

Thinking Green: Analyzing EFL Textbooks in Light of Ecological Education Themes

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Abstract

The present study aimed at examining English as a Foreign Language (from now on as EFL) textbooks on ecological education key global themes in language teaching, since EFL teaching should not only be restricted to the development of learners' language proficiency but also to empower them to improve thinking skills that can be worthwhile in ecological sustainability. The study followed a conceptual content analysis design where EFL materials were read recursively to match global themes. Themes were assessed against a developed content analysis checklist. For the purpose of analysis, data were gathered distinctly from 10th grade textbooks in the academic year 2013/2014. The examination of data was completed through descriptive and critical analysis. The study reported that only more than one third (34.57%; 33.33% respectively) of EFL textbook content involved types on sensitivity to ecological problems as well as ecological skills development. About 19.75% of the content reflected ecological knowledge. Another 12.35% of the content echoed ecological contribution themes. The study, however, came to a conclusion that entails that as given EFL textbook scarcity of global ecological themes, more responsibility of language teachers was emphasized in relation to raising students' awareness towards ecological themes by means of developing their language skills in meaningful theme-based communication.

Keywords: Communicative competence, Ecological Education, EFL textbook, Jordan.

1. INTRODUCTION

The purpose of including ecological education into teaching English as a foreign language is to increase the ecological awareness of international ecological problems, since EFL textbooks play a distinctive role in transforming students' education into universal educational community. EFL textbooks have the potential to bring about change in the educational system that will reshape the knowledge and skills of future generations. Rivers (1976: 96) indicated that *"As language teachers we are the most fortunate of teachers--all subjects are ours. Whatever [the students] want to communicate about, whatever they want to read about is our subject matter"*.

Language is one way of perceiving the world (Gouin, as cited by Asher, 1988). Language learning is important for it changes students' perceptions of the world into concrete ideas. EFL materials content affects students' perceptions as language is a means of thinking and representing the world to oneself. Effective EFL materials, accordingly, should encompass not only the learning of how students communicate in English but rather to develop their ecological consciousness in a way that impact their lives positively; for this may prevent ecological catastrophes. So, the social duty of EFL teachers mostly should be accentuated in relation to ecological themes.

People in the twentieth century are getting more and more attentive to many pressing global ecological problems. Since such problems touch all aspects of human life, it is likely that they find their place in EFL education. This becomes imperative since English is becoming an international language that should have the goal of creating an ecological awareness and responsibility (Stempleski, 2003). Possibly countless interests to students might be local or global ecological concerns that can be brought to life in the language classroom. Such concerns may include pollution, resources, global warming, environment, institutional efforts, and ethical aspects for language and content learning, etc. "Thinking green" and "acting green" worries many institutions worldwide today. The rhetoric of the present research stresses whether such ecological education concerns are overt at Jordanian EFL textbooks, and to what extent? Is it awareness or carelessness or both and more?

1.1 What is ecological education?

Ecological education is defined as the environmental or home education. An ecologist is a person who has thorough understanding of the environment and maintains the house and environment. In 1976, the United Nations Educational, Scientific and Cultural Organization (from now onward UNESCO) defined ecological education as the students' consciousness and concerns towards ecological problems. According to the UNESCO, ecological education is relevant to man's role in the environment in terms of skills and abilities for offering solutions for ecological problems. Pennsylvania, Department of Environmental Protection (2008) maintained that: *"ecological education is a lifelong process that deals with inter-relational components of the natural world and the one created by man, leading to responsible environmental management"*. However, **ecological education is not ecological information or ecological sustenance; it's rather processes** that stimulate critical thinking and problem solving skills (Potter, 2003).

However, the North American Association for Environmental Education (NAAEE) defined environmental education as integrating awareness of environmental processes on top of critical thinking skills. NAAEE (as cited by Potter, 2003) presented an all-embracing account regarding the skills that students develop by environmental education, "*Environmental education prepares all citizens with 21st Century essential skills that contribute to healthier, more environmentally sustainable, and economically prosperous communities*".

Research showed that ecological education offers students with many opportunities for developing thinking skills. Lieberman and Hoody (1998, p.1) highlighted the role of ecological education as for "*Using the environment as an integrating context is interdisciplinary, collaborative, student-centered, hands-on and engages students in learning*". Lieberman and Hoody investigated students' performances in 40 schools employing Environment as an Integrating Context (EIC) model for teaching science, history/social science, English/language arts and math. Lieberman and Hoody's study employed four diverse surveys for instructors, interviews with 400 students and 250 instructors and managers. Besides, in 14 schools EIC students were paralleled with students in traditional schools on standardized test marks, scale- point average scale, student attitude, and students' behavior records. The authors reported high scores on standardized measures of academic achievement on the skills of reading, writing, math, science, and social studies. Also, the study reported an enhanced creative capability as that of 98%, as well as better problem- solving and strategic-thinking skills as that of 97% alongside a well-developed behavior and attitudes than students in the control group.

Ecological education may offer students with a universal setting for learning that uphold school's accountability and can provide further advantages for students in light of their awareness, knowledge and skills (Chawla and Escalante, 2007; Bartosh, Ferguson, Tudor and Taylor, 2009; Paterson, 2010). Chawla and Escalante (2007) asserted that '*place-based*' or '*environment-based*' education incorporates the environment as an educational setting across school subjects. To Chawla and Escalante, such '*place-based*' education is achieved by integrating the local setting, giving real instances that develop students' capabilities. In this regard, Bartosh et al. (2009) examined the effect of systemic environmental education (EE) training on eight grade students' achievement standardized tests in math, language skills, and listening. Besides, students were compared with students in traditional schools on standardized test marks. Quantitative analysis reported higher scores on standardized tests in math, reading and writing, with students. To illustrate in even more concrete terms, Paterson (2010) stressed that ecological education can develop students' academic achievement in science, reading, and writing and foster students' critical thinking skills, motivation, and attitudes about learning. Remarkably, Jordan is a country which adopted the objective of educating its students with ecological education (Ministry of Education, 2014; Ministry of Education, 2002; Zayton, 2001) in order to gain world ecological competencies.

1.2 English Language and ecological education

Why should we include ecological education in EFL textbooks? Ecological education "*should be integrated into the whole system of formal education at all levels to provide the necessary knowledge, understanding, values and skills needed by the general public and many occupational groups, for their participation in devising solutions to environmental questions*" (UNESCO, 1976:12). Brown (1991) considered the role of teachers of English as crucial. It is the role of EFL teachers to help everyone in the world to communicate with each other in order to solve the global problem. Obviously, this is in line with the global eminence of English. Babcock (1993) maintained that effective learning of a language embraces both successful blends of both micro and macro skills concerning communication expressions and ecological themes are a rich source of communication material. The ecological dreadful conditions of the world may be one of the most critical themes that can affect people globally. If EFL curricula consider the value of ecological education, students' awareness will be raised towards issues plaguing the planet. However, Brown (1991:4) maintained that one of EFL teachers' goals have an obligation to support students to "*become informed about as many issues as possible that intrinsically affect their lives*".

Exploring the incorporation of ecological themes in EFL textbooks was carried out by many researchers. For example, Jacobs and Goatly (2000) examined the existence of environmental issues in EFL books published between 1990 and 1998 as used by EFL learners. Seventeen EFL textbooks were randomly chosen to be examined in order to determine the percentage of activities associated with environmental issues. The 17 books enclosed 6,167 activities, an average of 363 activities for each book. Among those textbooks, 134 (2%) had environmental material; an average of 8 activities for each book. 4 of the books had an entire unit dedicated to environmental topics. The proportion of activities with environmental material fluctuated from 2 books with not any ecological theme to one book with 8%. Another study was carried by Arran (2009) who investigated 26 EFL textbooks taught in Japan in order to decide what type of ecological educational themes such textbooks deliver, and to identify intercultural communication patterns in EFL curriculum. The findings demonstrated how textbooks, by addressing environmental problems aims, do not account for global intercultural standards, while neglecting vital classical Japanese ecological visions. The current research, however, was *motivated* by the widespread plea of integrating language skills while delivering opportunities for meaningful input and meaningful output themes that foster critical thinking skills in EFL setting (i.e. Jordan).

The current research is *significant* as it offers EFL teachers, material developers and textbook writers' insight

and rationality for increasing students' ecological awareness. Based on the results of the current study, the next steps to 'improve' EFL textbook design by 'thinking green' may deliver prospects for comprehensive input and meaningful output that promotes critical thinking skills throughout attention-grabbing issues. Furthermore, themes employed by the present study appeal for language improvement components as attended by the extra benefit of ecological education content.

Certainly, the communicative approach as the leading approach in second/foreign language instruction, stresses that languages are best learned by using them to communicate meaning, rather than by converging on explicit learning of grammar and vocabulary. One and not the only way of attaining meaning are through theme-based instruction. These days, there is a wide range of global themes for students and teachers to pick from (Brown, 1991; Ellis, 1996; Richards, 2006).

The present study, accordingly, critically analyzed EFL textbooks in terms of ecological education themes as accounted at 10th grade textbooks. The findings from this study are likely to show teachers ecological themes in textbooks, to highlight problems, to help textbook designers eliminate such problems and to add to the formation of educational policies for ecological education. Hence, the present study attempted answering one research question; namely: how well the ecological themes (of awareness, knowledge, skills and contribution) are presented in EFL Jordanian textbook? The present research commenced in practice, where it was designed by the contribution of traditional knowledge to ecological restoration which in turn may be socially accepted and ecological sustainable.

This study attempted to provide a rationale for extending ecological education into EFL setting, proposed a content analysis framework for incorporating ecological education themes in EFL classes, and discussed the advantages of integrating ecological education in EFL curricula. Researchers have come up with many plans concerning such involvement and its likely constant practice which manage components leading to a secure organization of the natural environment (Zayton, 2001; Jacobs and Goatly, 2000; Brown, 1991).

2. METHOD

In Jordan, EFL textbooks are designed by the Ministry of Education (MoE) or by private publishers. The reason for choosing 10th grade material at this stage was linked to their cognitive development phases. According to Jean Piaget's (1970) theory of cognitive development, youngsters (as 10th grade students are aged 16) are in the Formal Operational Stage as they start thinking about ethical, logical, and communal issues that need abstract reasoning. Thus, approaching language teaching thematically at this very stage will be rewarding and abundant, for abstract thinking emerges.

In the current study, conceptual content analysis was considered as an instrument to decide the presence of certain themes within texts or sets of texts. Thus, the researchers established the existence and frequency of global ecological themes as represented by words or phrases (Bowen, 2009). Textbooks were analyzed and described in light of four levels of ecological education:

- **Ecological sensitivity/awareness to ecological problems:** In the current research, it is related to general awareness with key ecological issues: pollution, resources, global warming, environment, institutional efforts, and ethical aspects.
- **Ecological knowledge:** In the present study, it is associated with personal conduct knowledge, which interprets awareness into action: experience, analysis, definition, information, and examples.
- **Ecological skills:** In this study, it is linked to students' learning by means of enabling them to achieve the skills of: analysis of problems, thinking skills, problem-solving skills, personal and social skills, undertaking projects, learning by doing, role-play, illustrations and hand-made material.
- **Ecological Contribution:** in the existing study, it is related to how students gain skills by experience and practice: decision making, activities, campaigns, tree-planting, photograph/postures, associations, expert's talk and speeches.

10th grade EFL textbooks analyzed in this study were supposed as a formal document of the MoE and inspected in detail. In content analysis research, documents can be used as an individual data source or they can similarly be used with other data for variety (Holsti, 1969). In this study, textbooks were explored with explanatory thematic analysis based on studies that evaluate textbooks in terms of ecological education (UNESCO, 1976) and theoretical studies that were stated in this study. The ecological education content analysis checklist was developed accordingly. Coding the text involved the following decision-making steps: the level of analysis; the themes to code for; the frequency of the theme; coding the text and analyzing the textbooks (Krippendorff, 1980). The checklist was moderated by seven specialist referees and modified according to their comments and suggestions. The researchers applied the instrument to a sample of textbooks covering the ecological themes in question. Analysis had been done by the researchers of the study. Two analyst teachers (male and female) who have been teaching English in public schools since 2000 collaborated with the researchers in analyzing data. For example, the two analysts teachers took all aspects of the examined themes and analyzed separately the data

included in the two textbooks (i.e. the pupil book and the activity book), and then results were compared. The researchers calculated the coefficient agreement among the four analysts. The researchers used Scott's coefficient to count the reliability factors as it provides a simple and quick method of estimating intra – and inter – analyst reliability. Scott's formula is: $R = \frac{P_o - P_e}{1 - P_e}$ (where P_o = the agreement between two researchers; P_e = the agreement between two analysts that occurred simply by chance; 1 = the greatest possible agreement (Holsti, 1969:140).

The agreement coefficient on analyzing themes in the content of EFL 10th grade textbook between the efforts of the researchers was estimated as 0.86, while the agreement coefficient between the first researcher and the first analyst was calculated as 0.90 and between the first researcher and the second analyst was 0.93 after applying Scott's coefficient of agreement. On the other hand, the agreement coefficient on analyzing value elements in the content of EFL 10th grade between the two efforts of the two analysts was calculated as 0.94, between the second researcher and the second analyst was 0.88 and between the second researcher and the second analyst was 0.85.

3. RESULTS AND DISCUSSION

The findings of the study were displayed in light of the research question: how well the ecological themes (of awareness, knowledge, skills and contribution) are presented in EFL Jordanian textbook? However, the study was designed for the analysis of the texts as well as the images of the Jordanian EFL tenth grade pupil and the activity textbooks.

Table 1: Sensitivity and awareness of ecological problems

Sensitivity to environmental problems	10 th grade textbook	
	Frequency	Percentage
Population growth, pollution, recycles.	5	17.86
Natural resources depletion and water shortage	8	28.58
Global warming, energy scarcity, climate change.	5	17.86
Protecting and preserving the environment.	4	14.28
Appreciation of the efforts of institutions in protecting the environment.	3	10.71
Stressing ethical aspects over socio-economic gains.	3	10.71
Total	28	100

Ecological sensitivity entailed assisting students to gain an awareness the total environment and its associated problems (Jacobs, Goatly, Haig & Lee, 2002). For instance, students listening to an article about recycle possibly will elicit their awareness of this problem and the risks it poses. Table 1 displays how general familiarity with key ecological issues (such as: global warming, pollution, water shortage, etc.) were not truly considered in 10th grade EFL curricula. Sensitivity to ecological issues were not eligible to be displayed explicitly or implicitly at any rate in EFL curricula. Only 17.86% of the textbook was dedicated for including ecological issues in curricula textbooks. Items of '*Appreciation of the efforts of institutions in protecting the environment*' and '*Stressing ethical aspects over socio-economic gains*' were only frequent as 3%. The integration of ecological themes into the language classroom stimulates content learning as well as language skills development (Brown, 1991). If students' fluency lacks knowledge of world problems, we can't call English learning as naturally lending itself to meaningful language use. Authentic communication promotes language practice as well as classroom discussions. Ecological awareness, however, can be enhanced through activities that involve relevance between the learning content in the class and students' lives outside it (Jacobs, 1993).

Table 2: Ecological knowledge

Knowledge	10 th grade textbook	
	Frequency	Percentage
Hands-on experiments lessons.	1	6.25
Defines, analyzes the eco-system.	15	93.75
Gives information on the eco-balance, renewable and non-renewable natural resources.	0	0.0
Gives examples on the contamination of the ecosystem such as water, air, soil pollution.	0	0.0
Total	16	100

Table 2 shows that the embedded ecological knowledge was not eligible to be displayed explicitly or implicitly but at a very limited rate as minimal as 15 frequencies in EFL curricula. Ecological knowledge entails an understanding of the world and its related concerns. Such knowledge may include basic information about the ecosystem. Let's say, a text for reading comprehension on pollution might comprise information that would develop students' knowledge about the reasons of pollution and its likely explanations. Research findings

(Babcock, 1993; Jacobs, Goatly, Haig & Lee, 2002; Lieberman and Hoody, 1998; UNESCO, 1976) affirmed that when ecological education is introduced as cross-curricular since the environment comprises all zones of study, foreign language education can be more effective in students' learning about and taking part in ecological protection.

Table 3: Ecological skills

Skills	10 th grade textbook	
	Frequency	Percentage
Analyzing environmental problems.	4	14.82
Deductive and inductive thinking skills.	5	18.53
Problem solving skills.	1	3.70
Personal and social skills development.	1	3.70
Ecological projects and reports construction.	7	25.93
Learning by doing.	1	3.70
Role-play skills.	3	11.11
Symbolic illustrations (cartoonist) skills.	1	3.70
Handmade materials relevant to ecology.	3	11.11
Describing skills.	1	3.70
Total	27	100

Table 3; however, tends to disclose the absence of ecological education conduct in EFL textbooks. This seems mostly problematic, as not being aware of the significance of attaining skills relevant to protecting the environment while expressing that in English. Ecological skills (namely; analysis, deduction/induction, personal/social, problem solving, projects, learning by doing, role play, illustration, hand-made, and description) are also language skills. Say, students can employ their language facility to write brochures telling other colleague students about the dangers triggered by natural resources depletion. The results of the analysis, conversely, showed '*ecological projects and reports construction*' as 7 times frequent as the most common skill embedded in 10th grade EFL textbook. Ecological skills relevant to different thinking skills were rarely befallen. Jacobs and Goatly (2000) concluded that only 2% of activities published in English-language textbooks between 1990 and 2000 in Indonesian EFL textbooks contained environmental content.

Table 4: Ecological contribution

Contribution	10 th grade textbook	
	Frequency	Percentage
Decision making on ecological issues.	5	5.0
Field trip activities.	2	2.0
Clean-up campaigns in school and neighborhood.	0	0.0
Tree planting and fruit gathering.	0	0.0
Photograph/postures on exhibition on competitions on ecological issues that reflect desirable/undesirable environmental human performances.	1	1.0
Committees/ associations of Friends of the Environment.	0	0.0
Inviting experts to give talks on ecological issues.	2	2.0
Giving speeches in morning assemblies on ecological issues.	0	0.0
Total	10	100

Ecological contribution in the present research was featured by developing students' sense of decision making and different types of activities that involve acting responsibly towards ecological problems. So, ecological contribution translated all of sensitivity/awareness, knowledge and skills into action. This seems particularly problematic in the Jordanian EFL context, as awareness alongside skills were as absent themes. Table 4 demonstrates almost minimal levels of ecological contribution but that of "Decision making on ecological issues" which was frequent as 5 occurrences, while expressing that in English. For instance, students can contribute with their language ability to give speeches in morning assembly talking in English about the risks brought about by pollution. The purpose of integrating ecological education themes into the teaching of English was to promote the ecological contribution towards world environmental problems on the one hand and to assist learning new words and their meaning on the other (Arran, 2009; Brown, 1991; Paterson, 2010).

Summary of results: The significance of integrating ecological education has an irreplaceable worldview. Ecological education constituted patterns of awareness and sensitivity towards ecological problems, acknowledged ecological facts, skills and competencies, and reflected participation and contribution through patterns of eco-applied linguistic expressions of communication. Hence, Jordanian MoE demanded a curriculum

that reflects ecological education (Ministry of Education, 2014; Ministry of Education, 2002; Zayton, 2001), intensive 10th grade EFL textbook analysis revealed the opposite. We may conclude the findings of the present research as illustrated in Table 5 which shows minimal efforts to account for ecological education. Minimal occurrences are evident as those of contribution, participation, or even knowledge. The Table also presents less than moderate occurrences of instances of skills or sensitivity to ecological problems.

Controversial questions might be created. What can be done to embed and enhance ecological education that may develop students' communicative competence? It was the research's concern for priority of ecological themes integration in EFL curriculum. The difficult correlation amid ecological themes and competencies, EFL culture, and curriculum development, made this current research as substantial and most inspiring.

According to Tang (2009), the Earth Summit of 1992 indicated that ecological education should be essential for each citizen in the world and ecological education should be echoed cross-curricular since the environment encompasses all subject matters. This suggests that EFL textbooks worldwide should be built up as an ecological environment. In the present study, Jordanian 10th grade EFL textbooks were analyzed within the range of the themes acknowledged and in light of the central competencies of ecological education framework. The findings are summarized on the matrix in Table 5.

Table 5: Summary of ecological themes in EFL textbooks in Jordan

Content	10 th grade textbook	
	Frequency	Percentage
Sensitivity & awareness to ecological problems	28	34.57
Knowledge	16	19.75
Skills	27	33.33
Contribution	10	12.35
Total	81	100

The present research demonstrated that ecological education as not being emphasized by Jordanian EFL textbooks, in spite of its significance in providing students with many opportunities of meaningful language exploitation. Lieberman and Hoody (1998, p. 1) stated that students in classes that employ the environment as an assimilating setting for learning demonstrated progress in reading, writing, math, science, and social studies; display more pride in their accomplishments; greater engagement and enthusiasm for learning; better ability to apply science to real-world situations; better application of systems thinking and increased ability to think creatively and; more advanced skills in applying civic processes to real-life situations.

There are no account rubrics that voice precisely how EFL textbooks should integrate ecological themes into the language setting. The key necessities are that EFL textbooks to include ecological themes that invite them to "think green" for this enables students to gain life skills together with language skills.

The findings of the present research reported that 34.57 %, 19.75%, 33.33 %, 12.35% and 12.35 of sensitivity & awareness to ecological problems, knowledge, skills, and contribution are lesser respectively. In this study, threshold level and cut off points of each theme were not achieved on the degree of emphasis on ecological education, since ecological education is crucial to communicative competence enhancement in FL research. This was really a hard process. Common reasons were that the criterion measure might have to be administered by language proficiency tests as well as attitudinal scales. A follower of reality realizes that identifying a cutoff point was not reported by any study on ecological education themes in so far. They may really throw away more than they gain, unless they are really necessary.

4. CONCLUSION

Given EFL textbook scarcity of global ecological themes as demonstrated by the current study, one may feel tentative about language teachers' incorporation of ecological education themes into their already deficient syllabuses. Hopefully, the themes provided here increase language teachers' awareness of refining students' English skills through presenting effective language teaching that inspires students to reflect, offers them with real life information, upturns motivation, and stimulates learner autonomy. Teachers should not feel indebted to renovate textbooks. Instead, they can create activities that are based upon language-learning intents and include facts about problems troubling the world. Later, such EFL teachers can foster supplementary resources that maintain an all-inclusive theme-based unit that supports ecological education.

There are certainly no rubrics at all that prescribe precisely how EFL teachers ought to add in ecological awareness into language learning settings. The merely prerequisite is that they recognize the significance of theme based instruction for stimulating students' language and thinking 'green' education.

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