p-ISSN 2252-7427, e-ISSN 2541-3635
https://ieflj.uniku.ac.id/pub

p-ISSN 2252-7427 e-ISSN 2541-3635
Indonesian EFL Journal
AISEE
The Association of Indonesia Scholars of English Education

INTEGRATING CLIMATE CHANGE NARRATIVES IN PRIMARY EDUCATION: A PICTURE BOOK APPROACH

Arya Muhaimin[1], Sary Silvhiany[*2], Rita Inderawati[3]
[1,2,3]*Department of English Language Education, Faculty of Teacher Training and Education, Universitas Sriwijaya, Indonesia*

Corresponding author's email: ssilvhiany@unsri.ac.id

APA Citation: Muhaimin, A., Silvhiany, S., & Inderawati, R. (2026). Integrating climate change narratives in primary education: A picture book approach. *Indonesian EFL Journal, 12*(1), 125-136. https://doi.org/10.25134/hq4jn696

Received:12-09-2025 Accepted: 17-11-2025 Published: 30-01-2026

Abstract: This study investigated how children's literature can be utilized effectively to integrate climate change education into English Language Teaching (ELT) for young learners, specifically fifth graders at SDN 115 Palembang. Using two locally relevant environmental picture books, My Clay Batik and Protecting the Palace, the researcher conducted three teaching sessions combining language skills development with environmental awareness. Data were collected from classroom observations, student worksheets, surveys, and interviews. Results showed that the use of these picture books made complex climate change concepts accessible and engaging, enhancing students' understanding of environmental issues such as pollution and deforestation. The storytelling approach fostered active student participation, increased interest in environmental topics, and encouraged eco-friendly attitudes and behaviors outside the classroom. The study concludes that integrating climate change themes into ELT not only supports language acquisition but also promotes environmental responsibility.
Keywords: *climate change, english language teaching (ELT), environmental sustainability, picture books*

INTRODUCTION

Climate change is one of the biggest challenges we face today. As the environment becomes more unpredictable and fragile, it's important to start teaching kids about these issues early on. Education plays a crucial role in this, but there's still a gap when it comes to helping young learners fully grasp the complexities of environmental problems. Experts in both environmental science and educational psychology highlight the special power of storytelling stories have a unique way of making complicated ideas easier to understand and remember. The global environmental problem forces researchers, scholars, policymakers, and environmental activists to engage in meaningful actions to address the issue through education (Amaliati et al., 2024). Climate change affects not only environmental systems but also children's educational experiences and opportunities, underscoring the urgency of climate change education (Leal Filho et al., 2023). Through education, we can equip students with the skills and knowledge they need not only to protect the planet but also to succeed in green jobs careers that focus on sustainability and require specific expertise. In this way, teaching children about the environment helps prepare them to play a positive role in building a sustainable future (Okada & Gray, 2023).

The role of the younger generation in fighting climate change is very important. Today's young generation will be the one facing the negative consequences of climate problems in the future. Their lifestyle may determine the development of future climate change. Therefore, it is important to understand how young people view climate change mitigation and what factors support their hopes and beliefs in active action in the future (Ratinen & Uusiautti, 2020).

Climate change education is increasingly recognized as essential for preparing young learners to engage responsibly with future environmental challenges (Banks & Taylor, 2025). Climate change education plays a crucial role in

equipping learners with the knowledge and resilience required to understand and respond to the climate crisis (Lautensach et al., 2025). Importantly, climate change education is interdisciplinary and can be meaningfully integrated across different subject areas, including language education *(*Stevenson et al., 2017*)*. Education for Sustainable Development emphasizes the development of competencies that enable learners to respond to sustainability and climate-related challenges (Bhoi et al., 2025). Climate change education aims to support society, especially younger generations, in three main ways: first, by helping them understand and address climate change issues; second, by encouraging changes in lifestyle that are more environmentally friendly; and third, by helping people adapt to local changes caused by the climate. To achieve this, educational reforms must happen at every level, using both formal schooling and informal learning, starting with young children. It's important to begin climate change education early to help prevent or lessen its impact on humanity. Basic education plays a vital role in shaping individuals who care about the environment and understand the importance of climate change (Gunamantha & Dantes, 2019). School-based environmental education plays an important role in fostering students' environmental awareness and positive attitudes toward environmental issues (Aisyah et al., 2024) .Environmental education also plays an important role in developing students' environmental awareness and responsible attitudes toward environmental issues (Susilawati, 2025).

According to Nayan et al., (2020), climate-literate individuals have a solid understanding of the basic principles of Earth's climate system. They actively seek out accurate scientific information and participate in thoughtful discussions about climate issues and changes. These individuals also make responsible decisions that can affect the climate (Masitoh, et al., 2025). They recognize the close connection between climate and human life, including how climate impacts human health. Moreover, they are able to critically evaluate the validity of different climate-related arguments and use reliable information to support their decisions (Nurhaliza, et al., 2024).

Climate change education for children should be delivered through concrete and age-appropriate learning activities that actively engage learners and support the development of climate and environmental literacy (Ramos et al., 2024). The students' active participation reflects the effectiveness of participatory and curriculum-integrated approaches in fostering engagement and responsibility in sustainability education (Uzorka et al., 2024). In other words, climate change education as proposed should pave the way for young people to understand the science of climate change, prepare them to participate as informed citizens capable of evaluating controversies and arguments effectively, and empower them to make informed decisions reason about the issue. To achieve the goals of climate change education, it is first important to establish the audience's attitudes and values regarding climate change Higde et al., (2017).

Young children who receive education about climate change will gain an understanding of the basic concepts of Earth's climate system perhaps because they received little teaching on environmental topics during their education (Putri & Silvhiany, 2022). They will learn how to find accurate, scientific information about climate issues, engage in meaningful conversations about climate change, and make responsible, informed decisions about actions that can affect the climate. This research specifically examines the use of teaching materials and the development of "Climate Change"-focused learning plans within English language teaching. Education may become a potent instrument for creating socially conscious, culturally aware, and ecologically concerned people who can contribute to a more just and sustainable global society by integrating sustainability ideas with academic disciplines (Jasmine, 2025).

It emphasizes active teaching methods, the use of digital resources, and direct interactions to improve elementary students' climate literacy (Salma et al., 2025). Climate literacy encompasses students' understanding of climate systems, human influences, and the ability to engage responsibly with climate-related issues (Aeschbach et al., 2025). There have been several studies conducted on climate change-based education, providing valuable examples and insights for this research.

First, integration of environmental education in elementary schools (Sukma et al., 2020). Second, Climate Change Literacy of Elementary School Students in Buleleng Regency, Bali Province, Indonesia (Gunamantha & Dantes, 2019). Third, Towards Action Literature: Picture Books on Environmentally Friendly Information and Critical Engagement in Combating Climate Change (Rybak, 2023). Fourth, Changing the stories we tell about climate change: from 'problem' to 'action' (De Meyer et al., 2021). Fifth, Developing CRT-

Based Comic Media to Improve Climate Change Management Education in Elementary School Students (Yani et al., 2025), There has been no research found that uses climate change education in teaching English in elementary schools. Beyond cognitive understanding, education also plays a crucial role in fostering students' character and values, including responsibility and care for the environment (Sangadah et al., 2025).

This study was driven by two important questions that focused on how children's literature helped young learners better understand climate change. Children's literature offers significant potential for introducing climate change concepts in age-appropriate ways, though effective classroom implementation remains a challenge for many teachers (Lammert, 2024). Effective environmental education depends not only on classroom instruction but also on institutional commitment and school culture that support sustainability-oriented learning (Husin et al., 2025).

First, it looked at how these books were used as a meaningful way to raise students' awareness and deepen their understanding of environmental issues. Environmental issues can be effectively introduced to young learners through literacy-based approaches that promote critical thinking and meaning-making (Hardiyanti et al., 2024). Second, it explored how including climate change topics in the English curriculum influenced students' interest in and awareness of these critical global challenges. By digging into these questions, the study hoped to show how bringing environmental themes into language lessons not only improved English skills but also inspired kids to care more about the planet. At its heart, this research aimed to provide insights that helped teachers design lessons that empowered young learners to become thoughtful, responsible citizens ready to face the realities of climate change.

METHOD

This study used Design-based research. It was aimed to ensure that educational research leads to better practice, improving the influence on educational practices. It included many interactions, a collaboration between a researcher and a practitioner, and a focus on the design of the course (the intervention) to promote students' knowledge about climate change (Anderson & Shattuck, 2012). In order to explore the experiences and perceptions of children's literature to integrate climate change education into English for Young Learners (EYL). By offering a comprehensive and forward-looking viewpoint, the integration of Education for Sustainable Development (ESD) into the larger educational environment will enhance the educational experience (Nurhaliza et al., 2024).

This study involved both students and English language teachers from SDN 115 Palembang. The participants included a total of 56 fifth-grade students, along with their English language instructors. To support the teaching objectives, carefully selected children's books with themes centered around environmental sustainability and climate change will be utilized. These books are specifically chosen to be age-appropriate and engaging for fifth graders, helping to build their awareness and understanding of climate issues through accessible language and compelling stories. The selected picture books were evaluated based on age-appropriateness, cultural relevance, and scientific accuracy related to environmental content to ensure educational quality and alignment with climate change education goals.

In addition to the reading materials, lesson plans, and other instructional resources have been thoughtfully modified to better align with the dual goals of climate change education and language acquisition. This involves integrating climate-related content into English lessons in a way that strengthens students' literacy skills while simultaneously increasing their knowledge about environmental challenges. The teaching approach emphasizes the use of active learning methods, digital resources, and interactive classroom activities to make the learning process both effective and enjoyable for young learners.

The research was conducted over an eight-week period, during which multiple data collection methods were employed to gain a comprehensive understanding of the teaching and learning experiences. Classroom observations have been carried out regularly to document instructional strategies, student engagement and participation, as well as overall classroom dynamics. These observations provided valuable insights into how the integration of climate change topics influences the flow of lessons and student involvement.

Furthermore, qualitative data have been gathered To ensure the rigor of qualitative data analysis, inter-rater reliability was established through cross-checking of coding categories by multiple researchers following Creswell's (2014) guidelines. This practice helped maintain consistency in interpreting student responses and supported the overall trustworthiness of the

findings through teacher interviews and student focus group discussions. These sessions aim to capture the perspectives, experiences, and potential challenges faced by both educators and learners throughout the process of integrating climate change education into the English curriculum. The successful implementation of climate change education is strongly influenced by teachers' readiness, attitudes, and institutional support (Jaelani & Djayaningrat, 2025). The effectiveness of educational initiatives, including sustainability and climate education, is strongly influenced by teachers' commitment and the school environment (Al-Zu'bi et al., 2024). By combining these data sources , the study hopes to identify best practices, highlight areas needing improvement, and ultimately contribute valuable knowledge about how environmental themes can be effectively incorporated into language teaching at the elementary school level.

To effectively assess students' understanding of climate change, it was crucial to design and implement questionnaires that are carefully adapted to the developmental stage and needs of young children. This adaptation requires using simple, concise language that children can easily comprehend while avoiding jargon or complex terminology. Incorporating visual aids such as pictures, icons, or illustrations enhances engagement and aids comprehension, making abstract concepts more tangible and relatable for young learners. Additionally, the questionnaire should be kept short and focused, ensuring that children's attention is maintained throughout the process without causing fatigue or frustration.

The researcher has developed a set of closed-ended survey questions specifically aimed at capturing students' awareness, attitudes, and knowledge about climate change. Using closed-ended questions allows for straightforward responses, simplifying data collection and analysis while making it easier for children to express their thoughts and feelings clearly. This approach also enables the researcher to quantify and compare responses across the group, providing meaningful insights into the overall climate literacy level among elementary students.

Surveys are an effective tool because they enable the researcher to gather a broad range of sentiments, viewpoints, and ideas from students in a manner that is non- intimidating and accessible. By thoughtfully tailoring the questionnaire design through language, visuals, and length the study ensures that the data obtained is both accurate and reflective of the children's genuine understanding. This process supports informed conclusions about how well climate change education initiatives are helping to build environmental awareness and can guide future improvements in educational strategies for young learners (Taherdoost, 2021).

Compared to surveys or questionnaires, interviews offer qualitative data that is rich in context and detail, allowing for a deeper understanding of students' needs. For example, an educator conducting interviews may find that a significant number of students are especially curious about the effects of climate change on plants and animals. This knowledge can direct the choice of resources and tasks, such as including picture books about protecting animals or planning initiatives pertaining to regional ecosystems.

To gather in-depth qualitative information on the development of climate literacy among students, all participants engaged in comprehensive interviews. Interviews are a widely recognized method for collecting rich qualitative data, as they allow researchers to explore the personal experiences, thoughts, and feelings of participants in a nuanced and flexible manner (Doody & Noonan, 2013). By conducting these interviews, the study gained valuable insights into students' interests, previous knowledge, and perceptions regarding climate change, which can significantly enhance the relevance and effectiveness of the educational curriculum.

Understanding students' prior knowledge and individual interests through interviews enables educators to tailor lessons that resonate more deeply with learners, thereby fostering greater engagement and motivation. Furthermore, interviews served as an important tool for identifying any misconceptions or misunderstandings children may hold about climate change concepts. Recognizing these misconceptions early allowed teachers to address and clarify them directly within the classroom setting, promoting more accurate knowledge and critical thinking. The qualitative data gained from these interviews not only complements quantitative survey results but also offers a richer, more detailed perspective on how students conceptualize climate change and respond emotionally and intellectually to related educational content. This comprehensive understanding supports the continuous improvement of teaching strategies and curriculum design, ultimately aiming to cultivate a more informed and climate-conscious generation.

Field notes played a crucial role in qualitative

p-ISSN 2252-7427, e-ISSN 2541-3635
https://ieflj.uniku.ac.id/pub

research by providing a detailed and systematic record of the observational process. These notes should comprehensively describe the research setting, the participants involved, the activities occurring, and include direct quotations whenever possible to capture authentic voices and interactions. Field notes generally consist of two main components: descriptive and reflective. The descriptive component focuses on objectively recording factual details about what is observed, such as who is present, what is happening, where events occur, and the timing of these activities. This part serves as the foundation for understanding the context and environment of the study.

In contrast, the reflective component includes the researcher's interpretations, insights, personal thoughts, and emotional reactions to the observed events. Reflective notes explore the reasons behind behaviors and interactions, pondering the "why" and "how" aspects that deepen the analytic process. A balanced approach to field notes—one that integrates both rich descriptions and thoughtful reflections—is essential to capture the complexity of social settings and provide depth to the data.

Despite their importance, some qualitative researchers express concern that field notes are often undervalued, being viewed merely as a secondary form of data used mainly for data triangulation to enhance validity (Deggs & Hernandez, 2018). However, properly crafted field notes are much more than just validation tools; they are a vital source of unique qualitative data that enrich the researcher's understanding and interpretation of the phenomena under investigation. By maintaining systematic and thorough field notes, researchers ensure the integrity and depth of their qualitative inquiries, ultimately strengthening the credibility and richness of their study findings.

In addition to qualitative data, the study incorporated a brief 5-item climate literacy quiz administered before and after the intervention. The quiz assessed students' basic understanding of environmental issues such as pollution, recycling, deforestation, and climate-related consequences This provided a simple quantitative measure to support interpretation of students' conceptual development throughout the teaching cycles.

Table 2. *Pre & post intervention results*

Climate Literacy Indicators	Pre-Intervention	Post-Intervention
Understands Climate Change	25	52
Knows Recycling Helps	30	50
Mentions Pollution	18	45
Shows Eco-Friendly Actions	12	42

Data display involved organizing and compressing the information in a way that allowed for conclusion drawing and action. For questionnaire analysis, this could include the use of matrices, charts, graphs, and other visual formats to present the data. A display is an organized, compressed assembly of information that permits conclusion drawing and action (Palazzolo, 2023).

As with open-ended questionnaire responses, thematic analysis was used to identify and analyze recurring themes and patterns. Thematic analysis is particularly useful for summarizing key features of a large data set and offering a thick description of the data. Therefore, a high level of confidence in the accuracy and dependability of the material presented is the foundation of thematic analysis. Examining how the presented data responds to a particular research issue or stimulates a fresh conceptual or theoretical understanding is the goal of thematic analysis. While doing so, thematic analysis often addresses the data rather than delving into the finer points of a person's experiences (Lochmiller, 2021).

Once field notes are collected, they should be coded and analyzed to identify patterns and themes. In qualitative research, coding consists of procedures that allow gathered data to be gathered, classified, and arranged according to themes, offering a structured framework for the building of significance. Each qualitative research orientation uses a technique for organizing data through coding, even though their approaches to handling obtained data vary conceptually and operationally (Williams & Moser, 2019). This involved data reduction, data display, and conclusion drawing/verification as part of their broader analytic framework. Systematically categorizing data by coding it into different themes or concepts. Coding is not just labeling, it is linking; it leads you from the data to the idea and from the idea to all the data pertaining to that idea.

RESULTS AND DISCUSSION

The finding of the study focuses on two main questions about how children's literature can help young learners understand climate change better. First, it explored how these books can raise awareness and deepen students' connection to environmental issues. Second, it examined how incorporating climate change topics into English

lessons can spark students' interest and concern for these pressing challenges. The goal is to show that weaving environmental themes into language learning not only improves English skills but also encourages kids to care about the planet. Ultimately, this research hopes to guide teachers in creating lessons that inspire young learners to become thoughtful, responsible citizens ready to face climate change. Over six carefully planned classes, the students took part in a range of activities that not only helped them gain new knowledge but also sharpened their critical thinking and problem-solving skills.

General overview of iterations

The three-phase teaching approach shown in Table 1, laid out a clear and structured way to teach climate change through English classes. Each phase built on the last starting by raising awareness, then encouraging analysis and writing, and finally sparking creativity through visual projects. The goals, activities, and tools used in every stage are designed to help students really get involved and deepen their understanding of the topic.

Bringing climate change themes into English language teaching through picture books did more than tackle a pressing global issue, it helped students build strong language skills while also becoming engaged global citizens. The three-phase teaching plan starts with students learning the basics of climate change through different media like readings and documentaries, sparking their curiosity and understanding. Next, they sharpened their analytical writing by working with current news articles on climate topics, boosting critical thinking and summary skills. Finally, students became problem-solvers, exploring how climate change affects their local area and creatively sharing their findings through writing and desribing about it in a group discussion.

Specific activities in each iteration

Table 2. *Specific activities in each Iiteration*

Phase	Focus	Activities	Materials / Tools
Iteration 1	Climate Change Concept	- Read picture books introducing environmental themes- Define key vocabulary (recycle, climate, pollution)- Group discussion and Q&A	- Picture books- Story-related vocabulary- Group worksheets
Iteration 2	Deepening Understanding Through Analysis	- Read stories with emphasis on climate change content- Analyze characters, plot, and messages- Collaborative discussion and reflection	- Picture books- Writing notebooks- Small group discussion
Iteration 3	Creative Expression and Climate Action	- Brainstorm real-life actions to protect the Earth- Write descriptive paragraphs based on book themes- Share eco-friendly ideas in class	- Lined paper- Pencils/pens- Recycled material ideas

The activities laid out in Table 2 show a clear, step-by-step way for students to learn by combining gaining knowledge with real hands-on practice. By mixing reading, writing, and group discussion, students are invited to think critically and participate actively. This approach supports different learning styles and helps build a well-rounded understanding of climate change issue.

To sum up, this study's clear and structured approach shows how English language teaching can effectively include climate education. It not only helped students build important language skills but also inspired them to become knowledgeable and active global citizens. By blending climate learning with language lessons, students grow academically while also developing a deeper sense of responsibility and awareness about the world they live in.

Findings of students' interview

The interview data was carefully analyzed to find important themes and meaningful insights. After thoroughly reviewing the transcripts, the researcher was able to uncover key findings that help us understand the topic better.

Understanding the concept of climate change

Students' responses before and after the climate change classroom intervention revealed a notable shift in their comprehension level. Students' comprehension varied widely prior to the intervention, with many knowing very little or nothing about the idea of climate change. Several students simply responded,

> "No, I haven't heard of it before" (AA)
> "I think it's when the trees die and people get

p-ISSN 2252-7427, e-ISSN 2541-3635
https://ieflj.uniku.ac.id/pub

sick" (MN)

Showing that they either had very little knowledge of the subject or had not thoroughly studied it. As proven by responses like these, they require a more thorough introduction to help them understand the basics of the climate change concept. Some students were also aware that rising temperatures are a result of global warming, but they were unaware of the reasons behind it. Answers such as;

> "Yes, it's about bad things happening to nature" (MA)
> "Yes, it's about pollution and nature getting destroyed" (RF)

Showed that while they had a vague idea of the concept of climate change, they lacked a more thorough understanding of the causes. But some of the students mentioned the pollution and nature, which showed that they were already familiar with the words.

> "I learned that staying clean and taking care of ourselves is good for us" (MF)
> "I learned that washing hands, eating well, and sleeping help us stay strong" (DA)
> "I learned that small actions like collecting peels can make a big difference" (IG)
> "I learned that we can reduce waste by reusing it"(MG)

Students' responses, however, demonstrated a highly notable improvement in knowledge following the classroom intervention. In addition to understanding that the climate change concept could be something related to taking care of ourselves, staying clean and healthy. Reducing waste by reusing, it is also a basic concept of climate change. The Importance of Taking Care of Earth and Climate Change

Before the intervention, students' responses about the importance of taking care of the Earth and climate change showed limited understanding, with many expressing uncertainty or admitting they did not know. Responses such as;

> "Yes, because Earth takes care of us, so we should take care of it" (GU)
> "Yes, to keep the world green" (RS)

Showed that few students know that taking care of the Earth is important, and their teacher has taught about it before. But most of them did not really know why it is connected to climate change. Responses such as;

> "Yes, so the ice in artic doesn't melt" (IS)
> "Yes, to stop floods and fire" (MA)

Proved that the students have already heard about the ice in the Arctic melting, and some cases of wildfires and floods that have happened on our Earth.

> "Yes, the book inspired me to care more about nature" (HD)
> "Yes, because now I know why we should protect our environment" (NF)

Post-intervention showed that students felt taking care of the Earth was an important thing to do. Because it is about preserving our environment and also taking care of nature. Responses like;

> "Yes, I want to try recycling more at home" (MAR)
> "Yes, I want to stop littering and tell my friends too" (MD)

Indicated that the students already know that recycling is as important as taking care of the Earth. Students know that not every trash is useless; some of it can be reused to make something that is unique and useful. Some students had also stated not to litter with their friends, showing that they care about the Earth.

The fondness and interests of learning through picture book

Before the intervention with the picture books, researcher asked the students what they thought about the picture books, and the responses are;

> "Yes, I love looking at colorful drawings" (AS)
> "Yes, because the pictures are cute" (NF)

These are the students that more likely to be interested in seeing the picture, and some kind of colorful drawing rather than just a letter. Responses such as;

> "Yes, because stories make me laugh" (VC)
> "Yes, because story is fun" (EV)

Indicated that students are more likely to enjoy the story within the picture books rather than just the picture itself. They like stories that can make them laugh and are fun to read. There are also responses such as;

> "Yes, because it made me excited" (MSYA)
> "Yes, because they are interesting and fun"

(NAR)
" Yes, because it helped me understand" (KE)

Showed that the students also think that pictures and stories are the media to help them better understand the moral or core of the lesson. A feeling of excitement and fun can motivate them to make the learning more interesting.

"Yes, I like stories more than textbooks" (GS)
"Yes, I understood more through the story than in regular class" (AN)

After the intervention, these are the responses to show how much students' fondness and interests in the picture books. The response implies that in other regular classes, there are a few to zero teachers who have integrated the story book and picture book as the media to teach the students. "Yes, I learned something new without being bored" (AB)

"Yes, because the story made me curious and interested" (GM)
"Yes, I understood more through the story than in regular class" (MR)

According to these students, learning something without feeling bored in the process can actually help students to enjoy the lessons in class more. and some students also have a sense of curiosity and interest in the story. Which makes them understand more about the lessons presented through stories as a medium compared to the usual way.

Actions and influences to take regarding climate change

The researcher asked the student what their action would be before knowing more about climate change in the form of a picture book story.

"Yes, my mom and I talked about not wasting food" (AAP)
"Yes, with my mom about not throwing trash on the ground" (NF)

These are the responses when the students asked their parents what they could do to take action on climate change. The mother of the students said that not wasting food is also a part of the action that students can take. It is obvious when we know the mother is mostly the one who is responsible for making and managing the food in the house. Also, not throwing trash on the ground is the answer given by the mother. Indicated that some of the mother also takes care of this part.

"Yes, I talked with my cousin about floods and what causes them" ()
"Yes, with my dad. To save water" ()

Moving forward to what the father and cousin told the students. Both of them talked about saving water. Saving water could prevent the flood, so both the father and the cousin from the students have a valid point regarding this as an action in climate change. Now, how does the picture book story influence students in taking action regarding climate change?

" I want to make less trash every day" (HK) " I want to reuse things more instead of throwing them away" (MR)
" I want to remind others to throw trash in the bin" (NA)

After the intervention, it showed that the students are more influenced by taking care of the trash as an action regarding climate change. Trash must be thrown into the bin and must not be thrown away. This is also the most influential action that students can easily take regarding climate change.

Prior experience in combating climate change and what to do

Before the intervention, researchers asked students about their experiences in dealing with climate change, which were taught by their teachers or parents. Some students answered:

"Yes, my teacher explained about climate and the sun" (GS)
"Yes, my teacher asked us how to help the planet" (MD)

These answers is an answer about some experiences facing climate change that have been expressed by the students' teachers.

Their teachers have taught them about how to save the planet, and have also explained about the sun and climate change to them. "Yes, with my mom. We talked about not throwing trash on the ground" (AA)

"Yes, with my dad. We need to save water" (MA)

For experiences on how to deal with climate change taught by students' parents, some of them answered that one way is by not littering. and also always saving water usage.

p-ISSN 2252-7427, e-ISSN 2541-3635
https://ieflj.uniku.ac.id/pub

> "Yes, my cousin told me to turn off the lights to save energy" (MSA)

There are also those who are still part of the student's family, namely his cousin, who taught that saving energy by turning off the lights after use is a way to deal with climate change.

After the intervention, the researchers now asked again what the students would do to actually fight climate change based on the stories from the picture books that had been told, and also the experiences of the teachers and parents, some of them answered;

> "Yes, I want to try recycling more at home" (AAP)
> "Yes, because I learned that even fruit peels can be useful" (MNU)

Showed some students who already understand the essence of recycling used items, students want to recycle more items, such as fruit peels, which, from the story that has been told to them, can be used as a natural dye to color items and also for other things.

> "Yes, the book inspired me to care more about nature" (RS)
> "Yes, I want to stop littering and tell my friends too" (SH)

These answers shows that some students feel inspired by the story book, so they want to protect and care for nature more. Some answers also tell and encourage friends to stop littering, showing students' concern for fighting climate change with the easiest thing to do.

> "Yes, because now I know why we should protect our environment" (BA)
> "Yes, I want to learn more about how to stop pollution" (ANR)

Some of the students also realized that from the story in this book, they became more curious about how pollution can be stopped, which certainly will make students want to know more about climate change. Some students also do not have experience facing climate change finally understand why they have to protect our environment.

This study showed that children's books like My Clay Batik and Protecting the Palace are effective tools for introducing young students to climate change in an engaging and understandable way. Initially, many students had only vague or incomplete ideas about climate change, but through these story-based lessons, they started to express clearer thoughts about pollution, deforestation, and caring for the environment. The integration of climate-related content did not hinder language learning outcomes, supporting previous findings that environmental themes can enhance meaningful language use in EFL classrooms (Lestari, 2023). Recent scholarship emphasizes the need to embed sustainability and climate change education systematically within school curricula rather than treating them as add-on topics (Madden & Bershtein, 2025). The use of pictures helped students connect language with visuals, boosting both comprehension and imagination (Silaban et al., 2024). These stories made the environmental issues more real and relatable, supporting the idea that literature can play a powerful role in building early climate awareness.

The findings align with the OECD's concept of climate literacy, which emphasizes not just knowing about environmental issues but also making thoughtful decisions. Engaging with stories and related activities helped students improve both their knowledge and care for the environment. Because the stories were culturally relevant, students related to them on a personal level, making the lessons more meaningful. Rather than just listening, students actively participated by answering questions and discussing in small groupconversations like which enhanced understanding when students are guided to collaborate and consider different viewpoints (Wang et al., 2008).

This approach followed constructivist ideas where learning grows through experience and reflection. This approach also aligns with eco-pedagogical principles (Garrard, 2012), emphasizing critical engagement with environmental narratives and fostering emotional as well as intellectual connection with nature. Additionally, it supports UNESCO's Education for Sustainable Development (ESD) goals, which promote early understanding of environmental challenges and empower students to contribute to sustainable communities.Integrating climate topics into English lessons boosted students' language skills while positively influencing their environmental thinking. The students' active participation reflects the effectiveness of innovative instructional approaches in promoting engagement (Damaris & Pitaloka, 2025). Students were more excited to participate and freely shared ideas, often mentioning simple changes they wanted to make, such as turning off lights or discouraging littering. Although most students

responded with curiosity and enthusiasm, a few expressed concern about natural disasters like floods and deforestation. While not explicitly labeled as eco-anxiety, these feelings suggest the importance of supporting students emotionally when introducing climate-related content. According to Ojala (2012), addressing such feelings constructively is vital for fostering resilience and agency in young learners. They connected previous readings, discussions, and classroom experiences to understand climate change in their own lives (Axelrod et al., 2020). This dual benefit showed how mixing climate education with language learning encourages communication skills and ecological awareness simultaneously. According to Huot & Em (2024) students exposed to environmental information became active conservation advocates, raising awareness and supporting sustainability both inside and outside their communities. The improvement in students' understanding of climate-related issues reflects findings that climate change education can strengthen elementary learners' science literacy (Harpina Harpina et al., 2025). The students' improved understanding of environmental issues aligns with previous findings on the positive impact of environmental integration on science literacy (Anggraeni et al., 2025).

Students practiced nature-related vocabulary, wrote reflections, and discussed environmental problems and solutions all while growing more concerned about the planet. Interviews further revealed a meaningful shift in their thinking: although some misconceptions remained, many students came to understand that climate issues are real and everyone has a role to play. For example, students who initially didn't know about global warming later explained it as caused by forest fires and pollution. This demonstrates how stories make abstract ideas more concrete.

However, the study also found that students need ongoing support to maintain good environmental habits, as some admitted forgetting to turn off electronics or being unsure how to help. This suggests climate education should be continuous in the curriculum, not just a one-time lesson. This study reinforces the role of education as a catalyst for sustainable development and long-term environmental responsibility (Ibourk et al., 2025).

CONCLUSION

This study explored how children's books like *My Clay Batik* and *Protecting the Palace* can effectively bring climate change education into English lessons for fifth graders at SDN 115 Palembang. Through three teaching sessions, students engaged with local environmental stories that made complex climate issues easy to understand. Classroom activities, discussions, and creative exercises helped students connect language learning with real-world environmental concerns, boosting their awareness and interest. The lessons clearly sparked students' curiosity and care for the planet, with many sharing their new ideas and eco-friendly habits beyond the classroom. This shows how combining storytelling with climate education can develop both language skills and environmental responsibility in young learners.

To broaden the potential impact of this model, future implementations should explore how this picture book approach can be adapted for underresourced or culturally diverse school contexts across Indonesia. A relevant policy recommendation includes partnering with the Ministry of Education and Culture to distribute localized, climate-focused children's books as supplementary English materials in public schools.

English teachers are encouraged to use picture books with environmental themes as instructional materials to develop students' English language skills while simultaneously fostering environmental awareness and values. At the curricular level, the inclusion of locally relevant environmental materials in English lessons is recommended to make learning more meaningful and to strengthen students' cultural connections. In addition, future research may examine the long-term effects of literature-based climate education and explore alternative literary formats, such as poetry and digital stories, to support deeper understanding of environmental issues.

REFERENCES

Aeschbach, V. M. J., Schwichow, M., & Rieß, W. (2025). Effectiveness of climate change education: A meta-analysis. *Frontiers in Education, 10*. https://doi.org/10.3389/feduc.2025.1563816

Aisyah, N. S., Kosim, Gunawan, & Gunada, W. I. (2024). Indonesian Journal of STEM Education. *Indonesian Journal of STEM Education, 6*(2), 86–101. https://journal.publicationcenter.com/index.php/ijse/article/view/1649

Al-Zu'bi, M. A. A., Al-Mseidin, K. I. M., Yaakob, M. F. M., Fauzee, M. S. O., Mahmood, M. H. H., Sohri, N., Al-Mawadieh, R. S. M., & Senathirajah, A. R. B. S. (2024). The impact of the school educational environment on primary

school teachers' commitment to educational quality. *Discover Sustainability, 5*(1). https://doi.org/10.1007/s43621-024-00633-4

Amaliati, S., Rusydiyah, E. F., & Bakar, M. Y. A. (2024). Ecopedagogy and environmental literacy in research trends in Indonesia. *QALAMUNA: Jurnal Pendidikan, Sosial, Dan Agama, 16*(2), 1083–1100. https://doi.org/10.37680/qalamuna.v16i2.5359

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research? *Educational Researcher, 41*(1), 16–25. https://doi.org/10.3102/0013189X11428813

Anggraeni, I., Ramdani, A., & Hidayah, C. (2025). Eco-literacy in ECE: A case study of climate change awareness in Indonesia. *EduBase: Journal of Basic Education, 6*(1), 126–135.

Axelrod, Y. D., Ives, D., & Weaver, R. (2020). We are all learning about climate change: Teaching with picture books to engage teachers and students. *Occasional Paper Series, 2020*(44). https://doi.org/10.58295/2375-3668.1367

Banks, K. I., & Taylor, C. A. (2025). Climate change education in primary schools: Using arts-based methods to access student voice and examine the UK National Curriculum. *Environmental Education Research, 31*(12), 2552–2572. https://doi.org/10.1080/13504622.2025.2460718

Bhoi, C., Dash, S., & Adi, P. C. (2025). Integrating climate literacy into teacher education programs: A framework for future teachers. *Journal of Education Method and Learning Strategy, 3*(03), 549–562. https://doi.org/10.59653/jemls.v3i03.1941

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.

Damaris, T., & Pitaloka, A. (2025). Climate change education challenges in Indonesia: Educators' perspective. *Educo Journal, 2*(1), 21–37.

De Meyer, K., Coren, E., McCaffrey, M., & Slean, C. (2021). Transforming the stories we tell about climate change: From "issue" to "action." *Environmental Research Letters, 16*(1), 015002. https://doi.org/10.1088/1748-9326/abcd5a

Deggs, D. M., & Hernandez, F. (2018). Enhancing the value of qualitative field notes through purposeful reflection. *The Qualitative Report, 23*(10), 2552–2560. https://doi.org/10.46743/2160-3715/2018.3569

Doody, O., & Noonan, M. (2013). Preparing and conducting interviews to collect data. *Nurse Researcher, 20*(5), 28–32. https://doi.org/10.7748/nr2013.05.20.5.28.e327

Garrard, G. (2012). *Ecocriticism* (2nd ed.). Routledge. https://doi.org/10.4324/9780203805315

Gunamantha, I. M., & Dantes, N. (2019). Climate change literacy of elementary school students in Buleleng district, Bali province, Indonesia. *Journal of Physics: Conference Series, 1254*(1), 012051. https://doi.org/10.1088/1742-6596/1254/1/012051

Harpina, H., Darfin, S. A., & Kholifatun, U. N. (2025). Science literacy and climate change issues in elementary school science learning as a green education effort. *Journal of Humanities, Social Sciences, and Education, 1*(2), 55–68. https://doi.org/10.64690/jhuse.v1i2.34

Higde, E., Oztekin, C., & Sahin, E. (2017). Turkish pre-service science teachers' awareness, beliefs, values, and behaviours pertinent to climate change. *International Research in Geographical and Environmental Education, 26*(3), 253–263. https://doi.org/10.1080/10382046.2017.133004

Huot, S., & Em, S. (2024). Integrating English language teaching with environmental sustainability: A comprehensive review of pedagogical strategies and global impacts. *Journal of Entrepreneurship and Green Innovation, 1*(2), 1–14.

Husin, A., Helmi, H., Nengsih, Y. K., & Rendana, M. (2025). Environmental education in schools: Sustainability and hope. *Discover Sustainability, 6*(1). https://doi.org/10.1007/s43621-025-00837-2

Ibourk, A., Wagner, L., & Zogheib, K. (2025). Developing elementary teachers' climate change knowledge and self-efficacy for teaching climate change using learning technologies. *Journal of Science Education and Technology, 34*(3), 504–520. https://doi.org/10.1007/s10956-024-10187-9

Jaelani, A., & Djayaningrat, D. W. (2025). Teachers' readiness and attitudes toward the implementation of climate change education in Southeast Asia. *Journal of Southeast Malaysian Education, 1*(4), 118–124.

Jasmine, M. P., Silvhiany, S., & Inderawati, R. (2025). Exploring young learners' needs in multimodal text design for integrating sustainable education into ELT. *Journal of Languages and Language Teaching, 13*(2), 785–797. https://doi.org/10.33394/jollt.v13i2.13775

Lammert, C. (2024). Elementary teacher candidates' views of children's literature on climate change. *Education Sciences, 14*(8), 843. https://doi.org/10.3390/educsci14080843

Lautensach, A., Litz, D., Younghusband, C., Banack, H., Thielmann, G., & Crandall, J. (2025). The what, why, and how of climate change education: Strengthening teacher education for resilience. *Sustainability, 17*(19), 8816. https://doi.org/10.3390/su17198816

Leal Filho, W., Balasubramanian, M., Abeldaño Zuñiga, R. A., & Sierra, J. (2023). The effects of climate change on children's education attainment. *Sustainability, 15*(7), 1–12. https://doi.org/10.3390/su15076320

Lestari, S. (2023). Mempromosikan aksi perubahan iklim (climate actions) melalui pembelajaran

bahasa Inggris. *Jurnal Abdidas, 4*(4), 356–362. https://doi.org/10.31004/abdidas.v4i4.825

Lochmiller, C. R. (2021). Conducting thematic analysis with qualitative data. *The Qualitative Report, 26*(6), 2029–2044. https://doi.org/10.46743/2160-3715/2021.5008

Masitoh, M., Silvhiany, S., & Inderawati, R. (2025). Integrating climate change education into secondary school lessons: A project-based approach using trade books. *Journal of English Language Teaching, 12*(1), 84–102. https://doi.org/10.33394/joelt.v12i1.15272

Nayan, N., Mahat, H., Hashim, M., Saleh, Y., & Norkhaidi, S. B. (2020). Climate literacy awareness among preservice teachers in Malaysia. *Cakrawala Pendidikan, 39*(1), 89–101. https://doi.org/10.21831/cp.v39i1.26873

Nurhaliza, S., Silvhiany, S., & Inderawati, R. (2024). Integrating climate change education in English lessons and P5 projects in junior high schools. *Journal of Languages and Language Teaching, 12*(4), 1926. https://doi.org/10.33394/jollt.v12i4.12622

Okada, A., & Gray, P. (2023). A climate change and sustainability education movement: Networks, open schooling, and the 'CARE-KNOW-DO' framework. *Sustainability, 15*(3), 2356. https://doi.org/10.3390/su15032356

Ojala, M. (2012). Regulating worry, promoting hope: How do children, adolescents, and young adults cope with climate change? *International Journal of Environmental and Science Education, 7*(4), 537–561.

Palazzolo, D. J. (2023). Research methods. In *Experiencing citizenship: Concepts and models for service-learning in political science* (pp. 109–118). Routledge. https://doi.org/10.4324/9781003444718-9

Putri, C., Silvhiany, S., & Inderawati, R. (2024). Empowering young learners: Integrating climate change education with bilingual picture books in ELT. *English Review: Journal of English Education, 12*(2), 601–616. https://doi.org/10.25134/erjee.v12i2.9889

Ratinen, I., & Uusiautti, S. (2020). Finnish students' knowledge of climate change mitigation and its connection to hope. *Sustainability, 12*(6), 2181. https://doi.org/10.3390/su12062181

Rybak, K. (2023). Towards a literature of actions: Green informational picturebooks and critical engagement with fighting climate change. *Children's Literature in Education*. https://doi.org/10.1007/s10583-023-09549-5

Salma, L. R. F., & Silvhiany, S. (2024). *Designing children's books to support the inclusion of ecological sustainability in ELT* [Undergraduate thesis, Universitas Sriwijaya]. UNSRI Repository.

Sangadah, L., Saputri, D., Ningrum, M. A., Setyowati, S., & Komalasari, D. (2025). Pengembangan media KOMPI (Komik Mitigasi Perubahan Iklim) untuk menstimulasi kemampuan bahasa ekspresif anak TK usia 5-6 tahun. *Aulad: Journal on Early Childhood, 8*(3), 1515–1527. https://doi.org/10.31004/aulad.v8i3.1450

Silaban, R. L. S., Siadari, S. M., & Butar Butar, M. L. E. F. (2024). Building creativity and imagination in early childhood through picture story books. *Jurnal Talitakum, 3*(1), 33–44. https://doi.org/10.69929/talitakum.v3i1.13

Silvhiany, S., Kurniawan, D., & Safrina, S. (2024). Teaching about climate change in EFL teacher education: Curricular engagement for critical awareness. *AIP Conference Proceedings, 020063*. https://doi.org/10.1063/5.0201005

Sukma, E., Ramadhan, S., & Indriyani, V. (2020). Integration of environmental education in elementary schools. *Journal of Physics: Conference Series, 1481*(1), 012136. https://doi.org/10.1088/1742-6596/1481/1/012136

Susilawati, S. A. (2025). Strategi pengajaran untuk meningkatkan kesadaran perubahan iklim di kalangan siswa penyandang disabilitas di sekolah inklusif. *Jurnal Penelitian Tindakan Kelas, 2*(3), 139–152. https://doi.org/10.61650/jptk.v2i3.717

Stevenson, R. B., Nicholls, J., & Whitehouse, H. (2017). What is climate change education? *Curriculum Perspectives, 37*(1), 67–71. https://doi.org/10.1007/s41297-017-0015-9

Taherdoost, H. (2021). Data collection methods and tools for research: Technique for academic and business research projects. *International Journal of Academic Research in Management (IJARM), 10*(1), 10–38.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000247444

Uzorka, A., Akiyode, O., & Isa, S. M. (2024). Strategies for engaging students in sustainability initiatives and fostering a sense of ownership and responsibility towards sustainable development. *Discover Sustainability, 5*(1), 505. https://doi.org/10.1007/s43621-024-00505-x

Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review, 15*(1), 45–55.

Yani, I., Halira, L., Taufik, M., & Indirwan, I. (2025). Developing CRT-based comic media to improve climate change management education in elementary school students. *Jurnal Penelitian Pendidikan IPA, 11*(5), 1074–1080. https://doi.org/10.29303/jppipa.v11i5.10824