

Promoting Sustainable Environment Literacy Using the Power of Multimodality in E-Textbooks

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Abstract. This study explores the use of multimodal features in e-textbooks for English as a Foreign Language (EFL) in Indonesian high schools. For easier reference, the e-books are called EC-LE and LT-CF. Both were selected as they address topics that help with both learning a language and acquiring knowledge about the environment. The results revealed that the use of visuals, such as images, graphs, illustrations, and QR codes, in e-textbooks significantly facilitated students' comprehension. These features also increase the viability of abstract learning concepts relating to environmental issues. Both e-textbooks employ diverse modalities to cater to various learning styles. To visually represent environmental situations, EC-LE uses dynamic images and colourful layouts. These characteristics are particularly attractive to individuals who learn best through visual means. However, LT-CF effectively conveyed the environmental issue using informative visuals and detailed explanations, making it well-suited for students who prefer structured learning methods. Integrating multimodal components into these electronic textbooks aligns with educational concepts like constructivism and social semiotics. These principles emphasize the significance of visual and interactive tools in facilitating learning and comprehension of the world. QR codes in LT-CF enhance student engagement and digital literacy by connecting to multimedia resources that offer dynamic explanations and real-life illustrations, effectively complementing written information. These multimodal components enhance language proficiency, increase environmental awareness in EFL instruction, foster critical thinking in students, and offer a wide choice of instructional materials. Using this study's findings, educators can gain valuable insights and apply ways to use multimodalities in e-textbooks to improve the quality of their teaching.

Keywords: multimodal, EFL e-textbook, sustainability, learning English, textbook analysis

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INTRODUCTION

The importance of combining verbal and visual components to improve language acquisition is shown by an examination of multimodal aspects in English as a Foreign Language (EFL) and English as a Second Language (ESL) e-textbooks. Liu and Qu (2014) argue that effective multimodal textbooks balance these aspects to respond to the varied

levels of skill and educational needs of learners. Research indicates that EFL textbooks frequently demonstrate a significant connection between visual and written features, which fosters the development of significant connections between different forms of communication and enhances the learning process (Jauhara, 2017; Liu & Qu, 2014). Textbooks, usually incorporate modern educational ideals like constructivism and humanism using multimodal approaches (Liu & Qu, 2014; Smith, 2021; Weninger, 2021).

According to Jauhara (2017), research indicates that the written parts in textbooks mostly consist of narratives, while the verbal texts employ interaction processes to communicate messages and enhance language abilities. The multimodal arrangements embody several educational philosophies, although it is crucial to acknowledge the power dynamics and perspectives inherent in these texts (Weninger, 2021). The dominant inner circle's viewpoints can exclude non-inner circle learners, which impacts the purposes of teaching and learning (Smith, 2021). Efficient EFL textbooks that utilize multiple modes accomplish the best possible combination of visual and written features by adjusting them based on the learners' competence levels (Liu & Qu, 2014). ESL classrooms utilize multimodality to incorporate teaching methods, learning settings, and educational technology, all of which contribute to the acquisition of language (Jelani & Hassan, 2023).

Language textbooks can be studied using two approaches: one focuses on how text and graphics convey concepts about the world, while the other examines how multimodal features facilitate interpersonal relationships (Weninger, 2021). Engaging in digital multimodal composing (DMC) in EFL classes can significantly impact learners' writing commitment, transforming some from reluctance to active composition, and others from exam-focused attention to multimodal expression (Jiang, 2018). These actions improve the understanding of the audience and genre, promote independent learning, increase the commitment to language study, foster the development of personal identity, boost the ability to communicate using several modes, and improve competency in a second language. Engaging in reflective dialogue between students and instructors can help alleviate cultural marginalization in the multimodal communication seen in EFL textbooks (Smith, 2023). Utilizing multimodal-based training provides advantages in the development of language skills, the improvement of motivation and engagement, and the enhancement of critical awareness (Kustini et al., 2020). In the field of TESOL teacher education, the use of multimodal practices in TESOL teacher education helps students

acquire topic knowledge and develop professionally. Digital technology strengthens these practices, creating interesting and inspiring learning experiences (Li, 2022).

The increasing awareness of environmental issues in educational materials has coincided with the growing focus on multimodal analysis in EFL/ESL textbooks (Artini, 2017; Bedi, 2023; Cristovão et al., 2022). Nevertheless, there is little in the way of research that examines both elements concurrently, leading to a limited comprehension of how multimodal features might effectively improve environmental education. According to research, EFL textbooks, particularly in countries such as Egypt and Jordan, may not adequately address environmental topics (Albashtawi & Al Bataineh, 2020; Hamed, 2021). These e-textbooks tend to prioritize human-centered and consumer-focused viewpoints rather than providing a thorough understanding of ecological education (Hamed, 2021). Approximately one-third of EFL textbooks address ecological problems and skills development, highlighting the need to incorporate more global ecological topics in language training (Al-Jamal & Al-Omari, 2014). For instance, Brazilian EFL textbooks include external materials, but these resources are frequently inadequate for promoting the development of critical environmental literacy (Cristovão et al., 2022). Taiwanese elementary school science textbooks address worldwide challenges, with a primary emphasis on environmental sustainability (Chou, 2021). On the other hand, Spanish geography e-textbooks show notable potential for enhancing environmental education (Omrani et al., 2022).

This ongoing preliminary project aims to examine the use of multimodal components in two specific chapters of two EFL e-textbooks designed for high school students in Indonesia. The project will examine how multimodal aspects are used in these e-textbooks to instruct on environmental issues and enhance language acquisition. The study will specifically examine the relationship between visual and spoken texts, the consistency across different modalities, and the efficacy of these elements in communicating sustainability and green energy principles. The objective of this research is to offer educators valuable information on how to utilize various modes of communication in well-crafted e-textbooks provided by the government to improve students' ability to express themselves effectively in both spoken and written language. The study aims to address the lack of research on this topic by enhancing students' linguistic skills and environmental awareness. This research will also facilitate the creation of more intriguing yet effective teaching materials.

METHOD

The Educational Department's website, which serves as a platform for e-textbooks, provided access to two PDF files. Initially, the author scrutinized each book's contents table to identify chapters that addressed environmental issues. After identifying these chapters, the author gathered general information from the e-textbooks and specific chapters, then systematically organized this data into an Excel spreadsheet. The initial step was essential in establishing the groundwork for a complete multimodal investigation.

Subsequently, the author conducted a comprehensive analysis of the chosen chapters, specifically concentrating on pages that had abundant multimodal elements such as text, photographs, diagrams, and other visual aids. The pages were classified according to their content and multimodal features and then recorded in an Excel spreadsheet for the purpose of organizing and easily accessing the data. A diverse set of representative pages were chosen from groupings containing many comparable pages to encompass a wide variety of strategies employed in the e-textbooks.

The author generated multimodal transcriptions by aligning corresponding pages from the two books next to each other in a unified image. This enabled a direct evaluation of the multimodal characteristics employed in each e-textbook, permitting both visual and contextual examination. To enhance the definition and sharpness of these comparative photographs, the author used a complimentary internet-based picture enhancer, ensuring that all visual components were distinct and analyzed.

The improved photos were subsequently described and examined meticulously, with a specific emphasis on their distinctive multimodal characteristics and their contribution to the promotion of environmental education. The study sought to ascertain the advantages and disadvantages of incorporating multimodal features in e-textbooks to educate students about sustainability and environmental awareness. It conducted a comprehensive examination of how these elements facilitate language acquisition.

RESULT & DISCUSSION

The Results and Analysis section specifically investigates the inclusion of multimodal components in the chosen EFL/ESL textbooks. A thorough description and explanation complement the data analysis, providing a comprehensive understanding of how these features enhance language learning and environmental education. This section is

divided into seven parts, starting with a summary of the fundamental attributes of e-textbooks. Afterwards, the many modalities found in each chapter of the textbook are introduced, emphasizing the wide range and spread of multimodal characteristics. The conversation then transitions to the modality of covers and mind maps, highlighting their function in structuring and showcasing fundamental ideas. The investigation then examines how various modalities depict environmental challenges, offering visual and contextual reinforcement to the written content. The subsequent analysis focuses on the chapters' EFL learning and visual designs, followed by an explanation of how visuals facilitate learning activities. Ultimately, the showcasing and examination of QR codes illustrate how these digital components amplify student involvement and streamline the availability of additional multimedia resources. This section tries to clarify the usefulness of multimodal techniques in promoting language competence and environmental awareness among students.

Key Characteristics of E-textbooks

This section describes the data source (Look at Table 1), emphasizing a specific selection of English e-textbooks. Every book and sub-chapter are well labeled to facilitate simple referencing. The study examines chapters that emphasize issues related to the environment, including sustainability and renewable energy. High school and Madrasah Aliyah students are the target audience for both books. The EC-LE book spans 266 pages, including xxii pages, and splits into five chapters. Conversely, the LT-CF book spans 244 pages, including xx pages, and comprises four chapters. Chapter 2 of EC-LE discusses the pertinent subject matter in 61 pages, whereas Chapter 4 of LT-CF addresses it in 51 pages. The chapters were examined to determine their multimodal content, with a specific focus on their function and variation. The selection process revealed that the LT-CF chapter had approximately 33% more pages with multiple modalities than the EC-LE chapter. The efficiency of the modalities in these chapters was subsequently assessed in terms of their potential to teach environmental sustainability.

Developing the capacity for environmental sustainability necessitates a combination of knowledge and values. To effectively apply their knowledge, students must demonstrate a genuine concern for and desire to save the environment. Education institutions have a crucial role in disseminating knowledge and encouraging ecologically advantageous actions. The EC-LE book uses the term "love" to express a strong connection and a willingness to protect the environment, encouraging students to actively engage in

environmental conservation. The 12 pages of this resource utilize several modes of communication, such as text, photographs, and visually appealing designs, to enrich the process of acquiring knowledge about the environment. Roughly 20% of the book's pages contain multimodal presentations, showcasing a cooperative endeavor among authors, editors, and illustrators to create engaging lessons.

Table 1. Key Characteristics of e-textbook

Code	Book's Title & Target Learners	No. of Page	Total Unit	Unit's Title	No. of Page	No. of Multimodal Page	Percentage of pages
EC-LE	English for Change (SMA/MA XI)	xxii+266	5	Unit 2. Love Your Environment	61	12	19.67
LT-CF	Life Today (SMA/MA XII)	xx+244	4	Unit 4. Carbon Footprints	51	16	31.37

Source: Primary Data, 2024

The LT-CF book employs the phrase "carbon footprint," specifically catering to high school and MA students. The title "Life Today" is indicative of worries over human resilience, establishing a connection to this concept. This chapter incorporates 31.37% multimodal material, employing many communication approaches to facilitate students' comprehension of intricate concepts related to carbon footprints. Diagrams, tables, mind maps, and images elucidate complex subjects and improve comprehension through visual depiction.

Multimodal text analysis aims to efficiently communicate knowledge using a variety of communication modalities, catering to different learning styles (Weninger, 2021). Both books employ multimodal pages that attract students and incite curiosity about environmental concerns, thus benefiting individuals who learn through visual and textual means. Language acquisition focuses on the use of visual, aural, and audio-visual stimuli (Pathan et al., 2018). Static visuals are used to clarify textual information, while audio recordings help with pronunciation. Instructional videos improve engagement and comprehension by offering visual depictions in situations where direct observation is impractical (Kestin & Miller, 2022). Teachers can gain significant insights from multimodal analysis, which helps them effectively use many forms of representation to enhance student learning results.

Modality Varieties

This section analyzes the variety of modalities found in specific e-textbook pages, organized based on their similarities in terms of modality. Both books contain four groups of modalities, three of which are exclusive to LT-CF (Look at Table 2). Some have many pages per modality. In this sub-section, we will examine the efficacy of different teaching methods in environmental education by analyzing a single page from each book.

In order to maintain the interest of students, it is necessary for e-textbooks to provide diverse materials (Liu & Qu, 2014). Modality shifts have numerous advantages. The EC-LE e-textbook incorporates visuals such as diagrams, infographics, and photographs to describe sustainable development, which accounts for 56.25% of the multimodal content. The LT-CF e-textbook specifically allocates 33.33% of its multimodal content to similar functions. Both books use visual aids to improve effective language tasks, such as dialogue and opinion voicing. Both books also use accompanying graphics to enhance discussions about the environment. EC-LE assigns 31.25% of its multimodal content to pertinent images, whereas LT-CF devotes 16.67%. The larger number of photographs in LT-CF provides supplementary visual context, facilitating the advancement of environmental discourse.

The mind maps in the e-textbooks provide an overview of the chapter's learning objectives and important terms, functioning as previews and cognitive exercises. Visual aids play a critical role in facilitating comprehension of the interrelationships between concepts, which is essential for understanding environmental challenges and sustainability in the field of English studies.

LT-CF distinguishes itself by incorporating QR codes, visual aids for grammar, and photographs with captions. QR codes facilitate the connection to online resources, but they require internet connectivity and may be vulnerable to link expiration. The use of multimodality in e-textbooks is consistent with the principles of multimodal learning theory, which posits that the use of many forms of media in educational materials improves comprehension and memory retention (Li, 2022; Weninger, 2021). This method is advantageous for EFL/ESL students as it offers visual context and cues to enhance their understanding of the language.

Table 2. Varieties of Modality in the e-textbook's Chapter

Varieties of Modality	LT-CF Page No.	Percent	EC-LE Page No.	Percent
A picture to support the reading	149,163	16.67	65, 67, 70, 77, 83	31.25
Visuals to support learning tasks	150, 154, 157, 160	33.33	47, 56, 62, 64, 72, 74, 75, 89, 91	56.25
Title page	147	8.33	45	6.25
Mind Map	148	8.33	46	6.25
Picture and Caption	182	8.33		
Visuals to make the design more attractive for explaining language point	174	8.33		
QR codes for access to videos, visuals, and reading	183, 185	16.67		

Source: Primary Data, 2024

When comparing EC-LE and LT-CF, both use multimodality successfully, but they prioritize different aspects. EC-LE prioritizes visual elements for learning activities, whereas LT-CF provides a well-rounded learning experience with modalities that are evenly dispersed. By incorporating multimodal aspects, educators can enhance their teaching of environmental and sustainability challenges, resulting in more impactful educational experiences that cultivate a greater comprehension of and dedication to environmental conservation (Kustini et al., 2020; Weninger, 2021).

Covers and Mind Maps

The chapter-covers of both e-textbooks show students participating in environmentally sustainable activities in natural environments with trees and other greenery all around them (Figure 1). The graphics in "EC-LE" take precedence over text, highlighting pupils engaging in activities such as garbage collection and waste management within the school environment. The incorporation of text and images in these graphics adheres to Kress and van Leeuwen's theory of multimodal discourse, facilitating a more profound understanding of the information (Kustini et al., 2020; Muhassin et al., 2022).

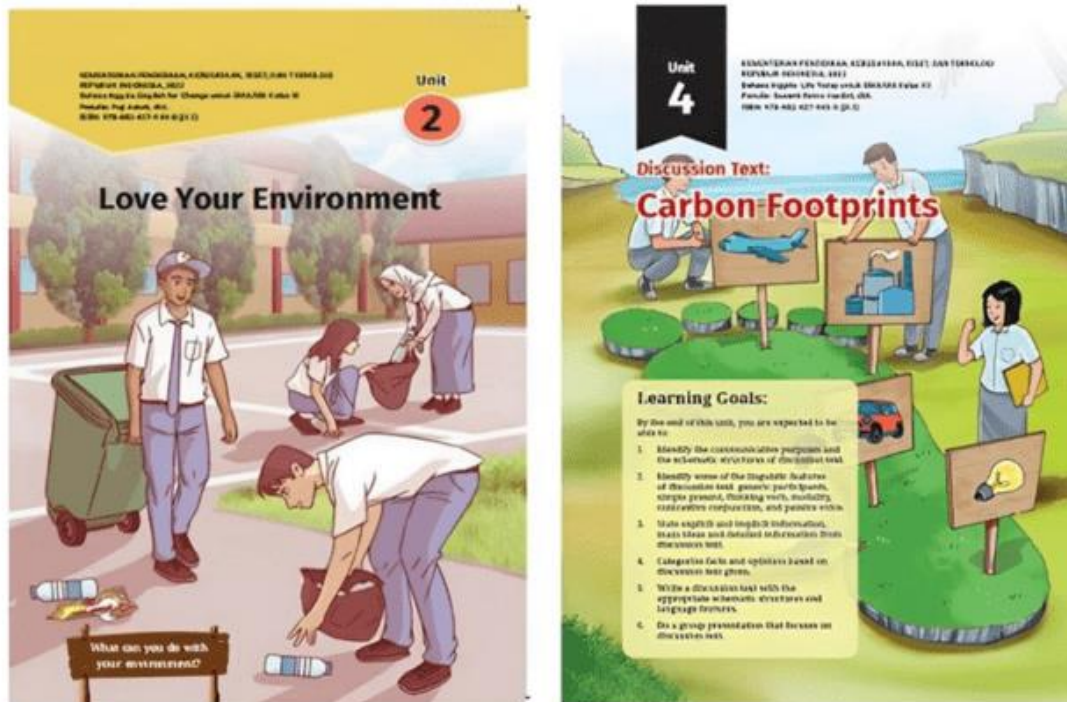


Figure 1. Modalities of the Chapter's Cover

On the other hand, "LT-CF" achieves a more equitable distribution of text and graphics on its chapter-cover, placing equal emphasis on the issue of "Carbon Footprint." The design incorporates visuals of pupils showcasing placards depicting environmental consequences such as automobiles and industrial facilities. The multimodal technique used here is consistent with the principles of dual coding theory, which posits that the integration of both verbal and visual stimuli improves the learning process and the ability to retain information (Ball, 2023; Kanellopoulou et al., 2019).

Both e-textbooks employ mind maps (Figure 2) as a means of visually arranging learning objectives, thus endorsing cognitive load theory by streamlining the process of information processing. These maps emphasize important subjects such as grammar, punctuation, and environmental awareness, making it easier to fully comprehend the topic. Through visual sectioning, students can enhance their understanding of the interrelationships among environmental concepts, thereby fostering successful learning practices.

In a comparable way, LT-CF bases the structure of its mind map on the concept of "Carbon Footprint," delving into associated subjects such as its causes and possible

remedies. Mind maps help students better understand abstract concepts and their practical applications by using icons and pictures of industries, cars, and plants to visually reinforce textual material. This multimodal strategy emphasizes the role of images in meaning production and communication, which is consistent with social semiotic theory (Muhassin et al., 2022).

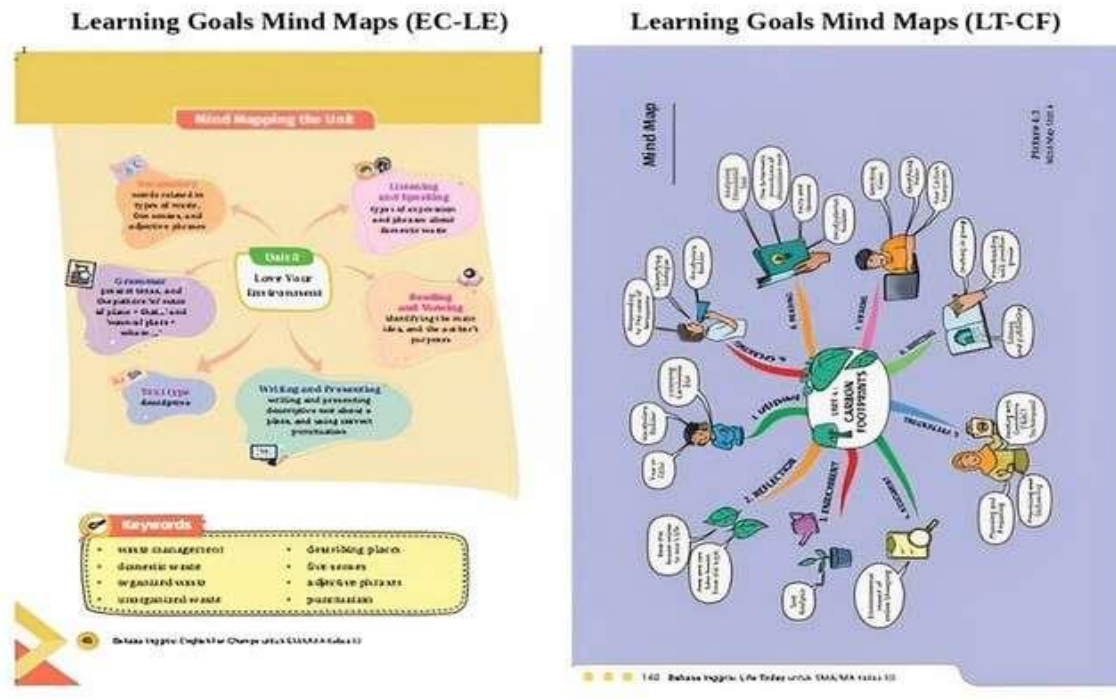


Figure 2. Learning Goals Mind Maps

Both EC-LE and LT-CF employ multimodality well, but in different ways. In order to appeal to visual learners, EC-LE uses lively, action-oriented images and colorful layouts on its chapter-covers and mind maps. This design supports constructivist learning theory (Olusegun, 2015) by using related scenarios to make environmental concepts accessible. On the other hand, students who favor structured learning will find LT-CF interesting, as it takes an organized approach with educational graphics and thorough explanations. Its mind maps, with their well-defined divisions and learning objectives, facilitate students' understanding of the relationships between ideas, improving their knowledge and retention of sustainability principles.

Modalities Represent the Environment

The following Figure 3 represents data from two pages of the book, demonstrating how illustrations support textual information. Students immediately connected to

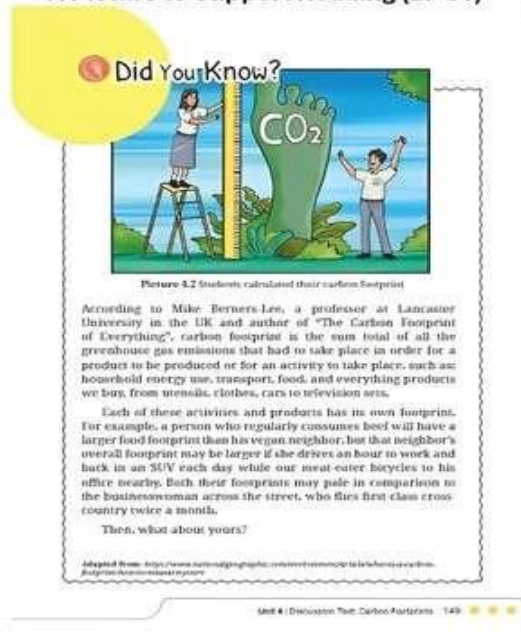
environmental issues by creating images of commonplace settings such as a green yard and the seashore. A caption providing context and some elucidating text accompany the image at the top.

A Picture to Support Reading (EC-LE)



Indonesia is the most marine polluted country in the world.

A Picture to Support Reading (LT-CT)



Explanation about carbon footprint and how to count it.

Figure 3. Modalities Represent the Environment

A picture from the EC-LE e-textbook shows problems with marine debris in Indonesia, including pollution at Bali's Kuta Beach. The graphic's statistical data highlights Indonesia's substantial contribution to ocean pollution worldwide, with the nation accounting for 10% of all marine trash. In line with multimodal theory, visual aids contextualize issues, give abstract concepts a concrete form, and improve comprehension by activating several cognitive pathways (Weninger, 2021).

Similarly, LT-CF uses visuals to teach students about carbon footprint estimation and measuring methods. Students are shown symbols for carbon dioxide emissions and an estimate of their own carbon footprint. Dual coding theory shows that combining spoken and visual information helps people learn and remember it better (Kanellopoulou et al., 2019). This multimodal approach helps people understand by giving them real-life examples of tough environmental problems.

Visuals to Support Learning Activities

A wide variety of illustrations from the LT-CF and EC-LE e-textbooks improve environmental sustainability-related learning activities. A component of the EC-LE e-textbook has illustrations that show effective waste management techniques. Students are encouraged to have conversations about these images (Figure 4, Left). This method promotes terminology relevant to sustainability and stimulates conversations on environmental policies. Students' educational experience is enhanced, and their understanding of the practical application of environmental topics is strengthened by watching these visuals, such as students sorting trash or taking part in cleanups.

<p>Visual(s) to Support Learning Tasks (EC-LE)</p> <p>Independent Construction of Text</p> <p>Activity 8</p> <p>Work in pairs. Create a dialogue in your book based on the pictures provided. Do not forget to include some adjective phrases you have learned so far.</p> <p>Picture 2.7 Unethical rubbish at school</p> <p>Picture 2.8 People are queuing at a water bank</p> <p>Picture 2.9 A woman is planting flowers in the garden</p> <p>Bahasa Inggris: English for Change (edisi SMA/MA Kelas XI)</p> <p><i>Speaking tasks to create dialogues based on pictures about sustainable actions to take care of trash</i></p>	<p>Visual(s) to Support Learning Tasks (EC-LE)</p> <p>Listening</p> <p>Activity 1</p> <p>Look at the pictures.</p> <p>Picture 4.3 A female student booked an online means of transportation</p> <p>Picture 4.4 Bright home</p> <p>Discuss the questions in pairs.</p> <ol style="list-style-type: none"> 1. Are the illustrations above familiar to you? 2. If you were that student, would you do the same? <p>Bahasa Inggris: Life Today (edisi SMA/MA Kelas XII)</p> <p><i>Listening and speaking tasks about the relation of daily activities and carbon footprint</i></p>
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Figure 4. Visuals to Support Learning Tasks

The EC-LE e-textbook also includes images in listening exercises, such as one showing a young Indonesian woman utilizing a popular online transportation service (Figure 4, Right). This multimodal approach combines the senses of sight and sound, encouraging conversations on how daily decisions like transportation affect the environment. The graphics are accompanied by questions that invite contemplation and

consideration of greener options, such as shared transportation, to cut down on carbon emissions.

Similarly, the LT-CF e-textbook illustrates the concept of carbon footprint and its measurement methods with visuals. Students estimate their carbon footprint with visual aids that include icons for emissions sources like electricity use and transportation. This method helps students comprehend difficult environmental subjects by offering concrete examples in addition to improving written explanations. The multimodal learning theory, which contends that combining several media types enhances comprehension and memory retention, is consistent with the use of visual aids (Kustini et al., 2020; Li, 2022).

These e-textbooks demonstrate multimodal learning, which blends text, images, and occasionally audio to improve understanding and engagement (Liu & Qu, 2014). By highlighting social interaction and contextual learning, visual aids assist Vygotsky's social constructivism by giving students contextual cues that help them connect theoretical ideas to practical applications (Newman & Latifi, 2021). This approach supports a variety of learning styles and is especially helpful for visual learners, who find it easier to understand and retain visual representations.

Visual aids in environmental education also encourage critical thinking and active engagement (Kestin & Miller, 2022; Retno Wiyati & Feni Marlina, 2021). Students gain a better understanding of sustainability challenges by not only absorbing material, but also analyzing and discussing it. This method helps students develop a sense of accountability and the ability to make wise environmental decisions by encouraging them to apply what they have learned to real-world situations.

Multimodality increases student engagement and interest in teaching environmental and sustainability themes, especially in EFL environments where language limitations might be a hurdle. Visual components overcome language barriers by adding context and facilitating understanding of difficult concepts (Chang & Dong Liu, 2015; Reinhart & Schneider, 2001). This strategy lends credence to social semiotic theory, which emphasizes the importance of visuals in constructing meaning and elevating the value of written content.

The EC-LE and LT-CF e-textbooks are excellent examples of how multimodal learning can be used to educate about environmental issues and sustainability. These e-textbooks improve comprehension, engagement, and memory retention by fusing text with visual features. This makes difficult subjects more approachable and applicable to students'

daily lives. This method encourages students to become proactive change agents in the environment while simultaneously facilitating learning.

EFL Learning and Visual Designs

The illustration shows two pages that exemplify different modalities (Figure 5). To the left, the upper part of the content maintains a conversation about grammar, but directly beneath it, there is an image illustrating air pollution. The following text thematically connects this image to the environmental issues discussed. The image is strategically positioned to visually enhance grammar education. Participants hold tables and boards that exhibit language concepts, effectively engaging learners on an emotional level.

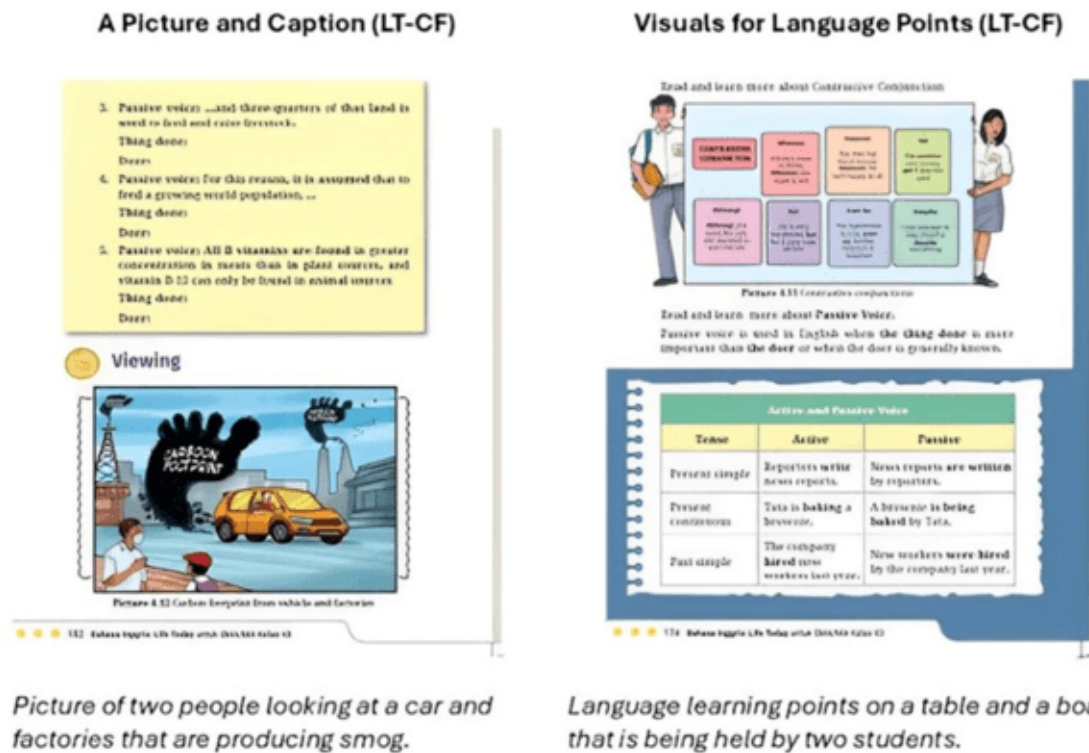


Figure 5. EFL Learning and Visual Designs

LT-CF's book uses diagrams and tables to present linguistic topics in a structured manner on the left page. At the top, there is a graphic chart that shows comparative conjunctions. Below that, there is a table that contrasts active and passive sentences in different tenses. Short examples illustrate each tense. The combination of visual aids and written explanations promotes grammar understanding, accommodates various learning preferences, and enhances memory recall.

The e-textbook examples demonstrate multimodal learning by integrating written text, images, and diagrams to enhance comprehension (Jelani & Hassan, 2023; Weninger,

2021). Instructors not only improve learning by incorporating environmental topics into language instruction, but they also encourage students to analyze real-life examples of sustainability problems.

QR Codes and Learning

The LT-CF e-textbook's section on modality diversity examines the incorporation of QR codes to enhance English learning by focusing on environmental subjects. Every exercise incorporates QR codes that link to relevant YouTube films, enhancing understanding through multimedia engagement (Figure 6).

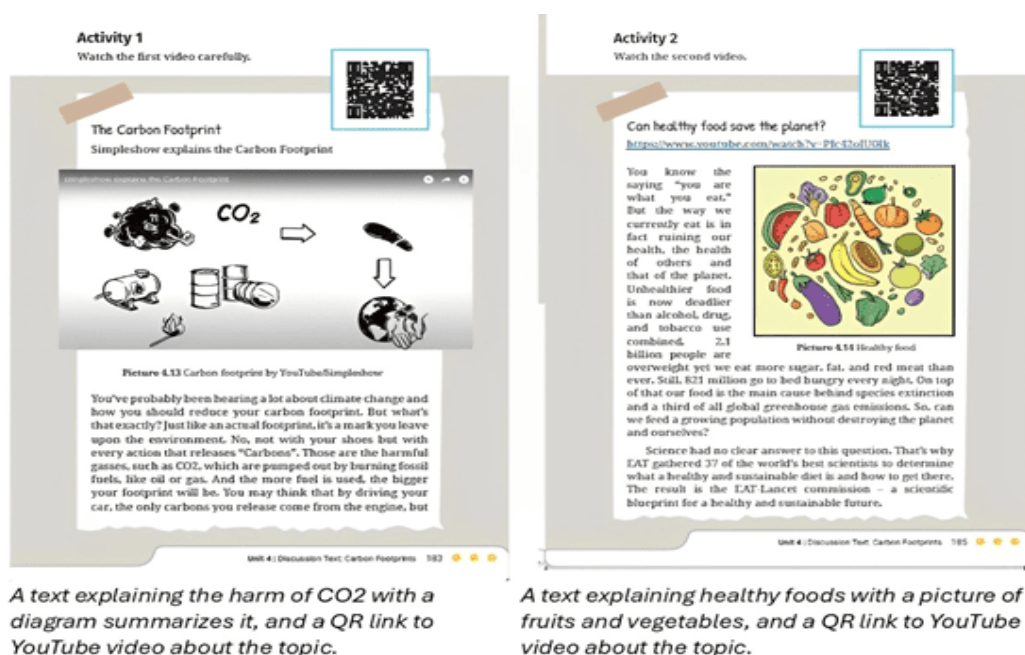


Figure 6. QR Codes and Learning

During "Activity 1," students use a QR code to access and view Simpleshow's "The Carbon Footprint" film. This film uses monochrome visuals to elucidate intricate ideas, namely showcasing carbon emissions originating from autos, industry, and several other sources. The accompanying text complements these visuals by providing explanations. It emphasizes the importance of the carbon footprint in relation to climate change and encourages emissions reduction through everyday actions. The inclusion of movies, visual synopses, and written clarifications ensures thorough comprehension, accommodating a variety of learning styles.

"Activity 2" investigates the influence of diet on the environment. It encourages students to scan a QR code that leads to a movie demonstrating the positive effects of

healthy eating on both the environment and health. The EAT-Lancet Commission's scientific results favor sustainable diets, which are represented by vivid imagery of fruits and vegetables. This methodology establishes a link between individual health decisions and worldwide ecological sustainability, promoting the development of analytical skills about dietary patterns.

The integration of QR-accessible movies into EFL e-textbooks improves learning outcomes by engaging visual and auditory learners and increasing the accessibility of complicated subjects. Videos provide lively and effective explanations, as well as real-world examples that complement textual content. QR codes facilitate accessing additional resources, thereby enhancing student involvement and proficiency in digital skills. This contemporary methodology improves understanding of sustainability subjects and enhances the learning process with interactive and multimedia components, promoting a more profound comprehension and admiration of global matters (Moreno & Mayer, 2007).

CONCLUSION

This study has examined the incorporation of many modes of communication in Indonesian e-textbooks for EFL/ESL, primarily focusing on EC-LE and LT-CF. The goal is to improve both language acquisition and environmental education. This research emphasizes the crucial significance of visuals, diagrams, infographics, photos, and QR codes in making sustainability principles understandable and engaging for students. This is achieved through careful analysis. Both e-textbooks effectively employ diverse modalities to accommodate different learning styles. EC-LE utilizes dynamic illustrations and vibrant layouts to effectively communicate environmental scenarios, making it particularly appealing to visual learners. On the other hand, LT-CF adopts a structured approach with clear visuals and detailed explanations, which resonates well with students who prefer systematic learning methods. These multimodal strategies are in line with educational ideas like constructivism and social semiotics, which emphasize the significance of visual and interactive tools in facilitating the production of knowledge and the creation of meaning.

The incorporation of QR codes in LT-CF enhances student involvement and fosters digital literacy by connecting to multimedia resources that provide dynamic explanations and practical examples, thus considerably improving the textual content. These multimodal approaches enhance language competence and promote environmental awareness and

critical thinking skills in students, making a significant contribution to the creation of diverse and successful teaching resources.

It is critical to consider the long-term implications of these discoveries. Future studies should further investigate the effects of multimodal techniques on student motivation, learning results, and the long-term formation of environmental attitudes. Furthermore, educational officials and curriculum creators must incorporate these valuable insights into teaching methods to improve language education and environmental literacy. Educators can create more captivating learning environments by appropriately utilizing multimodal features, empowering students to become knowledgeable global citizens committed to environmental sustainability. This comprehensive approach not only enhances educational methods but also equips future generations to address intricate global issues with ingenuity and mindfulness.

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