

# Climate Justice Campaign with Theme-Based Learning Approach to Achieve SDGs on Climate Action

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## Abstract

Community service activities are a mandatory responsibility for university lecturers as part of the Tri Dharma. This research aimed to investigate attitudes and behaviors towards environmental conservation and analyze the impact of theme-based learning on children in Sei Tuan Village, contributing to broader community-level efforts to protect and preserve the environment. A mixed-methods approach was employed, involving both qualitative and quantitative paradigms to collect and analyze data from 13 children residing in Sei Tuan Village, Deli Serdang Regency. A Pre-Test – Treatment – Post-Test methodology and observations were utilized in conducting the research. The results revealed that 85% of children in Sei Tuan Village demonstrated proficiency in distinguishing between healthy and unhealthy environments. Additionally, all individuals exhibited concern for the environment, including methods of preservation and the benefits of a pristine environment. Notably, 77% of students received comprehensive instruction on categorizing trash into organic, inorganic, and hazardous types. Moreover, 88.5% of individuals articulated positive effects resulting from nurturing environmental affection. Theme-based learning was found to enhance children's recognition of environmental and climate change issues, sparking their interest in learning, particularly in applying basic English vocabulary to care for and protect the environment.

## A. Introduction

One of the biggest contributors to natural disasters in Indonesia is the country's environmental management problems (Ramadhany, 2023). Development carried out without considering environmental balance considerations, which will result in environmental damage and pollution is the source of all environmental problems (Rosmaida & Triadi, 2024).

According to the data in 2018, Central Bureau of Statistics indifference index towards Indonesia's environment showed a value of 0.51. This figure shows that awareness is still low or ignorance is quite high. Public ignorance of the environment is feared to lead to the destruction of natural resources and eventually trigger natural disasters. Many factors influence the issue of public environmental awareness. People's lack of understanding of human nature as a multidimensional being contributes to the current situation by making people less aware of their responsibility to always maintain the balance of nature and humans. Environmental damage is also influenced by the number of the population. People's lack of environmental literacy contributes to environmental degradation (Nakita & Najicha, 2022; Rijal & Amprasto, 2018).

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One type of damage done to the environment is river pollution (Zhang et al., 2021). This can occur due to human actions, such as littering or waste disposal that pollutes river water (Arni & Susilawati, 2022). As a result, the river ecosystem is disrupted, many fish die, and water quality decreases. River pollution is very bad for health and comfort, especially for people who drink river water (Baptise et al., 2021; Hanif et al., 2020).

The Citarum River in Indonesia is as polluted as the Gangga River. Due to its location in a densely populated area, the river receives a lot of domestic waste. Environmentalists and experts alike point out that in North Sumatra, floods and landslides are not only caused by rainfall; they are also the result of environmental degradation, such as the continued loss of forests upstream. Watersheds are very important because they change their function for different purposes.

The rivers in Sei Tuan Village, Deli Serdang, North Sumatra are also experiencing environmental problems in the form of environmental pollution. This environmental change condition has a significant impact on the surrounding community, especially fishermen in Sei Tuan Village. Based on the findings of a study conducted in 2022 by the KKNTD-43 Group at USU, changes in river water quality in the Kambes River in Sei Tuan Village resulted in the emergence of several problems, especially in terms of community development, decreased water quality, limited community knowledge, changes in river conditions, and decreased income. Fishermen are one of the parties most affected by changes in water quality. Given some issues related to environmental literacy and its relationship with changes in the condition of the Kambes River waters, community concern for the environment must be considered. To raise environmental issues, strategic efforts need to be made towards a new paradigm to increase environmental awareness and build character.

The reasons for taking the research focus are first, there is a gap between the current condition of the Kambes River in Sei Tuan Village and the condition that should be better. Second, there is no previous research that examines the water problems of the Kambes River in Sei Tuan Village.

The benefits of the research conducted are that the young generation on the banks of the Kambes River in Sei Tuan Village gained knowledge about climate justice. Youth between the ages of 12 and 18 years old are critical to solving current environmental problems (Stevenson et al., 2013). Kurniasih & Berlin (2015) also said that children are very important to get environmental literacy education because interactions with nature will make children healthy, improve their learning and children to be healthy, improve learning abilities and have admiration and sensitivity to the natural world.

Human activities have a significant impact on river water quality in an area, especially in the vicinity of a river (Ibisch et al., 2016). River water quality will be relatively good if these activities are balanced with a high level of public awareness of the importance of protecting the river environment. If the awareness of Climate Justice has been applied at a young age and the quality of river water has become better, the quality of river water is getting better, then biodiversity is well maintained as well. In addition, the income of the population by fishing in the river will also increase.

The importance of the climate justice campaign through Theme-Based Learning emphasizes the potential result of improvement for the young generation around the bank of Kambes River in Sei Tuan village. Through environmental literacy and knowledge, the children who live nearby will have an impact by raising a higher percentage of awareness which will affect the changes in the Kambes River for a better future. Therefore, the occurrence of this campaign through Theme-Based Learning has power upon the fate of quality for Kambes river by stirring people's motivation and ability to comprehend completely the issues happening and ways to solve them.

In the context of Indonesia, research to study the role of teachers and the results in the cultivation of environmental characters has been done. The data was collected through interviews of grade five teachers in Samarinda (Ma'ruf et al., 2022). The result of this study is that students become more introspective in protecting the environment by throwing garbage in its place, students become more reminded of their fellow friends when someone throws garbage out of place and students become more affectionate for the plants around the student's living environment.

Another research has been done to build a better comprehension of Junior Secondary School students in improving sustainability awareness through Argument-Driven Inquiry. The results obtained from the questionnaires shared to two different groups with Argument-Driven Inquiry and Inquiry-based learning methods showed a vivid outcome. The first group who used Argument-Driven Inquiry reached the percentage of 40.7%, whereas the Inquiry-based learning stayed lower in 37.6% (Salsabila et al., 2019).

Thus, the result exposed a better effectiveness in the usage of Argument-Driven Inquiry to trigger a better capability in understanding and awareness on the Junior Secondary School students.

Additionally, environmental issues are inevitable these days especially when it relates to human's interaction and conditions. Therefore, a research is done to aim an understanding and determination of literacy levels among science and social studies majored students in class XI and XII (Pangestu et al., 2023). The survey research using the instrument from Middle School Environmental Literacy Survey (MSELS) drew a conclusion of average environmental literacy level of the participants involved in the number of 57.1 at the relevant category.

One of the Sustainable Development Goals (SDGs), Climate Action, is one of the objectives of the community service program to be conducted in Sei Tuan Village. This community service links environmental issues and English language teaching. It aims to conserve and sustainably utilize natural resources both on land and in the ocean, to maintain human survival now and in the future, and to improve the economy and welfare of the community. Indeed, preserving the environment is essential to improving the quality of human life. Abundant natural resources can be utilized properly without having to be over-exploited while still taking into account the interests of future generations and not damaging the environment.

## **B. Research Method**

### ***Research Location***

This research conducted around the Kambes river, Sei Tuan Village, Deli Serdang. The target of this research is teenage children aged 6-13 years old and still in school in the village.

### ***Research Design***

Experimental research is a type of research that looks at how certain activities or treatments affect certain conditions series of treatments affect certain conditions (Wina, 2015). Experimental research in the form of One-Group Treatment – Improvement – Questionnaire Design is the research design used.

### ***Stages of Research Implementation***

The instrument used in this research is treatment-improvement-questionnaire. There were 10 closed questions and 5 open questions in the post-test as identified and suggested by Mackey & Gass (2005). The post-test is given after students take part in learning through the Theme-Based Learning method, the post-test results are used to determine whether or not there is an increase in understanding of Climate Justice through the use of Theme-Based Learning.

### ***Sample***

Sampling this research using Probability sampling as defined by Sugiyono (2018) is a sampling method that provides equal opportunities for each component or member of the population to be selected into a sample.

### ***Research Variables***

The variables that will be examined in this research are:

1. The dependent variable (Y): Understanding of Climate Justice.
2. Independent variable (X): Theme-Based Learning Approach.

### ***Data Collection Technique***

1. Observation, by using theme-based learning approach, artificial (experimental) observation was conducted to assess students' learning outcomes.
2. Documentation, specifically one of the methods used to collect data by directly recording information that already exists in the system. data by directly recording information that already exists in the system.
3. Tests, are a set of questions or exercises and other tools used to measure the skills, intelligence, knowledge, abilities, or talents of individuals or groups. or group. Youth learning outcomes on Climate Justice were analyzed using using this test method. Pre-test and post-test assessments were used in this research.

### Data Analysis Technique

Deductive techniques were used to process the information collected during the field research. field research. According to [Sagala \(2010\)](#), the deductive approach is a method of reasoning that moves from general to specific circumstances. method of reasoning that moves from general circumstances to specific circumstances. The following formula was used to analyze the data:

1. Learners' correct answers

$$\text{Score} = \frac{\text{number of learner's correct answers}}{\text{number of questions}} \times 100$$

2. Classification of learners' scores with the following criteria as follows:

**Table 1.** Classification of Learners' Scores

Score	Classification
80-100	Very good
66-79	Good
56-65	Average
40-55	Deficient
<39	Very deficient

Determining the average scores in the Pre-Test and Post-Test

$$\bar{x} = \frac{\sum x}{N}$$

Description:

$\bar{x}$  = Average

$\sum x$  = Total score

N = Number of class students

Then the data is analyzed with a percentage formulation, as for the formula onegroup pretest posttest design as follows:

Pattern:  $O_1 \times O_2$

### C. Result and Discussion

This section will explain the stages carried out in the training to raise awareness of climate justice by using a theme-based learning approach to achieve the SDGs on climate action for children in Sei Tuan Village, Deli Serdang Regency. The stages are as follows.

#### Preparation

In the preparation stage is to make direct observations to see the actual conditions in Sei Tuan Village. From the observation activities carried out, it was found that several points in Sei Tuan Village experienced pollution both in terms of soil pollution and water pollution. This was confirmed by a brief narrative from a resident when conducting a brief interview. The environmental problems in question are caused by the lack of rice waste disposal sites, so that residents who mostly work as farmers are forced to dispose of the remains of rice processing to several locations carelessly. In addition, the awareness of residents to dispose of personal waste to the proper place is still an obstacle. As a result of the lack of access to garbage disposal, the environment has become polluted at several points. Apart from land and water, the air is also affected. The lack of green trees along the road makes the neighborhood feel arid and less cool. Especially when the weather is hot, the wind feels less refreshing.

After knowing the existing environmental problems, the next step is to prepare materials for discussion, making learning modules and determining the method used in the training, namely theme-based learning, preparation of pre-test and post-test questionnaires. Given that children in Sei Tuan Village are still not proficient in using English, the learning method using English as an introduction is the main key.

#### Treatment

At the first treatment stage is to carry out the learning process to children in Sei Tuan Village. Treatment stage is carried out offline by being directly guided by three teachers. The first teacher discussed the types of environment starting from the types of landscapes that can be found in the water and land environment,



then the types of living and non-living things. The second teacher explained the types of environmental damage caused by humans and nature. Then closed from the exposure of the third teacher, namely the ways that can be done to overcome the environmental damage. The material that has been compiled and designed is then delivered in two languages, namely Indonesian and English.



**Figure 1.** Interactive learning session



**Figure 2.** Ice breaking session

At the second treatment stage is to carry out the assignment process to the children of Sei Tuan Village where the children implement the learning obtained from the third teacher. The assignment to the children was to do community service or cleaning at several polluted environmental points in the village. The cleaning activities in question include picking up and collecting garbage, cleaning ditches, and weeding weeds along the road. Then, it was followed by tree planting activities.

During the second treatment, the teachers observes and monitors children when carrying out the assignment stage. The monitoring stage is carried out by meeting face to face and directly guiding children who are doing community service in the Sei Tuan Village environment. This is done so that children are not only asked to clean up, but introduce the actual environmental conditions and teach how to care for the environment. The same thing is also applied in learning while playing activities. Children receive direct direction so that they are not confused when matching cards. In addition, it is intended that children are proficient in using some English vocabulary in everyday life.



**Figure 3.** Planting the tree



**Figure 4.** Card matching game



**Figure 5.** The participants

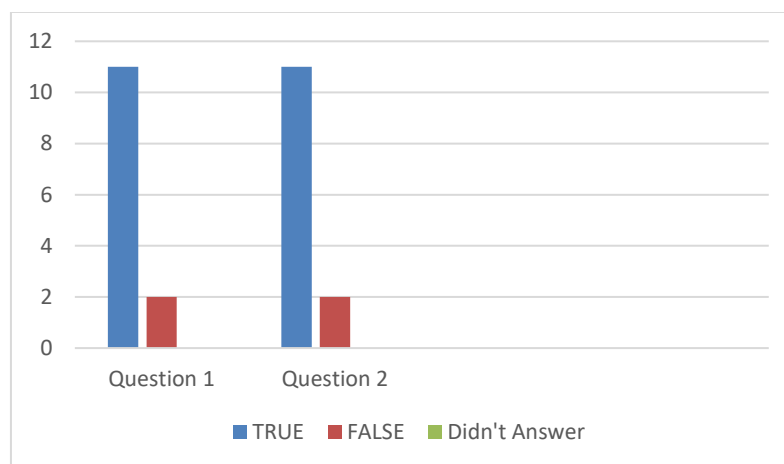
In addition, the children were also asked to do a short test wrapped in an attractive game to grow their knowledge in English. The language game used picture cards related to the environment or climate. Then, the children were asked to match the cards to the corresponding pairs of cards. In the end, the children will interpret the picture contained in the card using the English vocabulary that has been taught.

### **Post-Test**

At the post-test stage is the stage of distributing questionnaires to all children. The distribution of this post-test questionnaire is used to measure the success of the service that has been carried out in Sei Tuan Village, Deli Serdang Regency to increase environmental awareness by using a theme-based learning approach to achieve the SDGs on climate action. The results of the post test can be seen below.

### **Post-Test Questionnaire Results**

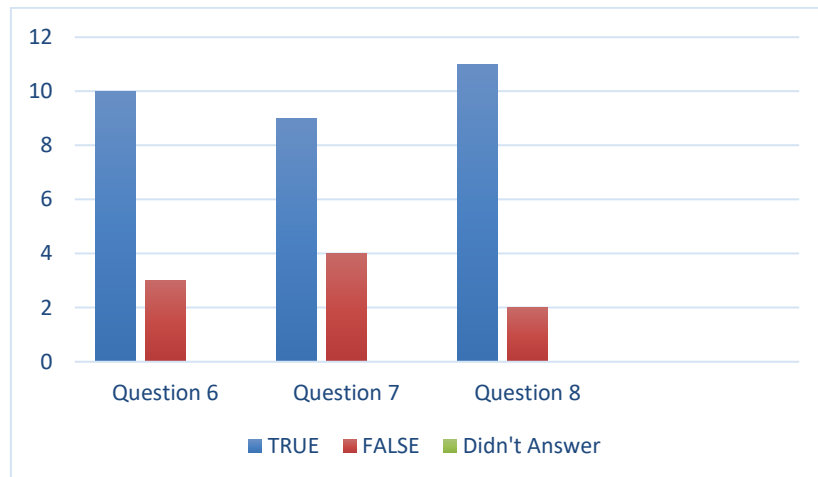
1. A total of two questions were designed for children to identify the correct picture showing the condition that the question asked for. Question number one asked children to choose a picture that showed a healthy environment, while question number two asked children to choose a picture that showed an unhealthy environment. From the answers obtained, the results are shown in the bar chart below.



**Figure 6.** Identifying the Right Picture of the Environment

From the data shown in the bar chart above, there was a similarity in the number of children choosing the right picture in questions number one and two. In question number one, 11 (85%) out of 13 children had been able to identify the right picture for a healthy environment. Whereas, 2 (15%) out of 13 children had not been able to identify appropriate pictures for a healthy environment. The same thing was found in question number two. In question number two, 11 (85%) out of 13 children were able to identify the right picture for an unhealthy environment. Meanwhile, 2 (15%) out of 13 children were not able to identify the appropriate pictures for an unhealthy environment.

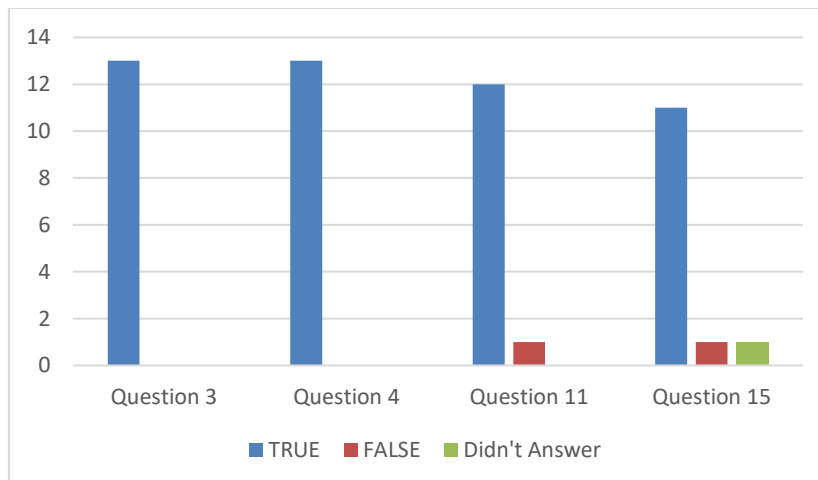
2. A total of three questions were designed for children to identify the right picture of trash as instructed by the question. Question number six asked the children to choose one out of three pictures of organic waste. Question number seven asked children to choose one of three pictures of inorganic waste. Finally, question number eight asked the children to choose one out of three pictures of hazardous waste. From the answers obtained, the results are shown in the bar chart below.



**Figure 7.** Identifying the Right Picture of Trash

From the data shown from the bar chart above, it showed that there was a difference in the number of children choosing each correct picture. In question number six, 10 (77%) out of 13 children had been able to identify the appropriate picture for organic waste. However, as many as 3 (23%) out of 13 children had not been able to choose the right picture for organic waste. In question seven, 9 (69%) out of 13 children had been able to identify the right picture for inorganic waste, but 4 (31%) out of 13 children had not been able to choose the right picture. Finally, in question number eight, 11 (85%) out of 13 children had been able to answer the question of the appropriate picture for hazardous waste. However, 2 (15%) out of 13 children had not been able to answer correctly.

3. A total of four questions were designed for children to answer questions related to the condition of their neighborhood. These questions covered their sense of care for their neighborhood and the efforts they made to keep it clean. Question three asked the children to answer whether they love their neighborhood. Question four asked the children to answer how important the cleanliness of their neighborhood is to them. Question number eleven asked the children to answer what they do when they see litter. Question fifteen asked the children to answer what efforts local people make to keep the environment clean. From the answers obtained, the results are shown in the bar chart below.

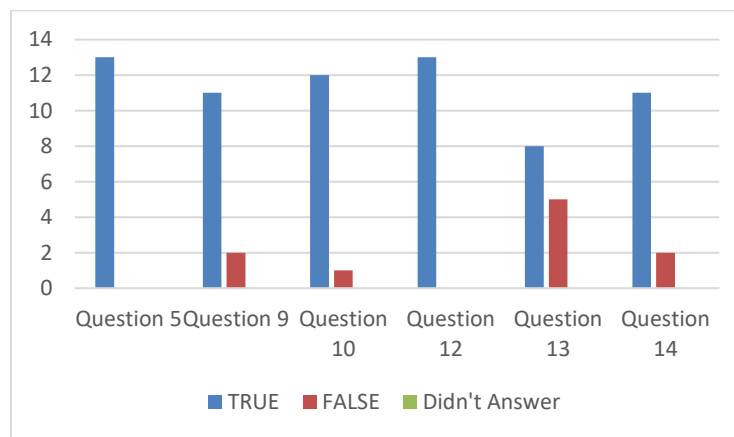


**Figure 8.** Questions About the Neighborhood

From the data shown in the bar chart above, there were the same number of answers in some questions. The question about the neighborhood environment received an enthusiastic response from the children. In question three, 13 (100%) out of 13 children, meaning all children, answered the question correctly. The same was found in question four. All 13 (100%) of the 13 children answered the question correctly. In question number eleven, 12 (92%) out of 13 children answered correctly for the question that tested their caring actions. However, 1 (8%) out of 13 children did not answer correctly. The last data, on question number fifteen, showed three variations of answers from the children. A total of 11 (84%) out

of 13 children filled in the question and described the activity of protecting the environment appropriately. However, 1 (8%) out of 13 children were not able to answer correctly, then there was 1 (8%) out of 13 children chose not to answer the question.

4. A total of six questions were designed for children to answer questions related to the environment in general. These questions included the benefits and impacts of a clean or dirty environment, efforts to keep the environment clean, and the relationship between the environment and climate change. Question five asked children to answer the benefits of a clean environment. Question nine asked children to answer the impact of environmental conditions on people's income. Question number ten asked the children to answer the impact of climate change. Question number twelve asked the children to answer the appropriate action in processing organic waste. Question number thirteen asked the children to answer the efforts made to keep the environment clean and healthy. Finally, question number fourteen asked children to answer human activities that can damage the environment. From the answers obtained, the results are shown in the bar chart below.



**Figure 9.** Questions About the Environment in General

The data shown in the bar chart above indicated that the children's understanding and concern for caring for the environment was very good. However, for questions that contained action, the children had not fully responded well. In question number five, 13 (100%) out of 13 children, in this case all children, answered the question correctly. In question nine, 11 (85%) out of 13 children answered the impact of a bad environment on the income of local residents correctly, but there were 2 (15%) out of 13 children who were not able to answer correctly. In question ten, 12 (92%) out of 13 children were able to answer the question correctly, but 1 (%) was not able to answer correctly. In question number twelve, 13 (100%) out of 13 children, in this case all children, answered the question correctly. In question number thirteen, 8 (62%) out of 13 children were able to explain activities that can support environmental cleanliness, but 5 (38%) out of 13 children were not able to answer correctly. The last data, in question number fourteen, 11 (85%) out of 13 children were able to explain activities that can damage the environment, but 2 (15%) out of 13 children were not able to explain correctly.

### Impact

The impact of the assistance that was carried out in the community service program, children in Sei Tuan Village, Deli Serdang Regency had already gained the ability to recognize the environment and climate change that occurred around them well. Additionally, this program had also received a good response from the children's parents. Through this program, the children had become eager to learn, especially in applying basic English vocabulary in everyday life. The most important outcome was that the children had become wise to care for and keep the surrounding environment clean.

Despite receiving a positive response from the children and the surrounding community, this service will have a more significant impact if it is carried out three times a week. Currently, the service provided by the service team is only conducted once a week, which may not be enough to effectively teach children about environmental awareness and climate care. Furthermore, the implementation of climate care using the theme-based learning teaching method approach will be more complex if taught directly from school. This is because children need consistent exposure to these concepts in order to fully understand and internalize



them. In addition, the family and community environment also plays a role in reinforcing these lessons, and schools must work in tandem with these environments to create a comprehensive and effective learning experience. Not only does this require more frequent service, but it also necessitates a more collaborative approach between schools, families, and the community.

#### D. Conclusion

Based on all the activities carried out by the community service team in Sei Tuan village, it can be seen that the children in the village are able to distinguish what are the environmental problems in their village and how steps can be taken in minimizing climate change that can damage the order and ecosystem around them. With this program, children become eager to learn, especially in applying basic English vocabulary in everyday life. The most important thing is that children become wise to care for and keep the surrounding environment clean.

Training to raise awareness of climate justice by using a theme-based learning approach to achieve the SDGs on climate action for children in Sei Tuan Village, Deli Serdang Regency has become an option for improving the climate and environment. Instilling values and knowledge in children in Sei Tuan Village, is expected to create young people who care about environmental health and become climate change observers in the future.

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