

## The Importance of Early Education About Climate Change for Students of Primary School

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### ABSTRACT

The importance of early education about climate change at the lowest educational level (elementary school students) needs to be instilled. The goal is for students to be able to change attitudes, habits, and actions in facing recent climate change. The methods used in this community service activity include socialization, interviews, and practicing planting vegetables as family food security. Questionnaires were filled out before and after the socialization by the Unilak Community Service Team. The results of the questionnaire calculation before the socialization showed that the students' understanding, attitudes, and self-preparation towards climate change were quite low, with 75% not knowing and 25% already knowing. After the socialization, interviews, and vegetable planting practice, there was an increase in students' knowledge and education about climate change by 42%, with 33% of students still not understanding and 67% already understanding. This shows that students paid attention to and understood the explanations given by the Unilak Community Service Team well after the socialization was conducted. Generally, students did not know the definition of climate change, its causes, and mechanisms. Students felt the recent erratic weather with increased temperatures and felt hot. However, students did not know that changes in the environment and climate had occurred. The students of SD Negeri 019 Pandau Jaya also did not know how students should act, behave, change habits to "go green" and "save the earth," and the impacts that would occur. Almost all students said they had not received information about climate change from school teachers, newspapers, friends, and online media. The hope for the future after the socialization is that students can socialize the knowledge to friends, family, and neighbors about climate change so that they can change attitudes, actions, and daily habits at least in the school and home environment. Students can start by living healthily, saving water and electricity, sorting waste, exercising, enjoying planting, and starting by planting crops for food security in the surrounding environment.



### 1. INTRODUCTION

The sustainable development promoted by the government includes one of the goals, which is about climate change (Siringoringo 2022; BPS 2016). The importance of the global climate change issue lies in its impact on the sustainability of human life. Climate change has a real impact and influence on all sectors and the balance of global life. This is where the importance of education comes into play to prepare students and humanize humans so that they can understand their roles, attitudes, responsibilities, and develop their competencies for the surrounding environment (Arwan et al. 2022). Climate-based education related to sustainable development should be expanded in all aspects of subjects, including in the curriculum. The most basic education, namely the elementary level, becomes the spearhead for the government in terms of understanding climate change. The earlier students are given knowledge, science, and experience about climate change, the more it will be ingrained in their souls and minds to maintain and improve the surrounding environment. This is crucial for raising students' awareness to understand, respond to, and take action for the environment (UNESCO 2012; Zukmadini and Rohman 2023). Ultimately, it is hoped that a lush, comfortable, and ecologically functional environment will be created.

Early climate change education is essential to be implemented as early as possible (Arwan et al. 2022; Hadi et al. 2023; Juliarti et al. 2023). This is because recent weather and climate changes globally have altered, impacting the quality and daily activities of humans. The issues of global warming and climate change have gone global. At several regional, national, and international events, it has become a hot topic of discussion. Therefore,



it is considered necessary for the government to immediately mitigate and adapt to climate change.

SD Negeri 019 Pandau Jaya, Siak Hulu, Kampar is an elementary school that has been accredited with an A by the government. This indicates that SDN 019 Pandau Jaya meets the criteria of a good elementary school in terms of school management. The A accreditation obtained impacts the students, especially regarding their quality and quantity. The quality of students relates to their ability to receive knowledge and their sensitivity to the surrounding environment. It is hoped that the students of this state elementary school can understand attitudes, actions, responsibilities, and solutions to environmental problems. Good attitudes and habits towards the environment need to be motivated so that students can be independent, care for the environment, and be tolerant of the climate changes that have occurred recently (Elisabeth 2017; Sutrisno 2019; Rozinah and Sa'diyah 2021). The purpose and objective of the socialization about the importance of early climate change education are directed at this school as a form of higher education institution's responsibility to the community in improving knowledge and science. This is in line with the Tri Dharma of Higher Education, especially community service. It is also hoped that the socialization conducted by the Unilak Community Service Team will enable students to enhance their knowledge and understanding of climate change and provide information about climate change to their friends, neighbors, siblings, and people around them.

For this reason, it is necessary to provide socialization on the importance of early education about climate change to elementary school students. Additionally, knowledge on how to plant and maintain vegetables in polybags will be provided so that students develop a love for planting. The hope is that the given socialization can increase family food security and the beauty of the home and surrounding environment.

## **2. METHOD**

Community service activities at Universitas Lancang Kuning (Unilak) are part of the Tri Dharma of Higher Education, along with education and teaching, and research. Every lecturer is obliged to carry out the Tri Dharma of Higher Education every semester. Community service activities can be conducted within the faculty, university, surrounding community, and other areas. This community service was carried out by a Unilak team consisting of three people from different faculties. The team members have competencies in climate change, silviculture, and forest fires. The socialization of the importance of early education about climate change for elementary school students was held at SD Negeri 019 Pandau Jaya Siak Hulu, Kampar, which is located quite far from the Universitas Lancang Kuning campus, only about 1 km away. Thirty-four students participated in the socialization activity. The students who participated were both boys and girls in the 5th grade. This community service activity was conducted for one day, on May 17, 2024. The students gathered in the classroom and practiced planting outside. The method used in the community service implementation by the Unilak Team was a question-and-answer method and direct discussion with the students. The socialization techniques were as follows:

1. Introduction by the Unilak community service team and students to create good two-way communication.
2. Filling out a questionnaire before the socialization. The questionnaire was distributed by the community service team before the socialization began. The aim was to determine the students' knowledge of climate change before the socialization activity.
3. Socialization. This activity included lectures, discussions, and a question-and-answer session. Students were given time to ask questions and provide their arguments. The community service team also asked questions to the students several times.
4. Filling out a questionnaire after the socialization. The questionnaire was redistributed to the students to be filled out again. The content of the questionnaire remained the same. The purpose of filling out the questionnaire after the socialization was to measure the increase in students' understanding, attitudes, and habits regarding climate change.
5. Screening several films and YouTube videos about climate change. The aim was to help students better understand the reality of climate change.
6. Planting various vegetables in polybags, including water spinach, mustard greens, tomatoes, and chilies.

### **Approach and Implementation of Socialization/Community Service**

The socialization approach method carried out by the Unilak community service team for the students of



SD Negeri 019 Pandau Jaya, Kampar, is a direct approach, not through intermediaries or online methods. This allows the community service team to communicate directly, understand the students' needs, and know their expectations regarding climate change. Some students mentioned that school teachers had never provided material on climate change. Generally, students stated that information about climate change was obtained from TV, social media, and newspapers.

Student participation in climate change socialization was quite high. The students' enthusiasm for participating in the socialization activities was very encouraging. Every student actively participated in discussions and was able to answer several questions from the Unilak community service team. The communication between the students and the community service team was excellent. Students were not hesitant to ask questions about the socialization material. There was even a student who explained climate change very well. The Unilak community service team explained global warming, its causes, impacts, and attitudes to face climate change. The team explained it as simply as possible to make it easy for the students to understand. Examples of climate change provided were not only from Indonesia but also global. The students were positioned as both subjects and objects. They were given the freedom to express their arguments and opinions, and the team would evaluate and guide them. The stages in this Community Service (IbM) activity were as follows:

1. Filling out a questionnaire before the socialization
2. Providing socialization and understanding of climate change
3. Giving examples of actions and attitudes to prepare students for climate change
4. Screening YouTube videos and films about climate change
5. Filling out a questionnaire after the socialization
6. Planting various food crops
7. Analyzing the questionnaires descriptively to find solutions to the problems

### **Partner**

In the context of implementing this community service, the partners are the students of SD Negeri Pandau Jaya, Siak Hulu, Kampar, specifically those in Grade 5. Grade 5 students were chosen because they are considered to have sufficient understanding, ability to express opinions, and analyze problems. These student partners were selected because SD Negeri 019 Pandau Jaya rarely receives socialization from universities in Pekanbaru and Kampar. The students need to be equipped with knowledge and information about climate change. It is hoped that the students can distribute this information to their friends, families, neighbors, and the local community. Thus, the socialization, information, and understanding about climate change can transform people's habits towards environmental ethics. It is expected that the students actively participate and directly engage in every activity related to environmental issues.

### **Evaluation and Sustainability of Socialization**

The community service activities for the students of SD Negeri 019 Pandau Jaya, Siak Hulu, Kampar need to be evaluated to determine the success of the socialization conducted by the Unilak community service team. Follow-up evaluations are necessary for planning future programs to enhance students' attitudes and behaviors towards the environment. Evaluation and sustainability of this community service program need to be continuously performed, leading to the emergence of new programs, including:

1. Assessing understanding based on data from questionnaires conducted before and after the program implementation.
2. Periodic monitoring of the IbM targets (every three or six months).
3. Analysis of emerging issues.
4. Seeking the best solutions to address these issues.

## **3. RESULTS AND DISCUSSION**

### **Early Education Questionnaire on Climate Change for Elementary School Students**

Early education on climate change for students at SD Negeri 019 Pandau Jaya, Kampar, is a theme in the community service activities conducted by the Unilak Community Service Team. The implementation of this



community service took place on Friday, May 17, 2024. The Unilak Community Service Team engaged with elementary school students as part of their institutional responsibility to the surrounding community. The activity began with introductions by the Unilak Community Service Team, the students, and their accompanying teachers. Following the introductions, the Unilak community service team provided information on the agenda for the socialization event.

Prior to the socialization activities, the community service team distributed questionnaires to the students for them to fill out. The questionnaire consisted of 10 questions related to climate change. The purpose of the pre-socialization questionnaire was to assess the students' knowledge before receiving explanations about climate change from the Unilak Community Service Team. The students filled out the questionnaire twice: once before the socialization and once after the socialization. The aim of completing the questionnaire twice was to determine the level of understanding, attitudes, and preparedness of the students in facing climate change (Picture 1).



Picture 1. Process of Questionnaire Completion by Students of SD Negeri 019 Pandau Jaya, Siak Hulu, Kampar

Picture 1 shows that before filling out the questionnaire, the Unilak Community Service Team explained how to complete it effectively. Students who did not understand how to fill out the questionnaire were encouraged to ask the team. The questionnaire was completed within approximately 20 minutes.

**Early Education Socialization on Climate Change for Elementary Students**

Early education on climate change for students at SD Negeri 019 Pandau Jaya, Kampar was conducted over a single day. The students who received this socialization from the Unilak Community Service Team were fifth-grade students. The socialization event was attended by 34 students. The Unilak team began the session by screening a YouTube video about climate change. The video vividly explained the process and mechanisms of climate change, its causes, and its impacts on the environment, health, and agriculture.

The participants in this socialization were limited to fifth-grade students because it is crucial to provide these foundational principles to elementary students regarding attitudes and preparedness in facing climate change.

Several questions in the questionnaire were closely related to climate change. Some students had already heard the definition of climate change. They learned about climate change from friends, parents, television, newspapers, and social media. The students mentioned feeling the effects of climate change, such as intense heat.

Based on interviews, some students were aware of the impacts of climate change, while others were either unaware or did not perceive them. Students at SD Negeri 019 Pandau Jaya, Kampar had not previously received education on climate change through other activities. They expressed not knowing that climate change is one of the most discussed issues at both the national and international levels. Most of them were unsure how to respond to it. They also admitted to not knowing daily habits that support sustainability or reduce the impact of climate change.

Therefore, the Unilak Community Service Team felt it necessary to conduct socialization on climate change for these students.

The content of the climate change socialization included understanding climate change mechanisms, its

impacts, current issues, mitigation and adaptation strategies, and what students should prepare for in facing climate change. The students who participated in this socialization are expected to become information disseminators and educators among their peers and communities. The goal is to transform students' attitudes into sustainable habits. Students are encouraged to change their daily routines to be more environmentally friendly, conserve natural resources, and take responsibility for their surroundings.

The implementation of the community service activities lasted for one day, from 08:00 to 12:00 WIB. Students gathered in their classrooms and listened to presentations from the Unilak Community Service Team (Picture 2).



Picture 2. Early Education Socialization for Elementary Students in Facing Climate Change

During the implementation of the activity, students were guided by the Unilak Community Service Team, assisted by 2 undergraduate students majoring in Forestry. When the Unilak Community Service Team presented their presentation, students were encouraged to ask questions. The students of SD 019 Pandau Jaya, Kampar were very enthusiastic about participating in this socialization. The Unilak Community Service Team received positive responses from the students. The students listened attentively, and without hesitation, they answered when questioned. On average, the questions posed were easily answered by the students. The Unilak Community Service Team also injected jokes to make the students happy and joyful. The session most enjoyed by the students was the prizes prepared by the Unilak Community Service Team. At the end of the Q&A session, students were given questions or quizzes to win prizes for those who could answer correctly. Their answers and arguments to the questions were very straightforward and sometimes elicited laughter from the students. The atmosphere during the Q&A session was very conducive and exciting. The early education socialization activity for students on climate change is expected to provide an understanding for students to respond to the changes that have occurred. After completing the second questionnaire and watching YouTube, the activity continued with planting various types of vegetables in polybags. Each student received one polybag containing ready-to-plant soil. These polybags were planted with vegetables provided by the Unilak Community Service Team, including water spinach, green mustard, chili, and tomatoes. The vegetable planting activity is shown in Figure 3. At the end of this socialization event, the Unilak Community Service Team, together with the students of SD 019 Pandau Jaya, Kampar, and the Community Service Team, captured the event by taking photos with the students (Picture 4).



Picture 3. Activity of Planting Vegetables in Polybags by Students

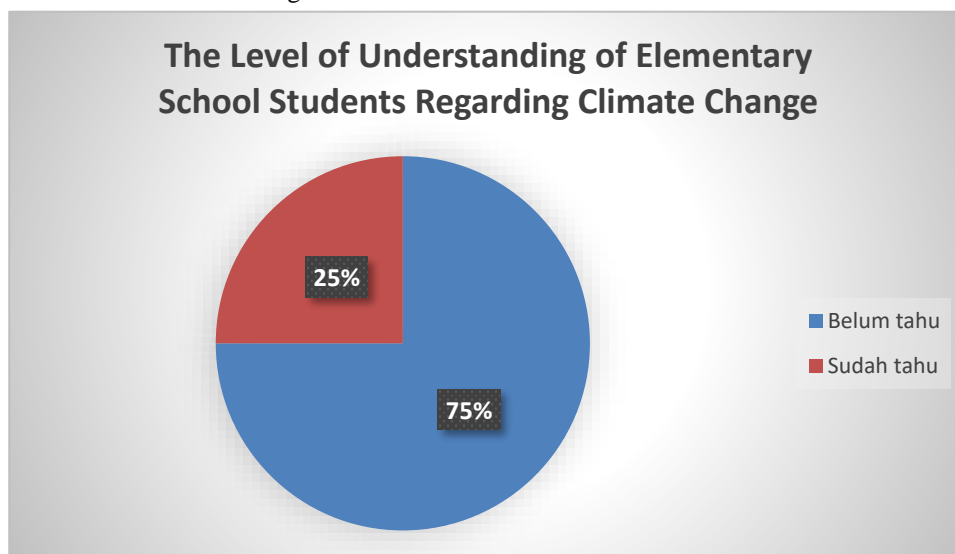


Picture 4. Unilak Community Service Team and Students Taking a Group Photo

**Evaluation of Activities**

Evaluation of activities is conducted after the completion of the event. This evaluation is crucial to assess whether the activities were successful or not. The evaluation focuses on students' understanding of climate change in their surroundings. Evaluation of understanding and knowledge of climate change is performed by analyzing the results of questionnaires given to students before (pre-test questionnaire) and after (post-test questionnaire) the outreach activities. The evaluation results indicate an improvement in understanding and attitudes towards the topics presented to the students of SD Negeri Pandau Jaya, Siak Hulu, Kampar.

The collected data is categorized based on the percentage of students who were unaware and those who were aware. From the first questionnaire distributed, it was found that 75% of students were unaware of climate change in Indonesia and globally, while 25% were already aware. After conducting the early childhood education in dealing with climate change, the second questionnaire was distributed. The data generated from the second questionnaire indicated an increase of 42%, with only 33% remaining unaware and 67% already aware. Of the 33% who remained unaware, the students indicated that they were not yet sure what actions, attitudes, and habits should be changed to be able and ready to deal with climate change. The size of the understanding of attitudes and preparations to face climate change in the socialization activities is shown in Pictures 5 and 6.



Picture 5. Results of Pre-test Socialization by Unilak Community Service Team

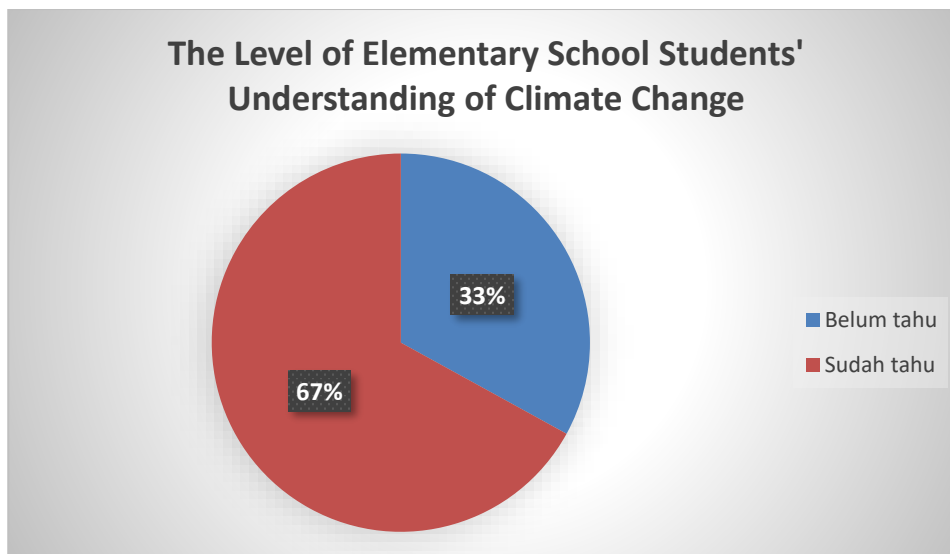


Figure 6. Results of Post-Test of Community Service Activities by Unilak Community Service Team

#### 4. CONCLUSIONS

The socialization on understanding attitudes and preparations for climate change by the Unilak community service team to the students of SD Negeri Pandau Jaya, Siak Hulu, Kampar resulted in the following conclusions is the community service activity led to an increase in the understanding of attitudes and preparations for climate change among the students of SD Negeri 019 Pandau Jaya, Siak Hulu, Kampar. The increase in understanding rose from 25% to 67%. Next, mitigation and adaptation actions informed and to be implemented by the students include water and electricity conservation, proper waste disposal, recycling of waste, maintaining environmental cleanliness, using organic fertilizer from processed organic waste, saving fuel by walking or biking, and actively engaging in gardening. And then, learning to cultivate various vegetables such as water spinach, tomatoes, chili, and green mustard as food sources.

Periodic evaluations are necessary to assess whether the understanding of attitudes and preparations for climate change has been ingrained in the students. Teachers at SD Negeri 019 Pandau Jaya, Kampar should also enhance their knowledge and information about climate change to instill environmental awareness in students from an early age. Teachers are encouraged to assign more responsibilities to students to increase their concern for environmental degradation. Cultivating a habit of gardening among students is also recommended to create cooler environments and ensure a sustainable food source for families.

#### REFERENCES

- Arwan, JF., Dewi, L., dan Wahyudin, D. 2022. Urgensi pendidikan berbasis perubahan iklim untuk pembangunan berkelanjutan. *Jurnal Pendidikan Lingkungan dan Pembangunan Berkelanjutan*. 22(2): 24-48.
- [BPS] Badan Pusat Statistik. 2016. Potret awal tujuan pembangunan berkelanjutan (sustainable development goals) di Indonesia. Jakarta: Badan Pusat Statistik.
- Elizabeth, MZ. 2017. Program Pengelolaan Kebersihan Lingkungan di Pesantren. *Jurnal Dimas*. 17 (1).
- Hadi, S., Taqiudin, M., Anggara, D., Mujahadah, N., dan Mulyadi, PN. 2023. Pengetahuan Generasi Muda terhadap Fenomena Perubahan Iklim. *Jurnal Tampiasih*. 2(1): 53-58.
- Juliarti, A., Prasetyaningtyas, SR., dan Iksani, H. 2023. Pemahaman dan Persiapan Menghadapi Perubahan Iklim pada Santri Ponpes Darul Mukhlisin, Rumbai Pekanbaru. *Jurnal Abdimas Lectura*. 1(3): 251-263.
- Rozinah, AS., dan Sa'diyah, H. 2021. Peran Santri dalam Menjaga Kebersihan Lingkungan Hidup di Pondok Pesantren Annuqayah Latee I Pada Masa Pandemi. *Jurnal Penelitian*. 15 (2).
- Siringoringo, GLR. 2022. Program dalam pelaksanaan tujuan pembangunan berkelanjutan (SDGs) dalam hal masalah perubahan iklim di Indonesia. *Jurnal Kajian Ilmu dan Pendidikan Geografi*. 5(1):43-52.



- Sutrisno, W. Menciptakan Santri Sadari Lingkungan di Pesantren Assalaam Manado. Tesis. Program Pascasarjana: Institut Agama Islam Negeri (IAIN) Manado.
- [UNESCO] United Nations Educational, Scientific and Cultural Organization. 2012. Education for sustainable development sourcebook. France: United Nations Educational, Scientific and Cultural Organization
- Zukmadini, AY., dan Rohman, F. 2023. Edukasi mitigasi dan adaptasi perubahan iklim menggunakan film dokumenter. Jurnal Kumawula. 6(1): 191-203.