

ECOLOGICAL LITERACY IN EFL READING MATERIALS: A CONTENT-BASED EVALUATION OF SKILLFUL READING AND WRITING

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ABSTRACT

Purpose English language textbooks can support ecological literacy even when environmental education is not their primary purpose. This study evaluates how ecological ideas are represented in the reading texts and accompanying learning prompts in Skillful Reading and Writing, a textbook used in a university Critical Reading and Writing course. It addresses the gap between the presence of environmental topics and the extent to which materials encourage ecological understanding and action. A qualitative descriptive document analysis was conducted on twenty readings distributed across ten topic units. Each reading was assessed using five criteria adapted from Rule and Atkinson's ecological picture-book rubric, namely appreciation of nature, realistic ecological problems, positive tone, appropriate illustrations, and hope for a solution. The mean scores reported in the detailed analysis were four point zero five for appreciation of nature, four point one five for realistic ecological problems, four point nine zero for positive tone, three point five zero for appropriate illustrations, and two point zero zero for hope for a solution. The overall mean across readings was three point seven two. Six readings received the highest average score of four point four, including Fuel of the Sea and Earth's Final Frontier. The principal weakness was the limited presentation of actionable solutions and explicit conservation-oriented learning prompts. The findings illustrate that general-purpose EFL materials can contain meaningful ecological affordances, but topic presence alone does not guarantee environmental learning. Lecturers can add critical questions, local environmental cases, and small conservation tasks to connect reading comprehension with responsible action. Rather than treating the textbook as an environmental education resource by design, this paper examines how existing language-learning content can be pedagogically reframed to strengthen ecological literacy.

Keywords: ecological literacy; EFL textbook; content analysis; reading instruction; environmental education

1. INTRODUCTION

Environmental concerns are educational concerns because learners encounter the consequences of human–environment relationships in their everyday lives. Environmental education is not limited to science subjects: language classes can also provide opportunities to interpret environmental information, discuss human choices, and consider possible responses. Environmental education has been described as instruction that helps learners understand their surroundings and make informed decisions about caring for them (Blanchet-Cohen & Reilly, 2013; Bodor, 2016). Yet the effectiveness of such education depends not only on information

but also on meaningful engagement and opportunities to act (Blumstein & Saylan, 2007; Potter, 2009).

Textbooks are one practical route through which environmental themes may enter a curriculum. In English as a foreign language (EFL) classes, reading passages can develop language skills while also introducing ecosystems, human impacts, and possible solutions. This potential is important in higher education, where ecological awareness can be integrated into existing courses rather than treated as an isolated topic. Work on ecological curriculum design suggests that institutions can reconsider learning goals and curricular structures through an ecological lens (Jones & Galloway, 2013). Environmental education scholarship also emphasizes the continuing need to prepare educators and develop curricula that sustain ecological learning (Krasny, 2020; Monroe & Krasny, 2016; Salazar et al., 2022).

At Misi Charitas Catholic University, Skillful Reading and Writing (Bohlke, 2012) is used in the Critical Reading and Writing I course. Although the book is designed to teach reading and writing rather than environmental education, several passages address natural systems, technological development, and human relationships with the environment. The key question is therefore not simply whether environmental topics appear, but how the texts and activities represent nature, ecological problems, constructive responses, visual support, and hope for solutions.

Research on ecological materials has assessed picture books and ecology-oriented textbooks, including work on the validity of locally grounded ecology textbooks (Hunaepi et al., 2016) and analyses of children's books about ecology (Martin et al., 2019). The present study applies an established five-part rubric to a university EFL textbook. It asks: (1) how strongly do the readings represent the five ecological criteria, and (2) what teaching implications follow from the strengths and limitations identified? This paper reframes the analysis around the ecological affordances of language-learning materials and the instructional choices that can turn those affordances into learning.

2. LITERATURE REVIEW / THEORETICAL FRAMEWORK

Ecological education considers relationships among organisms, people, and their environments. In educational settings, this perspective encourages learners to recognize interdependence and to connect knowledge with responsible decisions. Ecopedagogy extends environmental learning toward critical reflection on human practices and wider social and planetary conditions (Kahn, 2010; Misiaszek, 2012; Supriatna, 2016). Related approaches emphasize the role of nature-based experiences and ecological activities in shaping attitudes and behavior (Kahyaoğlu et al., 2021; Okur & Berberoglu, 2015). These perspectives suggest that ecological literacy involves more than naming environmental facts: learners should also interpret relationships, evaluate consequences, and consider responses.

Textbook analysis offers a way to examine which ideas and learning opportunities are made available to students. The design and validity of ecological teaching materials have been

investigated in studies using local ecological knowledge and ecosystem analysis (Hunaepi et al., 2016; Husain et al., 2019). Literature-based work likewise indicates that texts can be considered for their ecological content and potential as instructional materials (Amala & Widayati, 2021; Muthukrishman, 2019). However, content presence and learning outcomes should not be equated automatically. Classroom learning is shaped by the content, amount, and quality of instruction as well as the learning environment (Connor et al., 2014). Therefore, a reading passage may offer ecological possibilities without independently ensuring ecological understanding or action.

This study uses the five criteria presented by Rule and Atkinson (1994) and applied in later content analysis of ecology-themed picture books (Martin et al., 2019). Nature appreciation concerns whether a text conveys the beauty or harmony of nature. Realistic ecological problems concerns whether environmental issues and the effects of human choices are represented credibly. Positive tone considers whether constructive behavior and effective responses are emphasized rather than blame or fear. Appropriate illustrations concerns whether images complement and clarify the text. Hope for a solution considers whether the material conveys the possibility of viable solutions. Together, these criteria provide an analytical lens for examining both textual content and visual presentation.

3. RESEARCH METHOD

This study employed a qualitative descriptive design using document analysis. The data source was Bohlke's (2012) *Skillful Reading and Writing*, a required textbook for Critical Reading and Writing I in the English Language Education Study Program at Musi Charitas Catholic University. The unit of analysis comprised reading passages and their related questions, exercises, and illustrations. The corpus consisted of 20 readings across 10 topic units. The textbook was selected because it was used in the course and contained passages with potential connections to the natural environment and human–environment relationships.

Data were recorded and evaluated using the five ecological criteria developed by Rule and Atkinson (1994), following the rubric described by Martin et al. (2019). Each criterion was rated on a five-point scale: 5 indicated that the criterion was addressed comprehensively; 4, that it was generally addressed with minor omissions; 3, that the topic was present but not developed in depth; 2, that it was mentioned only to a limited extent; and 1, that it was absent. The analysis considered the text, instructional prompts, and illustrations. Scores were summarized descriptively by criterion and by reading, while selected passages were examined qualitatively to explain stronger and weaker patterns.

The analysis was document-based; no student participants were recruited and no claims about measured changes in student attitudes or behavior are made. The numerical summaries should be interpreted as rubric-based descriptive ratings of the textbook rather than as a psychometric measure of students' ecological literacy.

4. RESULTS

The initial review identified 20 readings distributed across 10 units. Each reading had a title and visual material, although the formats varied: some were conventional passages, while others incorporated survey-style responses or reading activities. Table 1 summarizes the mean scores for the five ecological criteria as reported in the detailed analysis.

Table 1. Mean Scores for Ecological Criteria Across 20 Readings

Ecological criterion	Mean score
Positive tone	4.90
Realistic ecological problems	4.15
Appreciation of nature	4.05
Appropriate illustrations	3.50
Hope for a solution	2.00
Overall mean across readings	3.72

Note. Scores are on a five-point rubric. The overall mean of 3.72 is reported in the research report; criterion means follow the detailed analysis.

Positive tone received the highest mean score (4.90): 19 of the 20 readings received a score of 5 for this criterion. Realistic ecological problems (4.15) and appreciation of nature (4.05) were also relatively strong; nine readings received the highest score in each of these categories. Appropriate illustrations averaged 3.50, with six readings receiving a score of 5. Hope for a solution was consistently the weakest criterion, with a score of 2 for every reading.

Table 2. Reading-Level Summary Reported in the Analysis

Reported average	Reading titles
4.4	Fuel of the Sea; Size Doesn't Matter; Time for a Change; The Fibonacci Sequence; Earth's Final Frontier; Super Sherpa
3.8	Hurry Up and Slow Down!; Gardening 380 Kilometers Above Earth; The Farmer's Lazy Son
3.6	Home Is Where the Heart Is; Keeping Up with the Tarahumara; Is Seeing Really Believing?; Coming of Age; Leave It for the Robot
3.4	Are You a Natural Leader?; The Hero Within; Home Automation
Below 3.0	A Matter of Time; What Time Is It?; Color and Flags

At the reading level, six passages had the highest reported mean score of 4.4: "Fuel of the Sea," "Size Doesn't Matter," "Time for a Change," "The Fibonacci Sequence," "Earth's Final Frontier," and "Super Sherpa." Three readings averaged 3.8: "Hurry Up and Slow Down!," "Gardening 380 Kilometers Above Earth," and "The Farmer's Lazy Son." Five readings averaged 3.6, three averaged 3.4, and "A Matter of Time," "What Time Is It?," and "Color and Flags" were the lowest-scoring readings, with averages below 3.

"Fuel of the Sea" illustrates a stronger ecological affordance. The passage describes the role of krill in marine ecosystems and the possible consequences of their disappearance. Its content supports appreciation of marine life and presents an ecological relationship in accessible terms; the accompanying image also helps readers visualize the subject. "Gardening 380 Kilometers Above Earth" links plant growth and technological development with the possibility of a

greener future. It offers a constructive tone and visual material related to plants and astronauts, but the learning instructions do not explicitly guide students toward conservation actions in their own surroundings.

By contrast, “What Time Is It?” primarily explains the history of timekeeping. Its direct ecological connection is limited, and the reading does not strongly develop ecological problems or solutions. Nevertheless, the history of sundials and sand clocks can provide a starting point for discussing how human technologies have drawn on natural phenomena and materials. This example shows that ecological interpretation may sometimes require instructor mediation rather than being explicit in the passage itself.

5. DISCUSSION

The findings indicate that ecological potential can be present in a general-purpose EFL textbook even when environmental education is not an explicit design objective. The relatively high scores for positive tone, realistic ecological problems, and appreciation of nature suggest that several readings provide constructive and intelligible entry points for ecological discussion. This pattern is consistent with the view that educational materials can support environmental learning across subject boundaries (Blanchet-Cohen & Reilly, 2013; Bodor, 2016). It also aligns with the argument that ecological perspectives can be integrated into curriculum design rather than confined to a single subject (Jones & Galloway, 2013).

The lower score for hope for a solution is the most consequential limitation. In the rubric, a text can describe nature or an ecological problem without making viable responses visible. This gap matters because environmental education is expected to help learners make informed decisions, not merely encounter environmental information (Hungerford et al., 1980; Potter, 2009). The results also support a distinction between textual opportunity and instructional outcome. As Connor et al. (2014) argue in a different educational context, learning outcomes are shaped by the interaction of instructional content, instructional quality, and classroom environment. The present document analysis does not measure student outcomes, but it identifies where teaching could add the missing bridge from comprehension to action.

The illustrations score (3.50) suggests that visuals are unevenly supportive rather than uniformly absent or ineffective. In EFL learning, visuals can clarify unfamiliar concepts and provide a basis for describing, comparing, and inferring. However, the presence of an image alone does not guarantee ecological depth. This observation is relevant to research on picture books and ecoliteracy, which treats text-image relationships as part of the learning opportunity (Martin et al., 2019; Muthukrishnan, 2019).

Lecturers can address these gaps without abandoning the language-learning goals of the course. For example, after reading “Fuel of the Sea,” students can map a food-chain relationship, identify the consequences of species loss, and write a short evidence-based recommendation for protecting marine environments. After “Gardening 380 Kilometers Above Earth,” students can compare technological solutions with locally feasible greening practices. For “What Time

Is It?,” students can trace the natural resources or energy sources behind different timekeeping technologies. Such tasks preserve reading and writing practice while making ecological connections explicit. They also echo approaches that emphasize local ecological contexts and action-oriented learning (Husain et al., 2019; Muhaimin, 2015; Simmons & Monroe, 2021).

These recommendations should be understood as pedagogical possibilities, not outcomes tested by the present study. The analysis is limited to one textbook and one course context; ratings were based on the stated rubric, and the study did not include inter-rater reliability data or classroom observation. Future research could involve multiple raters, compare editions or textbooks, and examine whether ecological prompts integrated into reading lessons influence students’ environmental reasoning and reported practices. Broader ecological and social perspectives, including ecopedagogy and civic engagement, may further help educators connect individual reading tasks with community and planetary issues (Kahn, 2010; Maharramli et al., 2021; Misiaszek, 2012).

6. CONCLUSION

This study examined the ecological affordances of 20 readings in Skillful Reading and Writing using five criteria: appreciation of nature, realistic ecological problems, positive tone, appropriate illustrations, and hope for a solution. The overall mean reported in the research report was 3.72. Positive tone was the strongest criterion (4.90), followed by realistic ecological problems (4.15) and appreciation of nature (4.05). Appropriate illustrations were moderate (3.50), while hope for a solution was consistently limited (2.00). The textbook therefore offers useful opportunities for ecological discussion, but its reading activities do not consistently direct learners toward feasible conservation actions. Lecturers can strengthen the materials through guided critical questions, locally relevant examples, and short action-oriented writing tasks. Because the study analyses only one textbook and does not measure learner outcomes, further classroom-based research is needed to test the effectiveness of these instructional adaptations.

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