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The influence of the use of terrarium media on Bryophyta sub-material on the learning outcomes of class X students of SMA Negeri 3 Wajo

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Abstract: One of the media that can be used in helping the learning process on Bryophyta material is the Terrarium. This study aims to (1) Describe the learning outcomes of students on the Bryophyta sub material for class X SMA Negeri 3 Wajo which is taught without using terrarium media; (2) Describe the learning outcomes of students on the Bryophyta sub material for class X SMA Negeri 3 Wajo taught using terrarium media; and (3) Knowing the learning outcomes of class X SMA Negeri 3 Wajo on sub Bryophyta material taught using terrarium media and not. The type of research used was an experimental quasi with a nonequivalent control group design. The data-collection techniques used are tests of pretest and posttest. The study conducted descriptive and inferential statistical tests (1) normality tests, (2) homogeneity tests, and (3) hypothetical tests. The results showed that there was an effect of using terrarium media on the Bryophyta sub-material on the learning outcomes of class X students at SMA Negeri 3 Wajo. This is proved after testing the hypothesis. The hypothesis in this study can be said to be proven because 0.000 < 0.05 or by looking at t_{count} of 4.614 while t_{table} of 2.006 thus $t_{count} > t_{table}$. This means that there is a significant difference between the learning outcomes of students who are taught using terrarium media and not. This shows that there is an effect of using terrarium media on the learning outcomes of class X students of SMA Negeri 3 Wajo. The implications of this research are (1) For students, it is easy to understand the material by looking directly at objects related to the material so that it helps students get maximum results; (2) For educators, it can be a reference for variations of learning media that can be used in further learning; and (3) For researchers, it can add insight into the variety of learning media that can be used in the learning process.

Keywords: learning media, learning outcomes, sub-Bryophyta material, terrarium

Abstrak: Salah satu media yang dapat digunakan dalam membantu proses pembelajaran pada materi Bryophyta adalah Terarium. Penelitian ini bertujuan (1) Mendeskripsikan hasil belajar peserta didik pada materi sub Bryophyta kelas X SMA Negeri 3 Wajo yang diajar tanpa menggunakan media terrarium; (2) Mendeskripsikan hasil belajar peserta didik kelas pada materi sub Bryophyta X SMA Negeri 3 Wajo yang diajar dengan menggunakan media terrarium; dan (3) Mengetahui pengaruh hasil belajar peserta didik pada materi sub Bryophyta yang diajar menggunakan media terarium dan yang tidak menggunakan media terarium kelas X SMA Negeri 3 Wajo. Jenis penelitian yang digunakan adalah penelitian eksperimen semu atau quasi eksperimen dengan desain *nonequivalent control group design*. Teknik pengumpulan data yang digunakan adalah tes berupa *pretest* dan *posttest*. Dalam penelitian ini dilakukan uji statistik deskriptif dan uji statistik inferensial yaitu (1) uji normalitas, (2) uji homogenitas, dan (3) uji hipotesis. Hasil penelitian menunjukkan bahwa terdapat pengaruh penggunaan media terarium pada sub materi Bryophyta terhadap hasil belajar peserta didik kelas X SMA Negeri 3 Wajo. Hal ini dibuktikan setelah melakukan uji hipotesis. Hipotesis pada penelitian ini dapat dikatakan terbukti karena 0.000 < dari 0,05 atau dengan melihat t_{hitung} sebesar 4,614 sedangkan t_{tabel} sebesar 2,006 dengan demikian $t_{hitung} > t_{tabel}$. Artinya terdapat perbedaan yang signifikan antara hasil belajar peserta didik yang diajar dengan menggunakan media terarium dan peserta didik yang diajar tanpa menggunakan media terarium. Hal ini menunjukkan bahwa terdapat pengaruh penggunaan media terarium terhadap hasil belajar peserta didik kelas X SMA Negeri 3 Wajo. Implikasi pada penelitian ini adalah (1) Bagi peserta didik, dapat memperoleh kemudahan dalam memahami materi dengan melihat secara langsung objek yang berkaitan dengan materi sehingga membantu peserta didik mendapatkan hasil yang maksimal; (2) Bagi pendidik, dapat menjadi salah satu referensi variasi media pembelajaran yang dapat digunakan pada pembelajaran selanjutnya; dan (3) Bagi peneliti, dapat menambah wawasan mengenai variasi media pembelajaran yang dapat digunakan dalam proses pembelajaran.

Kata Kunci: hasil belajar, materi sub-Bryophyta, media pembelajaran, terarium

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Introduction

The good quality of learning can be seen from the circumstances that can encourage students to be active in the learning process and maintain their condition so that they are always in a state of readiness in receiving the material that will be given by educators, meaning that educators and students must engage in interaction during the learning process (Suhartiatik, 2020). There needs to be an awareness that learning is a system that has several components that are bound to each other in achieving goals. These important components are: a) goals, b) material or substance, c) method, d) tools or media, and e) evaluation. Learning as a system has a reference to the extent of interaction that occurs from all components to determine the success of a learning. Learning can be successful, of course, inseparable from the use of media in the learning process. Media in learning activities can be used as an illustration to understand information, then it will perfect and reorganize oral or written information. Learning media is any form of physical equipment that is designed in a planned manner with the aim of conveying information and building interaction (Supriyono, 2018).

The interaction of educators and students during the learning process is one of the indicators that can provide an overview of how successful educators are in delivering material. One of the subjects of the exact branch is biology. The material taught in this subject has a dynamic nature, meaning that it will always develop and to understand the material requires a scientific method. In class X there are several materials that study various levels of living things, one of which is plants/ plantae, by studying plants can make us more familiar with other living things. A researcher from the US coined the term "flora blindness" where this phenomenon gives an idea of the tendency to lack of appreciation of the plants around us through his research by quickly displaying images of plants, animals, and other objects. This study showed that participants more accurately detected images of animals than plants (Christine Ro, 2019).

In biology subjects, we can learn more about plants. The biology learning process will be more effective if each student can get their own learning experience through direct observation or observation (Wiranti, 2020). One of the media that can be used in helping the learning process on Bryophyta material is the Terrarium. Terrarium is a plant that is planted in a container made of glass. The terrarium referred to in this study contains several types of moss. With this terrarium media, students can see and observe firsthand the species that belong to Bryophyta.

Materials and Methods

This research was carried out in the 2022/2023 school year and is included in a type of pseudo-experimental research with a nonequivalent control group design. The procedure in this study consists of the preparation stage, the implementation stage, and the data collection stage. Data collection techniques in the form of pretest and posttest consisting of 20 multiple-choice form questions. The subjects of the study were students of class X_2 and X_3 of SMA Negeri 3 Wajo with a total of 55 students.

Result and Discussion

A. Descriptive Analysis of Learning Outcomes of Learners Taught without Using Terrarium Media

Based on the results of research conducted in class X_3 SMA Negeri 3 Wajo using the learning achievement test, the data obtained are as shown in Table 1.

Table 1. Results of the pretest values analysis of class X_3 as the control class

Parameter	Value
Maximum Value	50
Minimum Value	15
Average	28.51
Standard Deviation	8.859
Variance	78.490

Table 2. Results of the posttest values analysis of class X_3 as the control class

Parameter	Value
Maximum Value	90
Minimum Value	65
Average	76.85
Standard Deviation	7.739
Variance	59.900

Based on the academic proficiency criteria, there are 20 students in the good category with a percentage of 74% and there are 7 excellent category students with a percentage of 26%. As well as an average score of 76.85 which is in the good category. From these data, it can be concluded that the learning outcomes of students who are taught without using terrarium media are in a good category.

B. Analisis Descriptive Learning Outcomes of Students Taught Using Terrarium Media

Based on the results of research conducted in class X_3 SMA Negeri 3 Wajo using a learning outcomes test, the data obtained are as shown in Table 3.

Table 3. Results of the pretest values analysis of class X_2 as the experimental class

Parameter	Value
Maximum Value	45
Minimum Value	15
Average	29.10
Standard Deviation	9.433
Variance	88.988

Table 4. Results of the posttest values analysis of class X_2 as the experimental class

Parameter	Value
Maximum Value	100
Minimum Value	70
Average	87.50
Standard Deviation	8.660
Variance	75.000

Based on the academic proficiency criteria, there are 20 excellent category students with a percentage of 71% and there are 8 good category students with a percentage of 29%. As well as an average score of 87.50 which is in the excellent category. From these data, it can be concluded that the learning outcomes of students who are taught using terrarium media are in the very good category.

C. The Effect of Terrarium Media Use on Student Learning Outcomes

Inferential statistical analysis is carried out to determine whether there is an influence on the use of terrarium media when carrying out learning on student learning outcomes.

1. Normality test

The results of the data normality test are shown in Table 5.

Table 5. Normality test results

			Kolmogorov Smirnov	
Class	Statistic	Df	*Sign*	Information
Pretest Control	0,137	27	0,200	Normally Distributed
Posttest Control	0,146	27	0,144	
Pretest Experiment	0,127	28	0,200	
Posttest Experiments	0,114	28	0,200	

Based on the data in the normality test results in Table 5 using the *Kolmogorov Smirnov* test using the Stasistical Product and Service Solution (SPSS version 25) software program on control class data (X_3) taught without using terrarium media, the sign value on the pretest is 0.200 and in the posttest the sign value of 0.144, this indicates that the sign value of the pretest and posttest is greater than the α value, where the α value is 0.05 so it can be concluded that the learning outcomes data from the distribution control class are normal. As for the data from the analysis of the experiment class learning test (X_2) taught using terrarium media in the pretest, a sign value of 0.200 was obtained and in the posttest a sign value of 0.200 was obtained, this shows that the sign value from the pretest and posttest is greater than the α value, where the α value is 0.05 so it can be concluded that the learning outcome data of the distributed experimental class is normal. So that data from the control class (X_3) and the experimental class (X_2) are normally distributed.

2. Homogeneity test

The results of the data homogeneity test are shown in Table 6.

Table 6. Homogeneity test results

Levene Statistic	Df1	Df2	*Sign*	Information
0.414	3	106	0,743	Homogeneous

Based on the homogeneity test results data in the Table 6 using the Stasistical Product and Service Solution (SPSS version 25) software program, a sign value of 0.743 was obtained while the α value was 0.05, where if the sign value was > *a* then the data of the two groups came from a homogeneous population

3. Hypothesis test

The results of the data hypothesis test are shown in Table 7.

Table 7. Hypothesis test results

	Levene's Test for Equility of variances		t-test for Equility of Means		
	F	***Sign***	**T**	**Df**	***Sign* (2tailed)**
Equal variances assumed	0,216	0,012	4,614	52	0,000
Equal variances non assumed			4,614	51,588	0,000

It can be seen that a significant value in the hypothetical test using the Stasistical Product and Service Solution (SPSS version 25) software program, obtained a *sign* value (2-tailed) = 0.000. So the hypothesis in this study can be said to be proven because 0.000 < of 0.05 or by looking at t_{count} of 4.614 while t_{table} of 2.006 thus $t_{count} > t_{table}$. This means that there is a significant difference between the learning outcomes of students who are taught using terrarium media and students who are taught without using terrarium media. This shows that there is an influence of the use of terrarium media on the learning outcomes of class X students of SMA Negeri 3 Wajo.

Conclusion

Based on the results and discussion, the conclusions of this study are: (1) The learning outcomes of students who were taught without using terrarium media in the Bryophyta material for class X SMA Negeri 3 Wajo obtained an average score of 28.51 pretest results in the less category and posttest average score of 76.85 in the good category; (2) The learning outcomes of students who were taught using terrarium media in the Bryophyta material for class X SMA Negeri 3 Wajo obtained an average score of 29.10 pretest results in the less category and posttest average score of 87.50 in the excellent category; and (3) There is an influence on the use of terrarium media on the material of Bryophyta class X SMA Negeri

3 Wajo with sign value < α = 0.000 < 0.05 so that H0 is rejected and H1 is accepted. This shows that there is an influence of the use of terrarium media on student learning outcomes.

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