



## The influence of SOLE learning model on the environmental literacy of high school students



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### Article Info

#### Article History:

Received 10 July 2023

Revised 25 September 2023

Accepted 29 October 2023

Published 30 November 2023

#### Keywords:

SOLE Learning Model

Environmental Literacy

Environmental Change



### ABSTRACT

The extremes of environmental changes that occur show the need to increase the environmental literacy of a person, especially students in a younger generation. Environmental literacy needs to be introduced early to students through education using the right learning model. This study aims to determine the influence of the SOLE learning model on the environmental literacy of high school students. The research method used is a quasi-experiment method with pre-test and post-test designs. The sample in this study was 60 class X students of SMAN 51 Jakarta with sampling using purposive random sampling techniques. Data was collected in the form of environmental literacy essay tests and student response questionnaires. The results showed that there was equality in student environmental literacy before different learning models were applied in both classes, there was an influence of the SOLE learning model on student environmental literacy, and the SOLE learning model was effective on environmental literacy while the Discovery Learning learning model was less effective on environmental literacy. In this study, it was found that the influence of the SOLE learning model on environmental literacy is owned by students.

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**Citation:** Suryanda, A., Nurmasari Sartono, N., & Reyhanah. (2023). The influence of the SOLE learning model on the environmental literacy of high school students. *JPBIO (Jurnal Pendidikan Biologi)*, 8(2), 234-247. DOI: <https://doi.org/10.31932/jpbio.v8i2.2576>

### INTRODUCTION

The environment and humans are interconnected and interdependent on each other, so if there is a problem in the environment, it will definitely have an impact on human life and the sustainability of human life in the future (Prastiwi et al., 2020). One of the environmental problems that is in the spotlight is the high emission of greenhouse gases which has an impact on increasing the use of fuel for transportation facilities in the world. The Center for Energy and Mineral Resources Data and Information Technology (2020) stated that in the energy sector, the

type of greenhouse gas carbon dioxide is very dominant with a figure of 95.13% which means an increase of 18.43% from data studied in 2007 by the IPCC (Intergovernmental Panel on Climate Change) which shows carbon dioxide emissions are at 76.7% of total greenhouse gas emissions. Yunansah & Herlambang (2017) argues that the current environmental conditions are aggravated by the low public understanding of the environment so people have a low awareness of the obligation to always maintain environmental harmony. The low environmental literacy that exists in the community has a major effect on environmental damage (Rijal et al., 2018).

Environmental literacy needs to be introduced since childhood to create a sense of empathy, care, and sensitivity to the little things in the environment. Environmental literacy will become a good habit for future generations (Rahmawati & Suwanda, 2015). Competencies to improve student literacy education are also in the intensified phase by the OECD (Organization for Economic Cooperation and Development) through the PISA (Program for International Students Assessment) assessment study which Indonesia has been participating in for a decade. In science literacy tests, students are tested for their ability to recognize the correct definition of familiar scientific facts and can use that knowledge for recognition of some cases simply and prove the validity of a conclusion based on data that is expected to improve environmental literacy (OECD, 2019). However, Indonesia's achievements over the past decade remain at a much lower level than other participating countries. This can be seen from Indonesia's achievement which is ranked 62nd out of 70 countries participating in the PISA assessment study with an average science literacy score of 403 from the PISA science literacy average score of 493 (OECD, 2016) while in 2018, Indonesia's PISA assessment results also decreased to 73rd place out of 79 countries participating in the PISA assessment study with an average science literacy score of 396 from the average PISA science literacy score located at 489 (OECD, 2019). This shows that environmental literacy has not been well introduced by students through learning in schools.

Environmental literacy needs to be cultivated by children and teenagers because the provision of knowledge and understanding given to children and teenagers will be more embedded and more easily accepted by them (Kusumaningrum, 2018). Growing environmental literacy from an early age will become a habit for children and teenagers to later have an attitude of caring for the environment. Taufiqi (2016) stated that childhood and teenager are the best time to grow awareness of environmental care attitudes and if that period has passed, it will be more difficult to form good attitudes in students in the form of sensitivity and a high desire to protect the environment. Feelings of care and affection for the environment can be built through learning at school (Setiawan, 2013). Efforts to introduce environmental literacy early can be overcome by applying appropriate learning. In the 21st century, a learning model is needed that allows students to learn freely, independently, and in full control of learning in line with the Merdeka Curriculum.

A learning model that can be applied in line with the Merdeka Curriculum and can train students' environmental literacy skills is to apply the Self-Organized Learning Environment (SOLE) model. Initially, the SOLE learning model was created and applied by Sugata Mitra to elementary school students by utilizing computers and the internet and letting students utilize computers connected to these internet devices to explore as much knowledge as possible and discuss it with peers (Mitra & Crawley, 2015). Now, the SOLE model has been widely applied at other school levels and is expected to help students develop 21st-century skills and shift individual learning into groups in the hope that all students can participate in the learning mechanism and organize themselves well through study groups, (Weisblat et al., 2019).

The application of the SOLE model is in line with the Merdeka Curriculum which is free to liberate students in the learning process so that students can think adaptively to be able to solve problems independently. The Merdeka Curriculum also helps the application of the SOLE model so that students can organize themselves into independent study groups in a way of learning that is



of interest to students so that learning will run more flexibly, have sufficient time to explore concepts, pay attention to the results of studies and feedback and strengthen and focus on competencies. Through the Merdeka Curriculum, students not only focus on intracurricular but also on the project of strengthening the Pancasila Student Profile which is expected to optimize the application of the SOLE model to student environmental literacy. The study aims to determine the influence of the SOLE learning model on the environmental literacy of students in SMAN 51 Jakarta.

### I. Environmental Literacy

In the 21st century humans not only rely on knowledge but humans are required to become more skilled and master many skills in several fields quickly if they do not want to be left behind and achieve success in work (Mardhiyah et al., 2021). Literacy skills are also included in the skills that must be mastered by individuals in the 21st century. One of the literacy skills that needs to be grown in Indonesia is environmental literacy.

Coyle defines environmental literacy as the skills that a person has in learning and analyzing knowledge of healthy environmental patterns to be able to take appropriate actions to improve, maintain, and preserve the environment (Wilujeng et al, 2019 in Coyle, 2005). A person who has environmental literacy is also referred to as someone literate in the environment in the sense of having the ability to think critically, being able to solve problems, and being able to take appropriate action on environmental problems that have been considered from all sides. Responsible decision-making to solve environmental problems can occur if a person has gained cognitive skills in making the right decisions (Karimzedegan & Meiboudi, 2012).

According to a study from the North American Association for Environmental Education or NAAEE (2011) a person's environmental literacy skills can be measured through four components, namely, individual knowledge of the environment, individual disposition towards the environment, competence that individuals have towards the environment and attitudes to care for the environment.

### 2. SOLE Learning Model

The Self-Organized Learning Environments (SOLE) learning model is a concept first introduced and developed by Sugata Mitra, a computer scientist and educational theorist from India. Dolan et al., (2013), stated that the SOLE model is a learning model that frees students to organize themselves into independent study groups using the main learning tool in the form of smart devices connected to the internet network with teachers who act at least as facilitators and supervise students in the learning process. An internet network that is increasingly easy to access will be useful for students to extract knowledge from internet pages in a good and orderly manner that is facilitated directly by the teacher. Through this learning model, students will be focused on solving problems armed with a sea of access to the internet (Anis & Anwar, 2020).

At the beginning of the application of SOLE learning, the teacher will give inquiry questions to students with the aim that students can control a less conducive learning atmosphere by trying to solve the questions given (Mitra, 2014). The problem-solving questions arouse students' curiosity, so in the process of solving the questions, students will channel their curiosity by digging through internet pages. Raharja et al., (2018) argue that when students have high curiosity, students will have a good learning process.

The SOLE learning model has several advantages, namely as follows: 1) learning activities can organize students into independent learning that frees students to innovate and think creatively about environmental issues that occur, 2) learning activities by providing inquiry questions can develop students' memory recall ability by increasing understanding, attitude, creative thinking and the ability to solve environmental problems, 3) learning activities develop curiosity, strong



motivation, high interest and potential of students towards dynamic and optimal learning, 4) the process of learning activities is designed in a fun manner for students so that the environmental literacy obtained is more lasting, 5) learning activities are practical by environmental problems that are often encountered in students' daily lives, and 6) learning activities can foster student social interaction such as cooperation, communication skills and tolerance (Sholichah, 2019).

In addition to having advantages, the SOLE learning model has disadvantages, namely, the learning time does not run effectively because it depends on the discussion process, and class management does not run well because the class atmosphere is not conducive to discussions. Implementation of the SOLE learning model. There are three steps to the SOLE learning model activity, namely questions, investigation, and reviews (Sarifudin, 2019). In the questions step, the teacher will throw inquiry questions that can stimulate students' curiosity about the material being discussed. The given question must be able to create another new question that is developed from one question to another and is still interrelated to the concept of the material given or called a big question. The duration of time at this stage normally occurs in about 5 minutes.

The next step is the investigation, students join several small groups and have the freedom to choose a group. Each group consists of four to five students and has access to at least two devices with internet connectivity (Weisblat et al., 2019). In this step, students discuss with their respective groups the relevant information they find to conclude the best solution to the problem before it is presented and reviewed with teachers and students from other groups. The duration in this stage normally occurs over a span of 30 minutes. The last one is the review step, at this step stage each group of students will describe their group's answers, and students from other groups are allowed to review the results of each group's presentation as well as provide feedback. Each student representative in each group will outline their group's answers by preparing a presentation. The duration of this stage is about 10 minutes (Mitra, 2015).

## RESEARCH METHODS

### Research Design

The research method used is a quasi-experimental method with pre-test and post-test control group design. The design of this study used two class groups, namely the experimental class and the control class. The design can be seen in Table I.

**Table I.** Pre-Test and Post-Test Control Group Design.

Pre	Treatment	Post
O <sub>1</sub>	X	O <sub>3</sub>
O <sub>2</sub>	C	O <sub>4</sub>

Information:

O<sub>1</sub>– O<sub>3</sub>: Students environmental literacy pre-test scores on environmental change material

O<sub>2</sub>– O<sub>4</sub>: Students environmental literacy pre-test scores on environmental change material

X : Experimental class treatment with the SOLE learning model

C : Control class treatment with the Discovery Learning model.

### Population and Samples

The population in this study was students in two classes X by purposive random sampling. This sample technique was used in this study because this technique is easy to use in a small population and researchers only use 1 class given by the experiment. The samples used in this study were class X-4 as many as 30 students for an experimental class and class X-2 as many as 30 students for a control class. The sampling in this study was all students in one class obtained from

100% of the total population. This research was conducted at SMAN 51 Jakarta in October - December 2022, the odd semester of the 2021/2022 academic year.

## Instruments

### 1. Student Environmental Literacy Test

Environmental literacy data was obtained using an environmental change material test in the form of an essay with 20 questions. Tests were conducted before and after the study in the experimental class and control class. Environmental literacy test evaluation instruments before being used in research need to be carried out feasibility tests first using validity tests and reliability tests so that research instruments meet valid and reliable criteria. In this study, the validity test of environmental literacy instruments was calculated using the Pearson Product Moment Correlation formula. Based on the results of the validity test, there are 19 valid and invalid questions. In this study, the reliability testing of environmental literacy instrument tests was calculated using the Cronbach-Alpha formula. Based on the results of reliability testing, a reliability value of 0.909 is obtained, meaning that the instrument has very high reliability.

### 2. Observation of Learning Implementation

Observation is carried out during learning activities to observe the learning process in experimental classes and control classes using observation sheets of learning implementation referring to teaching modules. Observation is carried out during learning activities to observe the learning process in experimental classes and control classes using observation sheets of learning implementation referring to teaching modules.

### 3. Student Response Questionnaire

Student response questionnaire is a data collection technique in the form of providing questions about research to students with the aim that researchers know student responses to the SOLE learning model. The measurement scale used in student response questionnaires is the Likert scale with a range of 1-4 (Strongly Agree, Agree, Disagree, Strongly Disagree) with the aim of not including neutral choices (Budiatuti & Bandur, 2018 in Holbrook & Bourke, 2005). The question items in the questionnaire are made in the positive and negative questions. Before this questionnaire is given to students at the end of learning, researchers test feasibility first using validity and reliability tests. In this study, the validity test of environmental literacy instruments was calculated using the Pearson Product Moment Correlation formula. Based on the results of the validity test, there are 19 valid and invalid questions. In this study, the reliability testing of environmental literacy instrument tests was calculated using the Cronbach-Alpha formula. Based on the results of reliability testing, a reliability value of 0.909 is obtained, meaning that the instrument has very high reliability.

## Procedures

In the preparation stage before the implementation of the research, the first thing to do is to make a flow of learning objectives, teaching modules in experimental and control classes, student worksheets on environmental change material, student response questionnaires, and environmental literacy test questions in the form of essays.

This research was carried out in two meetings. At the first meeting, both classes were given a pre-test before being given material to find out the initial conditions of environmental literacy owned by students. Then continued by providing teaching environmental change material with the SOLE model in the experimental class and conventional models using the discovery learning model in the control class. In the first meeting, both classes were given material on Environmental Pollution, Environmental Conservation, Types of Waste, and 3R Recycling with learning resources



in the form of PowerPoint and teaching modules on environmental change material. In the second meeting, both classes were given 45 minutes of Adaptation and Mitigation material with the same lesson resources as the previous meeting. It's just that the learning models applied in both classes are different so in experimental classes, students can be free to use laptops and gadgets to explore information. After both meetings, students in both classes were given a post-test to determine the results of students' environmental literacy after being taught with different models so that whether or not the impact of the SOLE learning model could be known. At the data processing stage, the results of the pre-test and post-test are analyzed using prerequisite tests consisting of normality tests and homogeneity tests. Then proceed with hypothesis testing and normalized-gain tests to determine the activeness of the sole learning model. Once the data is analyzed, then the data can be inferred.

## Data Analysis

### 1. Test Data Analysis Prerequisites

There are two tests in the prerequisite test, namely, the normality test and the reliability test. The normality test used the Kolmogorov-Smirnov test at a significance value of 0.05 using the IBM SPSS 25.00 Statistics For Windows application. The normality test is used to determine whether the population data is normally distributed or not. On the homogeneity test the F test at a significance level of 0.05 using IBM SPSS 25.00 Statistics For Windows application. The homogeneity test is used to determine whether the data is taken from homogeneous population data or not.

### 2. Hypothesis Test

The hypothesis test used statistical analysis of the Independent T-test at a significance level of 0.05 with the IBM SPSS 25.00 Statistics For Windows application. The T-test in the pre-test was carried out to determine the equivalence in the experimental and control classes while the T-test in the post-test was carried out to determine the influence of the SOLE model on environmental literacy.

### 3. Normalized-gain Test

The normalized gain test is used to measure the difference between pre-test and post-test values in the experimental class and the control class. The normalized gain test is carried out to determine the effectiveness of the learning model applied. The normalized gain test results will be interpreted into the category level in Table 2.

**Table 2.** Normalized Gain Criteria.

Normalized Gain (%)	Criteria
< 40	Not effective
40 – 55	Less effective
56 – 75	Quite effective
> 76	Effective

## RESULTS

The data obtained from the experimental class and control class were the results of student environmental literacy tests, student environmental literacy questionnaires, and the results of learning observations made to 60 students. The description of environmental literacy test data can be seen in Table 3.



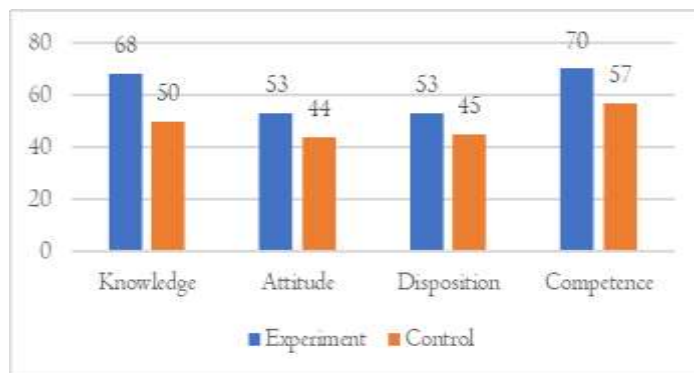
**Table 3.** Description of Environmental Literacy Test Data.

Data	Experimental Class		Control Class	
	Pre-test	Post-test	Pre-test	Post-test
Maximum Value	70.00	100.0	70.00	90.00
Minimum Value	45.00	78.00	35.00	40.00
Average	54.73	90.20	53.93	68.60
Standard Deviation	12.73		22.80	
Normalize Gain (%)	78.84		32.09	

In Table 3, the experimental class has a slightly higher pre-test value than the control class while the experimental class's post-test value is much higher than the control class. The average score of students on the environmental literacy test can also be seen based on the environmental literacy component.

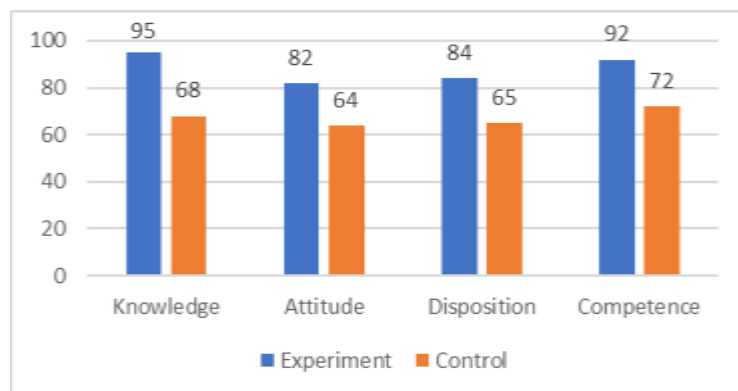
### I. Average Value Based on Environmental Literacy Component

Average scores based on environmental literacy components were obtained from pre-test and post-test results in experimental classes and control classes.



**Figure 1.** Average Scores Based on Environmental Literacy Components from Pre-Test Results in Both Classes

Based on Figure 1, it is known that the average value of the pre-test results in the three components of environmental literacy in the experimental class is greater than that of the control class. The average scores based on the environmental literacy component of the post-test results in the experimental and control classes can be seen in Figure 2.

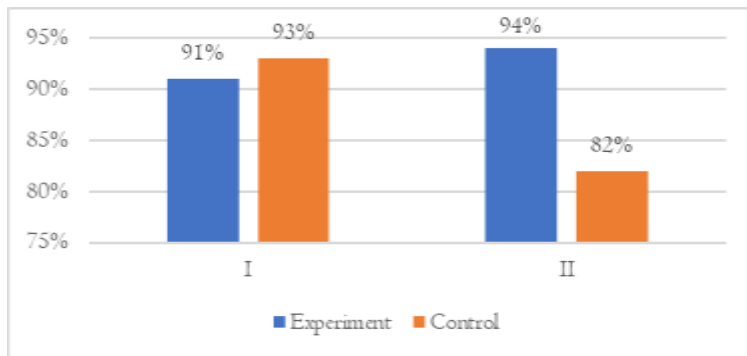


**Figure 2.** Average Scores Based on Environmental Literacy Components of Post-Test Results in Both Classes

In Figure 2, it is known that the experimental class obtained an average post-test value based on the environmental literacy component higher than the control class. This shows that both the average pre-test and post-test scores based on the environmental literacy component in the experimental class get higher results than the control class.

## 2. Implementation of Learning Observations Results

The results of the implementation of learning observations in experimental and control classes can be seen in Figure 3.



**Figure 3.** Observation of the Implementation of Experimental and Control Class Learning

Observation of the implementation of learning refers to the steps that teachers and students apply during the learning process. Based on Figure 3, it is known that at meetings I and 2 in the experimental class, the implementation of learning was 91% and 94% while at meetings I and 2 in the class, the implementation control of learning was 93% and 82%. The experimental class has an average learning implementation of 93% while the control class is 88%. In agreement with Riduwan & Sunarto (2015), the percentage of implementation of both classes has very good criteria.

## 3. Student Response Questionnaire Results

The student response questionnaire aims to find out the student's response to the application of the SOLE learning model to Biology learning with environmental change material. The results of the questionnaire of student responses in both classes are found in Table 4.

**Table 4.** Student Response Questionnaire Results

Question	Very Agree	Agree	Disagree	Very Disagree
Positive	27%	54%	9%	0%
Negative	19%	65%	22%	5%

## 4. Hypothesis Testing and Normalized Gain Test

Test the parametric analysis hypothesis by testing an independent sample t-test using the SPSS 25.00 Statistics For Windows application. Data calculation with an independent sample t-test in the pre-test aims to determine equality in experimental and control classes while the post-test aims to determine the influence of the SOLE learning model on student environmental literacy. Normalized gain testing using the IBM SPSS 25.00 Statistics For Windows application aims to determine the difference between pre-test and post-test in experimental classes and control classes and find out the effectiveness of the SOLE learning model.



**Table 5.** Hypothesis Test (Independent Sample t-test Pre-Test)

Class	N	$\bar{X}$	SD	Sig. (2-tailed)	$\alpha$	Inf.
Experiment	30	54.73	4.989	0.707	0.05	Sig. < 0,05
Control	30	53.93	10.491	0.707	0.05	Sig. < 0,05

The results of the calculation of the independent sample t-test on the pre-test can be seen that the significance value of the experimental and control class is 0.707 which means it is greater than the  $\alpha$  value of 0.05 so that it can be summed up that  $H_0$  is accepted. This shows that there is no difference in the average environmental literacy in the experimental and control classes so it can be assumed that the two classes are equal.

**Table 6.** Hypothesis test (Independent Sample t-test Post-Test)

Class	N	$\bar{X}$	SD	Sig. (2-tailed)	$\alpha$	Inf.
Experiment	30	90.20	5.979	0.000	0.05	Sig. < 0,05
Control	30	68.60	13.823	0.000	0.05	Sig. < 0,05

Based on Table 3, the calculation results of the independent sample t-test in the post-test can be seen that the significance value of the experimental and control classes is 0.000 which means it is smaller than the  $\alpha$  value of 0.05 so it can be summed up that  $H_0$  is rejected. This shows that there are average differences between the two classes so it can be assumed that the SOLE learning model affects students' environmental literacy.

**Table 7.** Normalized Gain Test

Class	$\bar{X}$ Gain Score	Inf	$\bar{X}$ Normalized Gain (%)	Inf.
Experiment	0.789	High	78.8405	Effective
Control	0.32	Low	32.0856	Less Effective

The results of the normalized gain calculation in the experimental class were 78.8405% which means that the experimental class using the SOLE learning model on environmental change materials is effective against students' environmental literacy. The calculation of normalized gain in the control class is 32.0856% which shows that the control class is less effective on the literacy of the student environment.

## DISCUSSION

This study aims to determine the influence of the Self-Organized Learning Environments (SOLE) learning model on students' environmental literacy. The results of hypothesis testing in both sample classes using the independent sample t-test show that there is an influence of the SOLE learning model on environmental literacy. Based on the average gain score obtained, it is known that experimental classes that apply the SOLE learning model get higher results than control classes that apply conventional learning models. This shows that the SOLE learning model is effective compared to conventional learning models. At first, both classes still had low proficiency in the four components of environmental literacy even though they had received lessons on environmental pollution material in junior high school. This is also the same as the average

score based on the environmental literacy component in the post-test data contained in Figure 2, showing that both classes experienced an increase in post-test scores than pre-test scores, and the average score based on the environmental literacy component in the experimental class remained superior in all four components to the control class, reaching 90.

The effect of improving SOLE learning can be seen from the syntax of the SOLE learning model on environmental change material which is divided into three major steps, namely, questions, investigations, and reviews. At the beginning of learning, students will be given inquiry questions by the teacher, coupled with the display of extreme environmental change videos and images related to environmental pollution, environmental conservation, types of waste, and 3R recycling as well as climate change adaptation and mitigation to stimulate students to be able to answer inquiry questions given by the teacher. This is in line with the statement of Charmichael et al., (2018) that providing videos before learning will provide opportunities for students to organize themselves independently by controlling learning and the visuals provided through videos help students understand what looks real that occurs as described in the material, this will certainly stimulate students in learning (Castro-Alonso et al., 2018). Mitra (2015) stated that the purpose of giving inquiry questions is to encourage students to use reason and critical thinking and be able to work collaboratively in building students' understanding of surrounding phenomena and activities armed with students' original knowledge.

The second step in the application of the SOLE learning model in this study is that teachers direct students to form groups with their own choices heterogeneously with members of 4-5 students (Weisblat, 2019). By Brown's opinion (2010), group work at school increases student activeness during the learning process so that students' understanding of related subject matter increases. After students have sat in groups, students will work together in groups to investigate learning from inquiry questions given by teachers by utilizing their smart devices that are connected to the internet network. In this step, students can exchange the knowledge they find with other groups, and work together in exploring the most relevant information. The activity of students after investigating the questions in this study is that students infer each other's knowledge to achieve the most relevant information before being presented in class.

The final step in implementing the SOLE learning model in the classroom is for students to present the results of student investigations in front of the class. The teacher guides students to discuss by asking each other questions or refuting the answers put forward by the group presenting. This is in line with what Esteban & Peart (2014) stated that in learning teachers are no longer the main key that delivers knowledge to students, but according to (Anis & Anwar, 2020) teachers help students build active and independent learning understanding and concepts by providing an atmosphere and facilities that support student learning. The understanding obtained by students through each stage in the SOLE learning model forms the cultivation of student awareness as humans in fulfilling obligations and responsibilities to preserve the environment so that humans do not only use and exploit the environment for the needs of life alone (Suryanda et al, 2020).

The application of the SOLE learning model in experimental classes in this study was proven to improve students' environmental literacy. The SOLE learning model has the advantage of having been proven to produce learning achievements in various subjects such as English, computer science, and biology (Costa, 2014). The application of conventional learning models in control classes is less effective for student environmental literacy because learning is still running individually and is not fully student-centered so conventional models do not contribute to student environmental literacy. In the application of conventional learning models, data collection using textbooks and Biology learning modules is one of the factors in boring learning. This is because, the use of textbooks is very limited for students in collecting data and fulfilling their curiosity about learning (Simu, 2019). The factor that causes the SOLE learning model to improve

environmental literacy is the implementation of learning that has been running well. Unlike conventional applications that only use textbooks during the data collection process, in experimental classroom applications with the SOLE learning model, students feel that learning runs pleasantly so that students can explore new knowledge easily through their smart devices in a relaxed manner and can discuss casually with other students in the class. This is in line with (Partovi & Razavi, 2019) who argue that the use of computers for assignments at school is proven to increase student motivation, interest, and achievement in understanding the subject matter given.

The SOLE learning model applied in the classroom students can also understand learning well through curiosity built through inquiry questions and this curiosity pays off when students find out via the internet and discuss the material with other students. Through the SOLE learning model, students can develop their creative thinking skills in solving problems in the environment. Azrai et al, (2016) argue that in the process of solving problems, students need creative thinking skills to develop ideas during learning. Without creative thinking skills, students will find it difficult to solve problems because they are less able to find alternative solutions to problems that occur (Sigit et al, 2019). The application of the SOLE learning model makes students behave more concerned about the environment and feel worried about the phenomenon of environmental change. In line with the research of Ichsan et al, (2020), environmental care is very important in maintaining environmental conditions so that it can be inherited by the younger generation as successors.

The application of the SOLE learning model invites students to jointly find and discuss solutions to problems in the environment. This research, of course, also has shortcomings, that is, learning runs less conductively, and the classroom is very crowded. Mitra & Crawley (2015) stated that the effect of learning using the SOLE model can improve students' ability to understand the material at a higher level of understanding than each student in a learning group even though learning classroom conditions are less conducive because, in each group, there are still many students who joke and are less serious in learning. In addition, the shortcomings of this study require better time allocation arrangements so that learning is completed on time and the application of the SOLE learning model gets optimal results.

## CONCLUSION

There is an influence of the Self-Organized Learning Environments (SOLE) learning model on the environmental literacy of high school students. The advice in this study is that teachers need to deepen their understanding of the SOLE learning model so that the implementation of learning is more optimal so that students can learn freely and organize themselves according to their learning interests.

## ACKNOWLEDGMENT

The researchers would like to thank the lecturers in the Department of Biology Education, Universitas Negeri Jakarta, and the students of SMA Negeri 5I Jakarta and the students who have helped researchers carry out research. The author also would like to thank the author's parents and younger siblings who have provided as much help as possible, prayers, encouragement, motivation, and affection to the author.

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