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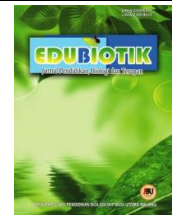
ILMIZI model in environmental learning during COVID-19: Improving students' attitudes in University

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Article Information	ABSTRACT
	Environmental education amid Coronavirus Disease 2019 (COVID-19) pandemic requires innovation. The pandemic situation need to improving student attitudes in maintaining the environment need an improvement by conducting various innovations and one of them is ILMIZI learning model utilization. The research aim was to improve student attitudes with the ILMIZI model. The research method is experimental without a control class. Samples involved in the research consist of 61 students with a treatment of environmental learning using the ILMIZI model. The Instrument used in this research was the attitude instrument with a scale of 1-5. The research results suggest that t-value (.231) > t-statistic (1.67) indicating that the ILMIZI model is not yet effective in improving the students' attitudes in maintaining the environment. The pretest score (83.80) and post-test score (83.62) are not significantly different. The conclusion drawn from the research is that the ILMIZI model has not effective in improving student attitudes in maintaining the environment during COVID-19. **Keywords:** COVID-19; ILMIZI model; student's attitude
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INTRODUCTION

Education during the Coronavirus Disease 2019 (COVID-19) pandemic undergoes some changes especially with the more massive use of internet media than previously (Carrillo & Flores, 2020; Flores & Swennen, 2020; Konig et al., 2020). Students' access to website and information currently increases. This is due to the students are equipped with various accesses to the internet. Areas with limited access will have difficulties in accessing the internet compared to people in urban areas. Students have options of using cellular data or Wi-Fi with each has its strengths and weaknesses. During online learning, students are required to be able to understand various concepts independently. That is because independence in learning is an important means so that students can adapt to the various learning information provided (Lau, 2017; Talmi et al., 2018). Besides the changes in learning to online, knowledge implementation in the form of attitudes also becomes important, especially related to maintaining the environment.

Student attitude in maintaining the environment is essential due to the many environmental damages that occurred (Avan et al., 2011; Esa, 2010; Keles, 2017; Kleebbua & Siriparp, 2016). It is particularly the environmental damage during the COVID-19 pandemic (Bandyopadhyay, 2020). Consequently, students need to improve their attitudes in maintaining the environment. Implementation of the student attitudes is observable through support for various environmentally friendly programs conducted by the government and environmental organizations. Moreover, this can also be seen from support to a variety of efforts to maintain the environment to prevent COVID-19. Student attitude can be improved using several strategies and efforts in learning.

Numerous educational models have been developed as an effort to enhance student and college student awareness in maintaining the environment. Previous studies have been carried out regarding efforts to increase people behaviors in maintaining the environment in the form of educational models for mangrove and coral reefs preservation (Sigit et al., 2020). Additionally, an environmental education model in handling flood and other environmental disasters has been developed known as the DIFMOL model (Rahmayanti et al., 2020). One of the learning models, however, that can be an alternative is the ILMIZI learning model (Ichsan, 2019). The model is a learning model that puts forth different skills related to Higher Order Thinking Skills (HOTS) and other environment-based skills. Innovation of the ILMIZI model becomes an alternative to improve student attitudes to the environment, especially in syntax that students must implement the concept.

Previous studies in learning innovation are related to OIDDE learning model development to enhance HOTS (Husamah et al., 2018). Also, several developments of technology-based learning media have been conducted as an innovation in education (Markaki, 2014; Ören & Meric, 2014; Parkin et al., 2012; Um & Chung, 2019). The use of technology in education becomes important and is innovation in 21st-century education. The increasing number of Smartphone users in the modern era will increase people's need for the newest information. Social media plays a significant role as it could provide information to society in a relatively short time. Previous research has generally not been carried out to improve students' attitudes using innovative models. Whereas this study is different from previous research, namely in this study an attempt was made to improve student attitudes using the ILMIZI innovation model. Based on the finding, the implementation of the ILMIZI model during the COVID-19 pandemic becomes an innovation to improve students' attitudes to their environment. The research examines the effectiveness of the ILMIZI model in improving students' attitudes to maintain the environment.

RESEARCH METHODS

The research method was a quasi-experimental design with a one-group pretest-posttest research design. The research carried out in November 2020 – January 2021 by involving 61 university students in Jakarta State University, selected using simple random sampling. Treatment applied to improve student attitude was the ILMIZI learning model. Indicators of student attitude were adapted from Sigit et al. (2020). The measurement of student attitude utilized five indicators developed with an assessment scale of 1-5 in questionnaire form. The validity test used Pearson's Product Moment (PPM) and the reliability test utilized the split-half method (Spearman-Brown). The instrument Item was 10 statements, this is enough to measure students' attitude because the core of attitude includes in all of the indicators of students' attitudes, the details are presented in Table 1.

Table 1. Indicators of Students' Attitude in Maintaining Their Environment

No	Indicators	Items
1	Support sustainable development during COVID-19	1,2
2	Support a policy of imposing sanctions for violators of environmental impact analysis regulations	3,4
3	Campaign for sustainable development efforts during COVID-19	5,6
4	Prevention efforts of environmental pollution from waste	7,8
5	Purchase a house following the environmental impact analysis	9,10

Data analysis employed was normality test, homogeneity test, and t-test. Scores tested were student attitude scores before (pre-test) and after (post-test) learning using ILMIZI. Moreover, descriptive analysis of categories from the student attitude score also carried out. The categories and scores are listed in Table 2.

Table 2. Categories and Scores of Student Attitude

Category	Interval of Student Attitude Score
Very high	$X > 81,28$
High	$70,64 < X \leq 81,28$
Moderate	$49,36 < X \leq 70,64$
Low	$38,72 < X \leq 49,36$
Very low	$X \leq 38,72$

Source: Category and interval score adapted from Sigit et al. (2020)

The implementation of syntax and stages of the ILMIZI learning model comprised six steps started with identifying a problem, limitation problem, make a mind map, interpret the result, analyze the result, and ended with interaction and evaluation. Each stage has details of each learning activities as elaborated in Table 3.

Table 3. Syntax and Stages of ILMIZI Learning Model

No	Learning Syntax/Stages	Learning activities	Duration
1	Identify problem	Students identify their surrounding environment and write the occurring problems	15'
2	Limitation problem	Lecturer provide instructions to limit the problems so that students could focus on solving them	15'
3	Make a mind map	Students make a mind map related to environmental problems to be solved	20'
4	Interpret result	Studentt interpret discussion results regarding the previously designed mind map for efforts in solving environmental problems	15'

No	Learning Syntax/Stages	Learning activities	Duration
5	Analyze Result	Students analyze various possibilities to solve the problems with their discussion peers	10'
6	Interaction and evaluate	Lecturer and students interact in the form of two-way question and answer to learn students' works produced as well as to evaluate	40'

FINDINGS AND DISCUSSION

The validity test result indicated that all items were valid, whilst the reliability test showed a value of 0.53, which can be interpreted that all items could be used in the research. Besides, the normality test result suggested that the data were normally distributed and homogeneous. T-table for alpha .05 was 1.67 and the t-test resulted in t-value < t-table, which means that the ILMIZI model was not effective in significantly improving students' attitudes (Table 4).

Table 4. Result of T-Test Between Pre-Test and Post-Test Scores of Student Attitude

Mean	Std. Deviation	Std. Error Mean	t - value	t-table	df	Sig. (2-tailed)
.16393	5.54130	.70949	.231	1.67	60	.818

The students' attitude scores suggested that some of them still required some improvement. It was especially in the fifth item that was related to sustainable development campaign related to COVID-19 (see Table 5). This implied that campaign activities need an enhancement by using social media.

Table 5. Details of Pre-Test and Post-Test Scores of Student Attitudes Based on Each Item

No	Items	Pre-test	Post-test
1	I support sustainable development during COVID-19	3.46	3.48
2	Sustainable development must continue to be implemented amid the emergency of COVID-19	3.33	3.41
3	Strict sanctions of fines must be imposed on violators of environmental impact analysis regulations, without discrimination	4.74	4.84
4	Strict sanctions will be effective in suppressing illegal development violators	4.66	4.72
5	Sustainable development campaign must continue amid COVID-19	3.43	3.34
6	I invite other students to campaign for COVID-19 prevention so that sustainable development can continue	3.85	3.54
7	Maintaining the environment is important, especially related to waste pollution	4.87	4.85
8	Strict sanctions must be imposed to waste littering	4.84	4.84
9	Review of development documents and environmental impact analysis completeness is important when buying a house	4.52	4.59
10	It is better to not buy a house without environmental impact analysis although it is cheap	4.20	4.20
	Average Score (interval 0-100)	**83.80**	**83.62**
	Category	**Very High**	**Very High**

The average score of each item indicated that the first and third indicators still require an improvement during the posttest. This was due to sustainable development as one of the issues that must be continuously campaigned and supported. Students play a role in its implementation. Table 6 presents the pretest and posttest scores for each indicator.

Table 6. Details of Pre-Test and Post-Test Scores of Student Attitude Based on Indicators

No	Indicators	Pre-test	Post-test
1	Support sustainable development during COVID-19	3.39	3.44
2	Support a policy of imposing sanctions for violators of environmental impact analysis regulations	4.70	4.78

No	Indicators	Pre-test	Post-test
3	Campaign for sustainable development efforts during COVID-19	3.64	3.44
4	Prevention efforts of environmental pollution from waste	4.85	4.84
5	Purchase a house following the environmental impact analysis	4.36	4.39

The research results implied that in general, there was no significant improvement in students' attitudes. The reason is related to changing attitudes takes longer. The ILMIZI model implementation in this research was in a relatively short time. Therefore, a follow-up is necessary so that the model could improve students' attitudes to their environment. Additionally, there might be obstacles related to the utilization of e-learning. It is easy for students to acquire environment-related information; the obstacles, however, involve the implementation in their surrounding environment. This is due to the physical distancing policy that demands people to stay at home. Innovation in e-learning becomes essential so that learning during the pandemic can improve (Carrillo & Flores, 2020; Cutri et al., 2020; Kidd & Murray, 2020). During COVID-19, students find it difficult to make direct environmental observations, so the development of media or learning models is important to improve learning quality.

Although the research results suggested that the ILMIZI learning model was unsuccessful in improving the students' attitudes, it can be an alternative for environmental learning during the COVID-19 pandemic. The model could facilitate students to map various problems in their environment. Another effort is by implementing the model in a long time. Besides, the model can be integrated into various teaching materials and learning media. An important note is that changing a person's attitudes or behaviors is more complicated than changing knowledge. This requires teachers to apply various innovations so that learning can be more contextual (Bustami et al., 2018; Kartikaningtyas et al., 2018; Paristiowati et al., 2019). Based on these findings, the ILMIZI model has not been effective in improving student attitudes because increasing attitudes take a long time. This has an impact on the results of changes in attitudes that have not increased significantly if they have not been treated for a long time (Evans et al., 2018; Ignell et al., 2019).

The various stages of the ILMIZI model have not been able to improve student attitudes, starting from the stages of identifying problems to interacting. In the first stage, students may not be able to implement the problems that have been identified. Furthermore, at the stages of problem limiting and mind map-making, it seems that students have not been able to internalize the various concepts that have been learned into their daily attitudes. Besides, at the stage of interpreting the results and analyzing the problem, the obstacles they experience are the same, namely, they cannot implement it in everyday life. Apart from that, it is related to the activities of interacting and evaluating that it has not run optimally because of the little time given to carry out these activities. The implementation of the learning model must be given sufficient time to undergo the various stages so that the entire core of learning can run well (Djamahar et al., 2018; Gündüz et al., 2016).

Environmental learning in the COVID-19 pandemic becomes a challenge for lecturers as well as students. One consideration is that students' attitudes could change if a program is clear and sustainably workable. Students could involve in numerous environmentalist movements on their campus. They could also participate in various seminars and other environment-based community activities. Further, innovation in education can be done by changing the current curriculum to be more environmentally based. Environment-based courses must be a requirement for students in lectures. Moreover, an environmentally friendly campaign should be started on various websites and social media (Jiang et al., 2017; Kew et al., 2018; Lee, 2014; Reyna et al., 2018; Yusop & Sumari, 2013). Technology

makes it easy to provide information to society. It will facilitate the information distribution during the COVID-19 pandemic.

CONCLUSION

The research concludes that the ILMIZI learning model has not effective in improving students' attitudes. This was due to the model that was implemented in a short time; thus, there was not enough time to change the students' attitudes in maintaining the environment. The role of media and teaching materials is also important in this context as the pandemic triggers the need for innovation. One of the innovations is to develop various integrated teaching materials and learning media. The suggestions offered from the research is that the ILMIZI model, in the future, can be used broadly at various educational levels both formal and informal.

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