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Effectiveness of the use of interactive learning media on student learning outcomes in the digestive system material class VIII MTS Muhammadiyah Kaluarrang

Nurul Musfira Faisal[1], Andi Tenri Ola Rivai[1*], Andi Maulana[1]
Department of Biology Education, Faculty of Tarbiyah and Teacher Training,
Universitas Islam Negeri Alauddin Makassar
Sultan Alauddin Street No.63, Gowa, Indonesia, 92113
*Email: andi.tenriola@uin-alauddin.ac.id

Abstract: Interactive learning media is needed so that students are motivated to learn and find information related to what they are learning. This research aims to 1) Know the learning outcomes of class VIII MTs Muhammadiyah Kaluarrang taught by interactive learning media; 2) Know the learning outcames of class VIII students of MTs Muhammadiyah Kaluarrang who are taught without using interactive learning media; and 3) Know the effectiveness of using interactive learning media in class VIII MTs Muhammadiyah Kaluarrang. In this quasi-experimental study, a non-equivalent control group was used. All eighth-grade Muhammadiyah Kaluarrang students participated in this study. The purposive sampling method was used to select the sample, which consisted of 22 people from class VIII A, the experimental class, and class VIII B, the control class. Observation sheets and a test of learning outcomes are the instruments used. The homogeneity test, the normality test, and the hypothesis testing were utilized in the descriptive and inferential analyses. Students' average scores for learning outcomes were 61.22 in the control class and 82.27 in the experimental class, according to the study's findings. The significance level that was established was tcount 0.000<0.05. Students who received instruction without the use of interactive learning media had significantly different learning outcomes than students who received instruction with interactive learning media. The implications of this research can be used as a reference and guide for the use of appropriate learning media for both online and offline learning in order to increase students' interest in and comprehension of learning activities.

Keywords: interactive learning media, learning outcomes, quasi experiment

Abstrak: Media pembelajaran interaktif diperlukan agar siswa termotivasi untuk belajar dan mencari informasi terkait dengan apa yang dipelajarinya. Penelitian ini bertujuan untuk 1) Mengetahui hasil belajar siswa kelas VIII MTs Muhammadiyah Kaluarrang yang diajar dengan media pembelajaran interaktif; 2) Mengetahui hasil belajar siswa kelas VIII MTs Muhammadiyah Kaluarrang yang diajar tanpa menggunakan media pembelajaran interaktif; dan 3) Mengetahui keefektifan penggunaan media pembelajaran interaktif pada kelas VIII MTs Muhammadiyah Kaluarrang. Eksperimen semu dengan desain kelompok kontrol yang tidak setara adalah jenis penelitian ini. Sampel penelitian ini adalah seluruh siswa kelas VIII MTs Muhammadiyah Kaluarrang. Metode purposive sampling digunakan untuk memilih 22 individu dari setiap kelas, kelas VIII A sebagai kelas eksperimen, dan kelas VIII B sebagai kelas kontrol. Instrumen yang digunakan adalah lembar observasi dan tes prestasi belajar. Teknik analisis data deskriptif dan inferensial menggunakan uji normalitas, uji homogenitas, dan uji hipotesis. Berdasarkan hasil penelitian, rata-rata hasil belajar kelas eksperimen adalah 82,27, sedangkan rata-rata hasil belajar kelas kontrol adalah 61,22. Tingkat signifikansi yang dihitung adalah Thitung 0,000<0,05. Siswa yang diajar tanpa menggunakan media pembelajaran interaktif memiliki hasil belajar yang berbeda secara signifikan dengan siswa yang diajar dengan media pembelajaran interaktif. Minat dan pemahaman siswa terhadap kegiatan pembelajaran dapat ditingkatkan melalui penggunaan media pembelajaran yang tepat, baik daring maupun luring, sesuai hasil penelitian ini.

Kata Kunci: hasil belajar, media pembelajaran interaktif, eksperimen semu

Introduction

Education as a guiding principle of civilization has a significant impact on the quality of human resources in Indonesia in order to achieve national development. The goal of this education is to make people ready to face a variety of challenges in life (Pangestuti, 2016). This is in line with Law No. 20 of 2003 Chapter II's Article 3, "*The purpose of national education is to develop abilities and form a dignified national character and civilization in order to educate the life of the nation, aiming to develop the potential of students to become human beings who have faith and piety in God Almighty, have noble character, knowledge, capable, creative, independent,*

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and become a democratic and responsible citizen." (Khaerunnisa et al., 2018). The production of learning outcomes in the form of knowledge, skills, and attitudes is one of the objectives of education. The skills that children can acquire through learning activities are called learning outcomes. The person's success in learning is influenced by a variety of internal and external factors that can affect learning outcomes (Wulandari, 2020).

The low learning outcomes of students, particularly in the field of science, is one of the challenges that the education sector, particularly Indonesia, faces. Physics, Chemistry, and Biology are the three subjects covered in science lessons. Biology is a branch of science that studies various aspects of life, including all living, complex organisms. At MTs Muhammadiyah Kaluarrang, it is evident from the learning outcomes of the biology science lesson that there are still students who have not achieved the Minimum Completion Criteria score. This indicates that student learning outcomes are low because many teachers continue to employ conventional methods and utilize infrequently varied media. During the science learning process, teachers focus more on using the whiteboard-assisted lecture method. They also use textbooks in the classroom more than visualizations to explain, like using interactive learning media, learning videos, or more interesting media. This is because teachers don't use the facilities that are already there. Additionally, not all biological phenomena and symptoms can be directly observed with the naked eye, particularly those involving physiological processes that take place within an organism (Aziz et al., 2018). As a result, it is necessary to have a tool or media that can use more innovative and effective learning media to draw students' attention and keep them engaged. According to Saida et al. (2019), good learning media are those that can support learning at any time and in any location in accordance with the needs of the field.

As technology has advanced, so has the media, not only by employing conventional media, but also by employing computer-based learning and interactive media (Trisanti & Nafiah, 2020). According to Yulia (2013), interactive media or interactive multimedia is a type of computer program that seamlessly integrates audio, video, and animations. Interactive media can be used as an innovative and engaging learning tool because it includes sound and images. Students find it easier to comprehend the material through interactive media because it provides a more realistic with clear picture and information. This type of media can combine text, images, audio, music, animation, or video into a single unit that helps each other achieve learning objectives, boosts student motivation during the teaching and learning process, helps students visualize material that is difficult to explain with only explanations or traditional teaching aids, and teaches students to be more self-sufficient in their knowledge acquisition (Tonang, 2018). Additionally, students' motor systems may be stimulated by this media because, in practice, they are expected to be more active, which may enhance the quality of instruction and learning (Antonio, 2021). Using interactive learning media, students are motivated to learn and seek information related to what they have learned. Students are also given permission to interact with one another. According to Bahri & Yasdinul Huda (2019), students may find it easier to absorb the teacher's content thanks to this learning tool. The average score of students who make use of interactive learning media is higher than that of students who do not make use of interactive learning media.

Materials and Methods

The quasi-experimental quantitative approach and non-equivalent control group design were utilized in this study. By administering a treatment that is used in a study to determine the impact or influence of certain controlled treatments on other treatments, this research is carried out. This research stage is made up of the stages of preparation, implementation, data collection, and data processing, as well as the stage of preparation. The pretest and posttest student learning outcomes are collected using twenty multiple-choice questions. The students are from MTs Muhammadiyah Kaluarrrang, class VIII. Each of the two classes has 22 students, with class A serving as the control class and class B as the experimental class. The descriptive and inferential analyses of the data collected for this study included the normality, homogeneity, and hypothesis tests.

Result and Discussion

A. Descriptive Statistics

Based on the results of research conducted in class VIII MTs Muhammadiyah Kaluarrang using a learning outcomes test, data was obtained in Table 1.

Table 1. Results of pretest and posttest analysis of experimental and control class

Statistics	Experimental Class		Control Class	
	Pretest Value	*Posttest* Values	Pretest Value	*Posttest* Values
Maximum Value	40	95	40	85
Minimum Value	15	65	15	50
Average	28.41	82.27	25.91	67.05
Standard Deviation	8.22	7.82	7.96	10.42
Variance	67.58	61.22	63.42	108.71

Based on the result of Table 1, show it can be seen that the experimental class obtained a pretest average value of 28.41 with a maximum value of 40 and a minimum value of 15, a standard deviation of 8.22, and a variance of 67.85. While the average posttest value is 82.27 with a maximum value of 95 and a minimum value of 65, a standard deviation of 7.82, and a variance of 61.22. In addition, it can also be seen that the control class obtained a pretest average value of 25.91 with a maximum value of 40 and a minimum value of 15, a standard deviation of 7.96, and a variance of 63.42. While the *average posttest* value is 67.05 with a maximum value of 85 and a minimum value of 50, a standard deviation of 10.42, and a variance of 108.71.

Table 2 displays the criteria for students' levels of comprehension of the human digestive system content.

Table 2. Criteria for the level of mastery of students who use interactive learning media and do not use interactive learning media

Assessment Criteria	Experimental Class		Control Class		Category
	Pretest	Posttest	Pretest	Posttest	
90 – 100	0	6	0	0	Excellent
75 – 89	0	14	0	7	Good
60 – 74	0	2	0	15	Enough
40 – 59	3	0	2	0	Less
0 – 39	19	0	20	0	Very less

Based on the result of Table 2, show the distribution of values can be obtained in the experimental class and control class. Pretest scores for students in the experimental class were distributed so that there were fewer than three categories and fewer than 19 categories. While the distribution of student posttest scores included adequate categories for as few as two individuals, excellent categories for as few as six individuals, and good categories for as many as fourteen individuals. The control class's distribution of student pretest scores included categories with as few as two people and as few as twenty people. The number of students in good categories on the posttest is seven, but the category can contain as many as 15 people.

B. Inferential Statistics

The results of the inferential statistical analysis are shown to see if the use of interactive learning media affects students' learning outcomes. A T-test with a significance level of = 0.05 is used to test this hypothesis. However, the to-be-managed data must be examined for normal distribution and homogeneity prior to a hypothesis test.

1. Normality test

Normality test results can be seen in table 3.

Table 3. Normality test results of learning outcomes

Class	Shapiro-Wilk Statistics	Df	Sign	Information
Pretest Experiments	0.919	2 2	0.073	Normal T Distribution
Posttest Experiments	0.957	2 2	0.440	
Pretest Control	0.929	2 2	0.119	
Posttest Control	0.947	2 2	0.276	

Statistical Product and Service Solution (SPSS) version 25 was utilized for the analysis of the experimental group (VIII A) learning outcomes data. With a sign value of = 0.073 on the pretest and a sign value of = 0.40 on the posttest, the findings demonstrated that the learning outcomes data for the experimental group (VIII A) are normally distributed. When the sign is greater than 1, as indicated by the value = 0.05, the data are normally distributed. The results of the analysis indicate that the learning outcome data for the control class (VIII B), which was taught without the use of interactive learning media, are normally distributed. Interactive learning materials were not used in the teaching of this class. The posttest's sign value was 0.276, while the pretest's was 0.119. The value of = 0.05 demonstrates this. so that the data in the control class (VIII B) and the experimental class (VIII A) have normal distributions.

2. Homogeneity test

The results of the homogeneity test can be seen in Table 4.

Table 4. Homogeneity test results of experimental and control classes

Levene Statistics	Df1	Df2	*Sign*	Information
0.190	1	40	0.666	Homogeneous

Statistical Product and Service Solution (SPSS) version 25's homogeneity test analysis produced a sign value of 0.666 with a value of 0.05, indicating that the sign value was greater than. This suggests that the populations of both groups are comparable.

3. Hypothesis test

The results of the hypothesis test can be seen in Table 5.

Table 5. Data hypothesis of learning outcomes test results

	Levene's Test for Equality of variances		t-test for Equality of Means		
	F	Sign	T	Df	Sign (2 tailed)
Equal variances assumed	2.148	0.147	5.478	42	0.000
Equal variances non assumed			5.478	38.963	0.000

According to the study, a hypothesis is considered to have been proved if the significant value is less than 0.05 (sign 0.05). H0 is rejected in this instance, while H1 is accepted. As can be seen in table 5, the hypothesis test using Statistical Product and Service Solution (SPSS) version 25 yielded a sign value of 0.000 for a significant value. Due to the fact that the trend was 5.478 and the table was 2.018, or 0.000 of 0.05, it is possible to assert that the hypothesis of this study is correct. This suggests that students who are taught using interactive learning tools have significantly different learning outcomes than students who are taught without using interactive learning tools. This demonstrates that the Digestive System material class VIII MTs Muhammadiyah Kaluarrang student learning outcomes are influenced by the use of interactive learning media.

Descriptive and inferential statistical analysis show that the learning outcomes of students who are taught with interactive learning media have improved more than those of students who are taught without interactive learning media. Students were more engaged in the learning process, gave more enthusiastic group presentations, and paid more attention to the content when interactive learning materials were

used. As a result, learning outcomes and subject knowledge are improved. On the other hand, there are a few understudies in the control class who are slow, exhausted, and uninterested in group discussions and learning. As a result, they do not comprehend the teacher's instructions and the learning outcomes are also poor. Poor learning outcomes among students are caused by a variety of factors, including physical and environmental factors. The interview's findings suggest that the student's family didn't pay him as much attention. This is relevant to Maulana (2021) assertion that learning outcomes can be influenced by a variety of factors, particularly external factors that originate outside of the self. The school environment, the family environment, the teacher's environment, the community, and so on are examples of these external factors. The student's spiritual and physical health, attitudes, intelligence, motivation, talents and interests, and study habits are all examples of internal factors. Poor learning outcomes, according to Sotalapa (2017), can be brought on by a variety of internal and external factors, particularly those that are associated with poor learning media.

If the information is not presented in an appealing manner, students are less likely to follow the lesson, whereas information presented in an engaging manner can pique their interest throughout the learning process. This is relevant to the study by Pangestuti (2016), which found that interactive learning media, like material explanations accompanied by images and videos that the student can choose, improve learning outcomes. Students are free to actively voice their points of view and arguments during discussions and to repeat material they have not understood on their own. This is also in line with Rivai's research (2019), which found that interactive learning media can not only present information in a format that is visual but also in a format that is audio and display animations. This makes it easier for students to understand lessons and leads to high learning outcomes. According to Pramestika (2020), students may pay greater attention to the slides' images, videos, or animations if interactive learning materials are used in the classroom. so that students are less likely to become disinterested in learning. The instructor can also use interactive learning media to create learning models, such as using quizzes to encourage students to work on practice questions or creating a variety of other learning aids. Optimizing the media as learning media includes making the most of all features that support teaching and learning activities.

Conclusion

The following conclusions were reached on the basis of the study's outcomes and discussion: (1) The learning outcomes of students who were taught with the use of interactive learning media class VIII MTs Muhammadiyah Kaluarrang obtained an average score of pretest results of 28.41 in the less category and a posttest average value of 82.27 in the excellent category; (2) The learning outcomes of students who were taught without the use of interactive learning media class VIII MTs Muhammadiyah Kaluarrang obtained an average score of pretest results of 25.91 in the less category and a posttest average score of 67.05 in the good category; and (3) The use of interactive learning media is effectively used during the learning process because it can improve student learning outcomes in the material of the human digestive system class VIII MTs Muhammadiyah Kaluarrang.

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