homogeneity test show that the data is normally distributed and homogeneous. Then in the hypothesis test in the experimental class and the control class on the pretest data showed that there was no difference in students' critical thinking skills between the two classes, students in the experimental class and the control class had the same level of critical thinking ability before the research was conducted. In the posttest data hypothesis test, the results show Tcount (4.191) > Ttable (1.999) meaning that the POE learning model assisted by Lectora Inspire has an effect on the ability to think critically on the body's defense system material after being given treatment.

The POE model is a learning model based on constructivism learning theory. Students test their hypotheses and create new knowledge, correct previous knowledge, or confirm existing knowledge because constructivism transforms students from passive recipients of information into active participants in the learning process. Constructivism-based learning models can activate students' curiosity about the real world to observe how a phenomenon works. Students can build their own knowledge based on their personal experiences and environmental hypotheses. (Nurlina, 2021) describes the characteristics of constructivism learning, namely prioritizing the building of one's own understanding in an active, creative, and productive manner based on prior knowledge and also meaningful learning experiences.

Based on this statement, it can be assessed that the POE model is a learning step that can affect students' critical thinking skills. The POE model has 3 main stages in its core

activities, including the stages of prediction, observation, and explanation. These three processes are closely related to critical thinking indicators. The POE model uses the principle of critical thinking and finds its own understanding of the material being taught (Yulianto, 2015)

During learning, students using the POE model assisted by Lectora Inspire actively construct understanding and explore their own knowledge. The POE model facilitates students to develop their critical thinking skills through stages that train students to think during the learning process. POE steps can help students to think during learning through prediction and observation activities during learning. It agrees with (Duron et al., 2006) states that students' critical thinking skills can be improved through learning activities that train students to use critical thinking. Learning that is able to provoke students to think critically is teaching through questions. In addition, giving feedback is also very important in efforts to improve students' thinking skills because students get the opportunity to assess themselves.

By using the POE model, students are actively involved in learning so that they can direct them to develop critical thinking skills. This is an advantage of the POE model. It according to (Yupani et al., 2013) that the advantages of the POE learning model include stimulating students to be more creative, especially in predicting and being able to compare the results of their predictions with the results of observations. Such activities will make students more confident about the concepts being studied. According to (Muna, 2017) if the results of these predictions are in accordance with the results of observations and after they get an explanation about the correctness of their predictions, the students are more confident about the concept. However, if the conjecture is incorrect, students can seek explanations for the inaccuracy of their predictions. Students will experience a concept change from an incorrect concept to a correct one. So that students can learn from mistakes, and usually learning from mistakes will not be easily forgotten.

The results of this study are supported by the results of other studies which show that the learning model (predict-observe-explain) influences students' critical thinking skills, this is because the POE model can make it easy for students to discuss material and make students active and able to think critically (Fitrianingsih et al., 2021) Similar results were also obtained in research (Shoimah & Listian, 2019) that the learning model (predict-observe-explain) has a positive effect on students' critical thinking skills, this is because the POE learning model explores students' prior knowledge and provides opportunities for students to play an active role during the learning process.

Media Lectora Inspire also participates in the research results obtained. Lectora Inspire media is used to help implement the POE model because learning media can display the flow of learning so that students quickly adapt and understand the new model used. The use of media also facilitates students to be able to see and observe abstract material on the body's defense system. According to (Zainiyati, 2018) One of the advantages of media is that it can display events or experiments that can be dangerous and can be stimulated with media such as computers, films and videos. In addition, based on research (Dewi et al., 2020) the result shows that Lectora Inspire media has an effect on critical thinking skills by obtaining results of more than 50% on the question items for indicators of critical thinking skills.

Conclusion

Based on the objectives and results of the study, data obtained from the analysis of the T test from the experimental class and the control class concluded that there was an influence

of the Lectora Inspire-assisted POE learning model on students' thinking skills in the body's defense system material. This is because the lectora inspire assisted POE model used makes students active, creative, develop their knowledge, and be confident in the concept of the body's defense system material.

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