Incorporating Green Economy Issues in Preparatory Stage Students' Reading Comprehension: A CLIL Approach

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Abstract

This study aimed at investigating the effectiveness of implementing Green economy issues in developing preparatory students' reading comprehension based on a CLIL approach of a group of 60 preparatory stage students from one of Cairo language schools. The quasi-experimental design called the non-equivalent group design was employed in the present study where two intact classes were randomly selected to represent both groups. The experimental group received training through the proposed Green economy issues unit based on a CLIL approach for developing reading comprehension, while the control group received regular instruction. A pre/post reading comprehension test was given to the two groups before and after the treatment. The results revealed that the experimental group outperformed the control group in the reading comprehension skills. This proved that Green economy issues based on a CLIL approach developed participants' reading comprehension.

Keywords: Green economy, CLIL approach, reading comprehension

Introduction

Green economy is gaining more and more attention from policymakers, civil society, and businesses worldwide. The concept of Green economy has emerged in recent years and has gained great importance among researchers in most fields. Green economy requires a new mindset, a new level of skilled workers and professionals who have the ability to work across sectors, and work as part of multidisciplinary teams. The transition to a Green economy requires preparing these staffs through formal training and education. The number of organizations working on training and education on green economy is increasing each year, but unfortunately, the efforts and initiatives are not always coordinated and sometimes hard to find .Education for sustainable development (ESD) is the main platform for the new millennium. Due to the scarcity in natural resources and the demand for green labor and economy, education for sustainable development (ESD) gained a great importance in developed countries. Growing concerns about environmental unsustainability of past economic growth designs and the increased awareness of a potential future climate crisis have made it clear the environment, economy and education can no longer be considered in isolation.

Egypt has begun to focus on the green economy as an important and key avenue of comprehensive development plans taking place inside the country. This can be achieved through the implementation of numerous projects commensurate with the economic and environmental priorities of the State; where the sustainable development strategy, " Egypt's Vision 2030", targets the environmental dimension as a vital focus in all development and economic sectors (Ahmed,2021).

Traditional classrooms and work environments may not be conducive to promote innovative and creative behavior. Classroom instruction needs to be achievement oriented. This involves the use of various teaching methods and approaches that allow students to have control over their learning activities. Classroom activities should be designed in such a manner as to build self-confidence in students by focusing on positive ways to handle obstacles and learn from failures. These characteristics are experienced. A teacher cannot command a student to be creative. But, an atmosphere of the classroom should be such where creativity and the spirit of innovation are fostered (Vaidy,2014,30).

Research has shown that comprehension is a process of constructing meaning (Kingen,2000). The process of building meaning involves active instruction between the reader and the text by making predictions and organizing information. Readers think as they read, evaluate and compare the new information with prior knowledge about the subject (Weedman,2003).What readers start with is not what they end with. Reading occurs when comprehension takes place and meaning is constructed. Hence, reading which is now viewed as a process in which the reader actively searches for meaning is characterized as:1) interactive,2)constructive,3) holistic,4) creative (Holden,2004).In addition ,reading is a complex cognitive activity that is indispensable for adequate functioning in society. To enter the present literate society, ESL/FL students must know how to learn from reading. Successful reading , especially in the higher grades includes critical thinking. Students are required to understand the meaning of text , critically evaluate the message ,remember the content, and apply the new found knowledge flexibility(Al Fassi,2004 ;Abdelgawad,2007,20).

In this context, researchers have examined what proficient readers do to construct meaning from text. Evidence suggests that a distinguishing characteristic of good readers is the use of a flexible repertoire of comprehension monitoring and regulating activities, which includes both cognitive and metacognitive strategies while reading (VanKeer&Veheghe,2005; Takala,2006;Kawabataa,2007). Accordingly, readers must be equipped with a plethora of reading comprehension strategies in order to aid understanding (Serram,2002;VanKeer & Verhaeghe,2005; and Takala,2006). More importantly , research indicates that strategy instruction enhances comprehension more than skill-related instruction and also engages readers so that they can construct their meaning of the text (Todd,2006;Vaughen&Edmond,2006;AntoniouSouvignier,2007;Manning,2007 and Vandewghe,2007).

In addition to the importance of reading comprehension strategies instruction, research has revealed that the development of reading competence can be fostered by interaction with peers (Joshon-Glenberg,2000 and Doolittle et al.,2006). In this respect, the traditional teacher-led interaction pattern of teacher question-student response-teacher evaluation seems insufficient to achieve a real increase in comprehension, higher level cognition, and the application of self-regulation strategies(Van Keer & Verhaeghe,2009).Relying on the

teacher's interpretive authority causes students to become passive learners. Conversely, to become self-regulated readers, students need to take an active role and to recognize and resolve their own discrepancies with texts (Borgia & Owles, 2007). More particularly, it has been shown that discussions and cooperative activities, students implement, evaluate, and modify strategies(Van Dewghe,2007).

A careful examination of the research results emphasizes reading as a complex, problem-solving skill and an interactive process. Moreover, it stresses that students should be trained to become interactive readers, who monitor their own comprehension, apply, and adopt a set of effective strategies to increase their,understanding(Clark&Graves,2005;Takala,2006;Oczkus,2006;Vau ghn&Edmond, 2006 ,and Antonion & Souvignier,2007).In this respect, Reciprocal Teaching is one promising instructional coordinated multiple-strategies, package for improving learning opportunities for ESL/EFL readers (Galloway,2003 and Doolittle et al.2006).

The pilot study

The researcher performed a pilot study and interviewed 15 preparatory English language teachers and supervisors. The interviews (Appendix 4) aimed at identifying the methods and techniques currently employed in teaching reading comprehension among preparatory students. Moreover, the researcher asked 25 preparatory students to answer a reading comprehension test. The results of the pilot study revealed preparatory students' weakness in reading comprehension skill (scanning, drawing conclusion, making predictions ,using contextual clues effectively to determine the meaning of unfamiliar words, making inferences , suggesting an original title for a reading passage, inventing an original course of action in narrative texts/solution to presented problems) , which may be due to the prevailing traditional method of teaching reading comprehension skills in the preparatory stage. Students lacked the desire to read and did not observe punctuation cues.The dominant model of reading comprehension teaching, particularly for preparatory stage students, had been to teach by giving questions and answers, and ask students to memorize the answers, or in case of unseen reading comprehension passages, students read first the questions and look for direct answers in the passage. These results were consistent with the results of several studies which assured that little attention is given to reading comprehension skills (Abou-Hadeed,2000;Torky,2000;Abou-Hadeed,2003; and Abdelgawad,2007).Moreover, other studies assured

that students while answering the reading comprehension questions, they use words and sentences that were mentioned directly in the text without any attention to the reading comprehension skills(Ahmed,2007; Awad,2009;Abdel Aziz,2013).

Statement of the problem

　　　　The study problem can be stated in preparatory stage students' low level of the reading comprehension .This might be attributed to many factors such as the traditional methods of teaching reading comprehension still adopted by most EFL preparatory stage teachers.

Questions of the study

　　　　The current study attempted to provide answers to the following questions:

　1-What is the effectiveness of using Green economy issues based on a CLIL approach on developing preparatory English language students' reading comprehension skills?

　2- How far are the proposed lessons based on a CLIL approach effective in developing the reading comprehension skills among preparatory English language students ?

Significance of the study

　　　　The significance of the study lies in the fact that: 1- It is an attempt to overcome the current short-comings in teaching reading comprehension for preparatory students. 2-It attempts to investigate the impact of using the Green economy issues based on a CLIL approach on developing reading comprehension.

Delimitations of the study

This study was confined to:

　　　　1)　　Developing reading comprehension sub-skills necessary for preparatory students:

　　　　a- The reading comprehension skills

　　　　-Literal Comprehension:

　1-Identifying the stated main idea of a reading passage.

　2-Identifying specific stated information or details.

　3-Identifying organizational patterns within a text (including explicit cause and effect relationship and the chronological order of events).

-Inferential Comprehension:

　4-Guessing the meaning of unknown words or phrases in a text using semantic, syntactic and contextual clues.

　5-Making inferences.

　6-Determining Pronoun referents.

-Critical Comprehension:
7-Drawing conclusions.
_-**Creative Comprehension**:
8-Suggesting an original title for a reading passage.
9-Inventing an original course of action in narrative texts/solution to presented problems.

2)Two intact primary classes in Canal Language School in Cairo governorate.

3) A proposed program designed by the researcher and based on Reciprocal Teaching.

Definition of terms:

Content and Language Integrated Learning 'CLIL":

According to Coyle, Hood and Marsh (2010,1),CLIL is a dual focused approach in which students learn a foreign language and a subject content at the same time. The acronym CLIL was coined in Europe in the early nineties to describe any dual-focused type of provision in which a second language, foreign or other, is used for the teaching and learning of a non-language subject matter, with language and content having a joint and mutually beneficial role(Marsh,2002).CLIL is used in the current study to refer to an approach in which students learn the content of different reading topics(Green economy issues) and the English language at the same time through engaging in various content-based and language integrated activities.

Green economy:

A green economy can be defined in many ways. To exemplify, World Resource Institute (2021) defines a green economy as an alternative vision for growth, generating growth, development and improving people's lives while accounting for sustainable development. A green economy can also be defined as low carbon, resource-efficient and socially inclusive .Income and employment are driven by investments into economic activities that reduce carbon emissions enhance energy efficiency, and prevent the less of biodiversity and ecosystems (UNEP, 2021).

Rationale for using the CLIL approach

Content and language Integrated learning CLIL is an instructional approach that supports the development of language and content concurrently. Hence, CLIL becomes a new form of education on which: learners are active participants in their learning development, process of inquiry and other critical thinking skills are the means to develop problem

solving tasks; and teachers are facilitators in order to empower the learners (Coyle, Hood & Marsh,2010). Thus, the convergence between both the language and content aims to develop language skills in the target language as well as develop specific knowledge beyond concepts of the subjects (Gache,2014).

CLIL classrooms can provide opportunities to increase the amount of the target language input in meaningful contexts, as well as provide ample opportunities of language interaction through initiating students' responses and receiving feedback (Marsh & Frigols Martin,2012).This is in line with the interaction approach which suggests that language is best acquired when participants receive sufficient amount of the comprehensible input and increase opportunities to interact with the language(Gass & Mackey,2014). Moreover, in CLIL classrooms, the focus is on meaning rather than on form, and subject contents are introduced at a high authenticity level, allowing students to voluntary use the target language (Surmont et al.,2014). Guntur & Mustafe (2021) aimed in their study to test the effectiveness of CLIL on students' reading comprehension skills. The results showed that the use of CLIL approach in Indonesian courses improved students' reading comprehension. Also, Sanad & Ahmed (2017) examined the effectiveness of CLIL in developing EFL reading comprehension skills ,vocabulary skills and retention among college students. The findings revealed that the use of the CLIL in developing EFL reading comprehension skills, vocabulary skills and retention among students was effective.

Harrop (2012) maintained that CLIL leads to greater linguistic proficiency, it boosts motivation, it is suitable for learners of all abilities and it leads to greater intercultural awareness (Coyle et al.,2010).CLIL claims to lead to an increased level of linguistic proficiency in several ways. It provides context-embedded, cognitively challenging tasks that move the learner on in terms of both content and language (Greenfell, 2002). Moreover, by creating an authentic communicative context, CLIL provides a naturalistic environment, where language can be ore easily acquired while the focus is on learning (Lightbown & Spada,2006).CLIL also provides a careful analysis of the linguistic demands that tasks place on learners. The best example of this is Coyle's model(Coyle ,2007) of linguistic progression in 3 strands: language of learning (needed to access basic concepts), language for learning (language needed to operate and interact with the content in a given context).,and language

through learning(incidental language that results from active involvement with the task).CLIL claims thus to make transparent and accessible all language needed for successful completion of tasks and knowledge acquisition in a way that is not always found in content subjects (Gajo,2007).Moreover, CLIL students largely outperform their non-CLIL peers in listening and reading comprehension, fluency and range of vocabulary, but less often so in pronunciation, accuracy and complexity of written and spoken language. Dalton-Puffer,2007;Lasagabaster,2008; Alonso etal.,2008 and Naves,2009).

CLIL has the potential to lead to better understanding of content and to raise achievement for all, but this will only happens if CLIL is put in the context of optimal teaching practice that scaffolds language development as much as content development. Abdelwahab(2021) aimed in his study to find out whether instruction using content and language integrated learning (CLIL) enhances English majors' linguistic competence and critical cultural awareness (CCA). Results indicated that the intervention helped experimental group students improve their linguistic competence and CCA. Furthermore, Diab, et al.(2020) aimed in their study at investigating the effectiveness of using the CLIL approach to develop student teachers' EFL receptive skills (listening and reading).Findings of the study revealed that there was a statistically significant difference in the pre-and –post assessment of EFL receptive skills in favor of the post-assessment. In addition, Aguilera, Castro,Martinez& Messa (2019) analyzed in their action research study ,the effect of CLIL on the development of reading comprehension skills in English of eleventh-grade students in Colombia. A series of interventions to develop reading skills were carried out through instructional material based on the CLIL approach. After the implementation ,the students demonstrated a more controlled and monitored use of their comprehension strategies that significantly influenced the development of their reading ability.

Ortiz (2014) conducted a study which aimed to find out whether CLIL program has an impact on the participants' EFL reading skills, thus contributing to enrich the existing literature on the benefits of CLIL. The findings concluded that the students who participated in the CLIL program achieved better results in EFL reading comprehension skills than those who studied English in the traditional EFL lessons. Moreover, Canado (2018) asserted in her longitudinal study that CLIL was effective in developing receptive skills.

Hypotheses of the Study

Hypothesis one: There will be statistically significant differences between the mean score of the experimental group and the control group in the post-test in the reading comprehension skills (Literal comprehension , Inferential comprehension , Critical comprehension , and Creative comprehension) in favor of the experimental group.

Hypothesis two: There will be statistically significant differences between the mean score of the experimental group on the reading comprehension skills in the pre-and -post tests in favor of the post test of the experimental group.

Method
Participants

A group of (60) preparatory students were selected from one of Cairo language schools, in the year 2021 – 2022 (30 students in the experimental group and 30 students in the control group). Students' age in both groups ranged from fifteen to 15-16 years old. All students in the sample of the current study had been learning English as a foreign language since kindergarten.

Research Design

The quasi-experimental design called the non-equivalent group design was employed in the present study. This design is identical to the pre-posttest control/experimental group design in all aspects except that intact groups rather than randomly assigned ones are used, creating a control problem in terms of selection bias. This makes the use of a pre-test necessary for this particular design. In this study, two intact classes were randomly selected to represent the experimental and the control groups. The experimental group received training throughout the proposed green economy issues lessons for developing the reading comprehension sub- skills.

On the other hand, students in the control group received regular instruction. A pre/post reading comprehension test was given to the two groups before and after the treatment. The independent variable was the suggested Green economy issues based on the CLIL approach, and the dependent variables were the pre-post test, and the reading comprehension sub-skills.

Instruments:

The present study made use of three main instruments:

- A reading comprehension skills checklist.
- A pre-post reading comprehension test.
- The proposed Green economy issues lessons based on the CLIL approach.

a- The reading comprehension sub-skills checklist

The checklist was meant to determine the most important reading comprehension skills necessary for the preparatory stage. It was designed in light of the objectives included in the Ministry of Education document and the previous literature and related studies concerned with developing reading comprehension skills at the preparatory stage for ESL/EFL students, the checklist was submitted to a panel of jury in the field of EFL methods of teaching to determine the degree of importance of each skill , appropriateness of the skills suggested to Egyptian EFL preparatory school students, as well as the relationship of each skill to either literal, inferential , critical or creative comprehension levels. Some of the modifications suggested by the panel of jury were: Combining the two closely related creative skills "inventing an original course of action in narrative text", and "suggesting an original solution to a presented problem" into one skill, namely, "Inventing an original course of action in narrative texts/solution to a presented problem". Also, combining the two closely related inferential skills "inferring specific details" and "inferring implicit cause-effect relationships" into one skill, namely, "making inferences", and confining the study to 9 skills to make it more manageable and applicable.

The reading comprehension skills selected by the study according to their high percentages were as follows :

a-   The reading comprehension skills

 -**Literal Comprehension:**

 1-Identifying the stated main idea of a reading passage.

 2-Identifying specific stated information or details.

 3-Identifying organizational patterns within a text (including explicit cause and effect relationship and the chronological order of events).

 -Inferential Comprehension:

 4-Guessing the meaning of unknown words or phrases in a text using semantic, syntactic and contextual clues.

 5-Making inferences.

 6-Determining Pronoun referents.

 -Critical Comprehension:

7-Drawing conclusions.

_-Creative Comprehension:

8-Suggesting an original title for a reading passage.

9-Inventing an original course of action in narrative texts/solution to presented problems.

b-The reading comprehension test

Objectives of the test

A pre/post reading comprehension test was constructed and administered by the researcher. It was used prior to the program implementation to make sure that students of both groups were at the same level before starting the experiment, and thus, the progress achieved by the experimental group would be attributed to the suggested lessons based on the CLIL approach they had been exposed to. As a post-test, it was used to investigate the effectiveness of the proposed Green economy issues based on the CLIL approach, on developing the selected reading comprehension skills.

The equivalency of both the control and experimental groups was established through analyzing their pre-test results. The following table shows that there were no statistically significant differences between the control and the experimental groups on the pre-test in reading comprehension.

Table (1)

T-test results of the pre-test of both the control and experimental groups

Skills	Sub Skills	Group	N	M	S.D	D.F	T – value	Level of sig.
1-Literal Comprehension:	Identifying the stated main idea of a reading passage	Exp.	30	1.23	0.430	58	0.579	Not sig. at 0.05
		Control	30	1.17	0.461			
	Identifying specific stated information or details	Exp.	30	1.13	0.346	58	0.356	Not sig. at 0.05
		Control	30	1.17	0.379			
	Identifying organizational patterns within a text	Exp.	30	1.37	0.556	58	0.918	Not sig. at 0.05
		Control	30	1.23	0.568			

	Total	Exp.	30	3.73	1.081	58	0.609	Not sig. at 0.05
		Control	30	3.57	1.040			
2-Inferential Comprehension :	Guessing the meaning of unknown words or phrases in a text	Exp.	30	1.10	0.305	58	.0396	Not sig. at 0.05
		Control	30	1.13	0.346			
	Making inferences	Exp.	30	1.07	0.254	58	1.201	Not sig. at 0.05
		Control	30	1.17	0.379			
	Determining pronoun referents	Exp.	30	1.13	0.346	58	0.356	Not sig. at 0.05
		Control	30	1.17	0.379			
	Total	Exp.	30	3.30	0.466	58	0.822	Not sig. at 0.05
		Control	30	3.47	1.008			
3- Critical Comprehension :	Drawing conclusions	Exp.	30	1.10	0.305	58	1.387	Not sig. at 0.05
		Control	30	1.27	0.583			
4-Creative reading :	Suggesting an original title for a reading passage	Exp.	30	.20	0.610	58	1.077	Not sig. at 0.05
		Control	30	.40	0.814			
	Inventing an original course of action in narrative texts/solution to presented problems	Exp.	30	.33	0.922	58	1.133	Not sig. at 0.05
		Control	30	.67	1.322			
	Total	Exp.	30	.53	1.383	58	1.452	Not sig. at 0.05
		Control	30	1.07	1.461			
Total sum:		Exp.	30	8.67	2.454	58	0.920	Not sig.

	Contro l	3 0	9.3 7	3.36 8			at 0.05

　　　　As shown in table (1), t-values are (0.609) for literal comprehension,(0.822) for inferential comprehension, (1.387) for critical comprehension, and(1.452) for creative comprehension, which are not statistically significant at 0.05 level. Thus, it can be concluded that the two groups were almost at the same level of performance in reading comprehension sub- skills.

Description of the test

　　　　The pre-posttest consisted of a reading comprehension passage and 10 questions about them , and the passage included in the test was unseen by the students, because it aimed at assessing students' reading comprehension ability rather than their achievement with respect to a certain content.

Test validity and reliability

　　　　To measure the test content validity, the first version of the test was given to 5 EFL supervisors and teachers(Appendix 3) to evaluate it in terms of content appropriateness, and suitability of the test to the students' level.

　　　　In order to establish the test reliability, the test-retest method was employed with an interval of two weeks on a sample of 20 preparatory students of the pilot study. The Pearson's correlation coefficients was used to calculate the reliability coefficient which was (0. 91), and which was relatively high.

Piloting the test

　　　　The test was piloted on a group of 13 students to determine item difficulty, the suitable time for the reading comprehension test, and the suitability of the task selected to extract the expected skills. Results revealed that the majority of students obtained low scores. Moreover, students reported that the passage was difficult. This may be due to the fact that they were accustomed to memorizing certain answers to a given and seen reading comprehension passage. In addition, it was estimated that a period of 45 minutes would provide ample time to complete the test. This time was estimated by the jury members. The pre-test was administered to both groups in normal classroom conditions three days prior to the experiment. The post-test was administered four days after the experiment ended.

Scoring

Students' answers to the pre/post -reading comprehension test were hand-scored by the researcher. Test scoring did not require another rater because all test items whether multiple choice or open- ended questions were controlled. For multiple choice questions, one score was given for each correct answer, while zero was given for double, wrong or left answers.

As for open-ended items, they were allocated two scores as they required students to provide two pieces of information, with one score assigned to each required piece of information. Zero was given for completely wrong or left question. Students' errors in grammar, vocabulary, spelling and punctuation were disregarded.

Suggested Green economy lessons based on a CLIL approach

Learning objectives

Students were expected to master the identified reading comprehension skills by the end of the treatment.

Duration of the program

The activities based on the CLIL approach were taught in six weeks. The first classroom period was an introductory one aiming at introducing students to the aims of the program and activities they were going to be based on the CLIL approach. The second session was introducing the idea behind Green economy issues and the CLIL approach.

The program's validity

Sample activities from the lessons were given to EFL specialists who approved them, and suggested some modifications. The panel of jury suggested shortening and simplifying some reading texts included in the lessons in terms of their vocabulary and structure. Also, allocating more time to teaching the reading comprehension activities.

Piloting the program

A small pilot study was carried out, 20 students were selected from the preparatory stage and were asked to perform three activities, the pilot study aimed at determining the time taken by the students to do the activities and to what extent they enjoyed the activities and were enthusiastic about the Green economy issues reading comprehension. There was an indication that the activities were suitable to students' linguistic proficiency level, interesting and motivating.

Description of the Green economy issues based on the CLIL approach:

The researcher followed a proposed teaching strategy throughout the program implementation. Assumptions of this strategy were as follows:

(a) Reading comprehension is a highly complex, interactive, constructive process in which learners reconstruct the original intentions of the writer by making use of reading comprehension strategies, and by drawing on what they already know to make use of the new knowledge presented in the reading text.

(b) Reading comprehension strategies are used as a vehicle for organizing and coordinating dialogues about text, constructing the meaning, and monitoring comprehension. The acquisition of the strategies is a joint responsibility that is shared by the teacher and the students.

(c) Accordingly, the teacher's role changes to that of a facilitator, a guide who uses the CLIL approach as an interactive temporary scaffolded instruction forum to help students become strategic and interactive readers who monitor their own comprehension and apply and adapt a set of effective strategies to increase their understanding.

(d) Using the CLIL approach is a recursive rather than a linear step-by-step process. Effective readers are going back and forth, checking their understanding. This process integrates the four strategies (predicting, questioning, clarifying, and summarizing) that overlap and intertwine.

According to the proposed teaching strategy, each reading comprehension lesson was divided to three phases including the following strategies that overlapped and intertwined. These phases were as follows:

1- Pre-reading phase (Questioning & Predicting)
2- During reading phase (Predicting, Questioning, Clarifying)
3- post-reading phase (Questioning & Summarizing)

The teacher divided the class randomly into small groups(Predictor, questioner, clarifier, and the summarizer).Group members took turns exchanging the four strategy roles in each reading passage. The teacher played the role of the maestro who facilitated group dialogue.

1- Pre-reading phase(Questioning & Predicting):

Pre-reading (Questioning& Predicting) activities focus on preparing learners for the reading task by helping them identify the purpose of reading beforehand ,build and activate the background knowledge learners might need to actively engage in the reading task and successfully make meaning of the reading passage.

The following techniques & activities are used by students: Predicting T-Chart, Brainstorming, Graphic Organizers (including completing relevant semantic/story map or the first two columns of the K-W-L Chart).The teacher draws students' attention to the fact that they were going to extend their graphic organizers or complete the third column of the KWL charts in the post-reading phase based on the information they would obtain during reading the text. It helps students identify specific stated information or details.

The teacher chooses any or a combination of the previously mentioned techniques. Such choice depends on the nature of the reading passage, the purpose of the reading task and the time available for the pre-reading phase.

2-During reading phase(Predicting, Questioning, Clarifying):

During-reading (predicting, Questioning, Clarifying) activities are carefully and appropriately selected to help learners actively make meaning of the written language by relating the new knowledge to the existing schemata, using their guessing abilities, whatever contextual, syntactic, or/and semantic clues within the written discourse in addition to their use of reading and monitoring strategies according to the nature and purpose of the reading task.

- The predicting activities and techniques for (identifying specific stated information or details in a reading passage) are as follows:-DRTA (Directed Reading Thinking Activity):The predictors asked questions that encouraged students to make predictions about upcoming text. Predictors help group members to (a) extract evidence from the reading texts confirming their sound predictions made prior to reading, and /or (b) complete the reading passage Incidents Predictions/Confirmation charts. Active Comprehension :While reading, the predictor asks students about what they wanted to know. Students respond with their own questions.
- The questioning activities and techniques are as follows: -T-Chart of Text-Questions/Play Question Ping Pong, Problem/solution Chart, Students generated and answered true/false questions, multiple choice questions.
- The Clarifying activities and techniques are as follows:-Cause-effect chart, Fishbone Map, Problem/Solution, Fill in Series of events chart or Bridging Snapshots ,Word attack techniques and Definition Map.

3-Post-reading Phase(Questioning& Summarizing):

Post –reading (Questioning & Summarizing) activities should aim at making sure that learners have fully comprehended the reading passages, reinforcing the newly acquired knowledge and reflecting on why some students have failed to understand or missed parts of the reading passages. They also expand on the topic or language of the reading text, thus transferring newly acquired knowledge to another context.-The teacher encouraged students' deeper comprehension and processing of the reading texts, raised their awareness of the necessary inferential, critical and creative reading comprehension sub-skills and fostered their active practice in context through these activities and techniques: Leave In/Leave Out T- Chart, Summary writing, Generate Under-the surface questions: (Why, how, should, could, would), Generate correct/incorrect inferences ,ask and answer open-ended and multiple choice questions , Suggesting other titles for a given text, and another solution to solve problem in the text.

Results

Results of the study are presented in terms of the study hypotheses.

Hypothesis one:

There are statistically significant differences between the mean scores of the experimental group exposed to the suggested the Green economy issues lessons based on the CLIL approach and the control group receiving regular instruction on the posttest in reading comprehension in favor of the experimental group.

T-tests for independent samples were conducted in order to compare the post-test scores of the experimental and control groups in reading comprehension skills (Literal, Inferential, Critical, and Creative).The results of the T-test proved to be statistically consistent with the above stated hypothesis. Therefore, the first hypothesis was supported. Table (3) shows this statistical significance.To investigate the differences between both the experimental and control groups with respect to each determined reading comprehension sub-skills, t-tests for independent samples were used and they revealed statistically significant differences at0.05 level.

Table (2)
T-test results of the post-test of both the control and experimental groups in reading comprehension sub-skills.

Skills	Sub Skills	Group	N	M	S.D	D.F	T – value	Level of sig.	Effect size
1-Literal Comprehension:	Identifying the stated main idea of a reading passage	Exp.	30	3.73	0.583	58	16.443	sig. at 0.05	4.32
		Control	30	1.33	0.547				
	Identifying specific stated information or details	Exp.	30	2.73	0.583	58	11.809	sig. at 0.05	3.10
		Control	30	1.20	0.407				
	Identifying organizational patterns within a text	Exp.	30	7.13	1.074	58	20.392	sig. at 0.05	5.36
		Control	30	1.57	1.040				
	Total	Exp.	30	13.60	1.754	58	23.523	sig. at 0.05	6.18
		Control	30	4.10	1.348				
2-Inferential Comprehension :	Guessing the meaning of unknown words or phrases in a text	Exp.	30	2.60	0.621	58	9.007	sig. at 0.05	2.37
		Control	30	1.27	0.521				
	Making inferences	Exp.	30	1.80	0.407	58	5.712	sig. at 0.05	1.50
		Control	30	1.20	0.407				
	Determining pronoun referents	Exp.	30	1.80	0.407	58	4.427	sig. at 0.05	1.16
		Control	30	1.30	0.466				
	Total	Exp.	30	6.20	1.126	58	8.960	sig. at 0.05	2.35
		Control	30	3.77	0.971				

Skills	Sub Skills	Group	N	M	S.D	D.F	T – value	Level of sig.	Effect size
3- Critical Comprehension :	Drawing conclusions	Exp.	30	3.67	0.606	58	14.297	sig. at 0.05	3.75
		Control	30	1.40	0.621				
4-Creative reading :	Suggesting an original title for a reading passage	Exp.	30	5.67	0.758	58	24.838	sig. at 0.05	6.52
		Control	30	.47	0.860				
	Inventing an original course of action in narrative texts/solution to presented problems	Exp.	30	7.60	0.814	58	28.950	sig. at 0.05	7.60
		Control	30	0.80	0.997				
	Total	Exp.	30	13.27	1.337	58	34.752	sig. at 0.05	9.13
		Control	30	1.27	1.337				
Total sum:		Exp.	30	36.73	3.629	58	28.774	sig. at 0.05	7.56
		Control	0	10.53	3.421				

The above table shows that there were statistically significant differences at 0.05 level between the mean scores of the control and experimental groups on the post - test in each reading comprehension sub-skill in favor of the experimental group, since the estimated t-values were (23.523) for Literal comprehension, and (8.960) for Inferential comprehension, and (15.045) for Critical comprehension, and (34.752) for Creative comprehension. Moreover, the effect size values, (6.18), (2.35),(3.75),and (9.13), for the first, second, third, and fourth reading comprehension sub-skills respectively reveal that the proposed Green economy issues lessons based on the CLIL approach had a large effect on the experimental group students' reading comprehension sub- skills on the

post-test as compared to those of the control group receiving regular instruction.

Chart (1)
The effect on the experimental group students' reading comprehension sub-skills on the post-test as compared to those of the control group.
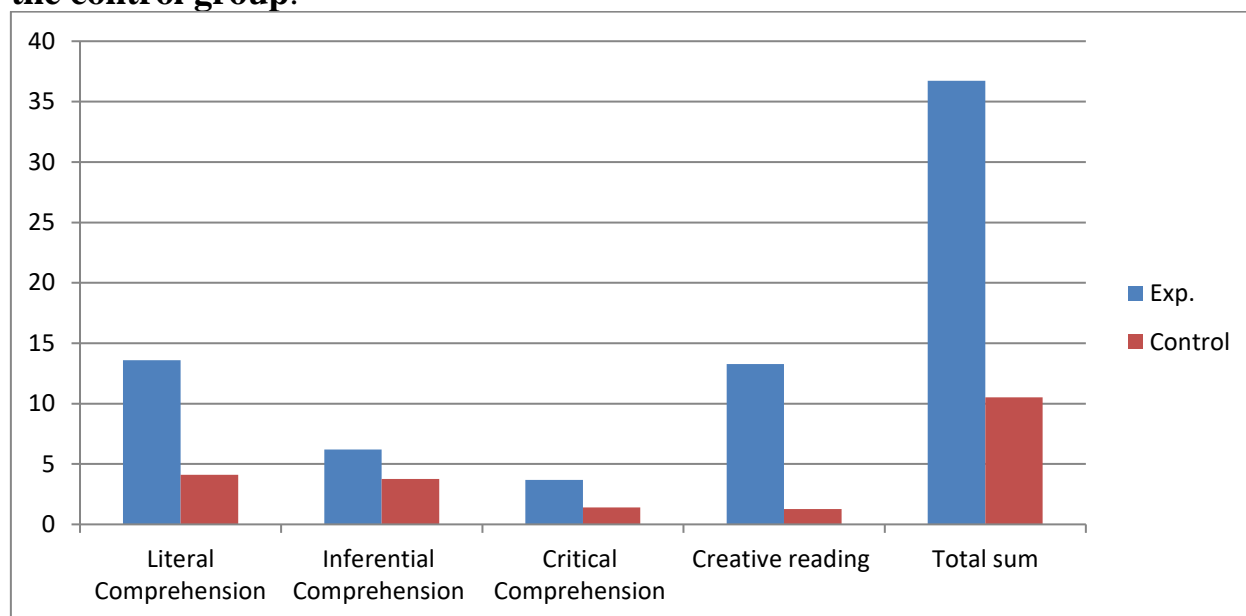
Hypothesis two:

There are statistically significant differences between the mean scores of the experimental group on the reading comprehension pre-post-tests in reading comprehension sub- skills in favor of the post-test scores.

In order to verify the validity of this hypothesis, t-tests for paired samples were used. The t-test results proved that there were statistically significant differences between the pre-posttests mean scores of the experimental group in reading comprehension sub- skills (Literal, Inferential, Critical ,and Creative). In other words, the results of the t-tests proved to be statistically consistent with the above stated hypothesis. Hence, the second hypothesis was accepted.

   To investigate the differences between the experimental group students' reading comprehension sub-skills before and after being exposed to the lessons based on the CLIL approach, t-tests for paired samples were used for each determined reading comprehension skill. The following table show the existence of statistically significant differences at 0.05 level in this respect.

Table (3)
T-test results comparing the pre-test vs. post-test means for the experimental group reading comprehension sub-skills.

Skills	Sub Skills	measure	N	M	S.D	Paired differences		D.F	T – value	Level of sig.	Effect size
						M	S				
1-Literal Comprehension:	Identifying the stated main idea of a reading passage	post	30	3.73	0.583	2.500	0.900				5.65
		pre	30	1.23	0.430			29	15.211	sig. at 0.05	
	Identifying specific stated information or details	post	30	2.73	0.583	1.60 0	.621				5.23
		pre	30	1.13	0.346			29	14.102	sig. at 0.05	
	Identifying organizational patterns within a text	post	30	7.13	1.074	5.767	1.357				8.65
		pre	30	1.37	0.556			29	23.284	sig. at 0.05	
	Total	post	30	13.60	1.754	9.867	2.474			sig. at 0.05	8.11
		pre	30	3.73	1.081			29	21.846		
2-Inferential	Guessing the	post	30	2.60	0.621	1.50 0	0.630	29	13.047	sig. at	4.85

			N	Mean	Std			df	t	Sig	
Comprehension :	meaning of unknown words or phrases in a text	pre	30	1.10	0.305					0.05	
	Making inferences	post	30	1.80	0.407	.733	0.583	29	6.886	sig. at 0.05	2.56
		pre	30	1.07	0.254						
	Determining pronoun referents	post	30	1.80	0.407	.667	0.661	29	5.525	sig. at 0.05	2.05
		pre	30	1.13	0.346						
	Total	post	30	6.20	1.126	2.900	1.322	29	12.013	sig. at 0.05	4.46
		pre	30	3.30	0.466						
3- Critical Comprehension :	Drawing conclusions	post	30	3.67	0.606	2.567	0.817	29	17.203	sig. at 0.05	6.39
		pre	30	1.10	0.305						
4-Creative reading :	Suggesting an original title for a reading passage	post	30	5.67	0.758	5.467	0.900	29	33.286	sig. at 0.05	12.36
		pre	30	0.20	0.610						
	Inventing an original course of action in narrative texts/solution to presented problems	post	30	7.60	0.814	7.267	1.112	29	35.789	sig. at 0.05	13.29
		pre	30	0.33	0.922						
	Total	post	30	13.27	1.337	12.733	1.701	29	41.012	sig. at 0.05	15.23
		pre	30	0.53	1.383						
Total sum:		post	30	32.93	36.73	24.80	5.15239	29	29.836	sig. at 0.05	10.72
		pre	30	8.13	8.67						

above table shows that there were statistically significant differences at 0.05 level between the mean scores of the experimental group on the pre-post tests in favor of the post-test in the four reading comprehension sub- skills, since the estimated t-values were (21.846) for Literal comprehension,(12.013) for Inferential comprehension, (17.203) for Critical comprehension, and (41.012) for Creative comprehension. Moreover, the calculated effect size values (8.11),(4.46), (6.39), and (15.23)for the first, second, third, and fourth reading The comprehension sub- skills respectively reveal that the proposed program had a large effect on the experimental group students' reading comprehension sub-skills on the post-test as compared to the pre-test.

Chart (2)

The experimental group students' reading comprehension sub-skills on the post-test compared to the pre-test.
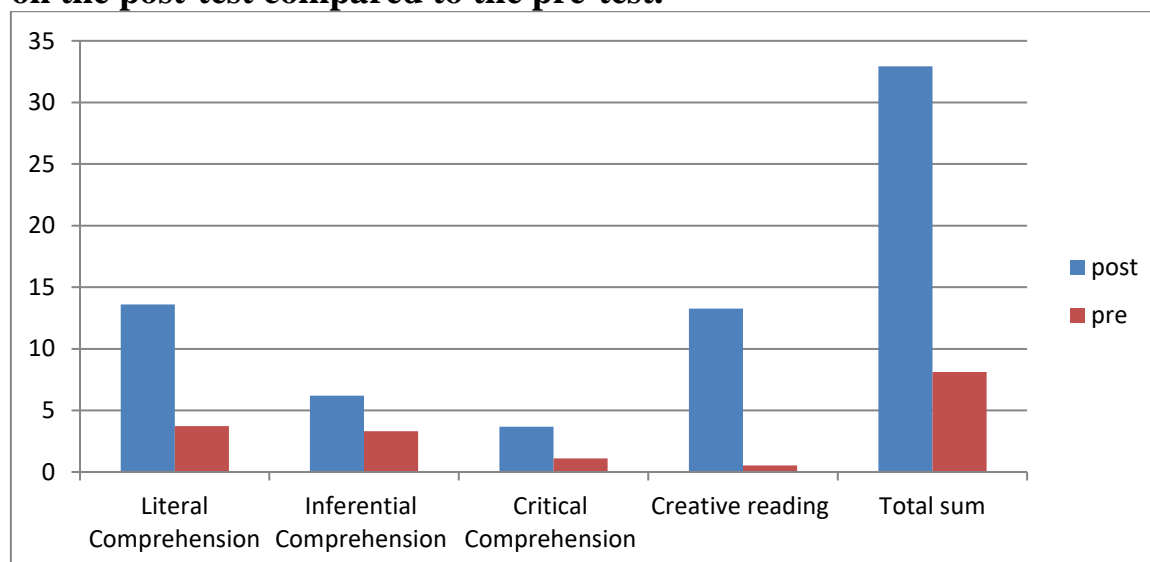
Discussion

Green Economy issues based on the CLIL approach enhanced students' meta-cognitive awareness on reading comprehension. They helped readers to think and plan about their reading process, improve activities, monitor and evaluate their reading while reading a text in order to understand the message of the author. Green economy issues lessons based on the CLIL approach improved learners' reading comprehension, facilitated foreign language learning and helped them to improve the ability to work co-operatively with their classmates. Students improved the quality of their discussions of expository text , and also used more questions at a higher critical level of thinking. This is consistent with (Hess,2004).

Reading comprehension is improved by CLIL approach in teaching which activates background knowledge in ways of pre-reading, while reading and after reading, in instructing preparatory students to get information and in monitoring their reading during their reading time It is noteworthy to stress the crucial role of teacher modeling in facilitating learners' reading comprehension. Teachers explicitly provide declarative knowledge (what the strategies are),conditional knowledge (when to use them) and procedural knowledge (how to use them).Scaffolding in instruction and teachers' feedback is reduced when students become more independent in the application of reading strategy of what have been read, visualizing what they are reading ,Retelling what they have read and summarizing chunks of text while reading, connecting text to prior knowledge and previously read sections These results are consistent with the results of(Oczkus,2006, and AbdelGawad,2007).

It is noteworthy that such strategies provide opportunities for students to be engaged and not bored. Hence, by involving students in such performances and creativity, as well as in the reading comprehension activities, teachers can support the multiple goal of reading comprehension skills(literal , inferential , critical and creative)reading comprehension skills. There are numerous advantages and positive outcomes to the CLIL approach ,among them are increased problem-solving and decision-making abilities, teamwork .In addition to that , students took an active role through the reading tasks and activities of the proposed program that developed and focused on reading comprehension skills, which are consistent with the results of (Sanad & Amed,2014; Aguilera et al.,2019 and Diab, Abdel-Haq 7 Aly,2018) Also ,students developed social and life management skills such as: goal setting , determination , motivation, persistence to face obstacles, vision, passion, devotion, self-confidence ,sense of responsibility . This is consistent with the results of (Yusuf,2013;Sousa&Almeida,2014).

CLIL approach had a significantly positive effect on the reading comprehension and usage of the four meta-cognitive reading strategies. Students learned to make prediction, to make questions , to find the main point of the text, to find the meaning of unclear words, and to summarize the text by their own sentences. These results are consistent with (Ahmadi& Ismail,2012,and Hacker& Tenent,2002).

It is noteworthy that teachers should inform students that there is no magical formula to be a green transformer in the community. Students

considering being green entrepreneurs, should realize that being green entrepreneurs mean that they are responsible for making decisions, solving problems, resolving conflicts, developing opportunities and motivating others to share their vision of the green future.

Recommendations:

- EFL teachers should pay more attention to developing inferential, critical and creative reading comprehension skills among their students in addition to their usual concern about literal reading comprehension skills.
- EFL teachers are recommended to make use of the CLIL approach to foster EFL students' reading comprehension skills..
- Reading comprehension instruction should be integrated with other language skills throughout the learning process using varied pre- .during and post – reading activities that require students to read, write, listen and talk about the written discourses about current issues.
- Students should be given more opportunities to practice reading comprehension skills in a supportive, cooperative, anxiety-free learning environment

. **Suggestions for further research:**

-Investigating the influence of CLIL on EFL students' academic achievement and motivation towards learning the English language.

-Examining the impact of CLIL, as an integrated approach to English language learning, on the enhancement of other English language skills(listening, reading, writing and speaking) and on other stages (primary and secondary).

-A longitudinal study is needed to investigate EFL learners' creativity, interaction and attitude when implementing CLIL instruction.

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