Application of the Discovery Learning Learning Model Assisted by Audio Visual Media on Respiratory System Material in Humans

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Abstract. This study incorporates classroom action research as a means to ascertain the enhancement of student learning results. The participants in this study consisted of 29 students enrolled in the XI IPA class at SMA Negeri 1 Touluaan. The study was conducted over two cycles. The findings from the initial cycle of research indicated that the students' learning outcomes were fully achieved, with a completion rate of 51.72% or 15 students successfully completing their courses. In contrast, the findings of this study reveal that the implementation of the Discovery Learning model, supported by audio-visual media, in teaching the respiratory system in human biology can enhance the learning outcomes of 11th-grade students in SMA Negeri 1 Touluan.

Keywords: Discovery Learning, Audio-Visual Media, Learning Outcomes

Abstrak. Penelitian ini menggunakan penelitian tindakan kelas sebagai sarana untuk mengetahui peningkatan hasil belajar siswa. Partisipan dalam penelitian ini terdiri dari 29 siswa yang terdaftar pada kelas XI IPA di SMA Negeri 1 Touluaan. Penelitian dilakukan selama dua siklus. Temuan penelitian siklus awal menunjukkan bahwa hasil belajar siswa telah tercapai sepenuhnya, dengan tingkat ketuntasan sebesar 51,72% atau 15 siswa berhasil menyelesaikan mata kuliahnya. Sebaliknya, temuan penelitian ini mengungkapkan bahwa penerapan model Discovery Learning yang didukung media audio visual dalam pembelajaran sistem pernafasan pada biologi manusia dapat meningkatkan hasil belajar siswa kelas XI SMA Negeri 1 Touluan.

Kata Kunci: Discovery Learning, Media Audio Visual, dan Hasil Belajar.

INTRODUCTION

Education in shaping a country's growth is essential because it directly influences the quality of its human resources (Budi et al., 2019; Herlianto et al., 2018). The development of students' character, personality, and learning outcomes, including biology, are indicators of educational achievement (Friskawati & Sobarna, 2019; Pujiasih, 2020). Education is the process of acquiring knowledge, skills, and values passed down from one generation to another through various methods such as teaching, training, and research (Darmadi, 2019).

In this case, teachers play a significant role in determining student learning success. In the teaching and learning process, teachers must be able to choose and determine learning models or methods that can actively involve students (Ana, 2018; Shofiyah & Wulandari, 2018). Teachers must carry out many activities in educational interactions, including understanding the principles of educational interactions, preparing learning materials

and resources, choosing methods and teaching aids, choosing approaches, and conducting evaluations after teaching activities end (Anggraini et al., 2021; Pitaloka et al., 2021). However, the reality in the field shows that biology learning carried out by some high school teachers places more emphasis on learning outcomes, ignores aspects of the process of understanding concepts, and tends to ignore aspects of scientific work (Rahmawati et al., 2019; Raibowo & Nopiyanto, 2020). Another factor is the need for more innovation in learning. Teachers still use conventional learning models, which do not provide opportunities for students to develop critical thinking skills because students tend only to receive material from the teacher and do not get the opportunity to learn independently, resulting in students needing to remember the material that has been presented. (Sukarini & Manuaba, 2021; Wisada et al., 2019). Therefore, students' abilities to think, work scientifically, and solve problems faced in real, everyday life need to be developed according to expectations (Gunantara et al, 2019).

Thus, teachers' efforts to improve the learning process in the classroom still need to be able to overcome existing problems. Therefore, another solution is needed that can overcome this problem. One solution is to apply a learning model that is believed to solve the problems students face, namely the Discovery Learning learning model.

Based on the results of interviews with biology teachers at SMA Negeri 1 Touluaan on October 8, 2021, and participation in the field experience program (PPL) for 2 months from October-November, researchers know that the use of audio-visual media has not been utilized properly so that most teachers are still using visuals such as books and power points. So, students do not get the most out of their learning.

Therefore, looking for alternative solutions that can address this problem effectively is essential. One potential approach to overcome the challenges students face is applying the Discovery Learning model, which is widely considered the right choice.

This research aims to improve learning outcomes for class XI Science at SMA Negeri 1 Touluaan using the Discovery Learning learning model assisted by audio-visual media.

METHOD

This research was carried out in the even semester of the 2021/2022 academic year in April – May 2022, involving all 29 students in class XI Science at SMA Negeri 1 Touluaan.

This research is classroom action research (PTK), in that one cycle consists of 4 stages of the learning process. According to Permana (Rospitalia, 2019), this classroom action research can be divided into 4 parts, namely:

1. Action Planning. Starting with identifying the problem to be researched, the researcher plans the actions to be implemented, including compiling the necessary learning tools.
2. Implementation of Actions. The activity carried out is learning using learning tools following the RPP.
3. Observation. Monitoring or observation during learning activities is carried out by researchers simultaneously while learning is taking place.
4. Reflection. At this stage, researchers and study teachers analyze the results obtained through observation sheets and evaluation data (tests), which become recommendations for the results of actions to achieve success.

This analysis uses a cyclical approach to methodology. The cycle consists of 4 stages: planning, implementing actions, observing, and reflecting on results. Learning outcomes tests (cognitive) with multiple choice questions, essays, and complete and accurate/false questions are given to students to find out what they have learned about the human respiratory system during the learning process. As well as observation, it is carried out by directly observing the learning process and students' activity.

The percentage of learning completion reaching 75% for each KKM is likely thriving. According to Arikunto (2011), the percentage of students' learning completeness can be calculated by:

$$P = \frac{F}{n} \text{ x } 100\%$$

Information :

P = Learning outcomes

F = Number of students who studied completely individually

N = Total number of students

RESULT AND DISCUSSION

The research was carried out during April – May of the 2022/2023 academic year with 29 students. This research aims to improve learning outcomes and the quality of learning in schools by using audio-visual media in the Discovery Learning learning model. The table below shows the learning results of cycles 1 and 2.

Table 1. Learning Result Data for Cycle 1 Values

Indicator	Frequency	Result
Complete	15	51, 72
Not Completed	14	48, 27
Total	29	100

The research results in cycle 1 showed that 15 out of 29 students reached the KKM. Meanwhile, 14 others have yet to reach the KKM. So, the classical value is 51.72%

Table 2. Learning Result Data for Cycle 2 Values

Indicator	Frequency	Result
Complete	25	86, 20
Not Completed	4	13, 79
Total	29	100

The student's learning outcomes in cycle II in class XI Science at SMA Negeri 1 Touluaan were categorized as very good, namely 86.20%, and had achieved classical completion. There were 25 students whose scores had reached the KKM, while 4 other students had test scores below the specified KKM.

After carrying out classroom actions by applying the Discovery Learning learning model assisted by audio-visual media on the human respiratory system material, which was carried out in class XI Science at SMA Negeri 1 Touluaan, there was a significant improvement from cycle I to cycle II. In the implementation phase of the cycle I, researchers used material on the human respiratory system with sub-material on human respiratory organs and respiratory mechanisms. At the end of the cycle I, an evaluation of the learning outcomes of 29 students was carried out, and the results showed that 15 students achieved a KKM score of 75 and a classical completeness score of 51.72%, while the other 14 students did not reach the KKM score. So researchers need to continue to cycle II. To proceed to the next stage, the researcher and the observer (teacher) reflected on cycle I and whether learning plans needed to be made for the next cycle, namely cycle II.

In the implementation phase of cycle II, researchers continued the material on sub-topics, namely respiratory mechanisms, respiratory disorders, and efforts to overcome disorders of the human respiratory system. Researchers motivate students to pay more attention to the material explained at this stage by showing learning videos and supervising less active students. At the end of cycle II, researchers re-evaluated learning outcomes for 29 students and obtained a classical learning completion percentage of 86.20%. Based on the achievement of the percentage of classical learning completeness, the learning outcomes of students in cycle II can be declared complete.

From the teacher's perspective, teaching ends with evaluating how well students have learned. When the Discovery Learning learning model assisted by audio-visual media is used, students become more familiar with the information provided and also become aware of the importance of learning. This is almost the same as stated by Friskawati & Sobarna, 2019, that educational success is seen from developing a student's character, personality, and learning outcomes, one of which is biology.

This research shows that research using the Discovery Learning learning model assisted by audio-visual media can increase teacher activity, student activity, and student learning outcomes in class XI Science at SMA Negeri 1 Touluaan.

CONCLUSION

From research conducted at SMA Negeri 1 Touluaan class XI Science, it can be concluded that applying the Discovery Learning learning model assisted by audio-visual media effectively improves student learning outcomes.

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