# The Effect of Discovery Learning Model on Students' Learning Outcomes on the Protists Concept

Lia Dyamayanti[1], Shaynen Fatimah[2], Iing Dwi Lestari [3*], Dimas Dwi Kurniawan[4]

[1,2,3]Department of Biology Education, Faculty of Teacher Training and Education,
Universitas Sultan Ageng Tirtayasa, Serang, Indonesia

[4]SMAN 1 Cibeber, Lebak, Indonesia

Corresponding Email: *iingdwiles@untirta.ac.id

**Abstract**

One of the problems faced in the world of education is the problem of learning that needs to involve students in the learning process. Teachers still need to implement the use of learning models fully, so the learning process is only teacher-centered, and learning does not involve active students. This research was conducted to determine the effect of applying the discovery learning model on students' learning outcomes on the protists concept using the quasi-experimental method. The results showed that the students' learning outcomes on the protists concept in the experimental class after applying the discovery learning model on the protists concept ($\bar{x} = 43.2$) is better than the control class ($\bar{x} = 40.6$). In can be concluded that the there is an effect of applying the discovery learning model on students' achievement on the protists concept.

Keywords: Discovery learning model, Learning outcomes, Protists concept

## INTRODUCTION

Education is used as an essential human need to achieve an expected goal because, in reality, without education, we will not be able to optimally develop our potential, be it cognitive, affective, or psychomotor. Education is a means to improve the quality of resources and human power. One of the problems faced in the world of education is the problem of learning that does not involve students in the learning process. The use of learning models has yet to be fully implemented by teachers so that the learning process is only teacher-centered, and learning does not involve students being active and innovative.

The teacher's understanding of learning strategies dramatically influences the way the material is delivered or the way it is taught. Therefore, when you become a teacher, it is clear that you must know about the strategies that will be used in teaching, including learning models, techniques, and learning methods. In addition, a teacher must also be able to create a learning atmosphere that is conducive, safe, comfortable, and enjoyable because, in essence, a teacher can trigger the creativity and thoughts of students who are critical of a material or problem in the surrounding environment.

According to Rosdiana et al. (2017), biology is an exciting and fun lesson and is related to everyday life, so that learning biology material can be carried out correctly and learning objectives can be achieved optimally, students must be able to understand the concepts of the material provided teacher during the learning process. Therefore, schools, as educational

institutions, significantly contribute to developing students' knowledge and skills. In this case, a teacher needs to try to teach science concepts actively; that is, the teacher needs to choose and define the suitable method or model for learning. According to Lokaria et al. (2021), one learning model that emphasizes learning activities related to the environment around students is *Discovery Learning*.

The discovery learning model is a learning model that can improve the skills of the direct observation process or the discovery process regarding problems in the surrounding environment so that students better understand the concepts the teacher gives (Ali & Setiani, 2018). Meanwhile, according to Ramadhani (2021), the discovery learning model is a series of learning activities that maximally involve all students' abilities to search. In applying the discovery learning model, several procedures must be carried out in teaching and learning activities in general, as follows: 1) Stimulation (stimulation/giving stimulation ). 2) Problem statement (Statement/problem identification). 3) Data collection (data collection). 4) Data processing (data management). 5) Verification (proof), and 6) Generalization (concluding). Through this discovery learning process, this study aimed to determine the effect of applying the discovery learning model on students' learning outcomes on the protists concept.

## METHOD

The method used in this research is quasi-experimental method (Arikunto, 2021). With the control group, it will be known with certainty the effect of the discovery learning model compared to those treated with lecture, discussion, question and answer, and exercise. The participants consists of two classes with a total of 69 students. In this study, there were two sample groups: an experimental group that was treated with the discovery learning model and a control group that was given conventional learning. After providing treatment, then held a post-test in the experimental and control classes. The data collection technique used in this study was a test using an instrument as an essay test. This test is in the form of an essay given once, namely post-test, which is given in the experimental and control classes. Post-test is offered to obtain data about student learning outcomes or final conditions. The learning outcomes measured in the cognitive domain in the kingdom monera concept through an essay test totaled four questions.

## RESULTS AND DISCUSSION

Post-test data results of students can be seen in Table 1.

Table 1. Student Post-test Results

| Data | Experiment Class | Control Class |
|---|---|---|
| The highest score | 100 | 75 |
| The lowest score | 10 | 10 |
| Average | 43.2 | 40.6 |

The Table 1 shows that the experimental class's lowest score is ten, and the highest score is 100. On the other hand, the control class has the lowest score of 10, and the highest score is 75. The posttest score of the experimental course is higher than the control class because the practical class uses the discovery learning model, and the control class uses the conventional model. The testing type was carried out in class X MIPA 1, with the control class carried out in X IIS 3, both courses with a time allocation of 2 x 42 minutes.

Experiment class, learning using the discovery learning model and obtained active learning centered on students, where students have more discussions with questions and answers between groups to find more information from the competencies carried out. Introduction students observe the pictures and answer the hypotheses in groups. Students also seek information from various sources such as the internet, student textbooks, and student worksheets. The data they get is processed to answer the hypothesis made at the beginning of the meeting; then, students present it. Discovery learning has a syntax that can improve students' abilities to follow the learning process; teacher learning activities provide investigative questions to students that are by the phenomena and material discussed, which aims to stimulate students' thought processes as problem-solving given by the teacher (Hutajulu, 2021). The ability to ask students is the entrance to critical, analytical, and creative thinking; the discovery learning syntax phase facilitates students to speak by observing, identifying, organizing, classifying and evaluating activities that follow the principles of discovery learning syntax from the Ministry of Education and Culture (Harsanto, 2005).

In the control class, learning tends to be more passive compared to the experimental class. The learning model used is the same: conventional or teacher-centered lectures with a time allocation of 2 x 45 minutes. The stages carried out in the control class were by presenting PowerPoint and then explaining by the teacher, and students were asked to answer hypotheses in groups. It was found that the class tended to be more passive and silent when the group came forward to make presentations so that they could not extract information from their questions. The new one is more than its competence. According to Rustaman (2005), using the lecture method will make students less active in expressing their opinions.

In accordance with that discovery learning model, discovery learning has provided a meaningful learning experience for students in exploring the knowledge they learn. They start from the identification syntax and formulate the problem to the generalization syntax in finding the concept yourself to conclude (Melani, 2012). In this case, there is a difference in learning outcomes from the experimental class to the control class. Active learning through the discovery learning model can produce good conceptual understanding compared to conventional models, where students just sit and listen to the teacher's explanation without getting involved in searching for new information.

**CONCLUSION**

Based on the research results and data, it was concluded that the discovery learning model affected learning outcomes in the experimental. The experimental class that used the discovery learning model has higher learning outcomes than the control class that used the conventional model. The discovery learning model can make students more alive and active in participating in class learning, and students can find new information.

**ACKNOWLEDGEMENT**

**REFERENCES**

Ali, M. & Setiani, D.D. (2018). The Effect of the Discovery Learning Model on Student Learning Outcomes in the Mushroom Concept. *Bioedusiana* 3 (2): 59-63.

Arikunto, S. (2021). Penelitian tindakan kelas: Edisi revisi. Bumi Aksara.

Harsanto, R. (2005). *Training Children to Think Analytical, Critical and Creative*. Jakarta: Grasindo.

Hutajulu, T. (2021). The Discovery Learning Learning Model Improves Learning Outcomes in History Class X Vocational Schools. *Journal of Education Action Research*. 5(3), 340-346.

Lokaria, E., Harmoko., Lestari, P. (2021). The Effect of the Discovery Learning Model on Biology Learning Outcomes in Class XI SMA Budi Utomo. *Journal of Educational Perspectives* 15 (2): 162-170.

Melani, R. (2012). The Effect of the Guided Discovery Learning Method on Scientific Attitudes and Cognitive Biology Learning Outcomes of SMA Negeri 7 Surakarta in the 2011/2012 Academic Year. *Script* i. University of Biology Education FKIP UNS. Surakarta

Ramadhani, A. H. (2021). The Effect of the Discovery Learning Learning Approach on Student Learning Outcomes. *Journal of Elementary School Teacher Education* 2 (1): 96-102

Rosdiana., Boleng, DT, Susilo. (2017). The Effect of Using the Discovery Learning Model on Student Effectiveness and Learning Outcomes. *Journal of Education* 2 (8): 1060-1064.

Rustaman, NY (2005). *Biology Teaching and Learning Strategies*. Malang: UM Press.