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The Effect of Environmental Exploration VLOG Assignment Methods on Students' Biodiversity Literation Abilities

Sigit Ari Prabowo✉, Fenny Widiyanti, Arif Billah

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Institut Agama Islam Negeri Salatiga, Indonesia

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Abstract

The purpose of this study was to determine the effect of the VLOG Environmental Exploration assignment method on students' biodiversity literacy. VLOG Environmental Exploration as a form of project assignment for students to learn to analyze the environment through independent video making. The research method used is True Experimental Design in the form of Posttest Only Control Design. The research subjects were students of IAIN Salatiga Tadris IPA in the odd semester of the 2020/2021 academic year. Data on students' biodiversity literacy abilities were obtained using tests, then analyzed by statistical difference test t-test. The results showed a significant difference in the biodiversity literacy abilities of students in the experimental class and the control class. These results indicate that VLOG Environmental Exploration can affect the increase in student biodiversity literacy. VLOG Environmental Exploration involves in-depth analysis of the condition of biodiversity in the environment in which students live. Students' cognitive abilities have an important role to play in analyzing environmental biodiversity.

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✉ Correspondence Author:
E-mail: sigitariprabowo27@iainsalatiga.ac.id

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INTRODUCTION

The Covid-19 pandemic that occurred throughout the world has caused changes in the behavior of people's lives in all aspects. All human activities must comply with health protocol procedures in order to suppress the increasingly massive transmission of the Covid-19 virus. The impact of a pandemic is also felt in the world of education, the prohibition of crowding in a room will hinder the face-to-face learning process carried out in the classroom. An important step that needs to be taken for school residents is to carry out online learning to prevent further transmission and reduce the impact of the outbreak and support government programs to deal with the covid-19 virus (Nugroho & Yulianto, 2020). The death rate due to the covid-19 virus has continued to increase since it was announced that positive cases were first found in Indonesia in early March 2020. This has influenced changes and policy reforms to be implemented. A new policy also occurs in the world of education by changing learning that must come to a classroom or a building, in this case a campus, to be sufficient at home. The government's recommendation to stay at home, physical and social distancing must be followed by changing the face-to-face learning mode to online (Khasanah et al., 2020).

At first the world of economy was the one that was greatly affected by the spread of the Covid-19 virus, but at present the world of education is also feeling the impact. With this situation, many affected countries took steps to close face-to-face learning activities, including in Indonesia itself, this fact has prompted the government or educational institutions to create an alternative implementation of education for students or students who are seen as unable to carry out face-to-face learning in class (Hasanah et al., 2020). The Covid-19 pandemic has revolutionized learning organized by campuses. In no time, campuses were forced to carry out online learning. There are around 97% of tertiary institutions that have adopted online learning (Dikti, 2020). However, it must be understood that online learning is inseparable from various problems that become obstacles in its implementation, including online learning for students as prospective teachers (Sanjaya, 2020).

In the era of current technology development, various forms of digital media, tools, and materials are growing rapidly. Various forms of learning are also carried out in virtual form. Through virtual learning or online learning, learning is not limited by time and space. The interaction between teachers and students takes place anytime and anywhere. Online learning is a distinct advantage for teachers and students which can make students more active in building knowledge (Syarifudin, 2020).

There are three domains of learning outcomes, namely cognitive, affective and psychomotor or often referred to as aspects of knowledge, attitudes and skills. These three aspects are very important to measure students' abilities. A student's psychomotor ability is closely related to the skills that can be seen through experimental activities (Sugiarti, 2018).

The lecture system carried out at the IAIN Salatiga college uses a Learning Management System (LMS) application called "eclass". Students can access all learning content that has been prepared by the lecturer in an eclass system through internet access from the residence of each student. However, the fact that happened to students, online learning activities using the LMS "eclass" application did not support hone psychomotor skills during online lectures. Students only focus on gadgets that are used to access some online learning content, so psychomotor activities that involve the five senses as a whole cannot be applied properly. To bring out the psychomotor aspects of students during online learning, an innovation is needed to invite students to carry out physical activities in the form of independent exploration of the environment around their house.

Studies on preliminary research, to improve psychomotor abilities, one of which can be achieved by applying the PjBL learning model. The PjBL model is a learning model that uses projects (activities) as the core of learning. PjBL learning has been proven to increase student creativity (Afriana & Fitriani, 2016). Based on the results of this study, an assignment activity for students during online lectures was developed to carry out environmental exploration activities around the house where they lived.

Environmental exploration activities that aim to hone students' psychomotor skills are applied in General Biology lectures on Biodiversity material. Evidence of student activity during environmental exploration activities is stored in the form of a VLOG video (Video Blogging), which is a video published through several social media platforms, for example Youtube, Facebook, Google Drive and others. Biology learning basically has specific scientific characteristics that are different from other sciences. According to Carin & Evans in (Sudarisman, 2010) learning science (biology) includes at least 4 things, namely: products (content), processes, attitudes and techno-

logy. Thus, if taught in accordance with the nature of learning, biology is a strategic tool for developing various aspects of learning (cognitive, affective, and psychomotor) which are the basis for building the character of students.

The character of caring for the environment needs to be built in the child. This character includes caring for the social environment and the natural environment. The caring character of the social environment is an attitude and action that shows an effort to provide good moral and material assistance to others in need. This attitude shows sensitivity to surrounding conditions. The character of caring for the natural environment is an attitude shown by taking care of the surrounding natural environment. This attitude is also demonstrated by correcting the environmental damage that has occurred. This character will make children understand the condition of fellow humans and their natural environment. It is undeniable that these two things are a unity that goes hand in hand (Harlistyarintica et al., 2017). The character of environmental care can be measured through the ability of biodiversity literacy. Biodiversity literacy is the ability of a person to be able to understand biodiversity and apply this knowledge to solve biodiversity problems so that they have a high attitude and sensitivity towards themselves and their environment in making decisions based on scientific considerations (Leksono et al., 2013).

Based on the description above, an online learning innovation is needed which initially only focused on gadgets and changed to physical activities to carry out environmental exploration activities. Activities create VLOG of environmental exploration based on formal outdoor learning activities that identify concepts, which are taught through environmental interpretation and other learning practices. The practice of outdoor learning is in harmony with the culture, philosophy and local conditions of the students. The implementation of outdoor learning involves dynamic interactions between seven domains: 1) participants, 2) environment, 3) programs, 4) activities, 5) groups, 6) instructors, and 7) culture (Neill, 2008).

METHOD

The subjects in this study were odd semester students of the Tadris IPA study program at IAIN Salatiga in the academic year 2020/2021. The research method used is True Experimental Design with Posttest Only Control Design. Sugiono (2010) states that in true experimental research, researchers can control all external variables that affect the course of the experiment. Thus the internal validity can be high. The main characteristic of True experimental design is that the sample used for the experiment and as a control group is taken randomly from a certain population.

In the Posttest Only Control Design, there are two groups, each of which is randomly selected. The first group was given treatment in the form of VLOG Environmental Exploration activities, and the second group was given different treatment, namely only lecture learning activities. The results of the effect of the treatment were analyzed by different tests using the t-test statistic. If there is a significant difference between the experimental group and the control group, the treatment given has a significant effect.

The instrument used to measure the ability of biodiversity literacy is in the form of objective test questions. Observation of biodiversity literacy skills is based on the knowledge of biodiversity material mastered by students when providing explanations in the VLOG video. The basic concept of explaining the observed environment is used as the basis for making indicators of objective test questions to measure students' biodiversity literacy skills. Biodiversity literacy ability is measured by students' ability to master the concept of biodiversity, biodiversity process skills and attitudes towards biodiversity (Leksono et al., 2015; A'yuna, 2017; Anwar, 2018).

Students' scientific literacy increase levels after they engage in lessons using the process skills approach (Ibrahim and Lede, 2018). Process skills required in biodiversity literacy are capable students identify biodiversity conservation problems, select and sort through various sources of information, collect data and process information, find information that deserves to support the thesis, make and interpret graphs and tables, analyze and interpret data, predict outcomes or benefits, formulating solutions and solving problems of biodiversity conservation, written communication, oral communication, collaborative work between and within groups. Attitude towards biodiversity as measured by attitude scale with indicators including sensitivity and confidence in biodiversity values.

The data obtained were analyzed by different tests average (t test), to compare the increase in student biodiversity literacy between control class with experimental class. The research procedure can be seen in the chart Figure 1.

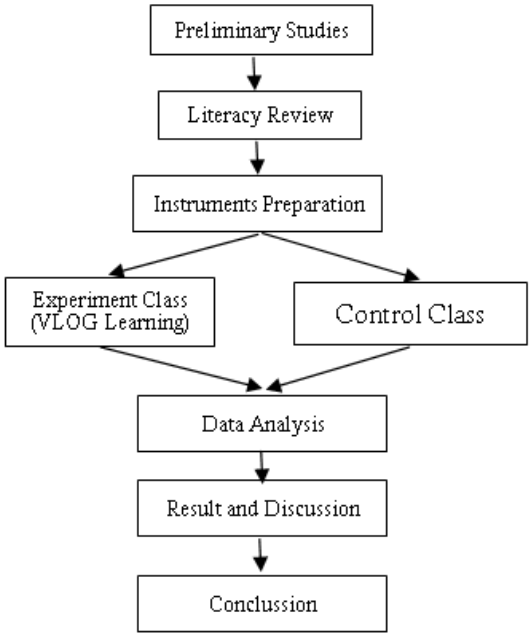

Figure 1. Research Procedure

RESULT AND DISCUSSION

Characteristics in an educational research illustrate that the data of a group of students in a class form a normal curve. The assumption that the state of the data is said to be normal must be tested to find out whether the empirical data obtained in the field is in accordance with a certain theoretical distribution, in this case it is a normal distribution (Nasrum, 2018). The results of students' biodiversity literacy values in the experimental class and control class were tested for normality using the SPSS program, so that the results of the normality test Table 1 are obtained :

The basis for making decisions in a data normality test is: 1. If the significance value> 0.05, the data is normally distributed. 2. If the significance value <0.05, the data is not normally distributed. Based on the significance value in the table which has a value of 0.200> 0.05 and 0.095> 0.05, it can be concluded that the data on the value of biodiversity literacy in the experimental class and control class are normally distributed.

Homogeneity test needs to be done to determine the typical value data that has been observed in variables X and Y is homogeneous or not. In this study to test the homogeneity of researchers using SPSS software version 21. Guidelines in making decisions about the homogeneity test are: 1. If the Significance Value <0.05 then H0 is rejected. This means that both the experimental and control classes have non-homogeneous variances; 2. If the Sig. > 0.05 then H0 is accepted. This means that both the experimental and control classes on the pretest results have homogeneous variances. The following is a homogeneity test Table 2 calculated using SPSS.

Based on the Table 2, a significance value of 0.0497 is obtained, meaning that the significance value is> 0.05, it can be concluded that the data is homogeneous. After the data is confirmed to be normal and homogeneous, the next test is to use parametric statistics through the independent t test.

The data on the value of students' Biodiversity Literacy in the experimental class and the control class were analyzed for the comparison of the effect after the VLOG Environmental Exploration assignment method was applied to the experimental class and the conventional assignment method in the control class. The Table 3 shows the results of the t test processed from the SPSS program.

Based on the results of the Table 3, to conclude the results of the t test hypothesis analysis using the following guidelines: 1. If the value is sig. (2-tailed)> 0.05, then H0 is accepted and Ha is rejected, which means that there is no difference in the average student learning outcomes between the experimen-

Table 1. The results of the data normality test using the SPSS program

Test of Normality

		Kolmogorov - Smirnov			Shapiro-Wilk		
	Class	Statistic	df	Sig.	Statistic	df	Sig.
Biodiversity Literation	Experiment	.130	20	.200*	.955	20	.456
	Control	.179	20	.095*	.949	20	.349

Table 2. Data Homogeneity Test Results using the SPSS Program

Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Biodiversity Literation	Experiment	.130	20	.200*	.955
	Control	.179	20	.095*	.949

Table 3. The results of the t test using the SPSS program.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig	t	df	Sig. (2-tailled)	Mean Difference	Std. Error Difference	Lower	Upper
Biodiversity Literation	Equal variances assumed	.471	.497	5.837	38	.000	8.800	1.508	5.748	11.852
	Equal variances not assumed			5.837	38.000	.000	8.800	1.508	5.748	11.852

Table 4. Results The distribution of the average research value.

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Biodiversity Literation	Based on Mean	.471	1	38	.497
	Based on Median	.479	1	38	.493
	Based on Median and with adjusted df	.479	1	34.696	.494
	Based on trimmed mean	.477	1	38	.494

tal class and the control class; 2. If the value is sig. (2-tailed) <0.05 then H0 is rejected and Ha is accepted, which means that there is a significant difference in the average student learning outcomes between the experimental class and the control class.

Based on the output of the t-test table, it is known that the Sig. The Levenes Test for the equality of Variances is 0.497> 0.05, so it can be concluded that the data variance between the experimental class and the control class is homogeneous or the same. Interpretation of the Independent Sample Test output table according to the table is guided by the values contained in the Equal Variances Assumed table. The sig value is known. (2-tailed) 0.000 <0.05 in accordance with the t-test result decision making guidelines it can be concluded that H0 is rejected and Ha is accepted. From this conclusion, it can be concluded that there is a significant difference in the average learning outcomes of students in the experimental class and the control class. To find out the average value of the two classes, it can be seen in the calculation Table 4.

The average value of biodiversity literacy ability in the experimental class reached 82.90, greater than the average value in the control class which only reached 74.10. Based on the difference in the mean value of the two classes, it is concluded that the use of the VLOG Environmental Exploration assignment method has a significant effect on making student grades increase.

The assignment method can be one of the solutions needed to make students who are doing online learning more active. Appropriate assignments are needed so that students' cognitive, affective, and psychomotor abilities can be well honed. the assignment or recitation method is a learning method in which students given a task outside the lesson schedule which in the end the task will be accountable to the teacher concerned (Dwianggraini, 2021). The assignment method is very suitable to be given to balance the material load and the psychomotor activities of students. The assignment method is a way of presenting material where the teacher gives certain tasks so that they can carry out learning activities (Sutarna, 2016).

Assignments applied to students can be done at home or in the environment around the house. According to Sagala (2005) the assignment method is a way of presenting teaching materials where the lecturer assigns assignments to students to carry out learning activities, then they must be accounted for in the form of a formal report. The assignment given by the teacher can deepen the learning material and can also check the material that has been studied. Assignments can stimulate students to actively learn both individually and in groups.

Natural Sciences related by finding out about nature systematically, so that science is not only mastery of the knowledge pool in the form of facts, concepts, or only principles but also a process of discovery (Nasional, 2006). The wealth of living natural resources is an important foundation for a sustainable development process

because it reflects a caring attitude towards the environment. The role of the surrounding environment has an important role in the formation of a caring attitude student environment (Tamara, 2006).

Excessive exploitation of natural resources can cause damage to biodiversity that can threaten human life. Caring for nature, improving the style and quality of life, and preserving biodiversity are the principles of a sustainable community. Individual awareness is needed to protect and conserve biodiversity. This awareness can be grown through increasing biodiversity literacy (Erdogan et al., 2009). Biodiversity literacy is the potential ability to understand the wealth of biological resources and take concrete actions to solve problems in the environment so that they have a high attitude and sensitivity to themselves and the environment (Goldman, 2017).

Biodiversity literacy ability is measured by the student's ability to master the concepts of biodiversity, biodiversity processing skills and attitudes towards biodiversity. The concept of biodiversity is measured by objective tests. The process skills required in biodiversity literacy are that students are able to identify problems in biodiversity conservation, select and sort various sources of information, collect data and process information, find appropriate information to support a thesis, create and interpret graphs and tables, analyze and interpret data, predict outcomes or benefits, formulate solutions and solutions to biodiversity conservation problems, written communication, oral communication, collaborative work between and in groups. Attitudes towards biodiversity as measured by an attitude scale with indicators include sensitivity and self-confidence towards biodiversity values (Leksono et al., 2015).

Advances in technology have brought changes in interaction patterns between individuals in communicating. Social media can be a medium for expressing someone's ideas and thoughts that have been documented in a certain form so that interactions can be created. The Youtube application is now widely used by the community to express life expressions in a video that can be seen by others. Previously the form of a website (blog) was only in the form of writing, in the YouTube application creators could make the content in the form of a video blog (Aisyah et al., 2018).

VLOG is a video containing opinions, stories or daily activities which are usually written in writing (David et al, 2017). Learning media that is integrated in information technology can be an attraction and give students a passion for learning. One of the results of the development of information technology that can be used as a fun learning media is a Video Blog or Vlog. Vlog is a video and web-based communication and information media that collaborates creativity, information and entertainment in one work (Priana, 2017).

VLOG environmental exploration is a video that contains an explanation of environmental conditions around the student's residence. Through approach learning exploration of the surrounding environment, students interact and explore nature to be observed Efforts to explain the condition of biodiversity in the surrounding environment will invite students to study in depth about the names of ecosystem components and their inhabitants. students' natural intelligence has increased after participating in natural exploration learning (Hambali, 2017; Dewi et al, 2019). The explanation narrative in the video represents the ability of science process skills that have been mastered by students, these abilities include identification, classification, and communicating. science process skills are scientific skills which can be used in scientific activities to find something (Rahayu and Anggraeni, 2017). The integrated science process skills in making VLOG are in line with the increasing biodiversity literacy skills that students master.

VLOG is a medium to represent a student who acts as a Vlogger. Students through VLOG can express ideas related to assignments and materials given during General Biology lectures with the theme of Biodiversity. The environment around his house can be used as material for making video exploration. In the environmental exploration video made by students, it contains an explanation of biodiversity and its special characteristics. Through a series of assignments to make exploration videos to the natural surroundings, it can improve students' cognitive and psychomotor abilities.

CONCLUSION

The covid-19 pandemic has changed the habit of learning patterns in formal educational institutions. Appeals to keep distance and not crowd out in order to prevent transmission of the virus have changed the face-to-face learning pattern in class to online learning. The implementation of online learning encounters several obstacles, including the lack of psychomotor activities, because students only focus on gadgets to study material. The solution to overcome the low psychomotor activity of students is by applying

the assignment method to make a video exploration of biodiversity in the environment around the student's residence. Through a video-making activity called VLOG Environmental Exploration, it can increase students' psychomotor activities, especially in biodiversity literacy skills so that learning outcomes can increase.

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