

The Green Imperative: Leveraging English Reading Materials to Cultivate Global Environmental Awareness and Action

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Abstract

This study scrutinizes existing literature to understand the potential and challenges of integrating environmental awareness indicators and problem-solving skills within English reading learning materials. In an era of escalating global environmental crises, English language education is posited as a crucial vehicle for fostering Eco-Literacy 2.0—a new generation of informed global citizens. Library research was conducted in this study. The data was collected from reviewing and synthesizing some related empirical sources. The paper maps current pedagogical approaches, highlighting their capacity to build both knowledge and solution fluency. Ultimately, it pinpoints gaps, such as the need for more action-oriented content and robust assessment tools, to fully realize the transformative power of English reading in driving global environmental responsibility. The findings identified the potential and the challenges of environmental awareness and problem-solving skills.

Introduction

The need for environmental awareness is a critical global concern, highlighted by the United Nations' Sustainable Development Goals (SDGs) (specifically Goals 11, 12, 13, and 15) and international reports like the World Economic Forum Report (Arslan & Curle, 2024; Scherer et al., 2018; World Economic Forum, 2024) Achieving these goals requires urgent, transformative efforts by 2030, making the promotion of environmental awareness through education essential for fostering sustainable communities. Environmental education is recognized as a key mechanism for developing students' necessary knowledge, attitudes, skills, and responsible behavior towards the environment.

The promotion of environmental awareness is essential for sustainable development, prominence the need to understand and reduce human environmental impacts. Environmental education plays a crucial role in this by enhancing awareness, knowledge, attitudes, and responsible behaviours towards the environment. It aims to inform and motivate individuals to adopt sustainable practices and incorporates environmental content into educational systems at all levels to address the deteriorating human-environment relationship. Ultimately, fostering environmental awareness is a key objective of environmental education.

According to (Marija Ham et al., 2015) there are several aspects involved in developing Environmental awareness, including knowledge, attitudes, and behaviours. In the knowledge aspect, humans understand and know what environmental problems and issues are around them, then from these things, people realize that these problems need real action to solve them. Through the knowledge, people are expected to have an attitude and show behaviour that pro to environmental problems. In line with this, (Erwinsyah, 2022) also stated that Environmental awareness encompasses behaviours, attitudes, and knowledge about environmental issues. Constantly applied knowledge, attitudes, and practices will demonstrate positive behaviour in lowering environmental issues. Furthermore, behaviour modification promotes environmental

protection, raises awareness of one's daily routines, and helps one adopt environmentally responsible practices. In addition, (Harju-Autti & Kokkinen, 2014) argue that Environmental Awareness (EA) is a state of being aware, having knowledge about, and being conscious of the environment in which people live, which tends to influence people's development and pro-environmental behaviour (PEB). It also consists of knowledge and understanding of a wide range of environmental concepts, problems, and issues, a set of cognitive and affective dispositions, a set of cognitive skills and abilities, and the appropriate behavioural strategies to apply such knowledge and understanding to make sound and effective decisions in a range of environmental contexts. Therefore, environmental awareness includes knowledge, attitude, and behaviour, where these three aspects are interrelated and cannot be separated. Knowledge of environmental awareness will influence a person to have an attitude of caring for the environment, and if this attitude continues to be carried out, it will give rise to environmental awareness behaviours.

The environmental awareness indicators used in this study were taken from (Hassan et al., 2010; Marija Ham et al., 2015; UNESCO, 2017) The indicators were developed with an emphasis on Outcome-Based Education (OBE) and KKNI level 6 objectives, taking into account the possibility of infusion in English reading learning materials and the Merdeka Belajar and Kurikulum Merdeka (MBKM) for university students.

Numerous studies have emphasized the importance of environmental awareness in education, particularly in integrating it into mathematics and English teaching. (Hambali & Amoo, 2014) found that 90% of respondents recognized climate change awareness, which supports curriculum innovation aimed at preparing students for productive living. (Paradewari et al., 2018) highlighted that building familiarity with environmental issues is prevalent for EFL learners, while (Suwandi, 2018) advocated for developing English teaching materials that incorporate environmental principles. These studies collectively underscore the need for environmental awareness indicators in English learning materials to enhance classroom activities.

Turning now to problem-solving skills, Jonassen & Hung (2012) stated that problem-solving is the process of understanding the difference between a problem's current and goal states, formulating and testing theories regarding the problem's causes, coming up with solutions to the problem, and putting those solutions into practice in order to reach the problem's goal state. Furthermore, when it comes to language acquisition, problem-solving requires that children acquire both language content and cognitive strategies. Particularly when learning a language, students should constantly engage in problem-solving activities to increase their motivation and language proficiency. Solving problems can help students develop higher-order thinking skills like reasoning, critical thinking, and creative thinking (Irsal et al., 2017). Therefore, this study aims to investigate the possibility of incorporating problem-solving skills into ELESPP English reading learning resources to give college students the fundamental abilities required to get ready for new difficulties.

The incorporation of problem-solving skills into language learning has been the subject of numerous studies. (Aspastur & Sulistyningrum, 2021; Dewanti & Drivoka Sulistyningrum et al., 2023; Jonassen & Hung, 2012; Sadri et al., 2019; Salim & Alnoori, 2021) For non-English majors, (Dewanti & Drivoka Sulistyningrum et al., 2023) incorporated problem-solving techniques with English reading materials. The findings, which comprised the prototype and the educational materials, showed favorable outcomes. Furthermore, these findings demonstrate that one of the 21st-century talents that might be highly beneficial, particularly for EFL students in higher education, is the ability to solve problems.

In terms of reading proficiency is a crucial foundational skill for higher education, important for academic activities, and correlated with student success (Patel & Jain, 2008) Despite its importance, university students exhibit poor reading habits (Balan et al., 2019; Dorji, 2020; Hasanah et al., 2023) university students' reading and English proficiencies are insufficient, despite efforts by lecturers to enhance these skills (Poedjiastutie, 2018) Hence, there is a need to design English reading materials to foster students' interest in reading.

Integrating 21st-century problem-solving skills into English reading materials can address environmental challenges. Environmental problem-solving skills, defined by (Sigit et al., 2021), involve identifying solutions to environmental disparities and require sophisticated cognitive

processes (Saygılı, 2017). These skills are critical for confidence and for effectively following problem-solving procedures, essential for preparing students to tackle real-world issues (Dwiyo, 2018; Montejo, 2019; Riyadi et al., 2021). Furthermore, (Chen & Chang, 2024) emphasize the importance of creative problem-solving skills for nurturing sustainability among graduate students in education management, indicating that such training enhances commitment to sustainability. Therefore, embedding environmental awareness in English learning materials is a strategic approach to inspire environmentally responsible behaviour, necessitating the integration of 21st-century skills, particularly problem-solving skills.

Despite being connected to environmental awareness, undergraduate students in English language education programs often neglect environmental issues, particularly in their English reading materials. They show a lack of commitment to pro-environmental behaviours, although they are informed about environmental matters. The Indonesian National Qualification Framework requires these students to reach competencies that include problem-solving skills and the ability to adapt to their circumstances. This aligns with the outcome-based education focus of the Merdeka Belajar Kurikulum Merdeka. Furthermore, enhancing problem-solving skills during learning processes is crucial for improving language mastery outcomes and fulfilling KKN level 6 qualifications, indicating the necessity of incorporating these skills into English reading materials for students.

Most studies of English reading learning materials lack the integration of environmental awareness and problem-solving skills. Current materials focus primarily on knowledge related to environmental education rather than providing practical solutions to global issues. Teachers find it challenging to assess students' environmental awareness due to its cognitive and behavioural components, and the existing literature offers limited support in this area. Observations in Indonesian universities reveal a minimal infusion of environmental awareness in learning materials, with few students adopting sustainable practices. Previous studies indicate that while lecturers demonstrate higher environmental awareness, there is a need to enhance this among students and educational staff through integrated courses and regular training. This research addresses these gaps by developing new English reading learning materials that embed environmental awareness indicators and problem-solving skills for undergraduate students in English Language Education Study Programs (ELESP). The study aims to fill the identified gaps and contribute novel insights into this field.

Methods

This library-based research reviewed some studies, research, or literature that address the environmental awareness and problem-solving skills potential and challenges in English language learning. There were 28 articles selected purposively from 2019 to 2023 for environmental awareness, and 24 articles selected purposively, more empirical sources from 1999 – 2022. Additionally, the data was collected through a computer search of some databases. Then, after collecting the information, the researcher reads and analyzes the sources to find comprehensive information. The sources were articles, books, and webpages that were analysed and synthesised to make connections among the information on potential and challenges of environmental awareness and problem-solving skills.

Results and Discussion

The initial analysis of existing English reading learning materials in the English Language Education Study Program (ELESP) confirmed the foundational premise of this research: current materials have not adequately emphasized environmental awareness indicators and problem-solving skills. This finding highlights a significant gap, demonstrating that while these competencies are mandated by global initiatives (like the SDGs) and national frameworks (like KKN Level 6), the materials used in the teaching-learning process do not sufficiently integrate them. This inadequacy served as the critical justification for undertaking a Design and Development Research (DDR) approach.

The findings of the research illustrate the enormous potential of infusing sustainability awareness in English language learning materials as an opportunity to cultivate students' awareness of global responsibility as well as to acquire language proficiency. Regarding the first finding, which was derived from a needs analysis comprising 52 existing English reading resources for ELESP and interviews with five instructors from five different universities, nearly all the materials currently in use do not incorporate environmental perspectives or problem-solving techniques. Furthermore, the interviews revealed that whereas current resources cater to language goals, they frequently fail to involve students in critical thinking about environmental concerns or practical problem-solving. These disclosures highlight the enormous potential to create English reading materials that foster environmental awareness and comprehension abilities at the same time. Consequently, it shows the possibilities for further inquiry into environmental awareness metrics and problem-solving techniques as teaching tools for English reading for ELESP undergraduate students. According to the results of the interviews, ELESP undergraduate students' English reading learning materials ought to incorporate environmental awareness indicators and problem-solving strategies. The results also showed some shortcomings, which the researcher addressed in the design of the prototype goods.

Although the developed English reading materials integrating environmental awareness and problem-solving indicators have shown promising results, several challenges persist. Aligning these indicators with the Merdeka Belajar Kampus Merdeka (MBKM) framework, Outcome-Based Education (OBE) principles, and the CEFR and KKN Level 6 descriptors remains complex, particularly across diverse institutional contexts. The four thematic units—addressing issues such as sustainability, technology, and pollution—require broader validation to ensure their effectiveness in enhancing both reading comprehension and environmental literacy. Moreover, while expert evaluations and readability results indicate that the materials are pedagogically sound and suitable for university students, future research involving larger and more diverse learner populations is needed to strengthen the generalizability of the findings. A continuing challenge for material developers is to balance linguistic objectives with the cultivation of critical and environmentally responsible thinking, ensuring that English learning materials support not only academic achievement but also the goals of sustainable education. Collectively, these findings demonstrate that the developed materials are not only necessary to fill a content gap but are also high-quality, valid, and suitable for immediate implementation. The successful infusion of environmental awareness indicators and problem-solving skills into engaging reading texts positions this prototype as a potential solution to enhance students' reading literacy and prepare them for future life and career demands on a global basis. The outcome suggests that these materials hold the potential to effectively strengthen environmental awareness among students through a combination of knowledge, attitude, and behaviour, which was previously noted as a necessary intervention.

Conclusions

In conclusion, this study aimed to explore the potential and challenges to create English reading materials that integrate environmental awareness and problem-solving skills for the English Language Education Study Program (ELESP). The findings underline the significance of these elements in the design of learning materials. In order to create a prototype and build the final product, which will be offered as instructional materials for English reading, the researcher examines pertinent theories and descriptors. Four units of anticipated learning outcomes were then created by the researcher and subsequently developed into learning materials for English reading. Each unit covers the following topics: Is It Sustainable to Build Cities While Losing Forests? The Algorithm of Trees, One Step Closer with "Elon Musk," and the Plastic Around Us. Through the teaching and activities from the reading passage, each topic aims to enhance students' existing understanding of environmental challenges in their immediate surroundings, promote reading comprehension, and elicit problem-solving abilities

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