

**STUDENTS' AWARENESS OF SOCIOSCIENTIFIC
ISSUE OF CLIMATE CHANGE IN
PROJECT-BASED LEARNING**

A THESIS

by

Salsadila Aurelya Putri

Student Number: 06011281924027

**English Education Study Program
Language and Art Education Department**



**FACULTY OF TEACHER TRAINING AND EDUCATION
SRIWIJAYA UNIVERSITY**

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INDRALAYA

2023



Approved by

Advisor,

Sary Silvhiany, M.Pd., M.A., Ph.D

NIP. 197708112002122003

Certified by

Head of English Education Study Program

Eryansyah S.Pd., M.A., Ph.D

NIP. 196907181995121001

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Salsadila Aurelya Putri


Student Number: 06011281924027

**This thesis was defended by the writer in the final program examination and
was approved the examination committee on:**

Day : Monday

Date : March 20, 2023

1. Chairperson : Sary Silvhiany, M.Pd., M.A., Ph.D ()

2. Member : Alhenri Wijaya, S.Pd., M.Pd ()

Palembang, March 2023

Certified by,

Coordinator of English Education Study

Program,



Eryansyah S.Pd., M.A., Ph.D

NIP. 196907181995121001

DECLARATION

I, the undersigned,

Name : Salsadila Aurelya Putri
Student's Number : 06011281924027
Study Program : English Education

Certify that thesis entitled "Students' Awareness of Socioscientific Issue of Climate Change" is my own work and I did not do any plagiarism or inappropriate quotation against the ethics and rules commended by the Ministry of Education of Republic Indonesia Number 19, 2010 regarding plagiarism in higher education. Therefore, I deserve to face court if I am found to have plagiarized this work.

Palembang, March 2023



Salsadila Aurelya Putri

NIM: 06011281924027

DEDICATIONS

I dedicate this thesis to an amazing woman where heaven lies beneath her feet.

This is for you, Mom.

I dedicate this thesis to the person who gave the world to me. This is for you, Dad.

I also dedicate this thesis to another version of myself, my brother and my sister,

Dhiqie and Dinda.

MOTTOS

If something is meant to go somewhere else, it will never come to you, but if it is yours by fate, from you, it cannot escape. —Umar bin Al-Khattaab

Believe you can and you're halfway there. — Theodore Roosevelt

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ABSTRACT

In recent years, socioscientific issues that present challenges and negative impacts have increased. Climate change is one of the socioscientific issues that has become the focus of attention. Several stakeholders in the global education community, including UNESCO, UNEP, and UNICEF, are incorporating climate change education into the school curriculum. This research was inspired by a climate change education program driven by UNESCO and focuses on students' awareness of climate change. Awareness of climate change must be emphasized in every individual from an early age. Student awareness can be heightened through proper education and methods. In this study, researchers sought to discover the contribution of project-based learning to the socioscientific issue of climate change. Projects related to the environment are used in the learning process at SD Global Talent Islamic School and Studio Palembang. Researchers used qualitative methods to determine how project-based learning can increase student awareness. The data was collected through interviews with students and teachers. Researchers analyzed student awareness based on interview data with students and student drawings. The contribution of project-based learning in fostering students' awareness of climate change is analyzed based on student and teacher interview data and four main learning science ideas in project-based learning. The findings show that students are highly aware of the climate change issue. It can be concluded that project-based learning can help foster students' awareness of climate change issues.

Keywords: *Socioscientific Issue, Climate Change, Project-Based Learning*

A thesis by an English Education Study Program Student, Faculty of Teacher Training and Education, Sriwijaya University

Name: Salsadila Aurelya Putri

NIM : 06011281924027

Certified by,
Coordinator of Study Program,



Eryansyah, S.Pd, M.A., Ph.D
NIP 196907181995121001

Approved by,
Advisor,



Sary Silvhiany, M.Pd., MA., Ph.D.
NIP 197708112002122003

CHAPTER I

INTRODUCTION

This chapter explains several points of the research, consisting of the background of the study, the problems of the study, the objectives of the study, and the significance of the study.

1.1 The Background of the Study

In recent years, people have faced issues that lead to uncertainty about the future. These issues present challenges and adverse impacts, so people need to find solutions to these issues urgently. Dawson & Carson (2018) stated that these issues might be individual issues such as reproductive choices, diet, and drug use or global issues such as climate change, use of energy resources, population control, food security, and water availability. Between those two types of issues, global issues have more urgency than individual issues, and international cooperation is needed to find the solutions.

Global issues that include social issues and their relation to scientific issues are referred to as socioscientific issues (Kolstø, 2001; Sadler, 2004; Sadler et al., 2007). Socioscientific issues are real-life problems. Each needs an understanding of the underlying scientific concepts to be able to support efforts to resolve these issues. Yapıcıoğlu & Atabey (2020) stated that socioscientific issues support individuals to contribute to decisions about scientific applications that will be faced in real life and contribute as citizens who are trained, aware, and responsible.

The socioscientific issue that is the focus of this research is climate change. According to United Nations (2022), climate change refers to long-term changes in temperature and weather patterns. This change might result from natural forces, including fluctuations in the solar cycle. But since the 1800s, human activities—primarily the combustion of fossil fuels like coal, oil, and gas—have been the primary cause of climate change.

Recently, news about the impacts of climate change, such as natural disasters, has been circulating more and more frequently. Natural disasters due to

climate change are generally caused by extreme weather. High rainfall has caused several areas in Indonesia to be affected by floods, such as Papua, Maluku, East Kalimantan, South Kalimantan, and Central Sulawesi, etc. On an international scale, Pakistan is the country most affected by floods. UNICEF (2022) reported that about 33 million people, including approximately 16 million children, were affected by this year's heavy monsoon rains, causing devastating rains, floods, and landslides. As many as 7 million people were evacuated due to the disaster.

While some countries experience heavy rainfall, some have been hit by extreme droughts and heatwaves. The drastic decrease in rainfall has caused drought in countries in Europe. As cited in the BBC report, the European Commission Joint Research Center (EC-JRC) experts stated that Europe's 2022 drought was the most severe in the last 500 years. Besides Europe, China is also experiencing a heatwave. China's national meteorological agency recorded the highest temperatures and lowest rainfall rates in 61 years during the two-month summer heatwave that caused forest fires, damaged crops, and hit power supplies (Yu, 2022).

In addition to natural disasters, climate change also has negative impacts on health. According to Nde-Fon & Assob (2013), health risks are associated with changes in temperature and rainfall, causing droughts and floods and affecting agricultural yields and production. In some areas of the world, these impacts threaten food security and human health through the spread of infectious diseases, malnutrition, and food contamination.

The impacts of climate change require people to take immediate action, and education is an essential element of the global response to climate change. Education, especially from formal institutions such as schools, is undoubtedly a means for someone to gain knowledge. United Nations (2022) stated that education could encourage people to change their attitudes and behavior, education also helps people make decisions based on the information obtained. In the classroom, young people can be taught the effects of global warming and how to adapt to climate change. Education empowers all people, incredibly motivating young people to take action.

Knowledge of climate change is considered part of formal environmental education, which helps develop a sense of responsibility through awareness creation (Gautam et al., 2021). Climate change education helps the community, in this case, students as the future generation, to have awareness about the issue of climate change. The awareness of climate change issues that students get from education can foster a sense of responsibility to contribute to reducing the impact of climate change.

Basic knowledge about climate change, such as the greenhouse effect, the use of energy resources, the water cycle, and climate change, has been taught in the school environment but only as a sub-material for science subjects and is only studied theoretically, not studied in depth as a separate subject. Brennan (2019) states that environmental education is not recognized as a subject because it is not included in the jobs and accreditation of school subjects requiring teacher qualifications to teach environmental subjects. In addition, Dewaters et al. (2014) stated that the issue of climate change includes interrelated themes that provide many opportunities for teachers to integrate science, technology, engineering, and mathematics (STEM) subjects with social, political, economic, and environmental considerations. So, even though it is not a subject, the material on environmental issues is the responsibility of all teachers of any subject.

According to Ma'rufah et al. (2021), teaching materials on socioscientific issues that raise local realities of environmental problems around students effectively improve student learning outcomes. Because the material presented is close to students' lives, students can relate the theoretical concepts learned about environmental change with everyday life events. Suitable methods must support the appropriate learning materials on climate change issues. Students must not only be able to relate theory to everyday events but also put the knowledge they have acquired into practice. To change this situation, it would be better if students were allowed to participate in exploring climate change issues. One exciting way to achieve this is by using the project-based learning method.

Repko et al. (as cited in MacLeod & van der Veen, 2020) stated that project-based learning, or PjBL, offers students authentic, engaging, and complex problems for which they must design solutions or artifacts based on data

collection, assumptions, and further questions. Students apply and integrate concepts and procedures while enhancing professional skills. In addition, Dewaters et al. (2014) state that the project-based approach targets a wider range of student learning styles than the styles found in more traditional approaches involving lectures and rote learning.

Climate change education has been implemented in several schools, including SD and SMP Global Talent Islamic School & Studio Palembang. Climate change education at the school emphasizes theory and puts into practice what they learn through project-based learning. Based on the ideas above, this research aimed to finding out the students' awareness of climate change at the Islamic Global Talent School and Studio.

1.2 The Problems of the Study

From the background described above, the research problem is formulated into questions as follows:

1. How is student awareness of the socioscientific issue of climate change?
2. How does project-based learning foster the students' awareness of climate change?
3. Is it possible to implement project-based learning in English learning with climate change material?

1.3 The Objectives of the Study

In connection with the problems above, the objectives of this research are to:

1. Describe students' awareness of the socioscientific issue of climate change.
2. Describe the contribution of project-based learning in fostering students' awareness of socioscientific issue of climate change.
3. Describe the implementation of project-based learning in English learning with climate change material.

1.4 The Significance of the Study

1. For Researchers

This research is expected to be useful for further researchers. Researchers can use the results of this study as data to support future research, especially researchers in the field of climate change education.

2. For Academicians

This research is expected to be helpful for academicians. Academicians can use the results of this study as knowledge enrichment to make arguments, evaluations, and so on.

3. For Teachers

This research result is expected to be helpful for teachers. It is hoped that teachers can consider the results of this research for implementing Project-Based Learning and adapting learning themes in schools to improve students' awareness of climate change in an exciting way.

4. For Students

Students are expected to know the importance of being aware of climate change and what they can do to reduce the impact of climate change while carrying out their duties as a student.

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