

THE EFFECTIVENESS OF USING ANIMATION MEDIA IN RESPIRATORY SYSTEM LEARNING IN CLASS VIII OF SMPIT ROBBANI RANTAUPRAPAT

^{1*}Marliana, ²Rahmi Nazlihah, ³Rosmidah Hasibuan

¹Student of Biology Education Study Program, Faculty of Teacher Training and Education, Universitas Labuhanbatu

^{2,3}Lecturer of Biology Education Study Program, Faculty of Teacher Training and Education, Universitas Labuhanbatu

Email Correspondence: marliananst13@gmail.com

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Abstract

Learning is a process of interaction between students, educators, and learning resources in an educational environment to achieve certain goals. This study aims to examine the effect of using animation media in learning the respiratory system on the completeness of learning outcomes of class VIII students of SMPIT Robbani Rantauprapat. This study uses an experimental design by comparing two groups, namely the experimental class using animation media and the control class using conventional methods. The purpose of this study was to determine the effectiveness of animation media in improving student understanding and to compare student learning outcomes between the two methods. The results showed that the completion of student learning outcomes in the experimental class using animation media reached 94.28%, while in the control class it only reached 42.85%. The discussion of these results indicates that animation media can significantly improve student understanding compared to traditional lecture methods. In conclusion, the use of animation media in learning the respiratory system is very effective in improving the completion of student learning outcomes. This study suggests the use of animation media as an interesting and effective learning alternative.

Keywords: *Animation Media; Learning; Purpose Sampling.*

INTRODUCTION

Learning is a process of interaction between students, educators, and learning resources in an educational environment to achieve certain goals.[3]. This process does not only focus on the transfer of knowledge, but also the development of skills, attitudes, and values that are relevant to everyday life. Effective learning requires methods that are appropriate to the needs of students, as well as media and technology support that can facilitate a deeper understanding of the material. With a creative and innovative approach, learning can be an interesting, interactive experience that can optimally increase the potential of students.[4] [5].

Learning has significant benefits and advantages in the development of individuals and society.[6]. Through the learning process, a person not only gains knowledge, but also develops critical thinking skills, problem-solving skills, and social skills that are important for everyday life.[7]. Effective learning can increase students' self-confidence, creativity, and motivation to continue learning throughout life. In addition, on a broader scale, good education plays an important role in creating quality, productive human resources that are able to adapt to technological developments and the demands of the times.

Learning has its own characteristics that are adjusted to the type of material being taught. For theoretical material, delivery through oral explanations, discussions, or reading materials tends to be more effective because it allows students to understand the basic concepts and underlying frameworks of thinking.[8]. However, when learning moves to practical material, visual and hands-on experiences become more important. Practice allows students to see, feel, and experience directly the process or concept being taught, so that understanding becomes deeper and lasts longer in memory. This is because the combination of theory and practice helps students connect abstract knowledge with real experiences, creating a more effective and meaningful learning process. This happens because in practical materials, students often have difficulty in understanding concepts taught only through oral explanations or theory alone. This obstacle arises because some students have different motor skills and comprehension, making it difficult for them to directly visualize or practice abstract materials. In addition, limited supporting media and less interactive teaching methods can also worsen the situation, causing students to lose

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focus and interest in learning.[9]. Therefore, more creative teaching methods and the use of supporting media, such as animation or teaching aids, are needed so that the practical learning process becomes more effective and easy to understand for all students.

As is the case in many schools, almost 70% of students have difficulty understanding practical materials if they are only delivered through theory without being supported by more interactive methods. This is due to students' limitations in visualizing abstract concepts and the lack of direct involvement in the learning process. The delivery of verbal theories often makes students quickly feel bored and have difficulty connecting the knowledge gained with its application in the real world. Therefore, a more effective approach is needed, such as the use of animated media or direct practice, so that students can understand the material better through visual experiences and active involvement.

This research was conducted at SMPIT Robbani Rantauprapat, a school that focuses on developing education based on religious and academic values. This school was chosen as the research location because of the need to improve the effectiveness of learning, especially in the respiratory system material which is often considered difficult for students to understand. The learning method that is still dominated by the delivery of theory is one of the main challenges in helping students understand abstract concepts. Therefore, this study aims to implement and evaluate the use of animation media as a learning aid that is expected to improve student understanding and make the learning process more interactive and interesting.

respiratory system learning at SMPIT Robbani Rantauprapat is still dominated by lecture methods and theoretical explanations, which are often less effective in helping students understand abstract and complex concepts. This causes students to have difficulty in visualizing the respiratory process and understanding the relationships between components in the system. Although animated media has been proven effective in improving understanding of various science materials, its use in respiratory system learning in this school is still limited or has not been implemented optimally. Therefore, this study aims to fill this gap by evaluating the effectiveness of using animated media in improving students' understanding of respiratory system materials.

METHOD

This study uses a quantitative method with a quasi-experimental approach to measure the effectiveness of animation media in learning the respiratory system at SMPIT Robbani Rantauprapat.[10]. The design of this study aims to compare the learning outcomes of students who use animation media with students who use conventional learning methods. The population in this study were all students of class VIII at SMPIT Robbani Rantauprapat, while the research sample was taken using purposive sampling technique, namely selecting certain classes that are considered representative for research purposes. This study was conducted in the even semester of the current academic year at SMPIT Robbani Rantauprapat.

The data collection techniques used include student learning outcome tests, questionnaires to measure student responses to the use of animated media, and observations during the learning process.[11]. The research instruments were multiple-choice test questions that had been validated, observation sheets, and student questionnaires. The research procedure began with the planning stage, namely the preparation of animation-based learning devices. The next stage was implementation, where the experimental class used animation media and the control class used conventional methods. Furthermore, learning outcomes were measured using a post-test to see the difference in results between the two groups. To determine classical completeness data, it was obtained using the classical completeness percentage formula, namely:

$$p = \frac{\text{Jumlah Siswa dan Siswi yang Tuntas}}{\text{Jumlah Seluruh Siswa dan Siswi}} \times 100\%$$

Data analysis techniques were carried out using descriptive and inferential statistical tests. Descriptive analysis was used to describe the results of student learning tests and their responses to the use of animation media. Meanwhile, inferential analysis used the t-test to determine significant differences between student learning outcomes in the experimental class and the control class. The results of this analysis are expected to provide a clear picture of the effectiveness of animation media in improving students' understanding of the respiratory system material.

RESULTS AND DISCUSSION

Results

This study involved 70 students of class VIII SMPIT Robbani Rantauprapat who were divided into two classes, namely the experimental class and the control class. The experimental class consisted of 35 students who received learning using animation media as a visual aid to understand the respiratory system material. Meanwhile, the control class also consisted of 35 students, but learning was carried out using conventional methods with theoretical explanations and lectures without the help of animation media. This division aims to compare the effectiveness of using animation media in improving students' understanding of the concept of the respiratory system compared to traditional teaching methods.

The completion of classical learning outcomes of class VIII students of SMTIT Robbani Rantauprapat whose learning activities were without animation media are as follows.

$$\begin{aligned}
 P &= \frac{\text{Jumlah Siswa dan Siswi yang Tuntas}}{\text{Jumlah Seluruh Siswa dan Siswi}} \times 100\% \\
 &= \frac{15}{35} \times 100\% \\
 &= 42.85\%
 \end{aligned}$$

The completion of classical learning outcomes of class VIII students of SMTIT Robbani Rantauprapat whose learning activities use animation media are as follows.

$$\begin{aligned}
 P &= \frac{\text{Jumlah Siswa dan Siswi yang Tuntas}}{\text{Jumlah Seluruh Siswa dan Siswi}} \times 100\% \\
 &= \frac{33}{35} \times 100\% \\
 &= 94.28\%
 \end{aligned}$$

The results of the study showed that the completion of classical learning outcomes in the control class without using animation media only reached 42.85% with 15 out of 35 students completing. Meanwhile, in the experimental class using animation media, the completion of learning outcomes increased significantly to 94.28%, with 33 out of 35 students completing. This indicates that the use of animation media is effective in improving students' understanding of the respiratory system material.

T-Test Analysis Results

In this result, the T-test analysis was carried out using the SPSS application, the results of which are as follows.

Learning outcome data

XI A			XIB		
Name	Mark	Class	Name	Mark	Class
Rani Pratama	95	1	Anisa Putri	76	2
Inspiration by Saputra	95	1	Ayu Wulandari	99	2
Lady Khadijah	97	1	Bella Septiani	93	2
Ahmad Fauzan	98	1	English	75	2
The Greatest	96	1	Image of Anggraini	74	2
Riko Adrian	95	1	English	78	2
Maya Kusuma	94	1	God of Ramadan	99	2
Hendra Wijaya	99	1	Eka Novita	92	2
English: Fitri Anggraini	92	1	Eni Kartika	79	2
Dawn Setiawan	97	1	Faisal Rizky	75	2
Nisa Amelia	95	1	Ferry Kurniawan	93	2
Arif Rahman	95	1	Gina Anindya	76	2
Lina Sari	97	1	English: The Author	75	2

English	98	1	English	95	2
Ayu Puspita	96	1	Ika Novita	74	2
Dimas Cahyo	95	1	Joko Waluyo	78	2
Dina Gems	94	1	Kartika Sari	79	2
Primary Yoga	99	1	Leni Nurmala	94	2
Zahra Utami	92	1	Luthfi Ananda	75	2
Bayu Prakoso	97	1	Jasmine Ayuningrum	76	2
Diamond Maharani	95	1	Naufal Fadillah	75	2
English	95	1	Olivia Beautiful	74	2
Sari Anindita	97	1	Pramudya Wirawan	78	2
English	98	1	Queen Lestari	79	2
Fina Nuraini	96	1	English	75	2
English	95	1	The Rio Prasetyo	93	2
Karina Princess	94	1	Beautiful	94	2
Farhan Maulana	99	1	Syifa Amalia	79	2
Widya Astuti	92	1	Tama Raharja	75	2
Rizky Hidayat	97	1	Ulya Safitri	91	2
Lala Rahmawati	99	1	Victor Aditya	92	2
Joseph Firmansyah	92	1	Winda Kurnia	93	2
Shinta Goddess	97	1	Xander Priyatno	94	2
Ryan Akbar	75	1	Yulia Novitasari	95	2
Rina Marlina	74	1	Zaki Ramadhan	94	2

Analysis Results in SPSS

Group Statistics

	KELAS	N	Mean	Std. Deviation	Std. Error Mean
HASIL	1.00	35	94.6000	5.41349	.91505
	2.00	35	83.8857	9.17083	1.55015

Based on the table above, the results of the comparison between the two classes show that the average value of student learning outcomes in the experimental class (1.00) using animation media is higher, which is 94.60 with a standard deviation of 5.41 and an error of 0.92. Meanwhile, the control class (2.00) using the conventional method has an average value of 83.89 with a standard deviation of 9.17 and an error of 1.55. This difference indicates that the use of animation media in learning has a more significant impact on improving students' understanding of the material compared to conventional methods.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
HASIL	Equal variances assumed	44.595	.000	5.952	68	.000	10.71429	1.80008	7.12228	14.30629
	Equal variances not assumed			5.952	55.129	.000	10.71429	1.80008	7.10703	14.32154

The results of the Independent Samples Test showed that the Levene's Test for Equality of Variances value was 44.595 with a significance of 0.000 (<0.05), which means that the variance of the two groups is not homogeneous. However, the t-test can still be done by considering the t-test value for Equality of Means. The results of the t-test showed a t value of 5.952 with a degree of freedom (df) of 68 and a significance of 0.000 (<0.05), so it can be concluded that there is a significant difference between the average learning outcomes of students in the experimental class using animation media and the control class using conventional methods. The difference in average learning outcomes between the two classes was 10.71 with a 95% confidence range between 7.12 and 14.31. This shows that the use of animation media is significantly more effective in improving student learning outcomes.

Discussion

The discussion of the results of this study shows a significant difference between the completeness of student learning outcomes in the experimental class using animation media and the control class taught using conventional methods. The completeness of learning outcomes in the experimental class reached 94.28%, while in the control class it only reached 42.85%. These results illustrate that animation media has a very large influence on student understanding, especially for abstract and complex materials such as the respiratory system. The visualization provided by animation media allows students to understand the process and stages of breathing more easily, which are often difficult to explain verbally. In contrast, conventional learning that only relies on lectures and theoretical explanations is less effective in ensuring that students understand the concept well.

The success of learning in the experimental class can be attributed to the ability of animation media to present interactive elements and visualization in the learning process. Animation not only presents information in an interesting way but also helps students visualize concepts such as how oxygen enters the body and is distributed to tissues. This makes the material more concrete and easier to understand. In addition, the use of animation media can also increase students' learning motivation because they feel more involved in learning. When students see dynamic visual images, they tend to be more focused and interested in understanding the material being taught. This active involvement greatly contributes to the success of learning in the experimental class.

On the other hand, the low learning outcomes in the control class indicate that conventional learning methods have limitations, especially in teaching materials that require visual understanding. Students who only listen to verbal explanations tend to have difficulty imagining or understanding abstract concepts such as the breathing process. This method provides less space for students to understand the material in depth, especially for those with a visual learning style. In addition, conventional methods tend to be passive and do not actively involve students in learning, so that learning outcomes are lower compared to classes that use animated media.

Thus, the results of this study provide strong evidence that the use of technology in learning, such as animated media, is very important to improve the effectiveness of learning. Educational technology can be an effective tool in overcoming abstract and complex learning challenges. Therefore, it is highly recommended that animated media be applied in learning, especially for materials that require visual and concrete understanding. These results also indicate that innovation in teaching methods can improve the overall quality of education, help students understand the material better, and motivate them to learn more enthusiastically.

CONCLUSION

The conclusion of this study shows that the use of animation media in respiratory system learning can significantly improve the completion of student learning outcomes. Students who are taught with animation media show better understanding and higher learning outcomes compared to students who are taught using conventional methods. Therefore, the use of animation media can be an effective alternative in improving the quality of learning in schools.

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