

THE DEVELOPMENT OF A UNIT TO INTEGRATE
INTERNATIONAL SUSTAINABILITY GOALS INTO THE NINTH
GRADE ENGLISH LANGUAGE CURRICULUM

A MASTER'S THESIS

BY

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THE PROGRAM OF CURRICULUM AND INSTRUCTION
İHSAN DOĞRAMACI BILKENT UNIVERSITY
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JANUARY 2021

This thesis was dedicated...

To no poverty

To zero hunger

To good health and well-being

To quality education

To gender equality

To clean water and sanitation

To affordable and clean energy

To decent work and economic growth

To industry innovation and infrastructure

To reduced inequality

To sustainable cities and communities

To responsible consumption and production

To climate action

To life below water

To life on land

To peace, justice and strong institutions

To partnerships for goals

To transform our world

and

To hundreds of men and women who died because of the coronavirus disease

(Covid-19)

The Development of a Unit to Integrate International Sustainability Goals into the
Ninth Grade English Language Curriculum

The Graduate School of Education
of
İhsan Doğramacı Bilkent University

by

Ezgi Selin Memişoğlu

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GRADUATE SCHOOL OF EDUCATION

The Development of a Unit to Integrate Sustainability Goals into the Ninth Grade

English Language Curriculum

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January 2021

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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ABSTRACT

The Development of a Unit to Integrate International Sustainability Goals into the Ninth Grade English Language Curriculum

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January 2021

As we enter the third decade of the 21st century there are important skills we will need to develop to cultivate sustainable global communities. To address these issues on a global scale, people need to be able to communicate with each other. Therefore, the purpose of this study is to design a unit of instruction that can be used to develop students' global English language skills and to contribute to the development of students' environmental literacy. Aspects of instructional research design was used to develop the unit and to identify how it can be integrated into the existing Ministry of National Education's English ninth grade English language curriculum. To ensure the validity of the design and to prepare the unit for future pilot testing, a review instrument was administered to post-secondary English instructors who commented on the pedagogic accuracy and shared their perceptions regarding potential integration of the unit. A separate instrument was given to environmental education and biology experts to ensure conceptual accuracy and to ascertain if the unit addressed international goals for sustainable development. Content analysis, supplemented with descriptive statistics of the quantitative data, was used to analyze the qualitative data and to decide how the unit should be revised.

Keywords: Curriculum integration, environmental literacy, English language skills, instructional design, sustainable development, qualitative

ÖZET

9. Sınıf İngilizce Dersinde Aktiviteler Üzerinden Çevresel Sürdürülebilirliği Desteklemek

Ezgi Selin Memişoğlu

Yüksek Lisans, Eğitim Programları ve Öğretim

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Bu çalışmanın asıl amacı öğrencilerin İngilizce dil becerilerini geliştirebilecek ve öğrencilerde çevre okuryazarlığının gelişimine katkıda bulunulabilecek bir öğretim ünitesi tasarlamaktır. Çalışmada, çevresel sürdürülebilirlik ile ilgili üniteyi geliştirmek ve ünitenin, Millî Eğitim Bakanlığının mevcut durumdaki dokuzuncu sınıf öğretim programına nasıl entegre edilebileceğinin yollarını belirlemek için bir öğretim tasarımı kullanılmıştır. Öğretim tasarımı; problemi belirlemek, geliştirme adına planlar yapmak, materyaller üretme, değerlendirme ve düzenleme amacıyla kullanılmıştır. Geliştirilen tasarımın geçerliliğini sağlamak ve üniteyi gelecekteki pilot denemelere hazırlamak adına İngilizce öğretmenlerinden, tasarımın pedagojik doğruluğunu yorumlamaları ve ünitenin Türk öğretim programına olası entegrasyonu konusundaki algılarını paylaşmaları istenerek öğretmenlere bir inceleme aracı sunulmuştur. Bir diğer inceleme aracı ise, belirlenmiş bir grup çevre eğitmeni ve biyoloji uzmanlarına kavramsal doğruluğu sağlamak ve ünitenin uluslararası çevresel sürdürülebilirlik hedefleriyle örtüştüğünü tespit etmek için verilmiştir. Nicel verilerin tanımlayıcı istatistikleriyle desteklenen tematik içerik analizi, nitel verileri analiz etmek ve ünitenin nasıl düzenlenmesi gerektiğine karar vermek için kullanılmıştır.

Anahtar kelimeler: Öğretim programı entegrasyonu, çevre okuryazarlığı, İngilizce dil becerisi, öğretim araştırma tasarımı, çevresel sürdürülebilirlik, nitel

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CHAPTER 1: INTRODUCTION

Introduction

Given the worldwide challenges facing today's world, future citizens need critical skills to cultivate sustainable global communities. These communities need to understand each other and to do that they need to be able to communicate. For this communication to be effective, it will help if they speak a common language. This is one reason English has become the lingua franca of today's world. People try to learn English as a foreign language to be able to work internationally, to connect with other cultures, and for travel (Escobar & Zaim, 2011). Another benefit to learning English is to be able to use technological tools including smartphones and mass communication tools. For instance, learning a foreign language such as English helps people to watch famous television series online, play online computer games, communicate with people online, and use worldwide technological tools all around the world. As children are becoming connected to technology at an early age, it follows that they learn English when young as well (Gawi, 2012).

Even though learning English as a second language has become important worldwide, it is a challenge in Turkey. Although the Ministry of National Education (MoNE) includes English curriculum starting from the second grade, however, researchers have found learners are not successful at improving their language skills (Kırkgöz, 2007). Learning English may not seem relevant to students in Turkey as they are focusing on local lessons and issues. By helping students recognize the global relevance of local issues, they may see the value of improving their English skills to communicate with people around the world.

Environmental quality and sustainable development are global issues facing our youth today. Therefore, it is important for students to both understand their local and global environment and to be able to communicate about goals for sustainable development with people around the world. To address the importance of developing environmental literacy and to enrich English language skills, this study used aspects of instructional design to integrate environmental concepts into an English language unit. This chapter provides background information, the problem, the purpose, significance, and research questions of the study.

Background

The United Nations Environment Programme (UNEP, 2012) asserts that there are emerging environmental issues for the 21st century. These environmental issues occur in Turkey. Turkey is affected by air and water pollution, reduction in biodiversity and land resource management issues (Ardalı, Konuk & Turan, 2016). Too many people in Turkey are unaware of their local environments. This lack of awareness causes issues such as pollution, deforestation and unplanned urbanization in Turkey (Erdoğan & Uşak, 2009). People throw their cigarettes, trash and chewing gum out of the window while driving. The recent pandemic has people wearing masks and gloves, and sadly these items can now be seen among the curb side litter. Even though Turkey announces procedures and principles regarding waste management, these procedures and principles are not applied by human beings (Arseven & Baydar, 2019). Improving environmental literacy of students might encourage them to be conscientious towards the natural world. Güntürkün (2016) mentions that:

There are a variety of ways to encourage people to behave responsibly toward the environment. The government can pass

laws and enforce regulations. However, it is best if people act responsible because they appreciate the importance of nature and value it as a natural resource. (pp. 1-2)

Therefore, adding more environmentally related lessons to the national curriculum has the potential to help improve students' environmental literacy. In addition, integrating environmental education into other subjects such as English language may help people to improve their language skills. Çakci, Oğuz and Kavas (2010) pointed out:

Rising environment concerns led to emergence of the concept of sustainability in the last half of twentieth century. The term sustainability focuses on mainly three concepts: Economy, ecology and equity. Therefore, sustainable development requires policies and actions on both economic and ecological aspects of development, and for all classes of the society, also regarding future generations. (p. 2629)

Many environmental education programs around the world are now referring to the goals for sustainable development created by the United Nations, Educational, Scientific and Cultural Organization (UNESCO, 2017). These 17 Sustainable Development Goals (SDG) encourage people to behave responsibly toward the environment (please see Figure 1 and visit <https://sdgs.un.org/goals>). Further information about goals specific to the current study are discussed in the Methods chapter.

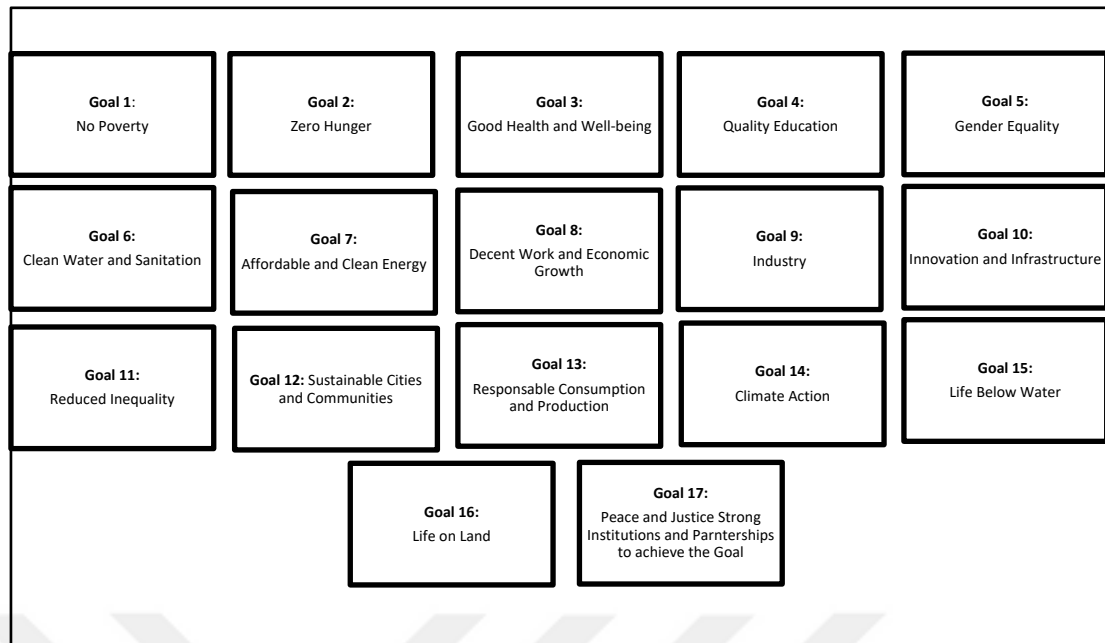


Figure 1. The 17 United Nations sustainable development goals

As these UN goals relate to all aspects of life – health, nutrition, sanitation, equity, for example – they are relevant to many different subject areas. Tekin (2012) recommends that environmental education can be integrated into subject areas such as English language. The challenge with any integration efforts is to find a suitable location and strategy to relate two or more subjects to each other. It is important to understand the goals and intentions of both subject areas. Goals for sustainable development have been discussed above. What follows is relevant information about the English language curriculum of the Ministry of National Education.

The MoNE ninth grade English curriculum

As with other countries in Europe, Turkey's Ministry of Education's English language curriculum is based on European Framework of Reference for Languages (CEFR). The CEFR has formed six levels of language as A1, A2, B1, B2, C1 and C2, with A1 being the most proficient level (MoNE, 2018). This use of levels has

advantages to standardize the learning outcomes of the language learning based on students' needs in 21st century.

Furthermore, MoNE's English curriculum is a theme-based curriculum. It is different than a traditional instructional design. The content of the English lessons is designed based on a specific theme such as friendship, human rights and music (MoNE, 2018). This theme-based curriculum which "focuses on the teaching various contents of different discipline around a unified theme" (Aksoy, 2019). As will be explained, the current study capitalizes on this thematic approach by focusing on sustainable development.

In the context of English language curriculum, learners are expected to graduate from middle school with a level of A2 at the end of Grade 8. They are 14-14.5 years old and follow primary and middle school curriculum. These students start the semester at A1 level and finish the year at A2. Therefore, the English language curriculum is called as a continuum (MoNE, 2018). The skills for language include the following:

1. Reading: (R)
2. Listening: (L)
3. Writing: (W)
4. Speaking (S)

According to MoNE (2018), ninth grade English curriculum is applied in different types of high schools in Turkey. These secondary education schools are Anatolian High schools, Anatolian High Schools with foreign language preparatory classes, Social Sciences High Schools, Social Sciences High Schools with foreign language

preparatory classes, Science High Schools, High School of Music and Art, High School of Music and Art (Turkish Folk Music), High School of Music and Art (Turkish classical Music), Fine Arts High School, Sports High School, Anatolian İmam Hatip High School İmam Hatip high schools and International Anatolian İmam Hatip High Schools. Since these schools have different academic purposes, the English lesson hours are different. Table 1 indicates the weekly hours of different high schools in Turkey.

Table 1
Weekly English language lesson hours for grade nine students in Turkey

High School Types	Anatolian High School	Foreign language preparatory classes
Anatolian High School	4	20
Social Sciences High School	4	20
Science High Schools	4	-
High School of Music and Art	2	-
High School of Music and Art (Turkish Folk Music)	2	-
High School of Music and Art (Turkish classical Music)	2	-
Fine Arts High School	2	-
Sports High School	2	-
Anatolian İmam Hatip High School	5	-
International Anatolian İmam Hatip High School	4 (second semester)	-

Note. Turkish Republic of Ministry of Education, Board of Education and Discipline (TTKB, 2019)

Table 1 demonstrates that four lesson hours are implemented to Anatolian High School, Social Sciences High School and Science High School in a week. On the other hand, two lesson hours are applied to High School of Music and Art schools, Fine Arts High Schools and Sports High schools. For International Anatolian İmam Hatip High School, four hours are implemented for the second semester. Furthermore, 20 lesson hours are planned for foreign language preparatory classes.

Related to the total working hours of MoNE, there are 18 lesson hours in one semester (TTKB, 2019). Hence, Anatolian High School, Social Sciences High School and Science High School have 576 lesson hours in an academic year. On the other hand, High School of Music and Art schools, Fine arts high schools and sports high schools have 256 hours in an academic year. Nevertheless, despite the quantities, as discussed in the problem statement above, these hours may be insufficient for language learning.

As previously discussed, there are 10 units in the ninth grade English curriculum. One of the units in the curriculum is called “My Environment.” There are three parts in the unit: functions and useful language; language skills and learning outcomes; and suggested materials and tasks (see Appendix A). However, the curriculum does not include prepared instructional materials. Even though it is titled “environment” the content is more about items in students’ living areas (home, school, community) rather than the natural environment. While it is important to develop language knowledge and skills related to one’s local environment, given major issues in today’s world such as climate change it seems important that this unit also prepare students to communicate about natural resources and environmental issues. To conclude, this unit can be developed to integrate international sustainability goals into the ninth grade

Problem

Many researchers have noted that English language learning in Turkey has faced many challenges (Kırkgöz, 2007; Yel, 2009). In particular, even though students receive several years of English language, they are not successful at improving their

reading, listening, writing and speaking skills (Bayar & Solak, 2015). The design of Turkey's national curriculum could be one reason students have shown limited developments in learning English language skills (Kırkgöz, 2007). The materials, resources and activities within the curriculum need to relate better to students' learning levels (Yel, 2009). In particular, the curriculum would be enhanced if it had a more student-centered ideology (Bayar & Solak, 2015). Mambaeva (2018) points out that even though curriculum has become more student-centered on paper, its implementation ends up being more teacher centered. Perhaps if the curriculum provided teachers with more detailed and descriptive lessons, they would be more inclined to conduct student-centered lessons based on the written procedures. In particular, the curriculum could better incorporate the descriptors of CEFR.

One way to make the curriculum more meaningful to students is to incorporate skills they will need to be successful in the 21st century (Young, 2016). There are a multitude of global crises facing today's youth, many of which relate to the quality of the environment and sustainability of natural resources. Steps that can be taken to support sustainable development have been outlined by UNESCO. Unfortunately, the Turkish curriculum does not have a separate environmental education course (Erdoğan & Uşak, 2009). Therefore, the UNESCO goals need to be integrated into other disciplines. A review of the Turkish curriculum shows that there are many objectives and content areas that are related to the environment and natural resource management. For example, as discussed in the Background, there is a unit in the ninth grade English curriculum titled "My Environment"; however, the focus does not include the natural world. For the current study, the challenge is to incorporate

sustainability development goals into an English language curriculum without compromising the existing course objectives.

Purpose

The main purpose of this study is to develop theme-based instruction and integrate four lessons about environmental sustainability into an English unit called “My Environment.” The unit already exists in the MoNE’s curriculum; however, its current focus is on physical surroundings such as room, kitchen, classroom, lounge, school. For the current study, the challenge is to incorporate sustainability development goals into an English language curriculum without compromising the existing course objectives and make the unit more meaningful. For this study, instructional design and a review of the literature will be used to identify goals and strategies to enrich language lessons to better engage students in their environment (Kırkgöz, 2007). As pointed out by Abe, Corcoran, Nomura, Ryan, and Tilbury (2010), environmental education involves active learning strategies such as games, simulations and role playing, class and group discussion, personal experience.

As part of instructional design, experts in the field will be asked to review the lessons to ensure the content validity and pedagogy of the lessons to prepare the unit for pilot testing. This study will include reviews of the content by environmental education and biology specialists while the pedagogy of the lessons will be reviewed by the experienced post-secondary English instructors. All participants will be given a validated instrument to record their reviews. Data will be analyzed through descriptive, qualitative content analysis data. According to the reviews, the designed

lesson plans will be revised. Selected experts will be asked to do a confirmatory review.

Research questions

This study will address the following question:

How can the instructional design method be adapted to develop an environmental sustainability unit that simultaneously

- a) addresses selected international goals for sustainable development, and
- b) helps develop reading, writing, speaking, and listening skills in English?

Significance

This study is significant in terms of developing four lesson plans about environmental sustainability to an English language unit which will help make English learning more meaningful to students. Thereby, ninth grade high school English teachers are provided with a teaching unit called “My Environment” that these lessons could be used to improve receptive and productive skills while being aware of the environment. As mentioned in the background, many people are unaware of their local environments and this lack of awareness causes problems such as pollution, deforestation, and other environmental problems. One way is to choose a foreign language as a subject area to integrate sustainable development and make students aware of the environmental problems at a young age. Since English is a global language and is included in MoNE’s curriculum, integrating sustainable development into an English unit could make students aware of their environment. Therefore, while a fundamental goal of an English language unit could develop

students' English language skills, it can also develop students' environmental literacy.

Apart from implementing the lesson, teachers and curriculum developers may benefit from the four lesson plans. It may be an exceptional way to begin incorporating environmental sustainability into an English-language unit. Therefore, it is essential to prepare the unit for pilot testing.

Definition of key terms

Common European Framework of Reference (CEFR): It is a framework of reference of language levels formed by the Council of Europe (Council of Europe, 2001). It provides a common curriculum guideline.

Environmental education: Environmental education is a learning process. It increases people's awareness towards the environment.

Environmental literacy:

The knowledge and understanding of a wide range of environmental concepts, problems, and issues; a set of cognitive and affective dispositions; a set of cognitive skills and abilities; and the appropriate behavioral strategies to apply such knowledge and understanding in order to make sound and effective decisions in a range of environmental contexts (NAAEE, 2019, p. 8).

Integration: "To intentionally design lessons to include concepts from a number of disciplines, including environmental education" (Lane, 2006, p. 156).

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

This study seeks to gain insights into English teachers' perceptions of a unit related to environmental sustainability that is designed to be integrated into the Ministry of National Education's English curriculum. Furthermore, environmental education specialists will be asked to share their perceptions about the potential of the unit to address international goals for sustainable development.

This current chapter conducts a review of the literature related to curriculum development and review. It serves in part to learn of strategies used by many educational organizations to develop curriculum and activity guides to integrate special topics, such as environmental resource management, into subject areas. While the developers take purposeful steps to ensure the quality of their materials, not many have documented their efforts in peer-reviewed journals. Fortunately, some researchers have published their work, and a few are included in this review to gain insights into the quality control efforts of curriculum developers, namely strategies to ensure conceptual accuracy and effective pedagogy. In particular, this chapter reviews studies that assessed English teachers' perceptions of materials designed to develop students' reading, listening, speaking and writing skills. Another part of this review focuses on perceptions of environmental specialists who were involved in curriculum development. Prior to reviewing these studies, this chapter begins with a theoretical framework to present conceptions of curriculum integration and interdisciplinary education, including a review of integration models from other

countries. In particular, the framework will help provide a context for understanding the need to integrate environmental concepts into subject areas in Turkey.

Conception of curriculum integration and interdisciplinary education

This study referred to research conducted by Lane (2006) to develop a conceptual understanding of curriculum integration, especially in relation to environmental education. Based on her extensive review of the literature, interviews with leaders in environmental education, Lane defines integration as to intentionally design lessons to include concepts from a number of disciplines, including environmental education. Lane used the metaphor of an intertwined rope to illustrate the practice of integration, representing how integration purposefully weaves together knowledge and skills from different disciplines. Moreover, Lane explained that with the help of integration, the themes from different subject areas are related and thereby support and strengthen each other. This theoretical framework presented the conception of curriculum integration and interdisciplinary education. It helped to provide a context for understanding the need to integrate environmental concepts into subject areas in Turkey and supported that environmental education including sustainable development can be integrated into an English teaching unit.

Another study conducted by Nesin and Pate (2011) demonstrated how to teach through curriculum integration with a conceptual framework. In order to indicate how teachers could teach through the curriculum integration, the researchers developed a *Conceptual Framework of Teaching Practice*. This conceptual framework consists of teachers, students, classrooms, school, community, content, standards, curriculum, instruction and assessment. Nesin and Pate define the

conceptual framework as a system framework that comprised of interdependent components. Furthermore, Nesin and Pate explained that the interdependent components develop curriculum integration. This study helped the researcher to understand that each component is an indispensable part of curriculum integration.

In Germany, a study conducted by De Haan (2006) investigated the conceptualization, implementation, and results of a program for Education for Sustainable Development. The purpose of the study was to make students be aware of sustainable development and integrate Education for Sustainable Development into schools. With the help of scientists of Free University Berlin and stakeholders of Federal States, the program for Education for Sustainable Development was developed. The program consists of “content-related lesson materials, conceptual and methodological approaches for changing lessons and fostering participative learning, integrating non-school partners, working in networks, and creating new lesson and organizational focus” (p.26). This program indicated that sustainable development can be taught by interdisciplinary learning. Moreover, the program showed that collaboration is needed to integrate educational sustainable development into other subject areas. Also, engagement of the students is required. This study indicated how Germany integrated sustainable development into its curricula and helped to support that educational sustainable development can be taught by interdisciplinary learning with the collaboration of other subject area specialists.

Another study was conducted by Paddia-Adjodah, Naidoo, Soobron and Sukhoo (2014) in Mauritius. The purpose of the study was to demonstrate the views of Education of the State Secondary Schools about Education for Sustainable

Development and how to implement it. Nevertheless, educators from seven States Secondary Schools were selected as participants and 30 of the participants were interviewed. Based on the results of the study, the researchers support that sustainable development can be integrated with the help of curricular and extracurricular activities. Paddia-Adjodah et al. (2014) supports “activity classes should be properly structured with the help of the Ministry of Education” (p.19). This study demonstrated how the city of Mauritius integrated sustainable development into its curricula and helped to support that the sustainable development can be integrated into activities in classes.

From Wisconsin, a study conducted by Ziolkowski (2007) indicated biomass energy topics can be integrated into a variety of subject areas. The researcher used the following integration process outlined in *A Guide to Curriculum Development in Environmental Education* (Engleson, 1985) when developing the interdisciplinary biomass energy unit:

- Step 1. Select the environmental topic to be infused into an existing subject area instructional unit.
- Step 2. Identify the subject area units which relate to, or support the investigation of the selected environmental topic.
- Step 3. Develop one or more environmental objectives for the subject matter unit.
- Step 4. Specify the environmental content to be added to the unit.
- Step 5. Develop new instructional procedures as needed.
- Step 6. Identify new process skills which might be used or developed in achieving the new environmental objectives.
- Step 7. Identify new resources to be used in achieving the environmental objectives.
- Step 8. Identify related activities and new topics for investigation which may be suggested by teaching the new infused unit. (pp. 51-52)

Using language arts to develop environmental literacy

As discussed in Chapter 1, environmental sustainability education can be integrated into subject areas. From the U.S., Balgopal and Wallace (2009) emphasize that using the writing pedagogy helps students to unify acquired and background information. The purpose of their study was whether the writing pedagogy improves ecological literacy as content in undergraduate education in universities. Therefore, the researchers constructed a mixed-methods approach including empirical and qualitative analyses. Twenty-four students (5 men, 19 women) from a Midwest university were selected as participants. The participants of this study were asked to create three concept maps and three two-page in-class essays with the content “ecology.” According to the findings, the authors concluded that 22 of the students completed the work and 64% developed their ecological literacy knowledge. According to the findings, students’ ecological and environmental awareness increased. Furthermore, this study helped to support that the language skill such as writing can be used to integrate environmental sustainability into an English language unit.

Mete (2018) is another researcher who points out that a language skill can be used to integrate environmental sustainability into English language. The researcher claims that the reading pedagogy helps to improve students’ critical thinking and critical reading skills. Therefore, he suggests adapting the content of language skills with the *Environmental Education Strategies Framework* introduced by Andrews, Biedenweg and Monroe (2007). In addition, he recommends using Bloom’s Revised Taxonomy stages as a pedagogical method in critical reading of authentic texts connected with

the content of the Environmental Education Strategies. He supports this recommendation as follows:

For critical reading, English language learners are expected to show understanding by being able to rephrase information in the text, explain the content in their own words, use their prior knowledge on similar environmental topics to compare and contrast the information in the text with real life, identify the main idea in the text and give examples. Therefore, reading strategies like paraphrasing, summarizing, comparing and contrasting, exemplifying, classifying can be used at this stage for critical reading. Pair and group discussions, role-plays and simulations are suggested for language learners to enhance comprehension and to relate the information learnt in class with real world experiences. (p. 38)

Developing and reviewing curriculum materials

The previous section conducted a review of literature related to curriculum development including using language arts to develop environmental literacy. The review of literature supported that language skills could be integrated into English language units. This section conducts a review of literature related to curriculum development and evaluation including a review of integration models from other countries and consists of a design process, integration framework and a curriculum review process. The following section provides information about a general summary.

The need for curriculum development for English language learning through an environmentally focused approach was also illustrated by Young (2016). The purpose of the study was to improve guided lesson plans for English teachers by using the natural world, eco-literature as the content and multiple intelligences as a pedagogical approach. Two units were developed in terms of the acquiring ecosystems and each unit has a place-based activity integrated into receptive and

productive skills. The other two units in the frame were about waste management and outdoor survival skills. This study resulted in the development of an *English Second Language (ESL) Eco Literacy Student Handbook* and an *ESL Eco Literacy Teacher Guide*. The author explained the rationale for developing her project as follows:

... I found that strictly teaching language through traditional methods in the classroom reached a portion of my students. I wanted to engage and challenge the full spectrum of my classroom, which encouraged the lessons in this project to be focused on teaching to multiple intelligences. I also noticed that students became much more engaged with material and concepts when they could connect them to their lives in an authentic way. I created this project in hopes to connect students' natural experiences with language acquisition. I wanted to make the natural world accessible and enjoyable for all individuals, independent of economic status, native, or previous experience in natural spaces. (p. 20)

The study by Young helps to support that guided lesson plans could be developed for English teachers by using the natural world, eco-literature as the content and multiple intelligences as a pedagogical approach.

Another study conducted by Arias, Bismack, Davis and Palincsar (2014) developed a design process. The purpose of the study was to be a guide of development of educative features. Therefore, Davis and Krajcik (2005) asked for collaboration of others. Since experts worked together, they developed a design process to produce educative materials. The researcher followed the steps of the design process. The design process consists of four steps as follows:

1. Analysis of units
2. Characterization of opportunities to learn
3. Characterization of student outcomes

4. Design educative features. (p.32)

Besides a design process, three researchers Dyjur, Hill and Lock (2018) developed a theoretical framework for an effective curriculum review process. The main purpose of the study was to provide an overview of collaborative curriculum review process based on quality assurance, and to provide suggestions for a collaborative curriculum review process based on the theoretical framework they have found. The results indicated seven steps that can be taken in order to ensure quality of the collaborative curriculum review process. These steps were given as follows:

1. Start curriculum review
2. Guiding questions
3. Visioning and articulating learning outcomes
4. Data collection
5. Analysis and Discussion
6. Final report

7. Implementation action plan. (p. 129)

This current study will follow the first six steps of the framework for developing a collaborative culture for instructional design review in order to conduct a preliminary study to implement.

Another example of a curriculum development and evaluation study comes from Malaysia. Ho, Ismail and Kamaruddin (2016) claimed that education for sustainable consumptions is essential in Malaysian school curriculum. The purpose of the study was to learn teachers' perceptions about the curriculum. Therefore, the researchers conducted a preliminary questionnaire to gain perceptions on integration of education for sustainable consumptions. To conduct the questionnaire, 48 secondary

experienced schoolteachers (12 men, 36 women) were selected as participants. Based on the results, it was found that training teachers, reaching resources and administrative support would support teachers to integrate education sustainable development in subjects. Moreover, this study helped to support that sustainable consumption education can be used to integrate into an English teaching unit.

Other researchers have developed strategies for evaluation of drafted activities and units. Ziolkowski (2007) used a variety of strategies to evaluate its biomass activity guide for the Wisconsin K-12 Energy Educational Program. Teachers were asked to draft, field-test and review the activities to ensure content validity. The findings demonstrated that the development and evaluation process was effective to create the biomass activity guide. This study helped the researcher to develop other environmentally sustainable development lessons into another subject and ask the experts including teachers to review these self-developed lessons by following the four steps of the design process.

Another study conducted by Erarslan (2018) investigated opinions of English language teachers. The purpose of the study was to gain insight into English teachers' perceptions about strengths and weaknesses of the Grade 2 program. To collect data and investigate the perceptions of English teachers, mixed methods research design (both quantitative and qualitative approaches) was used. The mixed methods research design consisted of interviews and questionnaires. The questions were asked using a Likert-Scale. In addition, to analyze data, content analysis was conducted to understand themes better. The results showed that the program needs revisions for an effective implementation. Related to this study, it helped to

investigate the revision process for understanding the need to analyze descriptive data. Moreover, it helped the researcher for understanding how to use content analysis in order to analyze data.

After the development and evaluation steps, to ensure that curriculum is properly implemented, teachers need to learn about and become familiar with resources associated with the curriculum. Along these lines, Daloğlu (2004) examined a professional development program for primary school English teachers in Turkey. This study focused on establishing a material bank for English language teachers who were teachers at Türk Eğitim Derneği (TED) Ankara Koleji, Turkey. The purpose of this study was to lead teacher change as growth and learning, to outline students' needs and to improve the quality of English learning. This program was applied to 45 teachers who were teachers in grades 1 through 5. Data were collected through a questionnaire with a four-point Likert format and open-ended questions and through an interview. The questionnaire included 17 questions with three multiple choice options: Yes, no, not applicable. Daloğlu mentions that the items of the questionnaire ask for important characteristics of useful materials. In addition, the questionnaire was conducted to all participants; six teachers (two from each group: researchers & teachers) were interviewed. Since questionnaire results were analyzed through descriptive content analysis, interview results were analyzed through pattern-coding. Findings of the study showed that teachers should create some hands-on activities that they use in their own classroom in order to develop professionally.

Conclusion

As discussed above, the chapter conducted a review of the literature related to curriculum development, review including conceptions of integration and interdisciplinary education, and integration models of other countries. This literature review supported that guided lessons could be developed for English teachers by using environmental literacy. However, it is seen that there is a gap in the literature regarding research related to integration. In response to this need, it is essential to address the importance of developing environmental literacy and to enrich English language skills. In order to enrich English language skills, this study used aspects of instructional design to integrate environmental concepts into an English language unit. The following chapter provides the research design, the aspects of instructional design, instrument, participants, method of data collection and analysis.

CHAPTER 3: METHOD

Introduction

As discussed in the background to the problem, there is limited environmental education in MoNE's curriculum. Therefore, adding more environmentally related lessons to the national curriculum has the potential to help improve students' environmental literacy. This study will investigate integrating environmental education activities into the English language curriculum in particular.

This integration involved designing four lessons about environmental sustainability into an English unit called "My Environment." This unit already exists in the MoNE curriculum; however, its current focus is on physical surroundings such as room, kitchen, classroom, lounge, school rather than the natural world. To help ensure if these lessons can be potentially integrated into the MoNE curriculum and if they will address the curricular objectives, this study will survey experienced post-secondary English instructors to gain their perspectives. In addition, environmental education and biology specialists will share their perceptions about this unit. Their views will provide insights into the potential of the lessons to improve students' environmental literacy.

This chapter describes the methods that were used to address the following research question of this study.

How can the instructional design method be adapted to develop an environmental sustainability unit that simultaneously

- a) addresses selected international goals for sustainable development, and
- b) helps develop reading, writing, speaking, and listening skills in English?

To support exploration the following sub-questions were added.

- What are the perceptions of post-secondary English language instructors regarding the potential of integrating the environmental sustainability into Turkey's ninth grade English language curriculum?
- What are the perceptions of post-secondary English language instructors regarding the potential of the environmental sustainability unit to help develop reading, writing, speaking, and listening skills in English?
- What are the perceptions of environmental education and biology specialists regarding how the environmental sustainability unit addresses selected international goals for sustainable development?

This exploration used qualitative aspects of instructional design to validate the effectiveness of the lessons through gaining perceptions of English instructors, environmental education, and biology specialists. In addition, the aspects of the instructional design will be used as preliminary steps that could be used to prepare the unit for pilot testing. Moreover, the chapter includes information about the context of the study, the participants, the data collection, instruments, and the data analysis.

Research design

This study applied aspects of instructional design methodology (ID) to help develop a curriculum unit designed to integrate environmental concepts into an English language curriculum. According to Kalman, Kemp, Morrison and Ross (2013), there

are various ways to design instruction. Many educational researchers have proposed strategies for instruction design, in general they all involve the aspects of figuring out the problem, planning for development, producing, evaluation and revision of the materials based on the analysis (Branch, 2009). Figure 2 illustrates these four aspects of ID. It shows the parts and how they are interrelated.

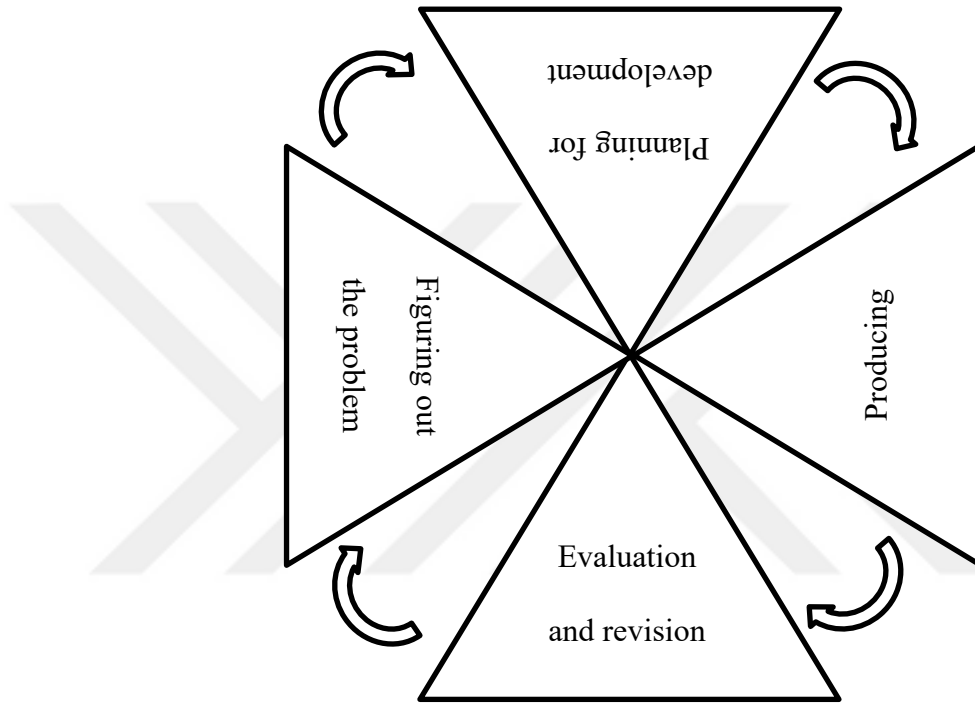


Figure 2. Preliminary aspect of instructional design

The current study referred to several guides for instructional design (Akkoca, 2014; Memişoğlu 2020; Özdemir, 2017). Based on this review, certain steps were identified to plan and develop the unit. Other steps were used to use qualitative methods to review and revise the unit. The steps for developing the lessons, including identifying the goal and drafting the lessons, are explained in the research context. The context also introduces the approach to review and revise the unit which is described further in the subsequent sections. Figure 3 illustrates the detailed procedure of the instructional design method of this study.

PHASES		ACTIONS		OUTPUT
1. Figuring out the problem	Elaboration on the problem (May 2019-May 2020)	MoNE high school English curriculum MoNE's English curriculum "My Environment"	1. Preliminary interview with high school English teachers 2. Preliminary interview with environmental education and biology specialists	Problem statement (April 2019) There is need for development of English lessons related to environmental sustainability that is designed to be integrated into the Ministry of National Education 's English curriculum.
		Literature related integration enhanced		
2. Planning development	Planning for the development of four lessons (April 2019-March 2020)	Theoretical foundation of the teaching unit (April - May 2019) Integration framework (Lane, 2006) Decision on the context of the four lessons	Deciding on expert opinion Choosing post-secondary English instructors and environmental education and biology specialists	Outline of the four lessons to be developed (December 2019)

Figure 3. Detailed procedure of the instructional design method of this study

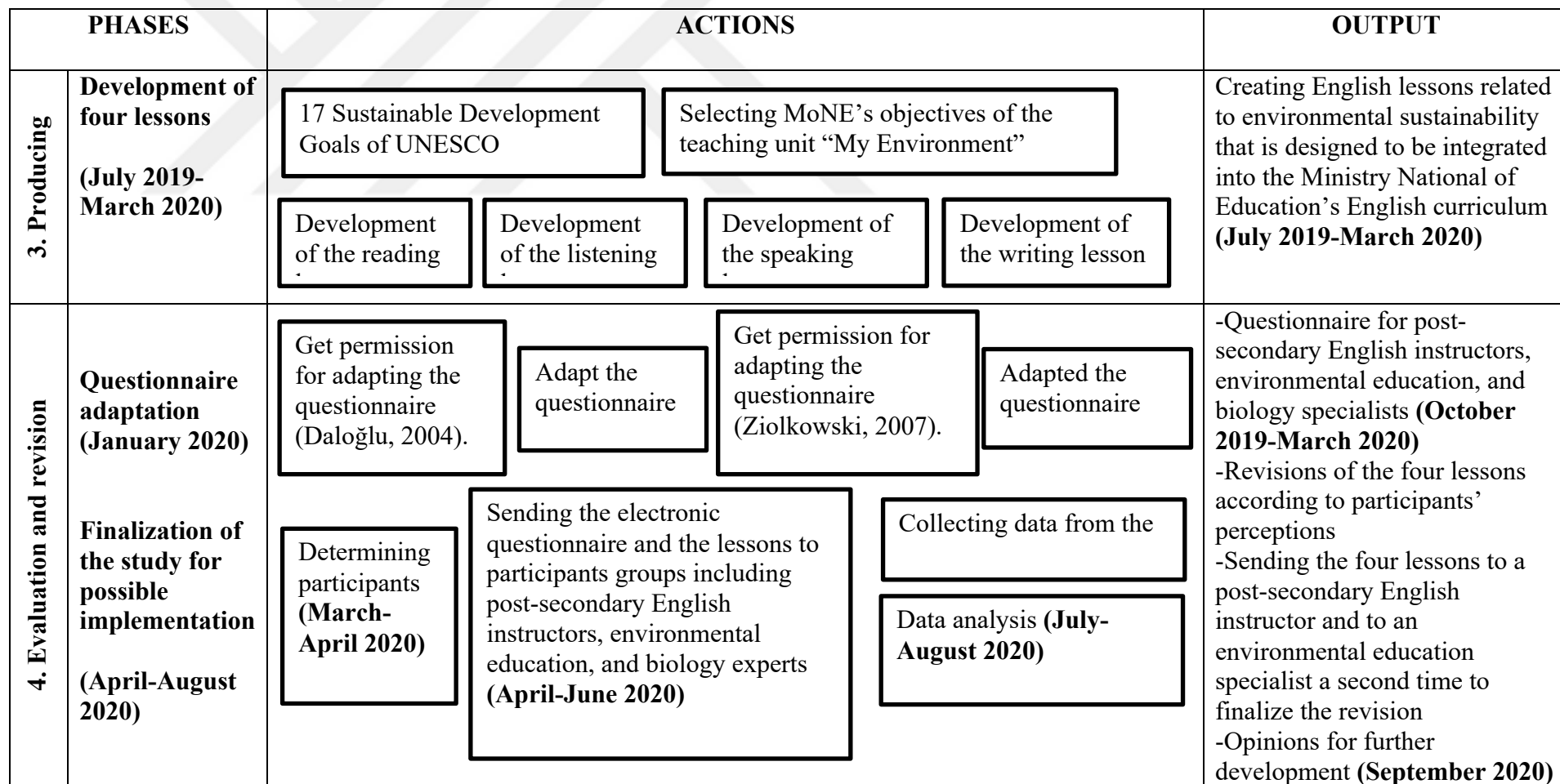


Figure 3. Detailed procedure of the instructional design method of this study (cont'd)

Figuring out the problem

The context for this study is the Ministry of National Education's English curriculum unit "My Environment." In a broader sense, the context for this study is also Turkey's natural environment. Specifically, the environment that is found in settings. The World Wildlife Fund for Nature (WWF, 2020) reported that 95% of litter in the Mediterranean Sea comes from Turkey. According to the report, the litter contains plastic bags, cigarette butts, balloons, bottles, bottle caps and straws. In addition to polluting the sea, this kills the sea turtles, sea dogs and other big fishes. These animals either get hurt or strangled by these plastic wastes. In an even broader sense, the context includes the global environment. As outlined in UNESCO's goals for sustainable development, actions taken at a local level can contribute positively to worldwide sustainable development (UNESCO, 2017).

Planning development

The theoretical framework helped identify what integration means. The fundamental goal of this unit was to develop students' English language skills. However, the ultimate goal was to contribute to the development of students' environmental literacy. To direct the aim of this goal, the researcher identified the United Nations goals for sustainable development. These UN goals are described previously in Chapter 1. Upon review of the MoNE curriculum, it was decided to feature the English language skills of reading, listening, writing, and speaking. These skills were kept in mind during a deeper review of the UN sustainable development goals. The outcome resulted in six goals being featured in the speaking lesson, with the remaining three activities focusing on one goal each. Further information about these goals is discussed below.

Producing

This section of the study demonstrated the general process of creating lessons. Since the steps of instructional design were figuring out the problem; planning for development; producing; evaluation and revision (Kalman et al., 2013), the steps of producing were followed by a design process (Arias et al., 2014). As mentioned in Chapter 2, the steps of the design process consisted of analysis of unit, characterization of opportunities to learn, characterization of student outcomes and design educational features.

Specific outcomes of the producing process are described in Chapter 4. In general, this involved a process similar to lesson planning; drafting the activities involved identifying objectives and developing student learning experiences to address these objectives. For these experiences, step-by-step procedures along with ideas for warm up and closure were provided. In addition, activities listed relevant vocabulary, teaching materials, and other integration strategies. The objectives for the activities were based on the MoNE language skills and the UN Sustainable development goals. The goals were selected based on the discussions with environmental education specialists and compared to the topics that the researcher selected. The primary environmental concern of the researcher is climate change and solid waste pollution; therefore, these goals were featured in her unit. Further information about each lesson is provided below.

Reading lesson: The Greenhouse Effect

As climate change is an overarching environmental issue, the UN sustainable goal related to climate action was chosen for an objective. These actions include using

less hot water, recycling, planting trees, and sharing news stories with friends and family. Thus, the researcher adapted text from *Little Red Riding Hood* to include information about the greenhouse. The researcher selected this famous short story, because it is well known by Turkish students. Since the plot is familiar to students, the teachers could set the context, get students' attention, and could focus on the science of the greenhouse effect.

Listening lesson: Friendly Sharing Half Poem – Dictation

To understand which actions to take, people need to become aware of effects of the outcomes of their resource consumption. Therefore, for the listening listen, the researcher chose the UN sustainable goal related to responsible consumption and production. This activity involves students in analyzing a poem about how the parts of a system are connected.

Writing lesson: Follow the Green Brick Road to Reach the Wizard of Oz

The UN sustainable development goal related to responsible action was further explored in the writing lesson. In particular, this activity focused on waste management. One reason for selecting waste management as a topic is seeing people throwing around trash, chewing gum, plastic bottles, wearing masks and gloves. This activity takes another popular story about Dorothy and the Wizard of Oz to involve students in identifying ways they can reduce littering in their communities.

Speaking lesson: 17 Goals of UNESCO To Transform Our World

Rather than focus on a specific topic for the speaking activity, the researcher thought it best to allow students to learn about and present about any of the sustainable

development goals. Through a broad understanding of the goals, students could brainstorm how the topic relates to their neighborhood. However, after the review of the activity (as will be discussed in the next chapter), the researcher decided to feature six goals based on recommendations from experienced environmental educators.

Evaluation and revision of the four lessons

Following the outline of instructional design, after the activities were drafted, they needed to be evaluated. Farsani and Nikoopour (2011) agree that English teachers who develop materials should evaluate the materials externally and internally to ensure validity. In the current study, collaboration of post-secondary English instructors, environmental education and biology specialists were asked to ensure the validity of the four lessons. The term validity is often applied to instrument development, to ensure the tool measures what is intended conceptually and meaningfully, among other things. For the current study, the term validity is adapted to indicate that the product – the unit – achieves what is intended. These intentions include the accurate and efficient integration of English language skills and selected goals for sustainable development. Furthermore, there is the importance of the student learning experiences to help them address the objectives of the activity. Therefore, for this study, the concept of content validity is used to assess whether the drafted materials achieve their intended design (Best & Kahn, 2005; Brysiewicz & Erlingsson, 2017).

To investigate content validity, the four activities of the unit were evaluated externally and internally by the participants. An electronic questionnaire was given

to the participants to help them review the lessons. Two different instruments were developed for three different participant groups: one for post-secondary English instructors; and one for the environmental education and biology specialists. Both instruments came from existing validated studies and were adapted into online format using Google Forms. The participants evaluated the materials according to MoNE's existing learner characteristics, physical environments, resources, and class sizes. In addition to external evaluation, the participants evaluated the choice of topics, skills covered, proficiency level and grading of exercises.

According to the perceptions of the participants, the four lessons were revised by the researcher. A post-secondary English instructor and an environmental education specialist did a confirmatory review and followed up the revised lessons a second time to validate the study more broadly. As mentioned in Chapter 2, a theoretical framework developed by Dyjur et al. (2018) helped for an effective curriculum review process. The steps starting curriculum review, guiding questions, visioning, and articulating learning outcomes, collect data, analyze, discuss and write the final report were used to ensure the curriculum review process. The results of the review are provided in the next chapter, and discussion of the process is provided in the final chapter. The following sections provide information about instruments that were developed to review and validate the lessons.

All stages of this study were conducted in accordance with Ethical Guidelines of Bilkent University. Moreover, a consent form was created based on Bilkent University's template. It is designed to invite the participants to the research and to

share valuable insights. Confidentiality of participants is guaranteed by the informed consent form (See Appendix B).

Questionnaire for English instructors

The 17-item questionnaire was adapted with permission to conduct this study. The items for data collection were developed by Daloğlu (2004) in Turkey. To ensure validity of the questionnaire items, the draft of the items was checked by other experts. For further validation of the questionnaire, other colleagues of the researcher set quality standards (Daloğlu, 2004). More broadly, for this current study the items were reviewed by the researcher and discussed with other researchers. Also, this questionnaire was published in an education journal called International Journal of Educational Development (Daloğlu, 2004). The questionnaire was repeated, and the results indicated reliability.

The items were adapted to gain insights into English instructors' perceptions of the pedagogy of the lesson plans integrated into the Ministry of National Education's English curriculum. English instructors were asked whether the lesson plans were learner centered. Furthermore, there were items about objectives, instructions, and assessment. Other items asked about interactive learning and mixed ability groups. The respondents commented on any of their responses to the previous items to make suggestions. This contributes to the validity of the study.

This questionnaire is divided into five sections. In the first section, the participants were asked to review the whole unit. In the other remaining sections, the respondents were asked to review the lesson plans separately. The items of the first section were

selected to help English instructors to review the four lesson plans as a unit and to help them to make decisions about revising the unit. This questionnaire consisted of items with a five-point Likert format and some open-ended questions. The English instructors were asked to indicate the extent to which they agree with each item (5= strongly agree; 4= agree; 3= undecided; 2=disagree; 1=strongly disagree). Furthermore, the English instructors were asked for suggestions.

The questionnaire in English is included in Appendix C. The sub-questions that support exploration and items of the questionnaire that address the sub-questions are identified below.

- What are the perceptions of post-secondary English language instructors regarding the potential of integrating the environmental sustainability into Turkey's ninth grade English language curriculum?
 - This sub-question is addressed by the same items in the first section of the questionnaire and addresses the items below 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.
- What are the perceptions of English language instructors regarding the potential of the environmental sustainability unit to help develop reading, writing, speaking, and listening skills in English?
 - This sub-question is addressed by items in the second, third, fourth and fifth section and addresses the items below 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.

Moreover, as mentioned in the previous section a confirmatory review was made by the researcher. An instrument was developed for a post-secondary English instructor. This instrument consisted of the results of the summary of responses and comments

of the preliminary research of 12 post-secondary English instructors. As noted above, the instrument was discussed with other researchers for validation. The instrument for the confirmatory review is identified below.

- To what extent do you agree that this unit has been improved in response to the expert review comments?

Strongly agree Agree Neutral Disagree Strongly disagree

Questionnaire for environmental education specialists

In addition, another 10-item questionnaire was adapted for the study. The original survey for data collection was developed by Ziolkowski (2007) in Wisconsin, and items were adapted with permission to gain insights into environmental education and biology specialists of the accuracy of the content of the lesson plans. Experts were asked if concepts and content of the lesson plans were represented consistently throughout the lesson. There was also a question about objectives. Furthermore, participants were asked to suggest resources that could be used by instructors to support their understanding of concepts in the lessons. To ensure validity of the questionnaire items, a review of others was made (Ziolkowski, 2007). For further validation, the items were shared with a review panel including three energy and education professionals for a revision. Afterwards, the review of the questionnaire was finalized. The questionnaire in English is included in Appendix D. Each lesson was reviewed separately by using the same questionnaire that consisted of both closed-ended and open-ended questions. In addition to the research questions and sub-question, items of the questionnaire addressed the questionnaire itself.

Furthermore, as reported in the previous section, a confirmatory review was made by the researcher. An instrument was developed for an environmental education expert. This instrument consisted of the results of the summary of responses and comments of the preliminary research of eight environmental education and two biology specialists. As mentioned above, the instrument was discussed with other researchers for validation. The instrument for the confirmatory review is identified below as the instrument for the post-secondary English instructor.

- To what extent do you agree that this unit has been improved in response to the expert review comments?

Strongly agree Agree Neutral Disagree Strongly disagree

In addition to these two instruments, a confirmatory review form was developed by the researcher to involve selected experts in a follow-up review. For the confirmatory review, one instrument with different supplementary materials was developed for two different participant groups. This instrument was given to selected environmental education and biology experts to ensure conceptual accuracy and to ascertain if the unit addressed international goals for sustainable development. It consisted of the summary of responses and comments of the preliminary research of participant groups and was discussed with other researchers to ensure validation. The following two sections provide more information about the instrument.

Participants

According to Azeem, Dogar, Hussain and Shakoor (2011), instructional design development stakeholders are not constituted from different subject areas. Therefore, for this study, 12 post-secondary English instructors were asked to review the

pedagogy including how the knowledge and the skills are integrated into the lessons. In addition, eight environmental education and two biology specialists were asked to review the validity of the content of the lessons.

Participants were purposefully selected for questionnaires to gain insights into English instructors' perceptions of the pedagogy of the lesson plans integrated into the English curriculum, and to gain insights into environmental education and biology specialists of the accuracy of the content of the lesson plans. Table 2 shows the information about the participants.

Table 2
Participants' demographic data

Professions	n
Post-secondary English Instructors	12
Environmental education specialist	8
Biology education	2

For the confirmatory review, a post-secondary English instructor was selected from the 12 participants and an environmental education specialist was chosen from the eight participants and asked to review the summary of the results and comments of the preliminary research.

Method of data collection

All participants were informed that the information that were collected from this research project will be kept confidential and that numbers were assigned to them if any reference will be made. Moreover, in the emails, the participants were informed that their participation was voluntary. The first items of the two research instruments included information about the purpose of this research and consent to participate in this questionnaire.

Post-secondary English instructors

The researcher contacted 12 post-secondary English instructors by email and gave them information about the lesson plans. As mentioned above, the email requested that the participants complete their review in three weeks. At the end of the second week, 40% of the participants completed their reviews. A reminder-email was sent to the participants at the end of the second week. After the reminder e-mail, the remaining participants completed their reviews.

In addition, for the confirmatory review, the researcher contacted one post-secondary English instructor by e-mail and informed the participant about the follow-up review. The e-mail requested that the participant complete the confirmatory review in two weeks. At the end of the first week, the participant completed the review.

Environmental education and biology specialists

The researcher contacted seven environmental education specialist and two biology specialists by email and gave information about the electronic questionnaire and four lessons. The e-mail requested that the participants complete their review within three weeks with a reminder e-mail. At the end of the second week, 50% of the environmental education and biology specialist completed their reviews. A reminder-email was sent to the participants. All of the participants completed their reviews within three weeks.

Likewise, for the confirmatory review, the researcher contacted an environmental education specialist by e-mail and informed the participant about the process. The e-

mail requested that the participant complete the confirmatory review in two weeks. At the beginning of the second week, the participant completed the review.

Method of data collection

This study was predominantly qualitative analysis, supported by descriptive quantitative data from a questionnaire. After the data were collected, the responses were reviewed several times. Answers to the items were analyzed through simple descriptive data. The qualitative data was analyzed using content analysis to identify codes and major themes. Recommendations were organized under these identified codes and major themes. To determine which recommendations to follow, a decision framework developed by Ziolkowski (2007) was used. Conceptual framework for content analysis will be discussed below.

Conceptual framework for content analysis

To analyze the findings in detail, the researcher used a qualitative content analysis framework described by Brysiewicz and Erlingsson (2017). The responses of the collected data were reviewed several times. According to the reviews, a variety of codes including words, phrases, sentences, and themes were found of the typed notes from the questionnaire. These codes were highlighted and put into major themes. The codes and themes were reviewed and discussed by other researchers to ensure validity. Concurrently, the reviewed themes were compared to researcher's codes and themes. Finally, the common themes were compared to the themes designated by Erarslan (2018).

After the themes and messages of the reviewers were categorized, the next step was to decide which recommendations to follow and how. The decision framework developed by Ziolkowski (2007) included a list of criteria for organizing and accepting recommendations. Following are some of the key decision-making criteria used in the current study:

1. Change will be accepted, if more than two similar suggestions are made by the participants.
2. Change will be accepted if a participant corrects factual content.
3. Change will be accepted if a participant suggests resources including books or online sources.
4. Recommendation will be rejected if a suggested online resource requires signing in.
5. Change will be accepted if any spelling/or and grammar error occurs.
6. Recommendation will be accepted, if a participant recommends a change or suggests an adaptation to develop the content.
7. Recommendation will be accepted or rejected if a participant comments on the item without giving information.

CHAPTER 4: RESULTS

Introduction

This chapter will present the results under the following research question:

- How can the instructional design method be adapted to develop an environmental sustainability unit that simultaneously
 - addresses selected international goals for sustainable development, and
 - helps develop reading, writing, speaking and listening skills in English?

As discussed in the methods chapter, to help examine this question three sub questions are created.

- What are the perceptions of post-secondary English language instructors regarding the potential of integrating the environmental sustainability into Turkey's ninth grade English language curriculum?
- What are the perceptions of English language instructors regarding the potential of the environmental sustainability unit to help develop reading, writing, speaking and listening skills in English?
- What are the perceptions of environmental education and biology specialists regarding how the environmental sustainability unit addresses selected international goals for sustainable development?

How can the instructional design method be adapted to develop an environmental sustainability reading, writing, speaking and listening skills in English?

As mentioned in Chapter 3, to develop environmental sustainability reading, listening, speaking and writing skills in English, the researcher used the process of ID consisting of four phases as aspects of the process of instructional design. These four phases contained *figuring out the problem, planning for development, producing, evaluation and revision* and were identified as preliminary steps that could be used to prepare the unit for pilot testing. Table 3 illustrates the timeline of the development process as below.

Table 3
Timeline of the development process of the integrated English lessons

Phases	Actions	Date
Figuring out the problem	Elaboration on MoNE high school English curriculum	May 2019
	MoNE's English curriculum "My Environment"	June 2019
	Preliminary interview with high school post-secondary instructors	July 2020
	Preliminary interview with environmental education and biology specialists	August 2019
	Literature review related to integration enhanced environmental sustainability teaching	January-May 2020
Planning development	Theoretical foundation of the teaching unit	April- May 2019
	Determining English lessons related to environmental sustainability that is designed to be integrated into the Ministry of National Education's English curriculum	August 2019- March, 2020
Producing	Selecting MoNE's objectives of the teaching unit "My Environment"	July 2019
	Selecting goals of 17 sustainable development goals of UNESCO	July 2019
	Development of the reading, listening, speaking, writing lesson	July 2019, March 2020

Table 3 (cont'd)

Timeline of the development process of the integrated English lessons

Evaluation and revision	Questionnaire adaptation	January, 2020
	Adaptation of the questionnaire for post-secondary English instructors	February-April, 2020
	Adaptation of the questionnaire for environmental education specialists	February-June, 2020
	Distinguish the post-secondary English instructors	April, 2020
	Distinguish the environmental education specialist	April, 2020
	Sending the electronic questionnaire and the finalized form of the lessons to the participants	April-June, 2020
	Collecting data from both participant groups	June, 2020
	Data analyses	June-July, 2020
	Corrections on the lessons according to decision-making criteria	July-August, 2020
	Distinguish the post-secondary English instructor and the environmental education specialists for confirmatory review	September, 2020
	Development of an instrument with different supplementary materials for confirmatory review	September, 2020
	Sending the electronic questionnaire and the finalized form of the lessons to the participants for confirmatory review	September, 2020
	Final corrections on the lessons according to the participants' perceptions	September, 2020

In addition to using aspects of instructional design to develop a unit, this unit also needed to integrate English language concepts with goals for sustainable development. As stated previously, Lane (2006) defines integration as “to intentionally design lessons to include concepts from a number of disciplines, including environmental education” (p. 187).

Therefore, an outcome of this study resulted in the integration of selected environmental concepts into MoNE’s unit “My Environment.” The researcher used sustainable development as theme for the unit. To support the existing curriculum objectives, the researcher decided to develop four lessons based on the following

language skills: reading, listening, speaking and writing. As discussed in the previous chapter, the researcher linked these skills to selected sustainable development goals with the help of environmental educator specialists. Below is a graphic that identifies the language skills and the integration strategies used to relate the skills to selected sustainable development goals (see Figure 4). Following this graphic is information about each of the four activities in the unit.

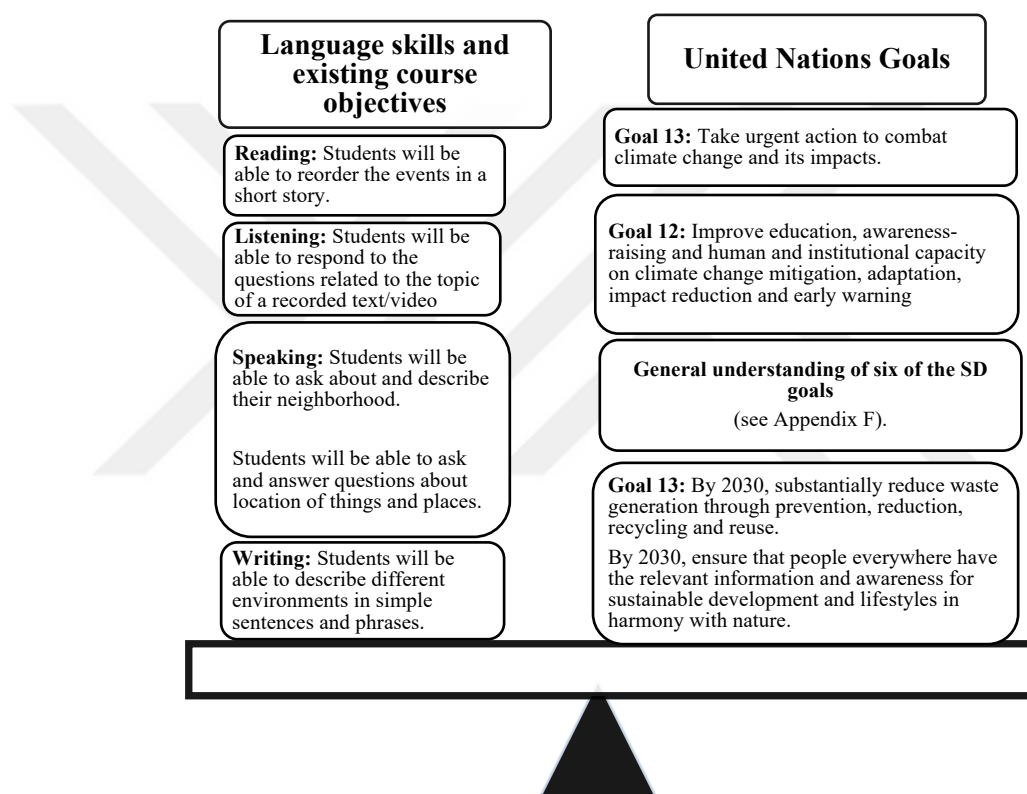


Figure 4. The language skills and the integration strategies used to relate the skills to selected sustainable development goals

Reading lesson

Since the researcher thought that students should take urgent action to combat climate change and its impacts, the researcher believed that selecting the greenhouse effect as a topic would be helpful. Therefore, the researcher adapted an informative text about the greenhouse effect into the short story *The Little Red Riding Hood*.

Since the short story *The Little Red Riding Hood* was known by the students, the

short story was chosen to take students' attention and to set the context of the lesson. In the adapted short story, the grandmother of the little Red Riding Hood explains what the greenhouse effect is. Since she explains every step, in detail, it is not aimed to make students learn the steps of the greenhouse effect in detail. It is aimed so that students reorder the events in a short story and also match the pictures with the paragraphs to meet the objectives. Moreover, it was aimed to make students be aware that it is impossible for people to stay away from the effects of the greenhouse that they have been exposed to whenever they go. Therefore, students should become much more mindful about the greenhouse effect.

Following the reading lesson, the listening lesson of the unit was also developed by the researcher to raise awareness on climate change, impact reduction and early warning. The steps of the development will be explained below.

Listening lesson

The researcher decided to use the reading of a poem to have students respond to questions related to climate change. To take students' attention, the researcher decided to turn this into an outdoor lesson where students get into pairs, sit back-to-back, and get a half of a poem about climate change. The assignment is to listen to each other. First, one student reads the first line of the half poem. The other student listens to a record of what is said to complete the first line of the poem. Since listening is difficult, students will enjoy and wonder what the poem is about. The next procedure is to respond to the questions related to climate change in a recorded poem. Related to this, the researcher identified the specific MoNE objective for the reading lesson.

Speaking lesson

The researcher developed a speaking lesson to be aware of environmental sustainability. Since the researcher believed that the 17 sustainable development goals are essential, six of the goals were adapted into the speaking lesson. Even though the students do not have an idea about each goal, students will learn about the goals and will be aware of them. Therefore, one reason is to make students discuss randomly some of the sustainable development goals and to brainstorm about the goals and describe their neighborhood based on the goals.

Writing lesson

For the writing lesson, it was decided to select waste management as a topic. The researcher believed that the story of the *Wizard of Oz* written by L. Frank Baum could be used as a story to make students be aware of waste management. Since the students like bodily kinesthetic intelligence like role play, hands-on activities, and creative moving, the researcher thought that the students would be interested in writing dialogues by using drama. Since the famous story the *Wizard of Oz* takes place in the forest, the researcher thought that the writing lesson could be used as an outdoor learning lesson which students enjoy. They could feel the weather, touch the grass, move and be far away from the traditional teaching model. Another reason for selecting the *Wizard of Oz* was that the yellow brick road could be taken as a symbol to achieve something. Related to this, the researcher decided to use the protagonist Dorothy in the *Wizard of Oz* to address writing skills and waste management to set a context for the writing lesson. Related to this, the researcher designed an alternative scenario for the *Wizard of Oz* and to teach the protagonist Dorothy about responsible waste management. Afterwards, the next procedure was to tell students that their

assignment is to write a short script that involves at least three of the *Wizard of Oz* characters. In the script, students should describe the surroundings of Oz in simple sentences and phrases to meet the objectives. In this way, the researcher identified the specific MoNE objective.

Ensuring the content validity of the unit

Ensuring the validity of the four lessons involved the collaboration of post-secondary English instructors along with environmental education and biology specialists. After collecting the perceptions of the experts, revisions were made based on their comments. Moreover, the four lessons were reviewed again to further support the validity. Both groups including post-secondary English instructors and environmental education specialists strongly agreed that the developed unit has been improved in response to the previous expert review comments. The next sections provide further details about this review and the results.

The perceptions of English language instructors

This section includes simple descriptive data about the perceptions of post-secondary teachers for each of the four lessons separately. Mean scores were calculated for each item and participation levels designated by Erarslan (2018) were used to qualitatively interpret the results of the items (see Table 4).

Table 4

Participation levels

Level (mean value)	Level of agreement
1.00-1.79	Very low
1.80-2.59	Low
2.60-3.39	Moderate
3.40-4.19	High
4.20-5.00	Very High

Part one: Descriptive statistics about each lesson

As highlighted in Table 5, the mean value of post-secondary English instructors' responses for the reading lesson is at least 3.41, which could be seen as a high score according to the participation levels which are designated by Erarslan (2018) to interpret the results. This means that post-secondary English instructors indicated positive views for almost all the statements given. While the minimum score given by the respondents for the environmental sustainability integrated reading lesson was 3.41, the maximum scores for the items were 4.50 which could be regarded as high or very high mean values.

Table 5
Descriptive statistics for review of the reading lesson

Item	SA	A	U	D	SD
1. The lesson is learner centered. N= 12; M= 4.33; SD= 0.47	4 33.3	8 66.7	0 0	0 0	0 0
2. The activity addresses the objective(s) of the lesson very well. N= 12; M= 4.00; SD= 0.91	4 33.3	5 41.7	2 16.7	1 8.3	0 0
3. The instructions for the lesson are clear. N= 12; M= 4.25; SD= 0.72	5 41.7	5 41.7	2 16.7	0 0	0 0
4. The instructions are satisfactory (easy to follow). N= 12; M= 4.16; SD= 0.68	4 33.3	6 50	2 16.7	0 0	0 0
5. Completing the activity will accomplish the objectives of the lesson. N= 12; M= 3.41; SD= 1.25	3 25	3 25	3 25	2 16.7	1 8.3
6. The length of the lesson is appropriate for ninth grade learners of English. N= 12; M= 3.41; SD= 0.86	1 8.3	5 41.7	4 33.3	2 16.7	0 0
7. The lesson facilitates interactive learning (pair work, group work, etc.). N= 12; M= 4.41; SD= 0.49	5 41.7	7 58.3	0 0	0 0	0 0
8. The concepts are represented consistently throughout the lesson. N= 12; M= 4.50; SD= 0.50	6 50	6 50	0 0	0 0	0 0
I9- The lesson includes a strategy that assesses learners' achievement of the objectives. N= 12; M= 3.91; SD= 0.64	2 16.7	7 58.3	3 25	0 0	0 0

Table 5 (cont'd)

Descriptive statistics for review of the reading lesson

I10- The lesson can effectively be used with mixed ability groups.	3	3	5	1	0
	25	25	41.7	8.3	0
N= 12; M= 3.66; SD= 0.94					

Note. SA: Strongly Agree, A: Agree, U: Undecided, D: Disagree, SD: Strongly Disagree

Following the analysis of overall scores of the post-secondary English teachers for the reading lesson, their responses to the listening lesson of the questionnaire were also analyzed through descriptive statistics. The results of the analysis of the questionnaire for the listening lesson are shown in Table 6.

Table 6

Descriptive statistics for review of the listening lesson

Item	SA	A	U	D	SD
1. The lesson is learner centered. N= 12; M= 4.42; SD= 0.92	6	4	1	1	0
	50	33.3	8.3	8.3	0
2. The activity addresses the objective(s) of the lesson very well. N= 12; M= 3.75; SD= 1.09	2	8	0	1	1
	16.7	66.7	0	8.3	8.3
3. The instructions for the lesson are clear. N= 12; M= 4.41; SD= 0.75	7	3	2	0	0
	58.3	25	16.7	0	0
4. The instructions are satisfactory (easy to follow). N= 12; M= 4.25; SD= 0.72	5	5	2	0	0
	41.7	41.7	16.7	0	0
5. Completing the activity will accomplish the objectives of the lesson. N= 12; M= 3.50; SD= 1.25	3	4	2	2	1
	25	33.3	16.7	16.7	8.3
6. The length of the lesson is appropriate for ninth grade learners of English. N= 12; M= 3.66; SD= 0.85	2	5	4	1	0
	16.7	41.7	33.3	8.3	0
7. The lesson facilitates interactive learning (pair work, group work, etc.). N= 12; M= 4.41; SD= 0.64	6	5	1	0	0
	50	41.7	8.3	0	0
8. The concepts are represented consistently throughout the lesson. N= 12; M= 4.33; SD= 0.47	4	8	0	0	0
	33.3	66.7	0	0	0
9. The lesson includes a strategy that assesses learners' achievement of the objectives.	0	8	4	0	0
	0	66.7	33.3	0	0

Table 6 (cont'd)

Descriptive statistics for review of the listening lesson

N= 12; M= 3.66; SD= 0.47					
10. The lesson can effectively be used with mixed ability groups.	1	6	4	0	1
	8.3	50	33.3	0	8.3
N= 12; M= 3.50; SD= 0.95					

Note. SA: Strongly Agree, A: Agree, U: Undecided, D: Disagree, SD: Strongly Disagree

Overall responses about the listening lesson were positive. For example, the statement *the concepts are represented consistently throughout the lesson* received the highest mean values of 4.33 out of 5.00. Therefore, it can be concluded that the post-secondary English instructors found the concepts of the developed environmental sustainability integrated listening lesson of the unit effective. As a result, it was found that that post-secondary English instructors who took part in the questionnaire perceived the developed environmental sustainability integrated listening lesson effective, overall.

Similar to the other lessons, participants provided feedback about the speaking lesson. Results of the descriptive statistics are shown in Table 7.

Table 7

Descriptive statistics for review of the speaking lesson

Item	SA	A	U	D	SD
1. The lesson is learner centered.	9	2	1	0	0
N= 12; M= 4.66; SD= 0.62	75	16.7	8.3	0	0
2. The activity addresses the objective(s) of the lesson very well.	5	5	1	1	0
N= 12; M= 4.16; SD= 0.89	41.7	41.7	8.3	8.3	0
3. The instructions for the lesson are clear.	7	3	2	0	0
N= 12; M= 4.41; SD= 0.75	58.3	25	16.7	0	0
4. The instructions are satisfactory (easy to follow).	7	3	2	0	0
N= 12; M= 4.41; SD= 0.75	58.3	25	16.7	0	0
5. Completing the activity will accomplish the objectives of the lesson.	6	1	2	2	1
N= 12; M= 3.75; SD= 1.42	50	8.3	16.7	16.7	8.3

Table 7 (cont'd)

Descriptive statistics for review of the speaking lesson

Item	SA	A	U	D	SD
6. The length of the lesson is appropriate for ninth grade learners of English. N= 12; M= 4.00; SD= 0.70	3 25	6 50	3 25	0 0	0 0
7. The lesson facilitates interactive learning (pair work, group work, etc.). N= 12; M= 4.50; SD= 0.76	8 66.7	2 16.7	2 16.7	0 0	0 0
8. The concepts are represented consistently throughout the lesson. N= 12; M= 4.25; SD= 0.92	6 50	4 33.3	1 8.3	1 8.3	0 0
9. The lesson includes a strategy that assesses learners' achievement of the objectives. N= 12; M= 4.08; SD= 0.75	4 33.3	5 41.7	3 25	0 0	0 0
10. The lesson can effectively be used with mixed ability groups. N= 12; M= 3.66; SD= 1.10	3 25	4 33.3	4 33.3	0 0	1 8.3

Note. SA: Strongly Agree, A: Agree, U: Undecided, D: Disagree, SD: Strongly Disagree

As presented in Table 7, the mean value of the post-secondary English instructors' responses for all items were at least 3.41, which could be seen as a high score.

Consequently, it can be concluded that post-secondary English instructors' perception on the developed environmental sustainability integrated speaking lesson was functional. Of particular note, was the concepts are consistent throughout the lesson (M= 4.25). While still strong, their responses indicated that revisions of the lesson might include making it shorter and to make sure the objectives are addressed.

Finally, the participants used the items in the questionnaire to review the writing lesson. Mean values for their responses are provided in Table 8 below.

Table 8
Descriptive statistics for review of the writing lesson

Item	SA	A	U	D	SD
1. The lesson is learner centered. N= 12; M= 4.50; SD= 0.64	7 58.3	4 33.3	1 8.3	0 0	0 0
2. The activity addresses the objective(s) of the lesson very well. N= 12; M= 4.00; SD= 1.00	4 33.3	6 50	0 0	2 16.7	0 0
3. The instructions for the lesson are clear. N= 12; M= 4.25; SD= 0.72	5 41.7	5 41.7	2 16.7	0 0	0 0
4. The instructions are satisfactory (easy to follow). N= 12; M= 4.08; SD= 0.75	4 33.3	5 41.7	3 25	0 0	0 0
5. Completing the activity will accomplish the objectives of the lesson. N= 12; M= 3.66; SD= 1.37	5 41.7	2 16.7	2 16.7	2 16.7	1 8.3
6. The length of the lesson is appropriate for ninth grade learners of English. N= 12; M= 3.66; SD= 0.74	2 16.7	4 33.3	6 50	0 0	0 0
7. The lesson facilitates interactive learning (pair work, group work, etc.). N= 12; M= 4.33; SD= 0.62	5 41.7	6 50	1 8.3	0 0	0 0
8. The concepts are represented consistently throughout the lesson. N= 12; M= 4.58; SD= 0.64	8 66.7	3 25	1 8.3	0 0	0 0
9. The lesson includes a strategy that assesses learners' achievement of the objectives. N= 12; M= 3.83; SD= 0.55	1 8.3	8 66.7	3 25	0 0	0 0
10. The lesson can effectively be used with mixed ability groups. N= 12; M= 3.83; SD= 1.14	4 33.3	4 33.3	3 25	0 0	1 8.3

Note. SA: Strongly Agree, A: Agree, U: Undecided, D: Disagree, SD: Strongly Disagree

As reported in Table 8, the mean value of the post-secondary English instructors' responses for the writing lesson ranged from 3.66 to 4.58. As a result, it can be regarded as the post-secondary English instructors indicated positive views for almost all the items. Therefore, the developed environmental sustainability integrated writing lesson was perceived as effective, in general.

Following the analysis of the reading, listening, speaking, and writing lessons, the results of the entire unit will also be analyzed through descriptive statistics. The results of the descriptive analysis of the whole unit were analyzed in Part 2, Table 9 below.

Part two: Descriptive statistics about each lesson

As illustrated in Table 9, the mean value of the post-secondary English instructors' responses for comprehensive unit review is 3.41. The scores ranged from 3.41 to 4.66. This can be regarded as post-secondary English instructors on developed environmental sustainability integrated unit was effective, in general. This can be interpreted as the experts had positive perceptions about the Grade 9 unit.

Table 9
Descriptive statistics for review of the whole unit

Item	SA	A	U	D	SD
1. All four English language skills (reading, writing, speaking, and listening) are addressed well in the unit. N= 12; M= 4.00; SD= 1.08	5 41.7	4 33.3	1 8.3	2 16.7	0 0
2. The four lessons strongly relate to the objectives of the ninth grade MEB unit "My Environment." N= 12; M= 4.00; SD= 0.81	3 25	7 58.3	1 8.3	1 8.3	0 0
3. The unit is up to date. N= 12; M= 4.58; SD= 0.64	8 66.7	3 25	1 8.3	0 0	0 0
4. The unit is visually attractive. N= 12; M= 4.41; SD= 0.75	7 58.3	3 25	2 16.7	0 0	0 0
5. The unit is feasible (practical) to use. N= 12; M= 4.08; SD= 0.95	5 41.7	4 33.3	2 16.7	1 8.3	0 0
6. The language demanded by unit is appropriate for ninth grade learners of English. N= 12; M= 3.41; SD= 0.75	1 8.3	4 33.3	6 50	1 8.3	0 0
7. Implementing this unit will address the objectives of the ninth grade MEB unit "My Environment." N= 12; M= 3.75; SD= 0.92	2 16.7	7 58.	1 8.3	2 16.7	0 0
8. The four lessons in the unit support each other.	3 25	9 75	0 0	0 0	0 0

Table 9 (cont'd)

Descriptive statistics for review of the whole unit

Item	SA	A	U	D	SD
N= 12; M= 4.25; SD= 0.43					
9. The four lessons in the unit relate to each other.	8 66.7	4 33.3	0 0	0 0	0 0
N= 12; M= 4.66; SD= 0.47					
10. The unit helps students to be more engaged in all four English language skills.	3 25	7 58.3	1 8.3	1 8.3	0 0
N= 12; M= 4.00; SD= 0.81					
11. The unit provides a variety of tasks.	6 50	6 50	0 0	0 0	0 0
N= 12; M= 4.50; SD= 0.50					
12. The unit will appeal to a variety of learning styles (visual, auditory, and kinesthetic.)	2 16.7	9 75	1 8.3	0 0	0 0
N= 12; M= 4.08; SD= 0.49					
13. The unit helps students to be more communicative in all four English language skills.	3 25	7 58.3	2 16.7	0 0	0 0
N= 12; M= 4.08; SD= 0.64					

Note. SA: Strongly Agree, A: Agree, U: Undecided, D: Disagree, SD: Strongly Disagree

In addition, some reviewers provided supplemental written comments about each individual lesson and the entire unit. These comments will be discussed in Part 3 below.

Part three: Themes

As reported in Chapter 3, the themes were reviewed several times by researchers, and it was decided to interpret the data throughout founded themes to understand the post-secondary instructors' perceptions on the four lessons and guide the researcher for the revision process. Related to this, revisions are made under each theme. As mentioned in Chapter 3, a decision-making criterion developed by Ziolkowski (2007) was used to accept or reject the changes that the participants provided about the lessons. After the data collection process, the researcher conducted a content analysis of written feedback of each lesson. This conduct analysis was used to identify key

themes regarding needed revisions according to the criterion given. The identified themes are as below:

- Appropriateness of the audio-visual materials
- Vocabulary development
- Activity timing and diversity
- Spelling and Grammar
- Motivational aspects

Theme: Appropriateness of the audio-visual materials. The majority of the participants agreed that the listening lesson is a nicely designed section. However, there were also perceptions such as clear visuals might encourage students more. Participant 1 stated “Please reconsider using the visual on page 11. Using another vivid and clear visual might attract more attention.” Using the decision-making criteria, this recommendation was accepted because it was suggested by several participants.

Likewise, a few reviewers indicated that the visuals selected for the reading lesson might need to be more an “attention grabber.” Since participant 2 suggested an adaptation to develop the content, the recommendation was accepted (see Criteria 6 listed in Chapter 3).

Theme: Vocabulary development. During data analysis, the researcher learned that there are still experienced English instructors that support pre-teaching of vocabulary. Participant 8 says “After pre-teaching of the vocabulary words, it would be better to do this activity first. You could collect the student’s paper after the

listening activity and use them as a formative assessment tool as well.” *The suggestion of the participant was accepted, while the participant recommended a change. In addition, participant 7 wondered about the vocabulary teaching techniques used. She asks “Which vocabulary teaching techniques will be used? How will the students be familiar with the target words? This needs some explanation.” Even though the participant commented on this without giving information, the question was taken into consideration and a change was accepted (see Criteria 7 listed in Chapter 3).*

Theme: Activity timing and diversity. It is seen that most of the participants agree that the duration of the listening lesson is too long. The participants stated that there were too many activities in the lesson. Thus, the majority of the participants recommended either to exclude some parts of the lesson to have sufficient time for repetition or to shorten the time. Participant 8 says:

It is a 40-minute-lesson and you seem to have included far too many activities for this time slot. You need to decrease and dilute your activities in order to have a nice lesson flow and enough time for wrap up. Less is more. It is very useful to write the time allocation for each stage of your lesson in advance on your lesson plan. Skip part 4. This is a creative writing activity. It is better if you exclude this part. Besides, it is time consuming as well. You are planning a 40-minute lesson.

Participant 1 also says “*It seems to me that the activities described below may take longer than 40 minutes.*” Since, more than two similar suggestion were made by the English instructors, some parts of the lessons were deleted, and the listening lesson was planned for 40 minutes.

In addition to the listening lesson, English instructors found the reading text long for 40 minutes. Participant 9 reports “*The reading text seems a little bit long.*” Besides

participant 9, participants 10 and 6 says *“This is a challenging and lengthy task”* and *“It doesn’t seem that this takes 40 minutes.”* While more than two similar suggestion were made by the participants, the text was simplified and shortened.

Theme: Spelling and Grammar. According to the supplemental comments of the post-secondary English instructors, approximately two-thirds of the participants (64%) commented on spelling and grammar. Spelling, grammar errors, punctuation and capital letters were corrected on page 2, 3, 10, 11, 12, 13, 15 and 20 according to the criteria 5 (see Criteria 5 listed in Chapter 3).

Theme: Motivational aspect. According to the results, it is seen that the majority of the participants found all of the four lessons motivational. Participant 11 says *“The lesson plan looks quite fine and appropriate to engage students with the lesson’s topic. It enables students to present their thoughts.”* Furthermore, participant 12 reports as *“a well-developed lesson plan.”* Although the majority of the post-secondary English instructors commented positively on the unit, there were also suggestions to improve the lesson. To illustrate, participant 9 comments as *“9th graders might lose their attention.”* Related to this, students might be demotivated to do the task. Participant 10 says *“The reading task requires detailed understanding of cohesive devices and paragraph structures.”* As a result, the content of the reading task was changed to develop the content (see Criteria 6 listed in Chapter 3).

Ensuring the content validity of the unit

The majority of the post-secondary English instructors agreed that the unit matches the objectives for learning English in the ninth grade. However, there were also

recommendations to improve the development of the unit. Related to this, the minority (25%) of the participants believe that public school facilities, and public-school students' English readiness levels, interest diversity, cultural differences and former experiences should be considered deliberately before designing enrichment lessons for them to have the best fit. The participants believe that in order to have more realistic planning of activities, to have better transitions between the activities and to have timely and effective closures. P8 claims "it would be good to mention the time slot breakdowns of the stages of the lessons on the lesson plans as well." Moreover, the participants recommend to add a section for anticipated problems and possible solutions on the plans to help the teachers during the practice of the lessons.

Perceptions of environmental educators and biology education experts

The environmental education and biology experts who took part in the questionnaire have supportive perceptions on the environmental sustainability unit addressing the selected international goals for sustainable development. To understand the experts' views of the unit, the four lessons were analyzed under the sub-heading perceptions of environmental education and biology experts on the reading, listening, speaking, and writing lessons individually below.

Perceptions of environmental education and biology experts on the reading lesson

To find out the perceptions, environmental education and biology specialists were shown three statements. Participants were asked to rate the three statements through

a Likert-Scale. The table (Table 10) illustrated the given statements and experts' responses for the reading lesson.

Table 10

Perceptions of environmental education and biology experts on the reading lesson

Item	Yes	No	Other
1. Are the concepts and related content represented consistently throughout the lesson as a whole? N=10	8	2	-
2. Does the lesson design accurately and thoroughly support the lesson? N=10	7	-	3
3. Does the procedure accurately and appropriately support the lesson objectives? N=10	7	1	2

As Table 10 showed, of the study population, all ten participants completed and returned the questionnaire. In the first item the environmental education and biology experts were asked if the concepts and content represented the reading lesson. The majority (80%) of the specialists agreed, 20% added supplemental written comments for lesson improvement. For this reason, it can be concluded that the majority of the participants agreed that the concepts and content are represented throughout the reading skills of the English lesson as a foreign language. However, the supplemental written comments were taken into consideration to develop the concepts and content in this lesson. Three examples of these supplemental written comments were listed as below:

- *Too much information for ninth graders. You may need to shorten the text and simplify it.* (Environmental education specialist 5).
- *The text can be complicated for Grade 9 students. There are many unfamiliar terms and they may not put it in the correct order or match the paragraphs with the pictures.* (Biology expert 2).
- *You need to simplify some of your reading materials. Especially when you think about the time limits.* (Environmental education specialist 8).

Related to these perceptions, it could be seen that similar suggestions were made by the participants. Regarding this, it can be concluded that the level of the reading paragraphs was not appropriate for Grade 9 students. Therefore, a change will be accepted to develop the content which was proposed by the specialists will be accepted (see Criteria 6 listed in Chapter 3).

Experts were also questioned if the lesson design supported the lesson accurately and thoroughly. Seven in ten (70%) of the participants agreed that the lesson design supported the lesson accurately and thoroughly. Nevertheless, the minority (30%) of the environmental education and biology experts reported supplemental written comments to help the researcher improve the design of the reading lesson. Examples for those comments were given below.

- *Can you name each Part to provide additional structure? For example, Part 1: Reordering events/information. Part 2: Presentation preparation. Part 3: Research. Part 4: Presentation. This also helps provide direct connection to Objectives.* (Environmental education specialist 6).
- *Why are vocabulary words listed twice?* (Environmental education specialist 7).
- *More instruction is needed to lead up to the groups dividing into smaller groups.* (Environmental education specialist 4).
- *You might consider including a page number or the title of the page.* (Environmental education specialist 2).

Regarding the comments of the experts, it was recognized that different comments were made to develop the lesson design. Environmental education specialist 6 suggested adding specific names to the parts, while environmental education specialist 4 suggested giving clear instructions to help teachers implement the lesson. Recommendation was accepted, since the participants commented on the items (see Criteria 7 listed in Chapter 3).

In addition, in the third item, the participants were asked if the procedure supported the reading lesson objectives accurately and appropriately. As indicated in Table 10, the responses demonstrated that nearly three quarters (70%) of the respondents approved that the procedure supported the lesson objectives. However, less than a third (30%) of the participants neither agree nor disagreed. The supplemental comments of the minority (30%) were taken into consideration. The comments were listed as follows:

- Regarding the warm-up section, *Teachers need to be knowledgeable about the topic.* (Environmental education specialist 5).
- *Will you need to include background about this? Will students be familiar with this?* (Environmental education specialist 7).
- *Will be great to provide a rubric.* (Environmental education specialist 4).
- *How does the presentation help with the learning objective? Is there a way so that it could?* (Environmental education specialist 3).
- *The objectives require reordering events in a short story. However, this is not a short story, but an informative text.* (Environmental education specialist 1).

Since the environmental education specialists believed that the reading lesson needed background information about greenhouse effect, a resource list that could be used by teachers to support their understanding of concepts was added in the lesson.

Similar to the reading lesson, experts provided their perceptions on the listening lesson. The perceptions on the listening lesson are as follows:

Perceptions of environmental education and biology experts on the listening lesson

As indicated in Table 11, the majority of the participants had positive views on the listening lesson. In the first item, it is aimed to understand if the concepts and content

represented the listening lesson. The majority (80%) of the specialists agreed, 20% added supplemental written comments for lesson improvement.

Table 11

Perceptions of environmental education and biology experts on the listening lesson

Item	Yes	No	Other
1. Are the concepts and related content represented consistently throughout the lesson as a whole? N=10	8	-	2
2. Does the lesson design accurately and thoroughly support the lesson? N=10	8	-	2
3. Does the procedure accurately and appropriately support the lesson objectives? N=10	7	-	3

Related to this, it can be summarized that the majority of the participants agreed that the concepts and content are represented throughout the listening skills. The supplemental written views were taken into consideration to improve the concepts and content in this lesson. The comments were listed below.

- *Maybe the poem the students are listening might be a little too fast for them to understand the meaning. They might just focus on the words and not focus on what this means for the environment. (Environmental education specialist 4).*
- *This poem seems to have some complicated statements that will get lost in the objective of helping learners listen. (Environmental education specialist 2).*
- *In general, it supports the lesson. But I suggest a different activity for Part 3. I think the poem is so aggressive and pessimistic. It can be changed with another one which is more encouraging about preventions. (Environmental education specialist 9).*
- *You may skip the Blueprint poem and follow up about the climate change issues stated in the poem. (Environmental education specialist 10).*

Related to these perceptions, it can be regarded as students might be unmotivated to develop their environmental sustainability skills. Therefore, it can be concluded that the level of the audio-visual activity is not appropriate for Grade 9 students. While

the participants made similar suggestions, change was accepted. (see Criteria 1 listed in Chapter 3).

Additionally, I2 aimed to evaluate the perceptions of the environmental education and biology experts about the lesson design supporting the lesson. Findings showed that 80% of the specialists agreed that the lesson design supported the lesson accurately and thoroughly. The minority (20%) of the participants provided supplemental written comments to the item. According to the data, it can be concluded that the environmental education and biology specialists believe that the lesson design supports the listening lesson. However, the additional comments of the experts were taken into consideration as below.

- *Perhaps students should read one line to each other at a time instead of split lines to help the flow of ideas. Another idea would be to have students use vocabulary words to as fill in the blanks in the poem to reiterate them.*
- *What will you do with this handout? Use for discussion? Is so how? You need to explain it.* (Environmental education specialist 9).
- *You stated the vocabulary words previously, is it necessary to have in both places?* (Environmental education specialist 2).

Based on the perceptions of the specialists, it can be seen that different suggestions were made by the participants such as it was for the reading lesson. Since the adaptation would improve the lesson design, the recommendations were accepted.

The third item of the questionnaire intended to help learn from environmental education and biology experts if the procedure supported the lesson. Considering the findings, 70% of the experts agree that the procedure supports the lesson. However, 20% of the specialists provided supplemental comments about the procedure of the lesson. Based on the data, it can be regarded as that nearly three quarters (70%) had

positive perceptions about the procedure supporting the objective of the lesson.

Examples of supplemental comments are as follows:

- *Instructions could be given about the poem students write in order to have them wrestle with the ideas of sustainability and climate change mitigation. They could research and write about how they will help the earth through their behaviors.* (Environmental education specialist 5).
- *At the end of the Closure, you ask how students can manage the impacts of climate change outside of school. Should this be part of the activity? Will they know how?* (Environmental education specialist 1).

As mentioned above, the majority of the experts had positive perceptions on the listening lesson as a whole. Therefore, it can be concluded that research findings indicate that the developed environmental sustainability integrated listening lesson was evidently efficient.

Following the analysis of perceptions of the environmental education and biology experts for the reading lesson, their responses to the listening lesson of the questionnaire were also analyzed. The results of the analysis of the questionnaire for the speaking lesson are shown in Table 12.

Perceptions of environmental education and biology experts on the speaking lesson

To find out the perceptions, environmental education and biology specialists were shown three statements. Therefore, participants were asked to rate the three statements through a Likert-Scale. The given table (Table 12) illustrates the given statements and experts' responses for the speaking lesson.

Table 12

Perceptions of environmental education and biology experts on the speaking lesson

Item	Yes	No	Other
1. Are the concepts and related content represented consistently throughout the lesson as a whole? N=10	5	-	5
2. Does the lesson design accurately and thoroughly support the lesson? N=10	6	-	4
3. Does the procedure accurately and appropriately support the lesson objectives? N=10	4	-	6

The responses demonstrated that 50% of the participants agreed that the concepts and related content represented consistently throughout the speaking lesson. The other half (50%) of specialists neither agreed nor disagreed and had supplemental written comments to improve the lesson. Related to this, the collected data indicated that the concepts and related content needs improvement to represent consistently throughout the lesson. Examples of the supplemental written comments was given below:

- *Part 1 and Part 2 seem disjointed; perhaps add a section where they talk about things they like/dislike about the schoolyard, community, etc. in terms of aesthetics/the environment.* (Environmental education specialist 5).
- *What does Part 1 have to do with sustainability? What does Part 1 have to do with Part 2? Can you explain this connection to the teachers providing this activity?* (Environmental education specialist 6).
- *The UN sustainable goals and the senses activity does not fit. Students should observe and evaluate their environment in terms of sustainable goals.* (Environmental education specialist 8).
- *I did not understand Part 1 in relation to Part 2.* (Environmental education specialist 10).

According to the views of the experts, it is seen that similar recommendations were made by the participants. Related to this, it is understood that Part 1 and Part 2 on page 4-5 needs a smooth transition. Therefore, the change was accepted (see Criteria 1 listed in Chapter 3).

As indicated in Table 12, the responses showed that a significant proportion (60%) of the respondents approved that the lesson design supports the lesson accurately and thoroughly. However, 40% of the participants neither agreed nor disagreed. The data demonstrated that the lesson design supported the lesson through Table 13 and through the supplemental comments given as follows:

- *Provide some background on the UNESCO goals. What are they for and why do they exist?* (Environmental education specialist 6).
- *Partially. Students may need the history of these goals.* (Environmental education specialist 10).
- *Partially. They may not need Part 1. They may need a background information to be able to discuss within a context.* (Environmental education specialist 8).
- *Maybe, some of the unrelated goals (or trees) with environmental issues can be removed.* (Environmental education specialist 2).

Regarding the perceptions of the experts, it can be concluded as background information about the UNESCO sustainable development goals will be needed. While more than 2 experts made similar comments on the background, the recommendation was accepted (see Criteria 1 listed in Chapter 3).

Moreover, the answers indicated that two fifths (40%) of the experts agreed that the procedure accurately and appropriately supported the lesson objectives. Related to this, three fifths (60%) of the participants neither agreed nor disagreed. This data presented that environmental education and biology experts think that the procedure needed development to support the speaking lesson objectives.

- *You may need to specify 17 SDG in your lesson at the first section.* (Environmental education specialist 2).
- *All the trees can be projected on the board; if not possible they can be made durable so that they can be used many times.* (Biology expert 1).
- *UNESCO objectives not listed. UNESCO web pages could be useful to provide students with more background information on their given goal.* (Environmental education specialist 4).

Following the perceptions of the environmental education and biology experts, it was recognized that the objectives of UNESCO goals should be added at the beginning of the lesson. Since similar suggestions were made by the experts, the recommendation was accepted (see Criteria 1 listed in Chapter 3).

Likewise, specialists provided their perceptions on the writing lesson. The perceptions on the writing lesson are as follows:

Perceptions of environmental education and biology experts on the writing lesson

As shown in Table 13, the majority of the participants had positive views on the writing lesson. In the first item, it is aimed to understand if the concepts and content represented the listening lesson.

Table 13

Perceptions of environmental education and biology experts on the writing lesson

Item	Yes	No	Other
1. Are the concepts and related content represented consistently throughout the lesson as a whole? N=10	9	-	1
2. Does the lesson design accurately and thoroughly support the lesson? N=10	9	-	1
3. Does the procedure accurately and appropriately support the lesson objectives? N=10	9	-	1

The environmental education and biology experts who took part in the study have generally positive perceptions on environmental sustainability unit addressing international goals for sustainable development of the writing lesson. In order to analyze the data in detail, item by item analyses were conducted. The first item aims to evaluate the perception of the experts about if the concepts and related content are

represented consistently throughout the lesson as a whole or not. Findings showed that 90% of the specialists believe that the concepts and the related content are represented consistently throughout the writing lesson. The minority (10%) of the participants provided supplemental written comments about the content and concept of the lesson. In this respect, experts have positive views towards the environmental sustainability unit addressing selected international goals for sustainable development of the writing lesson. The experts think that the concepts and contents of the lesson are represented well. This can be regarded as that the content validity is ensured. However, the writing lesson can always be developed. Examples of supplemental written comments are given below.

- *These are sustainable development goals (SDG's). Emphasizing. This term would be more effective. Maybe a bit more explanation will be needed to tie the complex statements into why you are having them go into the yard to record their observations of sight, sound, etc. (Environmental education specialist 9).*
- *You have enough material. You may think about simplifying some of the vocabulary if you think about MEB schools. (Environmental education specialist 2).*
- *Some students might not have a deep understanding of the concepts in this lesson, such as recycling and renewable resources. Some background information about each important concept should be provided prior to beginning the activity. (Environmental education specialist 5).*

Regarding the comments, it is seen that environmental education specialists made similar comments. Therefore, it can be concluded that simplifying some of the vocabulary, adding background information about each concept and more explanation is needed. Since two or more similar suggestions were made, the recommendations were accepted (see Criteria 1 listed in Chapter 3).

In the second item, it aimed to ask the specialists if the lesson design accurately and thoroughly supports the lesson. A mass majority (90%) of the participants agreed that

the lesson design supported the writing lesson. However, one in ten (10%) of the environmental education and biology experts added supplemental written comments as given below:

- *This unit is about the environment so, maybe the students can be asked to take notes on their notebooks instead of giving them handouts during the activity in the playground.* (Biology expert 1).
- *Maybe an illustration of the dirty yellow brick road, with trees being in distress. At the end of the lesson, a clean road and blooming trees might be shown with some other aspects like birds, bees and bugs.* (Biology expert 2).

According to the views of biology experts, it is essential to think about recycling. Despite giving handouts, other possible solutions could be practiced. Since both biology experts made similar suggestions, the recommendations were accepted (see Criteria 1 listed in Chapter 3).

In the third item, environmental education and biology experts were asked if the procedure supported the objectives of the lesson. Considering the results, 90% of the specialists agree that the procedure supported the writing lesson objective.

Nevertheless, 10% of the experts provided supplemental comments. Examples of these supplemental comments were given as follows:

- Part 2, procedure 1 (page 11), *I assume it is tied to your learning objective. Perhaps each person needs to write a summary sentence or two of what they hear from others?*
- Closure (page 11), *You may need to get help from/collaborate a biology teacher. It can be simplified.* (Environmental education specialist 7).

To conclude, this can be interpreted that this environmental sustainability unit addresses the integrated UNESCO goals into the ninth-grade English language curriculum to improve their environmental awareness. However, the lesson can be

improved according to the perceptions of environmental education and biology experts.

Conclusion

As discussed above, to develop environmental sustainability reading, listening, speaking and writing skills in English, the researcher used the process of ID including four aspects of the process of instructional design which is figuring out the problem; planning for development; producing; evaluation and revision in order to prepare the unit for pilot testing. To ensure the validity of the four lessons, collaboration of post-secondary English instructors, environmental education and biology specialists were asked. Based on the research findings, a confirmatory review was done and both groups agreed that the unit has been improved in response to the expert review comments.

This chapter presented the results under each research question. As a result, it can be concluded as the research findings indicated that the environmental sustainability integrated lessons were evidently efficient. Therefore, it was seen that the importance of developing environmental literacy was addressed while English language skills were enriched. The following chapter provides further interpretations including overview of the study; major findings; implication for practice and research; limitations and a conclusion.

CHAPTER 5: DISCUSSION

Introduction

This current chapter provides further interpretations and implications of the results that were provided in the previous chapter. The chapter includes an overview of the study, identifies major findings, and discusses implications for practice and research. Lastly, the limitations of the study and a conclusion are provided.

Overview of the study

This study used aspects of instructional design to develop a unit about sustainable development, and to identify how the unit can be integrated into the existing curriculum, in this situation ninth grade English language. The process involved identifying ways to relate selected goals for sustainable development to the English language skills of reading, listening, speaking and writing. In addition, based on the review of the literature, a design process was used to help design the educative features (Arias et al., 2014). Aspects of instructional design were used to prepare the unit for piloting, validating its conceptual accuracy and pedagogy through expert review. Moreover, based on the literature review, another theoretical framework developed by Dyjur et al. (2018) was used to guide an effective curriculum review process.

After producing the lessons, the lessons were reviewed by experts in the field of English language teaching and in environmental and biology education. The perceptions of the participants were collected, and revisions were made according to the developed criteria list of Ziolkowski (2007). Revisions were made to each lesson

after both participant groups had written supplemental comments on the lessons. As a result, the lessons were revised based on the analysis of the data. A list of actions that were to revise the unit based on this review are provided in Appendix E. The final version of the unit after revisions is found in Appendix F.

Major findings

Based on the analysis of the data given in Chapter 4, analysis of the supplemental written comments of the first and second revision process, major findings were found as given below. An overall finding of the study was that the instructional design process can be used to systematically develop a thematic teaching unit. Based on the analysis, major findings related to instructional design for thematic and integrated curriculum were found as given below.

Findings related to instructional design

Figuring out the problem

Since the Ministry of National Education's English curriculum "My Environment" is a theme-based unit and is designed based on a specific theme such as physical surroundings such as room, kitchen, classroom, lounge, school; post-secondary instructors, environmental education and biology specialists agreed on that the focus as the content could be the natural world rather than physical surroundings in the preliminary interviews. It is agreed on that the focus on the teaching content of a different discipline could be used as a theme. Furthermore, the literature review of theoretical framework helped the researcher to identify what integration means.

Planning for development

The aspect of planning for development helped the researcher to create a framework for the current study based on literature review. Since it is decided to develop students' English language skills as the fundamental goal, it was decided to contribute to the development of students' environmental literacy.

Producing

As mentioned in Chapter 2, analysing the existing unit, learning about the characterization of opportunities and student outcomes, and designing educative features ensured the researcher to draft a cohesive unit.

Evaluation and revision

The evaluation and revision phase helped the researcher to collect data, make revisions and finalize the cohesive unit. As mentioned in Chapter 3, the collected data were reviewed several times. Based on the reviews, codes including common words and phrases; similar sentences and themes were highlighted of the typed comments from the questionnaire of the three different participant groups. With the help of other researchers, the codes were put into major themes and were discussed again to ensure validity. As a final stage, the codes and themes were compared to other researcher's codes and themes.

It is agreed on that the focus on the teaching content of a different discipline.

Furthermore, the literature review of theoretical framework helped the researcher to identify what integration means.

Findings related to instructional design

This study relied on a conceptual framework for integration as part of its instructional design. Another purpose of the study was to confirm that different topics could be related to each other through this integration process. Post-secondary instructors, environmental education and biology experts agreed on that the idea UNESCO's sustainable development goals can be integrated into Ministry of National Education's English theme-based curriculum "My Environment."

Post-secondary English instructors, environmental education and biology specialists perceive that integrating environmentally sustainable development for English lessons helps students to be aware of environmental problems. Environmental education and biology experts found the integrated lessons helpful for English as a second language learners. Almost all the experts emphasize the importance of integrating the environmental concepts into English language skills such as reading, listening, writing and speaking. For instance, having students work on reading, listening writing by co-working with partners is recommended. A study conducted by Young (2016) had similar results such as that teaching English as a second language with an interactive environmental approach helps students to be aware of the environment. Similarly, Rodriguez-Valls (2012) claimed that interdisciplinary teaching would increase language as academic performance but also other skills simultaneously.

In addition, environmental education and biology specialists perceive that background information is needed to integrate environmentally sustainable development into English lessons. Also, in order to teach integrated lessons,

background information is previously acquired by both students and teachers. The importance of background information was also stated regarding conceptual frameworks for interdisciplinary instructional designs (Kinchin & Modo, 2011).

Furthermore, post-secondary English instructors perceive that collaboration is needed to ensure validity of the content while integrating environmentally sustainable development into English lessons. The results indicated that post-secondary English instructors perceive that they have to collaborate with other subject area specialists for sustainable innovation and teacher learning. With the help of collaboration, teachers get new perspectives, share their new perceptions, and give feedback on development of the instructional design process. This was also claimed in the literature by other instructional designers (Pieters, Robling, & Voogt, 2019; De Beer, Leeman, Nieveen, & Van der Steen 2020).

Both English instructors and environmental education specialists perceive that not all schools have the same opportunities. Related to this, public school libraries may have restricted materials in English. Therefore, it is important to standardize the lesson to make every teacher use it.

In addition, the experts perceive that giving students food to eat in class has some disadvantages such as some students may have food allergies, diabetes, etc. Moreover, providing one food item for each student would cost lotto much. These disadvantages might cause some class management issues. Also, eating and drinking during the lesson can contradict with the school/classroom rules. As a result, the experts require to use the technique/strategies such as modelling and using flashcards

or virtual visuals to avoid class management problems. It is also recommended to use pictures on flashcards to help teacher's teaching (Sitompul, 2013).

Moreover, post-secondary English instructors perceive that the class sizes can be large. Therefore, planning grouping strategies is essential. For instance, activities could be modified according to the class size. For instance, students may do activities in groups, individually, in pairs or as a whole class. Therefore, these grouping strategies could be added into the curriculum. Case studies of 24 schools in England indicated similar results (Baines, Blatchford, Galton, Hodgkinson, Humphreys, Kutnick, Sebba & Steward, 2006).

Although this study was designed to create a unit that integrates concepts from two different disciplines, experts from the different fields did have insights unique to their subject area. The following sections provide specific findings for the two main areas of this study, English language teaching and environmental education.

Findings related to instruction design for English language education

The most commonly reported recommendation for curriculum development by the reviewers was that the methods and goals should meet the objectives of the lessons. The language level of the content should be appropriate to meet the objectives of the lesson. If the level would be high, students could get worried and lose their interest. Therefore, the level of appropriateness is important. Related to this, teachers should avoid challenging words for Grade 9 students and meet the needs of the students and the objectives. Akkoyunlu and Soylu (2004) also emphasized the importance of meeting the objectives in his study.

Post-secondary English instructors perceive that the warm-up and closure sections need to be short to keep the students' focus on the main subject while developing English instructional design. Post-secondary English instructors believe that a warm-up, review work covered in previous lessons, and informing the students of the lesson aims would be an important stage for all the lessons. A study conducted by Mukarromah (2019) also emphasized that warm-up activities are essential in order to develop students' metacognitive knowledge in English learning. In addition, it is found that reviewing or summarizing the overall lesson is essential to take students' attention in the closure stage. In addition, the participants perceive that it is important to give students time for reflection in the closure stage (Clark, 2008).

Post-secondary English instructors perceive that a lesson consists of examples of techniques, time, space and equipment and interaction patterns in a lesson. Since lessons in Turkish high schools are typically 40-minutes, a curriculum developer may not be able to include all the desired activities and needs to prioritize which ones are most relevant and effective. It is also important to consider how the selected activities relate to and flow into each other, and to allow enough time for wrap up. Therefore, it was found that writing the time allocation for each stage of the lesson is useful for the lesson. Sudrajat (2018) also claimed that stating the time is essential in order to meet the objective of each stage of a lesson.

Post-secondary English instructors perceive that using all four language skills including reading, listening, writing and speaking as separate lessons is essential to make students gain language skills separately and develop the language as a whole. Since the time is limited to spend on a unit, it is also essential that all four

language skills have other integrated language in it. Moore (2016) also states this as a strategy in the high school English curriculum.

In addition, post-secondary English instructors perceive that formative assessment of English language students is necessary. Related to this, self-assessment, peer assessment, homework, think-pair-share, and observation are recommended. For instance, collecting students' papers after an activity and using them as a formative assessment tool would be a formative assessment type. Likewise, Clark (2008) emphasized the importance of providing feedback. Related to this, providing feedback helps students to learn effectively. Similarly, Mirici and Yüce (2019) emphasized the gap in English MoNE's curriculum and emphasized the importance and need of self-assessment to monitor students' learning.

Findings related to instructional design in environmental education

Environmental education and biology experts perceive that using real pictures rather than "cartoon" type images is essential to make students be aware of the environment. To illustrate, experts think that since the temperature has changed over years, some images of polar bears on tiny ice would be effective. In addition, specialists perceive that one outcome of the inconvenient truth that was launched in the U.S. in the early 2000's was that messaging on climate change or any environmental issues should have no more than a 25% negative message to allow 75% of the message to be instilling hope and positive solutions for the future. Therefore, it is found that experts do not support negative audio-visual materials to make students aware. However, positive pictures, audio-visual materials or materials with possible solutions would be effective to make students be aware of urban

environmentally sustainable problems. Coughtrey, Holmes, Mathews and Pictet (2011) emphasize also the importance of positive imagery on behaviour.

Environmental education and biology experts perceive that the better the role play, the better will students be aware of the environment. Barbiero, Camino, Colucci-Gray & Gray (2006) also states this as a strategy for ecological framework for education.

Environmental education and biology specialists perceive that connecting classroom learning with real-world actions is essential. The experts believe that since the overall goal of the study is to make students be aware of the environment, real-world actions such as waste management could be connected to sustainable development integrated English lessons. To illustrate, using recycled paper (like straw) paper as handouts, asking students to write on their notebooks or even projecting the material on the board would be an effective way to encourage students to save the trees. Other researchers also emphasized the importance of integrating classroom learning with real-world actions (Barboza, 2000; Çimer, 2012; Hauschild, Poltavtchenko & Stoller, 2012).

Implications for practice

This study provided the researcher with firsthand experience in instructional design and development. It highlights the importance of ensuring that instructional materials are conceptually correct and pedagogically sound.

In this current study, the researcher used four fundamental aspects such as figuring out the problem, planning for development, producing, evaluation and revision (Özdemir, 2017). These aspects of the ID diagram could be an example of designing lessons for instructional designers or researchers. The ID diagram can be reused by others to develop instructional designs in any subject area.

Based on figuring out the problem, researchers should view all the instructional units of the subject area to gain insights about the whole curriculum and specify the problem. Preliminary interviews with experts, subject area teachers or instructors is recommended to understand the instruction more broadly.

Since the literature review will help to develop lessons or units, researchers should read a variety of articles to review the literature. Within the literature review the researchers or instructional designers should plan for development. Related to this, the researchers should decide on the number of participants at this step. Also, researchers should be in conference with experts and subject area specialists.

Therefore, informal or preliminary interviews are suggested (Creswell, 2012). If the lessons or unit will be integrated into another subject area, collaboration of teachers is recommended (Beyer, Davis, Delgado & Krajcik, 2009).

Moreover, to produce the lessons, researchers should follow a design process to be used to help designing the educative features. Analysis of units, learning about the characterization of opportunities, learning about the characterization of student learning outcomes will lead to designing the lessons or unit.

After the lessons or unit is produced, the researcher should send the lessons to participants to ensure validity of the lessons. Therefore, the researchers should identify permissions needed for study and send them to experts, instructional designers, teachers, or instructors. Sending to different groups would be recommended. To ensure validation of the lessons, the researchers should revise the lessons or unit after the evaluation process. The researchers should use a guide for an effective instructional review process. Finally, it is recommended to send the lessons to experts, teachers, or instructors for a confirmatory review.

Furthermore, the designed urban environmental sustainability unit could be used by high school English teachers in Grade 9 in English as a second language class in Turkey. The outdoor environment could be used to develop student's language skills including speaking and writing (Fägerstam, 2014). Moreover, biology teachers who teach biology in English could also use the lessons as extra-curricular activities by experiencing outdoor teaching and learning.

Additionally, researchers who identified a need for development of English lessons related to environmental sustainability can follow the aspects of instructional design used in this current study. Other environmental sustainability integrated English lessons could be developed for further research. As a result, the current study could be an example of an integration as a framework.

Furthermore, other sustainable development goals could be selected from UNESCO's 17 sustainable development goals list. The selected goals could be integrated into other subject areas, or other foreign languages such as German,

French and Turkish language and literature lessons. It is also recommended that researchers who integrated sustainable development goals into other subject areas, to work collaboratively with stakeholders like community leaders, teachers, learners and administrators.

Given reports of increased environmental issues, such as climate change, flooding, species extinction (WWF, 2020), it is important that education for sustainability be integrated into all subject areas. Furthermore, global health is related to sustainability and the current pandemic is an example of interactions between the environment and human societies, especially with remote learning becoming more prevalent.

Implications for further research

This study helped to validate the content and pedagogy of the unit and its four lessons. The next research step should be piloting. The piloting would include ninth grade English teachers and they would be provided with an instrument to guide and record their review (e.g., Ziolkowski, 2007, p.49). The four aspects of instructional design (problem identification, planning, material development, evaluation and revision) featured in the methods chapter could be applied during the pilot. During and after the pilot, student learning could be assessed with pre-post questionnaires, interviews, and teacher observations.

Taking all the recommendations which have been given in this chapter into consideration, it is suggested that more units could be developed for the English curriculum, other grade levels and other programs such as International Baccalaureate programs including Primary Years Programme, Middle Years

Programme and Diploma Programme. It is recommended that researchers who identified a need for development of English lessons follow the four aspects of instructional design used in this current study.

Limitations

Instructional design typically includes piloting of the drafted teaching materials.

Limitations of time and resources limited this study to an expert review to validate the content and pedagogy of the lessons.

The Unit designed for this study is intended to be integrated into the Ministry of National Education's English curriculum unit "My Environment." Therefore, the proposal was sent to MoNE to get permission to gain insights into English teachers' perceptions. However, because of the COVID-19 pandemic, the application was rejected by MoNE. Therefore, only English language experts who work with post-secondary education students were included in this study. A larger sample size, including ninth grade English teachers, would enhance the findings of this study.

From a different viewpoint, the current study did not include the perceptions of Grade 9 high school students. Students could not reflect on the four lessons due to the Covid-19 lockdown. Even though the role of teachers is essential in designing instruction, the role of students is important too. Therefore, perceptions of English as a second language learners could be gained for further developing the lessons.

Conclusion

This study agrees with education plays an essential role in empowering people to address problems related to development in an effective manner” (71) Teachers and curriculum designers can address these problems in the curriculum to achieve a higher quality of life. Sustainable development should be described as an indispensable part of the curriculum to protect the world. Otherwise, next generations cannot inherit sustainable development.

Therefore, the researcher integrated sustainable development into an English unit. While the fundamental goal of the unit was to develop students’ English language skills, the ultimate goal was to develop students’ environmental literacy. Related to this, the researcher selected 17 sustainable development goals of UNESCO, and started to design four lessons including language skills such as reading, listening, speaking, and writing. While designing the lessons, the researcher realized that the discourse of the lessons was essential. With the help of other experts, the researcher improved the discourse of the lessons in a year and gained instructional design experience that can be used during her future educational career. While the process helped improve the instructional development skills of the researcher, it also helped her to become more creative and resourceful. Like characters in her lessons (Dorothy and Little Red Riding hood), she met and learned from people she met along the way.

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APPENDICES

APPENDIX A: The Ministry of National Education’s English Curriculum Unit “My Environment”

9th Grade

THEME 2: MY ENVIRONMENT		
Functions and Useful Language	Language Skills and Learning Outcomes	Suggested Materials and Tasks
1. Talking about locations of things 2. Asking about and describing neighborhood 3. Making comparisons	Listening E9.2.L1. Students will be able to respond to the questions related to the topic of a recorded text/video. E9.2.L2. Students will be able to locate the things as they listen to information about the instructions. Pronunciation E9.2.P1. Students will be able to differentiate /ɪ/ and /i:/ sounds. <i>Eg. sit /sɪt/ seat /si:t/</i> Speaking E9.2.S1. Students will be able to ask about and describe their neighbourhood. E9.2.S2. Students will be able to compare people, places and objects around them. E9.2.S3. Students will be able to ask and answer questions about location of things and places. Reading E9.2.R1. Students will be able to read a simple text for specific information about their neighbourhood/city etc. Writing E9.2.W1. Students will be able to fill in a chart comparing cities in different countries/Turkey. E9.2.W2. Students will be able to describe different environments in simple sentences and phrases.	Product Labels Brochures Discount Banners High-end Flea Market Songs Games Poster Advertisements Note taking Comparing Role play Information Gap Descriptive Text Tables/graphics DISCUSSION TIME TECH PACK E-PORTFOLIO ENTRY VIDEO BLOG ENTRY

APPENDIX B: Informed Consent Form

Informed Consent Form

Thank you for your interest in helping with this research project. I am a graduate student from the Bilkent University School of Education. The purpose of my study is to gain insights into English teacher perceptions of a unit that is designed to be integrated into the Ministry of National Education's English curriculum. The unit is for the ninth grade and is titled "My Environment." As part of my research, I will develop lessons and activities to enhance this unit.

You are being asked to review four revised lessons that integrate environmental concepts into an English language unit. The research will involve your completion a review form (to evaluate the revised unit). It will take about an hour.

If you decide to participate, I will ask you to review this form and sign the Certificate of Consent. If there are any parts of the form you do not understand or are unclear, feel free to contact me and I will take time to explain it to you. You are welcome to ask questions of me or my supervisor anytime during this study.

Your participation in this research is entirely voluntary and personal data will not be collected. I hope sharing your thoughts about this unit will be useful to you.

Your responses will be anonymous, and the data will be compiled with the rest of the responses. I will not share information about you to anyone outside of the research team. The information that I collect from this research project will be kept confidential. Instead of using your name a number will be assigned to you, and any reference made will be made to the number.

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me at 0090 537 774 22 94 or my supervisor, Dr. Jennie Lane, jennie.lane@bilkent.edu.tr, + 90 312 290 1096

This proposal has been reviewed and approved by Bilkent University ethics committee; whose task it is to make sure that research participants are protected from harm.

Certificate of Consent

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked to have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I may withdraw at any time.

Print Name of Participant _____

Signature of Participant _____

Date _____

perceived influence on their teaching practice could be distorted.

APPENDIX C: Questionnaire for Post-secondary English Instructors

(The items for data collection was developed by Daloğlu (2004) and adapted with permission to conduct this study).

1. I have read the information about the purpose of this research and consent to participate in this survey. (check one) *

Mark only one oval.

- ☐ Yes (If you choose this option, you will continue the survey after hitting the “next” button)
- ☐ No (If you choose this option, you will complete the survey after hitting the “next” button)

This questionnaire is divided into five sections. In the first section, we are asking you to review the entire unit (four lessons). For the remaining four sections, please review each lesson separately.

Section 1- Comprehensive Review of the unit

The items below were selected to help you review the four lessons as a unit. Your review will help make decisions about revising the unit. Please indicate the extent to which you agree with each item (5=strongly agree; 1=strongly disagree). If you have suggestions for improvement, please note them in question 14.

The four lessons are: 1) Listening: Poem sharing; 2) Writing: Script for following a Green Brick Road; 3) Reading: Research on Climate Change Science; 4) Speaking: How Education for Sustainability will Transform our World

1. All four English language skills (reading, writing, speaking and listening) are addressed well in the unit. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

2. The four lessons strongly relate to the objectives of the ninth grade MEB unit “My Environment.” *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

3. The unit is up to date.

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

4. The unit is visually attractive. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

5. The unit is feasible (practical) to use. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

6. The language demanded by unit is appropriate for ninth grade learners of English. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

7. Implementing this unit will not address the objectives of the ninth grade MEB unit “My Environment.” *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

8. The four lessons in the unit support each other. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

9. The four lessons in the unit do not relate to each other. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

10. The unit helps students to be more engaged in all four English language skills. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

11. The unit provides a variety of tasks. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

12. The unit will appeal to a variety of learning style (visual, auditory, and kinesthetic). *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

13. The unit helps students to be more communicative in all four English language skills. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

14. Please use this space to comment on any of your responses to the previous items. Suggestions for revision are welcome.

SECTION 2- Review of the listening, reading, speaking and writing lessons

Please complete the following questions for the lessons “Listening Activity: Listening: Poem sharing”; Research on Climate Change Science”; Speaking: How Education for Sustainability will Transform our World” and “Writing: Script for following a Green Brick Road.” Indicate the extent to which you agree with each item (5= strongly agree; 1=strongly disagree). If you have suggestions for improvement, please note them in question 11.

1. The lesson is learner centered. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

2. The activity addresses the objective(s) of the lesson very well. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

3. The instructions for the lesson are clear. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

4. The instructions are satisfactory (easy to follow). *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

5. Completing the activity will not accomplish the objectives of the lesson. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

6. The length of the lesson is appropriate for ninth grader learners of English. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

7. The lesson facilitates interactive learning (pair work, group work, etc.). *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

8. The concepts are represented consistently throughout the lesson.

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

9. The lesson includes a strategy that assesses learners' achievement of the objectives. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

10. The lesson can effectively be used with mixed ability groups. *

Mark only one oval.

	1	2	3	4	5	
strongly disagree	☐	☐	☐	☐	☐	Strongly agree

11. Please use this space to comment on any of your responses to the previous items. Suggestions for revision are welcome.

APPENDIX D: Questionnaire for Environmental Education and Biology

Specialists

(The items for data collection was developed by Ziolkowski (2007) and adapted with permission to conduct this study).

Activity Review of Questionnaire for Environmental Specialists

The items below were selected to help you review the four activities. Your review will help make decision about revising the unit. Please tick where appropriate. If you have suggestions for improvement, please note them in the “other” section.

***Required**

1. I have read the information about purpose of this research and consent to participate in this survey. (check one) *

Mark only one oval.

- ☐ Yes (If you choose this option, you will continue the survey after hitting the “next” button)
- ☐ No (If you choose this option, you will complete the survey after hitting the “next” button)

Please complete the following questions for 1) Listening: Poem sharing; 2) Writing: Script for following a Green Brick Road; 3) Reading: Research on Climate Change Science; 4) Speaking: How Education for Sustainability will Transform our World

1. Are the concepts and related content represented consistently throughout the lesson as a whole? If no, please provide suggestions for revision in the “other” section. *

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Other _____

2. Does the lesson design accurately and thoroughly support the lesson? If no, please provide suggestions for revision in the “other” section.

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Other _____

3. Please suggest any graphics (charts, illustrations, graphs, etc.) that could support the lesson.

4. Does the procedure accurately and appropriately support the lesson objectives? If no, please provide suggestions for revision in the “other” section. *

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Other _____

5. Please suggest resources that could be used by teachers to support their understanding of concepts in this activity.

APPENDIX E: A List of Actions that were to Revise the Unit Based on the Analysis of Expert Reviews

Lesson 1: Reading lesson

1. To reduce the length to 40 minutes, some activities were excluded.
2. Time allocation was added.
3. Grammar, punctuation, capitalization and spelling mistakes were corrected.
4. Information about the sub-skill was added to the procedure.
5. Instructions were revised and presented more clearly.
6. Information about the sub-skill was added to the procedure.
7. **The content of the text was rewritten and simplified.**
8. **The lesson was revised and adapted into a short story to meet the objectives.**

Lesson 2: Listening lesson

1. To reduce the length to 40 minutes, some activities were excluded.
2. Time allocation was added.
3. Grammar, punctuation, capitalization and spelling mistakes were corrected.
4. Information about the sub-skill was added to the procedure.
5. Instructions were revised and presented clearly.
6. Information about the sub-skill was added to the procedure.
7. Warm-up was extended. **A simple demo is at the start with 4-5 students is provided for the telephone game.**
8. **Sentences were simplified based on Grade 9 students' level.**

- 9. Strategies were provided to clarify pre-teaching vocabulary.**
- 10. The words alliteration, onomatopoeia, rhyme, assonance and rhythm are omitted.**
- 11. The order of the sentences was changed from more general to specific.**

Lesson 3: Speaking lesson

1. Information about the sub-skill was added to the procedure.
2. Smooth transitions were revised.
3. The 17 sustainable development goals (SDGs) chart was added.
4. A rubric with clear criteria was provided.
5. Closure was revised.

Lesson 4: Writing lesson

1. The length of the lesson was reduced.
2. Time allocation was added.
3. Grammar, punctuation, capitalization and spelling mistakes were corrected.
4. Information about the sub-skill was added to the procedure.
5. Instructions were revised and presented clearly.
6. Information about the sub-skill was added to the procedure.
7. Warm-up was extended. Flashcards were made.
8. Character personality cards were extended.
9. Closure was changed.

APPENDIX F: The Final Version of the Unit after Revision



English Foreign Language Sustainability

Teacher's Guidebook

Reading Lesson: The Greenhouse Effect

Lesson 1

Grade level: 9

Subject Area: English as a foreign language

Setting: Classroom/schoolyard

Duration: 40 minutes

Materials:

Printed sources on page 3-6.

Background information if needed:

https://www.esrl.noaa.gov/gmd/education/info_activities/pdfs/TBI_greenhouse_effect.pdf

Skills:

Use this activity to help improve the following productive and receptive skills in English.

Receptive Skills:

Reading

Listening

Productive Skills:

Speaking

Writing

Focus: Reading



Vocabulary:

overheat, absorbed, atmosphere, greenhouse effect, planet, temperature, fossil fuel.

Language Skills and Learning Outcomes of Ministry of Education

Students will be able to reorder the events in a short story.

Objectives of UNESCO Goal 13

Take urgent action to combat climate change and its impacts.

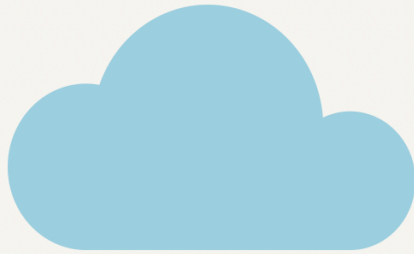
Timetable Fit

1. As needed, familiarize students with the vocabulary words.

PROCEDURES

Warm-Up (7 minutes)

1. Ask students to think about "The Greenhouse Effect" and brainstorm aspects of the topic in small groups.
2. Tell students to share their ideas with the whole class.



Part 1 (30 minutes)

1. Explain to the students that this lesson will use the topic of greenhouse effect to practice reading skills.
2. Pre-teach vocabulary including the following vocabulary words, if necessary.

3. Provide students with an adapted short story of *Little Red Riding Hood Learns about the Greenhouse Effect* and information from https://www.esrl.noaa.gov/gmd/education/info_activities/pdfs/TBI_greenhouse_effect.pdf about the greenhouse effect. Ask students what the meaning of greenhouse effect is.

4. Cut the paragraphs of the short story *Little Red Riding Hood Learns about the Greenhouse Effect* into sections, mix them up and challenge students to put the short story back in proper order and match the pictures with the paragraphs (Page 3-6).

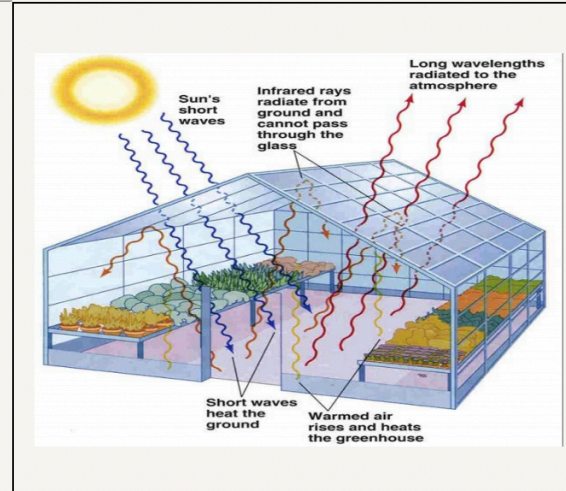
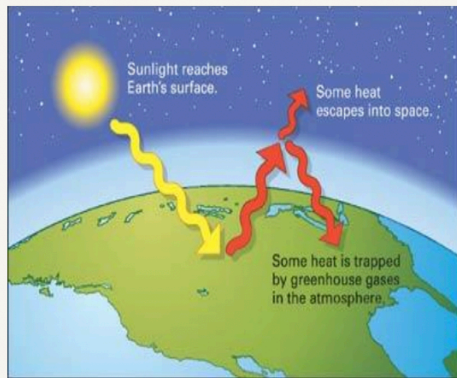
Closure (3 minutes)

1. Ask students to go to www.mentimeter.com and use the code 619966. Ask students to answer the question "What did you learn and understand in this lesson?" Reflect on what you have been learned and understood in the lesson as a teacher.
2. Review the vocabulary words.

Cut the short story *Little Red Riding Hood Learns about the Greenhouse Effect* into sections, mix them up, challenge students to put the short story back in proper order.



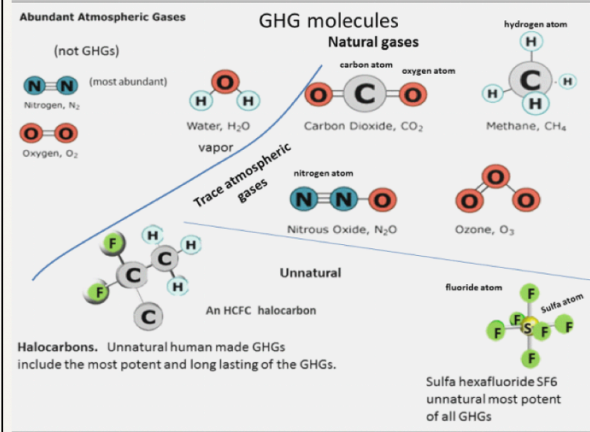
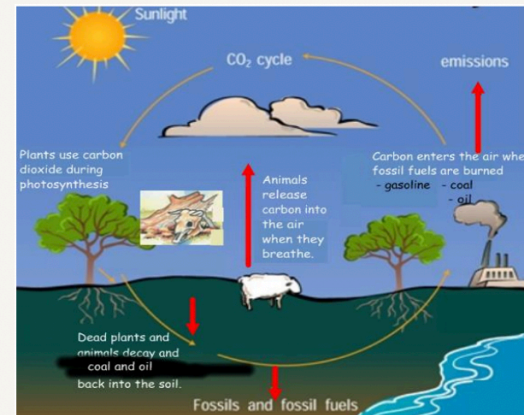
Little Red Riding Hood was walking through the woods to visit her grandmother. She was carrying a picnic basket of food she bought at a farmer's market. When she arrived, she complained, "It is so hot! That stupid Greenhouse Effect!" Her grandmother scolded Little Red Riding Hood, "The climate is warming up but do not blame the Greenhouse Effect. We need this effect to sustain life on Earth. But humans are causing the Greenhouse Effect to overheat our planet." When Little Red Riding Hood said she did not understand, her grandmother said the following:



To first understand the Greenhouse Effect, you need to remember that the primary source of energy for life on earth. The sun radiates or gives off energy in the form of light. When the sun's light reaches Earth's surface, much of it is absorbed it is converted to heat or thermal energy." Grandmother had Little Red Riding Hood compare how the part of the picnic table in the sun compared to the part in the shade. Little Red Riding Hood noted the part in the sun felt warmer. "Yes, you can feel the heat coming off of some surfaces. This heat is being released into the atmosphere. Earth's atmosphere holds the heat in like a blanket. This heat is what warms our atmosphere and allows life on Earth to exist." Little Red Riding Hood recalled how she uses blankets to keep her warm in winter. Her grandmother explained the blanket holds in the heat radiating of her body.

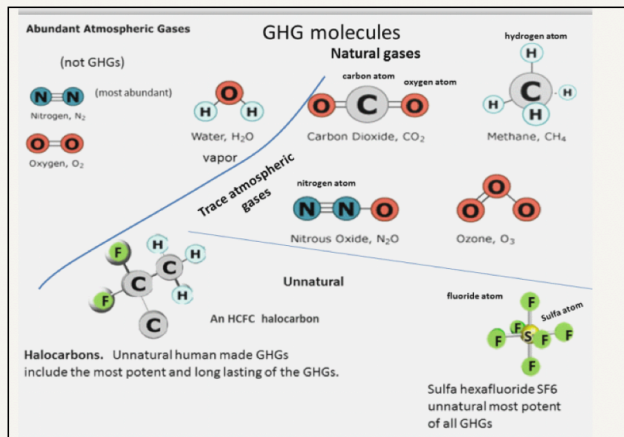
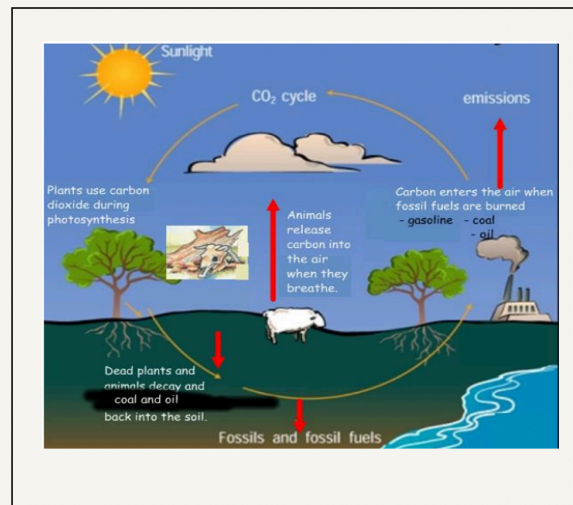


Her grandmother explained, "When the atmosphere traps or holds heat, it is called the greenhouse effect. Think about how warm it is inside a greenhouse compared to outside; this is because the glass allows light to pass through but traps the heat inside. Earth's atmosphere is a little like the greenhouse glass holding heat near the surface." She took Little Red Riding Hood to the little greenhouse in her backyard. When they went inside, they noticed it was warmer inside the greenhouse than outside.



Her grandmother noted that, "One important difference between an actual greenhouse and the atmosphere is that the atmosphere is not a glass wall. Instead it is a layer blanketing or surrounding Earth and is made up of molecules. There are certain molecules in air that are especially good at absorbing heat, these are called greenhouse gases. For example, water vapor is the most important greenhouse gas. Other gases include carbon dioxide (CO₂), Methane, nitrous oxide, ozone also play a role in the greenhouse effect."

Her grandmother explained, "When the atmosphere traps or holds heat, it is called the greenhouse effect. Think about how warm it is inside a greenhouse compared to outside; this is because the glass allows light to pass through but traps the heat inside. Earth's atmosphere is a little like the greenhouse glass holding heat near the surface." She took Little Red Riding Hood to the little greenhouse in her backyard. When they went inside, they noticed it was warmer inside the greenhouse than outside.



Her grandmother noted that, "One important difference between an actual greenhouse and the atmosphere is that the atmosphere is not a glass wall. Instead it is a layer blanketing or surrounding Earth and is made up of molecules. There are certain molecules in air that are especially good at absorbing heat, these are called greenhouse gases. For example, water vapor is the most important greenhouse gas. Other gases include carbon dioxide (CO₂), Methane, nitrous oxide, ozone also play a role in the greenhouse effect."



When Little Red Riding Hood asked where these gases were, Grandmother explained they were all around us. She said, "Most greenhouses gases occur naturally in the atmosphere. For example, we all add carbon dioxide to the atmosphere when we breathe. Carbon dioxide is also added when we burn wood, coal, and gasoline. Greenhouse gases can be removed from the atmosphere, too. Water vapor turns back into liquid water. Plants remove CO₂ from the air during photosynthesis (turning water and carbon dioxide into sugar)."

Grandmother answered that, "Over the past 150 years, human beings have been adding more greenhouse gases to the atmosphere. We are burning fossil fuels when we drive cars and build things in factories. Agriculture adds greenhouse gases like methane to the air. When human beings add greenhouse gases to the atmosphere, this strengthens the greenhouse effect. In other words, more heat is being trapped in the atmosphere and Earth's average temperature is increasing. Increased hurricanes, flooding, and rising sea levels have all been attributed to a stronger greenhouse effect."

Little Red Riding Hood then said, "I think I understand how the greenhouse effect works. If there was no greenhouse effect, all the Earth's heat would be lost to space. But, why do people mention the greenhouse effect when they talk about global warming?"

Little Red Riding Hood asked what could be done to reduce greenhouse gasses. Grandmother said, "It is important for each of us to think how we can reduce the amount of greenhouse gases we add to the atmosphere. We can walk, ride our bikes, and eat local foods to burn less gasoline. We can plant trees to absorb more carbon dioxide. We can work together to sustain a healthy greenhouse effect for our planet." Little Red Riding Hood was glad that she had walked to Grandmother's house. Grandmother also pointed out the food in the picnic basket Little Red Riding Hood brought was grown by a local farmer so less fossil fuels were used to transport the food. With this good news, they sat down to enjoy their meal and discussed other things they could to do to use energy more wisely.

Lesson 2

Grade level: 9

Subject Area: English as a foreign language

Setting: Classroom/schoolyard

Duration: 40 minutes

Materials:

An audio recording of the poem *Saving the System* by Reinhold Mangundu (see transcript on page 12).

Handout of questions (page 13)

Half-dictation poem A

Half-dictation poem B

Skills:

Use this activity to help improve the following productive and receptive skills in English.

Receptive Skills:

Reading

Listening

Productive Skills:

Speaking

Writing

Focus: Listening



Vocabulary:

earth system, fishing, save, bleach, coral reef, mine, collapse.

Language Skills and Learning Outcomes of Ministry of Education

Students will be able to respond to the questions related to the topic of a recorded text/video.

Students will be able to locate the things as they listen to information about the instructions.

Objectives of UNESCO Goal 12

Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Timetable Fit

1. Before this activity, students should explore the context of climate and explore how the above vocabulary words are related to climate.
2. As needed, familiarize students with the vocabulary words.



PROCEDURES

Warm Up (7 minutes)

1. Ask students if they are familiar with the game "telephone." Provide students a simple demo with 4-5 students. Arrange groups of 6-7.

Begin by turning to a student and quietly relaying a short-spoken English phrase: *"Climate change is an important issue."* This is passed along to each student. The last student receives the information and repeats the message he/she has heard to the entire class. Teacher compares with the original sentence. Teacher asks students to respond to the statement above, e.g. How to combat climate change?

Part 1 (10 minutes)

1. Explain to the students that this lesson, will use the topic of climate change to practice listening skills.
2. Explain the vocabulary words by projecting pictures on the board and pre-teach vocabulary including the vocabulary words on page 4.

Part 2 (10 minutes)

1. Explain to the students that this lesson will use a poem about the saving system by Reinhold Mangundu (page 12) to practice listening skills.
2. Play the poem once without interruption while the students write down as many of the lyrics as possible. Play the piece again, pausing after lines to allow students time to write. Collect students' papers and use the papers as a formative assessment tool. Go to www.menti.com and use the code 78 95 48 to play the poem.
3. Show students the poem and then demonstrate that you have split it in half: Half A and Half B (page 11).
4. Tell students to get into pairs, sit back to back and that one of them gets Half A and the other one gets Half B.
5. Explain that their assignment is to listen to each other. First, one student reads (or dictates) the first line of Half A. The other student listens and records what is said to complete the first line of the poem. Then, that student will read the first line of Half B to the first student, who will listen and record what is heard to complete poem. They should continue in this manner until they both have completed the poem.

Part 3 (10 minutes)

1. Ask students to think individually about the following questions related to the poem.
2. Ask students to share ideas with classmates.
3. Distribute a handout for the following questions related to the poem written by Reinhold Mangundu.
 - a. What's the poem about in general terms?
 - b. Who is it from?
 - c. Who is it to?
 - d. What is the tone of the poem?
 - e. What is the message of the poem?
 - f. Is it a modern or a nostalgic poem?
 - g. What does the poet mean by "Earth's disparate signs?"
 - h. What do you think of the line "Can you feel, hear or see Earth's desperate signs?"
4. Distribute the transcript on page 12 so that students can see if they listened correctly and play the poem again. Ask students to locate the things in their mind as they follow along. Ask students to share.

Closure (3 minutes)

1. Use the exit ticket 3- 2- 1 strategy as a formative assessment tool. Make students write three things they learned in this lesson (3). Make students write two interesting facts about the lesson (2). Make students write one question they still have about the lesson (1).

A**Friendly Sharing: Half-Dictation**

You have a half poem here. Dictate your part to your partner.

SavingThe system is life; _____
 Such system collapse is _____
 So what are we _____
 Can you feel, hear or _____

Bleached coral reefs; _____
 Unemployed poverty _____
 Less copper, less diamonds; _____
 Can you feel, hear or _____

Our Earth's system _____
 her life-giving riches _____
 So let's save the system _____
 And join in becoming _____

**B****Friendly Shared: Half-Dictation**

You have a half poem here. Dictate your part to your partner.

_____ this system provides
 _____ people's demise.
 _____ doing with unthinking minds?
 _____ see Earth's s desperate signs?

_____ no fishing, no work.
 _____ mustn't be shirked
 _____ they're closing the mines.
 _____ see Earth's depleted signs?

_____ needs us to save, not plunder
 _____ in all their wonder.
 _____ Let's roar out her worth!
 _____ Guardians of Earth

Check your answers to see if you listened correctly.



Saving the System

The system is life; this system provides.
Such system collapse is people's demise.
So what are we doing with unthinking minds?
Can you feel, hear or see Earth's desperate signs?



Bleached coral reefs; no fishing, no work.
Unemployed poverty mustn't be shirked.
Less copper, less diamond: they're closing the mines.
Can you feel, hear or see Earth's depleted signs?



Our Earth's system needs us to save, not plunder
her life-giving riches in all their wonder.

So let's save the system. Let's roar our her worth!
And join in becoming Guardians of Earth.



Reinhold Mangundu





Think individually about the following questions related to the poem *Saving the System* by Reinhold Mangundu. Then share your ideas with your partner.

a. What's the poem about in general terms?



b. Who is it from?



c. Who is it to?

d. What is the tone of the poem?

e. What is the message of the poem?



g. What does the poet mean by "Earth's disparate signs?"

h. What do you think of the line "Can you feel, hear or see Earth's desperate signs?"



3-2-1 Exit Ticket

Cut this exit ticket 3- 2- 1 strategy as a formative assessment tool. Make each student write three things they learned in this lesson. Make students write things they learned today (3). Make students write two interesting facts about the lesson (2). Make students write one question they still have about the lesson (1).



3	Things I learned today:
2	Two things I found interesting in this lesson:
1	Question I still have in my mind:

Speaking Lesson: 17 Goals of UNESCO To Transform Our World

Lesson 3

Grade level: 9

Subject Area: English as a foreign language

Setting: Classroom/schoolyard

Duration: 40 minutes

Materials:

Handout: Cut 17 UNESCO GOALS (make extra as needed)

Skills:

Use this activity to help improve the following productive and receptive skills in English.

Receptive Skills:

Reading
Listening

Productive Skills:

Speaking
Writing

Focus: Speaking



Vocabulary:

pollution, sustainable, climate change, desertification, ecosystem, environment, degradation.

Language Skills and Learning Outcomes of Ministry of Education

Students will be able to ask about and describe their neighborhood.

Students will be able to compare people, places and objects around them.

Students will be able to ask and answer questions about location of things and places.

Students will be able to differentiate /ɪ/ and /i:/ sounds. *Eg. Sit /sɪt/ seat /si:t/*

Objectives of UNESCO Goal 6, 11, 12, 13, 14, 15

Clean Water & Sanitation: Ensure availability and sustainable management of water and sanitation for all.

Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.

Responsible Consumption & Production: Ensure sustainable consumption and production patterns.

Climate Action: Take urgent action to combat climate change and its impacts.

Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Life On Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt reverse land degradation.

Timetable Fit

1. As needed, familiarize students with the vocabulary words.

PROCEDURES

Warm Up (7 minutes)

1. Ask students to think about “sustainability” and brainstorm aspects of the topic.
2. Tell students to share their ideas with the whole class.
3. Pre-teach vocabulary including the vocabulary words on page 15, if necessary.

1. Explain to the students that this lesson, will use the goals of UNESCO to practice speaking skills.

2. Cut the goals, mix them up and provide each student with a goal which is a handout on page 17.

3. Ask students to work in pairs. Tell students to talk about their goals with the following instructions:

Repeat the goal as stated. Then restate the goal in their own words, expressing what it means to them and how important they think it is. They should explain what the goal means at a global level and the local level (in their community). Finally, they should ask about and describe their neighborhood related to these goals. They should compare people, places and objects around them. They also should ask and answer questions about location of things and places.

4. Give students a few minutes to think and choose one student randomly to talk about his/her goal for 2 minutes.

5. Give feedback according to their speech. A rubric is provided on page 18.

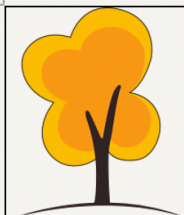
Closure (3 minutes)

1. Ask students to go to www.mentimeter.com and use the code 619966. Ask students to answer the question “What did you learn and understand in this lesson?” Reflect on what you have been learned and understood in the lesson as a teacher.

2. Review the vocabulary words.



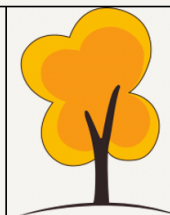
Cut the trees, mix them up and provide each student a tree.



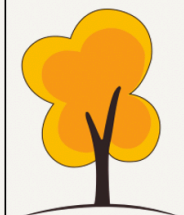
Climate Action: Take urgent action to combat climate change and its impacts



Life On Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt reverse land degradation.



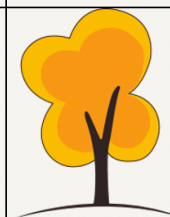
Clean Water & Sanitation: Ensure availability and sustainable management of water and sanitation for all.



Responsible Consumption & Production: Ensure sustainable consumption and production patterns.



Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.



Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Rubric

Give feedback according to your students' spee

Concerns Areas that Need Improvement	Criteria Standards for This Performance	Advanced Evidence of Exceeding Standards
	Criteria #1: Content <u>Student</u> ask about and describe neighborhood <u>Student</u> ask and answer questions about location of things and places.	
	Criteria # 2: Vocabulary Student uses appropriate vocabulary.	
	Criteria #3: Grammar Student uses English correctly	
	Criteria #4: Pronunciation Student communicates clearly	
0-80 points	80-90 points	95-100 points
Name: Total Score		

Writing Lesson: Follow the Green Brick Road to Reach the Wizard of Oz

Lesson 4

Grade level: 9

Subject Area: English as a foreign language

Setting: Classroom/schoolyard

Duration: 40 minutes

Materials:

Flashcards with images of snack items (e.g., candy bar, soda, apple) on page 23-24.

One large bag

Possible Character Personality Cards

Skills:

Use this activity to help improve the following productive and receptive skills in English.

Receptive Skills:

Reading

Listening

Productive Skills:

Speaking

Writing

Focus: Writing



Vocabulary:

garbage, litter, conserve, recycle, pollution, renewable resources, trash.

Language Skills and Learning Outcomes of Ministry of Education

Students will be able to describe different environments in simple sentences and phrases.

Objectives of UNESCO Goal 12

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

Timetable Fit

1. Before this activity, students should practice developing and writing dialogues.
2. As needed, familiarize students with the vocabulary words.



PROCEDURES

Warm Up (7 minutes)

1. Provide each student in the class with flashcards (e.g., candy bar, soda, apple). Give students a few minutes to dream as they would eat the snacks on the flashcards. Act like the flashcards are the leftovers and trash. Collect all the leftovers and trash in one large bag. Ask the class if this is the best way to dispose of these materials. Encourage students to provide suggestions such as separating the materials, recycling and reusing items if possible. Summarize that these are wise waste management practices. Ask students how they manage waste at home. Discuss the difference of waste and trash.

2. Asks students to fill in a chart comparing cities in different countries/Turkey based on waste management.

Part 1 (15 minutes)

1. Explain to the students that this lesson will use the topic of waste management to practice writing skills.

2. Ask students if they are familiar with the story of the *Wizard of Oz* by L. Frank Baum. Provide students a brief summary of the story below. Show students images of the characters as needed.

A lonely girl named Dorothy and her dog Toto gets swept by a cyclone to an imaginary city called Emerald city. She starts on a journey and meets interesting characters like Scarecrow, Tin Man, Cowardly Lion, Munchkins, Witch of the West, Witch of the North and the Wizard of Oz. She learns a lesson about appreciating home.

3. Present students with an alternative scenario for the *Wizard of Oz*. Explain that the lesson in this scenario is to teach Dorothy about responsible waste management.

Possible Scenario:

Lonely Dorothy starts on her journey. There are several roads nearby, but it did not take her long to find the one paved with yellow bricks. Within a short time, she was walking briskly toward the Emerald City. She was drinking a soda and seeing as there was already litter around the base of a scarecrow, she thought it would not be a problem to throw the bottle there, too.

4. Tell students that their assignment is to write a short script that involves at least three of the *Wizard of Oz* characters. In the script, students should describe the surroundings of Oz in simple sentences and phrases. The script needs to include a lesson on waste management and seven of the vocabulary words on page 19.

5. Divide the class into groups of 4 or 5 students each. Use flashcards (e.g., bottle, plastic bottle, paper, banana peel). Ask students to divide into groups of 4 or 5 students according to recycle bins (paper, glass, plastic, organic). Distribute to each group the list of the *Wizard of Oz* characters and vocabulary terms. Allow students to work on their scripts for the rest of the class. Tell them that in the next session, they will share their scripts with each other.

Part 2 (15 minutes)

1. Arrange a jigsaw activity according to students' groups, so that students can compare their scripts with each other. A jigsaw activity involves one student from each group staying in place. The other group members will travel to one of the other groups. This should result in new groups that includes at least one representative from the original groups.

2. The members of the new groups will share their scripts with each other. When they are sharing the scripts, they should also describe the surroundings in their stories. Each student needs to write two summary sentences of what they have heard from the other students in the group.

Closure (3 minutes)

1. Ask students to go to www.mentimeter.com and use the code 619966. Ask students to answer the question "What did you learn and understand in this lesson?" Reflect on what you have been learned and understood in the lesson as a teacher.

2. Review the vocabulary words.

Possible Character Personality Cards

Dorothy: Dorothy is a lonely girl living with her aunt, uncle and with her dog Toto. She is about 14 years. She lacks an awareness of her environment and may not notice things like litter.

Scarecrow: The Scarecrow is a character who is stuffed with straw. A farmer has placed him in a corn field to scare off crows. Scarecrow notices that people do not appreciate the natural world. Unfortunately, because he is full of straw and does not have a brain, he is not sure if he is wise enough to share his insights.

Tin Man: The Tin Man is a woodsman; he manages the forest. He is made of tin, like a tin can that is hollow. He notices that the trees are becoming weaker. Although he is hollow and does not have a heart, he is sensitive, and he cries about the trees. He must be careful not to cry too much otherwise he rusts his suit.

Cowardly Lion: Cowardly Lion is concerned that pollution is affecting living creatures in the forest. He wants to be a brave lion and protect the forest, but fears he lacks courage.

Toto: Toto is Dorothy's dog and is always with her. Toto behaves like a child and is willing to follow the example of Dorothy.

Munchkins: Are citizens of the Land of Oz. They are short in stature and wear colorful clothes, especially blue. They are clever and curious, but sometimes they can be naughty.

The Witch of the West: She is sometimes called the Wicked Witch. She believes environmental laws restrict her rights. She wants to be Powerful. Naughty Munchkins are her servants.

The Witch of the North: She is sometimes called the Good Witch. She tries to support and counsel the Munchkins.

Wizard of Oz: The Wizard is the Mayor of Emerald City. He is aware of the litter and pollution but is too lazy to do anything about it.



Cut the flashcards, mix them up and provide each student a card.

