



Application of Blended Learning in an Effort to Improve Public Understanding of Sumatran Elephant Conservation in Mila District, Aceh

Hafnati Rahmatan¹, Abdullah^{1,2*}, Iswadi¹, Ikhlas Wahid², Yuri Gagarin², Zulfikar^{2,3}

¹Department of Biology Education, Faculty of Teacher Training and Education, Syiah Kuala University, Banda Aceh, Indonesia.

²Research Center for Elephant Conservation and Biodiversity Forest, Syiah Kuala University, Banda Aceh, Indonesia

³Department of Biology, Faculty of Mathematics and Natural Sciences, Syiah Kuala University, Banda Aceh, Indonesia

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Corresponding Author:
Abdullah
abdullah@unsyiah.ac.id

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Abstract: The lack of knowledge and understanding of the people of Mila District on animal conservation causes conflicts between animals and the local community. One method that can be used to increase public understanding of the importance of maintaining elephant conservation is to apply the blended learning method. The purpose of this study was to determine the effectiveness of blended learning to increase public understanding of elephant conservation. This research was conducted in July 2022 in Mila sub-district, Pidie district. The research method used is an experimental method and the research design used is a questionnaire. Data was collected using a questionnaire in the experimental class and the control class with 25 respondents each. Analysis of the questionnaire data used a Likert scale by calculating the number of scores, then normality, and homogeneity tests were carried out to test the hypothesis using the independent t-test. The results of this study obtained the average score of the experimental class was 106.80 and the control class was 80.60. Questionnaire score data is data that is normally distributed with a value of $(0.503 > 0.05)$ for the experimental class and $(0.482 > 0.005)$ for the control class. Questionnaire score data is homogeneous data with a value $(0.353 > 0.05)$. The value of the hypothesis test is $(0.000 < 0.05)$. This study concludes that there are differences or improvements between blended learning and conventional methods.

Keywords: Blended Learning; Community Understanding; Sumatran Elephant Conservation

Introduction

Indonesia is one of the countries that have the highest level of biodiversity in the world. Indonesia's geographical condition, which is located on the equator, and Indonesia's pristine forests are the determining factors for several animals in choosing their habitat as a place to live. Various key species in forest habitats occupy many forest areas of Indonesia, one of which is the Sumatran elephant (*Elephas maximus sumatranus* Temminck, 1847) (Armanda & Abdullah, 2018).

The Sumatran elephant (*Elephas maximus sumatranus* Temminck, 1847) is a subspecies of the Asian elephant (*Elephas maximus*) that only lives on the

island of Sumatra (Apriyadi & Winata, 2019). The Sumatran elephant (*Elephas maximus sumatranus* Temminck, 1847) is one of Indonesia's rich faunae. endangered species based on Law no. 5 of 1990 concerning the conservation of living natural resources and their ecosystems need to be protected and preserved (Syarifuddin, 2008).

The Sumatran elephant (*Elephas maximus sumatranus* Temminck, 1847) is one of the members of the order Proboscidea which is endangered. The Sumatran elephant is listed in the IUCN (International Union for Conservation of Nature and Natural Resources) red book with an endangered status (IUCN, 2019).

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The issue of wildlife protection for a developing country is a very deep polemic, but regardless of the situation, wildlife conservation must still receive attention considering its function and role as a part of ecosystems and natural resources. This causes serious problems for the preservation of wildlife populations in both Indonesia's tropical forests and tropical forests around the world, resulting in the isolation of wildlife in narrow areas because forest corridors have been converted into agricultural land and plantations. Several cases have occurred such as the entry of elephants (herbivores) into residential areas so that they disturb residents' plantation lands such as coconut, areca nut, cocoa, rice, and so on (Hidayat et al., 2018)

Crop damage caused by elephants is thought to be due to the high preference for the types of plants grown by farming communities (Sukumar, 2003). The love for these types of plants is accompanied by the nature of elephants being selective in choosing their food and will eat several taxa from these very different plants to meet their energy needs (Fowler and Mikota, 2006) so that elephants have a high feeding rate according to body size, age and gender depending on region, weather, and ecosystem (Fowler and Mikota, 2006). Therefore, this situation can lead to an increase in the intensity of conflict between elephants and farmers.

The development of information and communication technology today makes science a 'commodity' like other economic goods. The role of information and communication technology is becoming increasingly large and real in the modern world as it is today. This is understandable because society is now heading into the information age or knowledge society (Istiningsih & Hasbullah, 2015).

The lack of knowledge and understanding of the people of Mila District on animal conservation causes conflicts between animals and the local community. Many people consider elephants pests, but basically, elephants are one of the balancers of the ecosystem. One method that can be used to increase public understanding of the importance of maintaining elephant conservation is to apply the blended learning method. Blended learning is a process of unifying various learning methods that can be achieved by combining virtual and physical resources.

Human mobility is increasingly dense, and the birth of new technologies is the background for the birth of the blended learning model as a new innovation in responding to the challenges of the times. Blended learning is a term for mixing conventional learning models which are usually done face to face with internet-based learning models commonly known as e-learning.

Blended learning is defined as a type of learning that combines traditional face-to-face models with e-learning models, to create richer learning experiences (Usta, 2007; Akkoyunlu & Soylu, 2008). (Adas & Shmais,

2011) see blended learning as a method that creates a suitable learning environment for high school students. Blended learning that combines these two learning environments provides many advantages for students and teachers (Brown, 2003; Singh & Reed, 2001). Blended learning can be seen as a combination of learning that combines web-based, video, audio, synchronous and asynchronous communication with face-to-face learning (Quevedo, 2011).

A blended learning strategy is a new concept in learning where the delivery of material can be done in class and online. A well-done combination of face-to face teaching where teachers and students meet face-to-face and through online media that can be accessed at any time. The combination of face-to-face learning with e-learning is due to the limited time, and it is easy to make students feel bored quickly in the learning process (Wardani et al., 2018).

Many studies on blended learning have been carried out (Jong, 2016). The study showed a significant change in the respondent's memory with the provision of new learning obtained from the application of the blended learning strategy. The implementation of the blended learning strategy is also expected to help teachers and students to improve students' critical thinking skills. However, blended learning users with MT applications have not been widely published, so further exploration is needed regarding its application in the learning process. and the demands of increasingly widespread.

Several other research results show that the blended learning model is effectively used in learning. First, research conducted by (Fatwa & Djuniadi, 2016) states that the implementation of blended learning models can be used as a supplement to face-to-face learning activities, with online learning access able to complete the delivery of material in a broad scope with theoretical and practical competencies. Second, research conducted by (Pradnyawati & Suparta, 2014) states that the implementation of blended learning models can increase motivation to learn mathematics. Third, the research results of (Eryilmaz, 2015) show that in blended learning, students can learn more effectively in an integrated learning environment. Fourth, (Marhendra et al., 2016) state that blended learning has a positive and significant effect on student mathematics learning outcomes. Although many studies related to blended learning models have been carried out as previously stated, to the best of the researchers' knowledge there has been no research that examines how the influence of blended learning models has on community understanding of elephant conservation.

Based on the above problems; it is necessary to conduct research to prove the application of blended learning to increase public understanding of Sumatran elephant conservation in the Mila District.

Method

The research method used in this study was experimental and the research design used was a questionnaire. The approach and type of this research are quantitative and qualitative approaches. The research method used is the Experimental method with data collection techniques using a questionnaire.

This study used two classes selected by purposive sampling, namely the experimental class and the control class. The learning process in the experimental class uses a blended learning model while the control class uses conventional learning methods. The parameters measured in this study were the community's understanding of Sumatran elephant conservation in Mila District, Pidie District. The population in this study was the entire community in Mila District. The sample in this study was the community in Tuha Lala Village, Meuyub Lala Village and Babah Jurong Village.

The data collection technique in this study was to collect data from questionnaires from the experimental group (learning using blended learning) and the control group (learning using the lecture method).

Step Analysis The data analysis technique in this study will use a questionnaire with a Likert scale. This type of measurement scale has a gradation from very positive to very negative, which can be in the form of words, namely, less appropriate, inappropriate, and very inappropriate. The questionnaire uses favorable and unfavorable where when the favorable statement (leads or refers to the characteristics of the measured attribute) gets a value of 5,4,3,2,1 and the unfavorable statement (does not lead or does not show the characterized attribute) gets a value of 1,2,3,4,5.

Before performing statistical tests for normality, homogeneity, and t-tests, the data obtained were converted into interval data using the interval succession method (MSI) (Sarwono, 2014).

$$\text{Average Score} = \frac{\sum \text{Responden Score}}{\sum \text{Statement Score}} \quad (1)$$

After obtaining the final score, the score is then categorized. After getting the categorization, compare the giving of questionnaires at the first meeting and the final meeting. Then, a t-test was carried out as in the knowledge analysis. The main requirement for the t-test is that the questionnaire data is normally distributed and homogeneous. The test criteria for the normality test are if $X^2 \text{ count} < X^2 \text{ table}$ with $\alpha = 0.05$ then it is said to have a normal distribution, and vice versa if $X^2 \text{ count} > X^2 \text{ table}$ with $\alpha = 0.05$ then it is not normally distributed (Dayang et al., 2013). If each group is normally distributed, then it is continued by testing the homogeneity of variance of the two classes using the Levene test. If it is significant or the probability value is > 0.05 , then the data is homogeneous. If it is significant or the probability value

is < 0.05 then the data is not homogeneous. All statistical tests in this study used the SPSS 25 program.

Result and Discussion

Based on the results of the study, data were obtained about public perceptions of elephant conservation in Mila District, Pidie Regency. The data obtained from the questionnaire was given to 25 respondents (experimental class) and 25 respondents (control class). All of these respondents are farmers who are affected by the human-elephant conflict in Mila District.

Characteristics of Respondents

Respondents in this study were taken in several characteristics including age, gender, education, and occupation. This is because these four characteristics are closely related to the perceptions of the community as respondents. The percentage of these characteristics is shown in Table 1.

No	Characteristic	Control class	(%)	Experimental Class	%
1	Respondent's age				
	a. 20-29	1	4	0	0
	b. 30-39	7	28	5	20
	c. 40-49	8	32	5	20
	d. 50-59	4	16	7	28
	e. 60-69	2	8	4	16
	f. 70-79	2	8	2	8
	g. 80-89	1	4	2	8
Total		25	100	25	100
2	Gender				
	a. Man	19	76	14	56
	b. Woman	6	24	11	44
Total		25	100	25	100
3	Educations				
	People's School Elementary	3	12	0	0
	School Equivalent Middle School	1	4	7	28
	Equivalent High School	6	24	6	24
	Equivalent High School Diploma 3	10	40	8	32
	Bachelor	1	4	0	0
	Bachelor	3	12	4	16
	Boarding School	1	4	0	0
Total		25	100	25	100
4	Work				
	a. Farmer	25	100	24	96
	b. Trader	0	0	1	4
Total		25	100	25	100

Respondent's Age

Based on Table 1, the characteristics of respondents according to age with the highest frequency in the

control class are in the age range of 40-49 years with a value of 32% (8 people) and the lowest frequency is in the age range of 20-29 and 80-89 years with a value of 4% (1 person), the highest frequency in the experimental class was in the age range of 50-59 years with a value of 28% (7 people) and the lowest frequency was found in the age range of 70-79 and 80-89 with a value of 8% each (2 people) or no respondents with that age range. Respondents with an age range of 40 years and over will greatly assist researchers in obtaining information related to elephant conservation and elephant conflict in the Mila sub-district related to their life experiences and knowledge of elephant conservation and conflict in the area from the past until now.

Respondent's Gender

Based on Table 1, the characteristics of respondents according to gender in the control class consisted of 76%

(19 people) were male and 24% (6 people) were female, while the experimental class consisted of 56% (14 people). male and 44% (11 people) female. The highest number of respondents is male, namely 30 people, this is because most farmers who work in the garden are male.

Respondent's education

Based on Table 5.1 the characteristics of the last education in the control class, the highest frequency is SMA equivalent with a score of 40% (10 people), and the lowest frequency is SD equivalent, D3, and Bachelor with a value of 4% each (1 person). As for the experimental class, the highest frequency is high school equivalent with a score of 32% (8 people) and the lowest frequency is undergraduate at 16% (4 people).. Level of education can be seen in Figure 1.

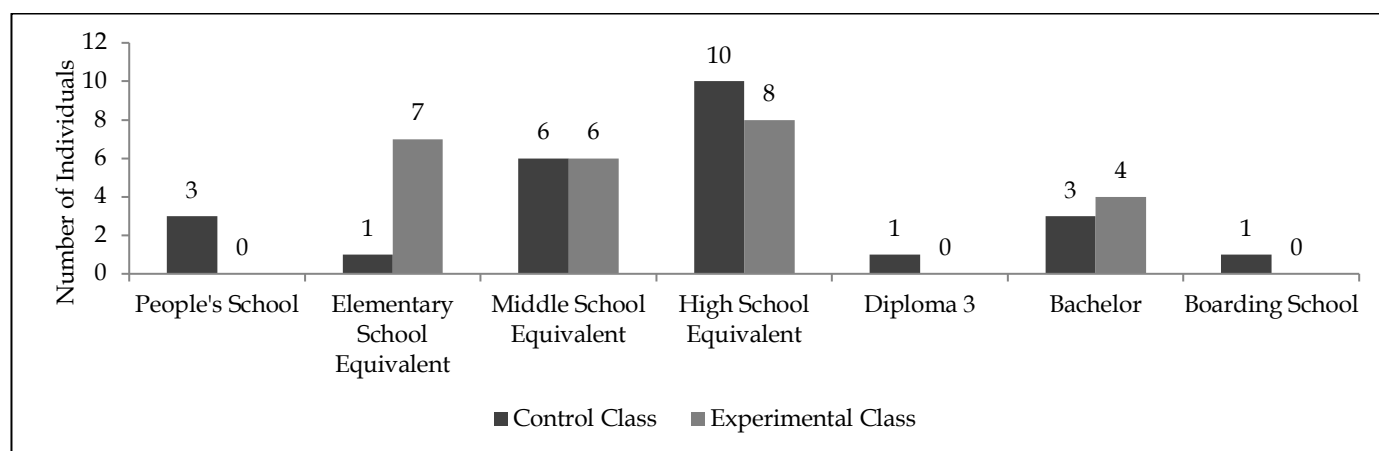


Figure 2. Respondent's education Score Experiment class and control class

The frequency of the highest education level of respondents in Mila District is SMA or equivalent, this causes the community to not have the opportunity to get adequate work. So that most of the respondents only work as farmers

People who mostly work as farmers tend to be very dependent on land resources around them to meet their daily needs (Kadir et al., 2013). Therefore, to support their daily needs, the community will open forest land for cultivation, even though it has reached the limit of the primary forest

The low level of education causes the understanding and perception of elephant conservation to be very low (Garsetiasih, 2015). The level of formal education has an important role in shaping the mindset of the community in acting. People who have low levels of education find it difficult to accept new things or innovations that can add insight, experience, and knowledge. The low level of education affects people's understanding of wildlife conservation because of their perspective and limited knowledge (Garsetiasih, 2015).

Respondent Work

Work is closely related to a person's age and education. Based on Table 1, the type of occupation of most respondents in Mila District is Farmer with a frequency of 100% (25 people) in the experimental class. While the frequency of work in the control class, namely farmers, is 96% (4 people) and 4% (1 person) as traders. it can be concluded that most respondents in this study are farmers, this is because farmers are jobs that are closely related to elephant conservation and elephant-human conflicts.

Community Understanding of Elephant Conservation

Data on public understanding of elephant conservation in this study was obtained from the answers to questionnaires distributed to two classes of respondents, namely the control class and the experimental class. Based on the results of research conducted in the Mila District, data on public understanding of elephant conservation were obtained

from the experimental and control classes. Data on community understanding of elephant conservation can be seen in the Figure 2.

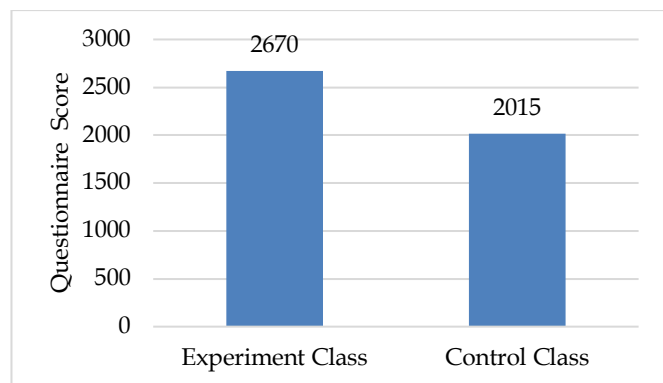


Figure 2. Questionnaire Score Experiment class and control class

Based on Figure 1, the total score of the experimental class is higher than the score of the control

class with the total number of respondents per class being 25 people. This is because there are differences in the learning methods carried out between the experimental class and the control class. The learning method carried out in the experimental class is a blended learning method that combines two methods, namely offline and online methods or face-to-face methods and remote methods. The learning process is carried out by providing Sumatran elephant conservation materials directly in front of respondents and via online (Zoom meetings) using the internet network.

Differences in public understanding of Sumatran elephant conservation

After obtaining the questionnaire scores from the experimental class and control class, data analysis was carried out. The results of the statistical test of the questionnaire score data from the experimental class and control class can be seen in Table 2.

Table 2. Statistical Test of the Questionnaire Score Data from The Experimental Class and Control Class

Class	Average Score	Normality test ^{*)}	Homogeneity test ^{**)}	t-test ^{***)}	Meaning
Experimental	106.80	0.503 (Normal)	0.353 (Homogen)	0.000	There is a difference
control	80.60	0.482 (Normal)			

Information

^{*)} = *Shapiro-Wilk tests*, if Sig. > 0,05 (Normal)

^{**)} = *Homogeneity test*, if Sig. > 0,05 (Homogeneous)

^{***)} = *t-test*, if Value Sig. (2-tailed) < 0,05 (There is a difference)

Based on the results presented in the table, it is known that the average score of the experimental class is 106.80 while the control class is 80.60. The results of the analysis showed that the experimental class obtained an average value higher than the average value of the control class. From the results of the analysis using the independent t-test, it is known that the value is still. (2-tailed) < 0.05 (0.000 < 0.05) then H0 is rejected and Ha is accepted, so it can be concluded that there is an effect of applying blended learning methods in an effort to increase public understanding of Sumatran elephant conservation.

Blended learning is very influential on people's understanding because in the learning process the community is given information about elephant conservation supported by digital information through power points (PPT) and videos about elephant conservation so that people can easily understand it. So that the results of the experimental class questionnaire get better results than the control class, it can be concluded that after learning with the blended learning method, people's understanding of elephant (Schwendenmann et al., 2007) conservation has increased.

The results of this study are in accordance with the research conducted by (Maolidah et al., 2017) that the

application flipped classroom blended learning strategy there is a process of interaction between learners, teachers, and the learning environment that produces changes in behavior, learning outcomes, and students thinking abilities. thus, the application of blended learning influences the Mila community's understanding of natural conservation.

Conclusion

Based on the hypothesis test (Independent t-test) it is known that the value of sig. (2-tailed) < 0.05 (0.000 < 0.05) then H0 is rejected, and Ha is accepted, it can be concluded that there is an effect of applying blended learning methods to increase public understanding of Sumatran elephant conservation.

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