# Using Education for Sustainable Development (ESD) for Language Learners: Study of University Approaches

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# I. EXECUTIVE SUMMARY

Education for Sustainable Development (ESD) "empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for present and future generations" (UNESCO, 2017, pp.7). ESD approaches foster students' construction of environmental knowledge, values, beliefs, norms, required for positive societal transformation (UNESCO, 2014, p. 34). The Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) is currently working towards the integration of ESD in Higher Education (HE) as a follow-up to the Decade of Education for Sustainable Development (DESD) of the United Nations (2005-2014), which received strong backing from the Japanese government. In 2015, the United Nations adopted the Sustainable Development Goals (SDGs) as a way to build on the success of the Millennium Development Goals (MDGs) and the DESD to serve as a call to global action to protect the environment, end poverty, and promote peace and prosperity. Since that time, many Japanese institutions have promoted the SDGs and ESD as a means for addressing urgent domestic issues, contributing to overcoming these issues globally, and using ESD as an approach to educate about the Sustainable Development Goals (SDGs).

The integration of ESD in Japanese HE has faced several challenges such as a lack of familiarity with ESD approaches by faculty, limited opportunities for students to study ESD, and confusion about how ESD can be implemented. However, most Japanese university students are required to study English as a Foreign Language (EFL) and 'environmental' and 'sustainability' are popular learning themes in the EFL classroom. This would imply that EFL courses are potential pathways for "mainstreaming" ESD in tertiary education. This thesis sets out to understand how 'sustainability' content is currently being introduced in Japan's tertiary EFL courses through an analysis of textbooks and how ESD best practices can be applied in the language classroom through a program-effects case study. Three main Research Questions (RQs) have been posed below:

- **RQ1:** How is 'environmental' and 'sustainability' content presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ3:** How can ESD best-practice be integrated into the Japanese Higher Education EFL Classroom and can ESD best-practice contribute to students' construction of environmental knowledge, values, beliefs, and norms?

Between 2016 and 2018, the author conducted research on textbooks commonly used in Japanese HE within the EFL classroom. The author built a corpus of more than 55,000 words garnered from textbooks and used several novel analysis tools to analyze the corpus including text analysis, data mining techniques, and corpus analytical tools like ANTCONC software. A separate corpus of images found in the textbooks was constructed, and the text-image interplay was analyzed used similar techniques. The research results showed that EFL textbooks used in Japanese HE containing sustainability content show limited intent to influence students' environmental values, beliefs, and norms. Furthermore, environmental content is often disconnected from other content, limiting the ability of students to contextualize their understandings of environmental content. Students are

rarely challenged by the texts on their beliefs and values about the environment in order to foster adoption of Pro-Environmental Behaviors (PEBs), the ultimate aim of ESD. Lastly, the text-image interplay further supported the textual and corpus analysis findings as the images, another tool that can be used to influence students' environmental beliefs and values, were seldom used to strengthen students' knowledge, values and beliefs about the environment. In summary, textbooks that commonly use 'environmental' and 'sustainability' content were rarely furthering the goals of ESD, which is PEB, thus presenting a missed opportunity for EFL textbook writers and curriculum designers to not only further students' language skills but also to empower students for adopting positive sustainability practices.

Between Fall 2016 and Fall 2017, the author conducted a program-effects case study at Kwansei Gakuin University, where he was employed as an Associate Lecturer of English (ALE). The author taught a Special Topics (ST) course in 'Environmental Ethics' during the Fall 2016 and Fall 2017 semesters and collected data from his classes such as reflection tasks, exam marks, survey data, and semi-structured interviews. The research examined the difference between a Content and Language Integrated (CLIL) course (Fall 2016) and an ESD best-practice CLIL course (Fall 2017). Results from the program-effects case study show that students benefited from the ESD best-practice CLIL course by showing an improvement in marks, motivation, and, significantly for this study, a demonstrable increase in environmental values, beliefs, and norms. Thus, ESD best-practice integration into the language classroom was found to promote students' environmental literacy, suggesting wider implications for university EFL instruction.

This research is unique as the first attempt to investigate integration of 'environmental' and 'sustainability' content in Japanese EFL classes. There are significant bodies of research in EFL and ESD separately, but very little research has been done on how ESD can be integrated into the EFL classroom in HE. Furthermore, the research has implications that stretch beyond Japanese HE, and can be applied more broadly in international contexts where 'environmental' and 'sustainability' content is used in language teaching.

The author concludes with a Language Education for Sustainable Development (LESD) Framework (Figure 6.1), which is based on the results of the textbook analysis and program-effects case study. The framework aims at informing university teachers on how to integrate ESD into the language classroom. This Framework also aims to promote effective mainstreaming of ESD in HE to empower university students with the knowledge, skills, values, beliefs, and desire to work towards a more sustainable future.

**Key words:** *Education for Sustainable Development (ESD), English as a Foreign Language (EFL), Environmental Literacy (EL), Japanese Higher Education, Higher Education Institutions (HEIs), Textbook Analysis, VBN-Model, KPV-Model, Environmental Education (EE), Language Education for Sustainable Development (LESD)*

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## IV. ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **AC** | Awareness of Consequence (VBN Model) |
| **ALE** | Associate Lecturer of English |
| **ANTCONC** | A freeware corpus analysis toolkit for concordancing and text analysis developed by Laurence Anthony |
| **AR** | Ascription of Responsibility (VBN Model) |
| **BDY** | Biodiversity (Subtopics commonly found in ESD) |
| **CCE** | Climate Change Education |
| **CEFR** | The Common European Framework of Reference for Language |
| **CLIL** | Content and Language Integrated Learning |
| **DESD** | Decade of Education for Sustainable Development |
| **EAP** | English for Academic Purposes |
| **EB** | Environmental Behavior (VBN Model) |
| **EC** | Ecosystems and Cycles (Subtopics commonly found in ESD) |
| **EE** | Environmental Education |
| **EEL** | Environmental Education Lab (at Kyoto University) |
| **EFL** | English as a Foreign Language |
| **ELF** | English as a Lingua Franca |
| **ELP** | English Language Program (at Kwansei Gakuin University) |
| **ESD** | Education for Sustainable Development |
| **ESL** | English as a Second Language |
| **ESP** | English for Specific Purposes |
| **EV** | Ecological Vision (VBN Model) |
| **G&Os** | Goals and Objectives (of a course) |
| **HE** | Higher Education |
| **HEIs** | Higher Education Institutions |
| **KGU** | Kwansei Gakuin University |
| **KPV model** | **K**nowledge, Social **P**ractices, & **V**alues model |
| **LESD** | Language Education for Sustainable Development |
| **LT** | Language Teaching |
| **LOs** | Learning Outcomes |
| **KWIC** | Key Word In Context from ANTCONC |

| | |
|---|---|
| **MEXT** | The Ministry of Education, Culture, Sports, Science and Technology in Japan |
| **MDGs** | Millennium Development Goals |
| **NEP** | New Ecological Paradigm |
| **PO** | Pollution (Subtopics commonly found in ESD) |
| **PEB(s)** | Pro-Environmental Behavior(s) |
| **PN** | Personal Norms (VBN Model) |
| **RQ** | Research Question |
| **SD** | Sustainable Development |
| **SDGs** | Sustainable Development Goals |
| **SLT** | Sustainability Literacy Test |
| **SPS** | School of Social Policy (at Kwansei Gakuin University) |
| **SPSS** | IMB Software package used for statistical analysis |
| **SSIs** | Semi-Structured interviews |
| **ST** | Special Topics (course at Kwansei Gakuin University) |
| **UoR** | Use of Resources (Subtopics commonly found in ESD) |
| **UN** | United Nations |
| **UNESCO** | United Nation Educational, Scientific and Cultural Organization |
| **VBN-Model** | Values, Beliefs, and Norms Model (for environmental behavior) |

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# VI. LIST OF PUBLICATIONS

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# CHAPTER 1: INTRODUCTION

## 1.1 Overview

This chapter will introduce the scope and main themes of the research. The literature is organized around three main areas: Education for Sustainable Development (ESD), English as a Foreign Language (EFL), Mainstreaming ESD in the EFL Classroom. Currently, ESD as a discipline and EFL as a discipline have significant bodies of literature but no literature is looking at the nexus between the two disciplines. This thesis seeks to investigate this gap in the literature and better understand how ESD can be integrated into the language classroom in Higher Education Institutions (HEIs).

## 1.2 Education for Sustainable Development

### *1.2.1 The Emergence of ESD*

During the 1960s and 1970s, significant awareness of environmental concerns emerged worldwide because of widespread incidents of environmental degradation and pollution. For instance, Rachel Carson's 1962 seminal publication, 'Silent Spring' (Carson, 1962), outlined concerns about chemical pesticides, challenged the responsibility of science for protecting the environment, and questioned the "dirty side" of technological progress. Her publication, followed by many other reports by concerned scientists and citizens, alarmed citizenry, raised public environmental consciousness, and fostered new approaches to education. Environmental Education (EE) was largely the product of the public awakening to the realities of pollution and environmental destruction following Carson's work.

Environmental Education (EE) is widely understood as a "rich mixture of teaching strategies, subject matter, learning locations, and multi-disciplinary complexity" that is aimed at improving environmental literacy. EE did not just impart environmental knowledge on students, but had them strive for deeper understandings that could be applied more broadly in the world around them (Coyle, 2005, pp. 1-5). The popularity of EE grew and, In the 1970s, there were many conferences focussing on Environmental Education (EE) and how to best implement it within the education system, such as the Man and Environment Conference held in Stockholm in 1972. This was followed by the UNESCO-UNEP conference on Environmental Education in Tbilisi in 1997, the Brundtland

Commission on Environment and Development in 1987, and the UNCED Earth Summit in Rio de Janeiro in 1994, which further developed EE, but also started to define and build the concept of 'Sustainable Development' (SD). Sustainable Development, as defined by the Brundtland Report's "Our Common Future" publication, is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43).

The concept of Sustainable Development was further advanced by Agenda 21, a UN non-binding action plan on Sustainable Development, that was released alongside the Earth Summit in 1994. Agenda 21 stressed education as a critical factor in promoting environmental awareness and building the capacities for sustainable development:

> "Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. While basic education provides the underpinning for any environmental and development education, the latter needs to be incorporated as an essential part of learning. Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication" (Agenda 21, 1992, p. 36.3)

It was through these EE conferences in the 1970s to the 1990s, along with publications like Agenda 21 and the Brundtland Report, that the ideas of Education for Sustainable Development (ESD) began to take shape (Wals & Kieft, 2010, pp. 11-15). ESD is an extension of Sustainable Development (SD) focused on education and is tasked with identifying sustainable goals and working towards them in

order to confront and solve social, economic, and environmental problems (McKeown, 2002, pp. 13-14). Furthermore, ESD is a complex concept because it takes on many forms around the world, is context specific, involves educating and training, and promotes the development of public understanding (ibid). ESD can be understood as an umbrella term that expands on the original premise of EE by centering the concept of sustainability in human-environment interactions.

Building upon this definition and looking to promote the concept of ESD more broadly, the United Nations Decade of Education for Sustainable Development (DESD) (2005-2014) was approved at the World Summit of Sustainable Development in 2002. The DESD puts forward the following vision for ESD in education in its Framework for a Draft International Implementation Scheme:

> "Education for sustainable development has come to be seen as a process of learning how to make decisions that consider the long-term future of the economy, ecology, and equity of all communities. ...This represents a new vision of education, a vision that helps people of all ages better understand the world in which they live, addressing the complexity and interconnectedness of problems such as poverty, wasteful consumption, environmental degradation, urban decay, population grown, health, conflict and the violation of human rights that threaten our future. The vision of education emphasizes a holistic, interdisciplinary approach to developing the knowledge and skills needed for a sustainable future as well as changes in values, behavior, and lifestyles" (UNESCO, 2003)

The overall goal of the DESD was "to integrate the principles, values and practices of sustainable development into all aspects of education and learning" (UNESCO, 2012). According to the UNESCO DESD Final Report, the greatest achievements of the DESD were the establishment of ESD polices by member states, integration of ESD principles in educational curricula at many levels, and the development of many new ESD learning approaches (UNESCO, 2014, p. 185). Furthermore, UNESCO recognized the need to sustain the momentum built from the DESD and established the Global Action Program (GAP) in November 2014 in Nagoya, Japan. GAP is prioritising the following five areas to continue the push for ESD adoption, mainstreaming, and integration:

- strengthen education in sustainable development policy and sustainable development in education policy;
- transform learning and training environments;

- build capacity of educators and trainers;
- empower and mobilize youth;
- and accelerate sustainable solutions at the local level (UNESCO, 2014, pp. 181-182).

In addition to GAP, the UN introduced the Sustainable Development Goals (SDGs), which includes reference to ESD and reinforces the important role education plays in promoting more sustainable societies as seen in Figure 1.1 below (UNESCO, 2014, pp. 40-41). According to UNESCO, the SDGs are "an ambitious and universal agenda to change the world" with the aim of securing "a sustainable, peaceful, prosperous, and equitable life on earth for everyone now and in the future" (UNESCO, 2017, p. 6). As part of the push for ESD in formal education, Higher Educational Institutions (HEIs) play a major role in integrating ESD, and the 17 SDGs, into curriculum as well as through campus sustainability initiatives.


**Figure 1.1: The Sustainable Development Goals (United Nations, 2016)**

### *1.2.2 ESD in Higher Education*

HEIs have several important responsibilities to further the ESD agenda. According to UNESCO's "Shaping the Future We Want: DESD (2005-2014)" Final Report, these responsibilities are:

- to prepare students for the future;
- to seek understanding of causes of global challenges and find solutions;
- to demonstrate excellence in sustainable development practices through good governance, community relations and the management of the institutions' environmental footprint (UNESCO, 2014, p. 141).

Universities play a major role in keeping the momentum of the DESD alive so many universities have initiated efforts to integrate ESD across the curriculum, often as part of broader campus sustainability initiatives (see Grierson & Hyland, 2012; Azapagic, Perdan, & Shallcross, 2005; Barlett & Chase, 2013; Barth, Michelsen, Rieckmann, & Thomas, 2016; Barlett & Eisen, 2002). For example, many engineering programs have revised curricula to include ESD concepts and skills (Minster, et al., 2013). In general, ESD has seen significant progress in campus sustainability initiatives, like campus greening, but there are several areas where ESD has proven challenging.

Many fields, such as nursing, drama and architecture, have been slow to integrate or mainstream ESD in their curriculum either out of institutional resistance to change (Corcoran & Wals, 2004; Stevenson, 2006; Johnston, 2013), or because the concepts do not easily translate into the subject areas (Goodman and Richardson 2010; Kleiman 2010). Regardless of the challenges, ESD has been widely adopted by universities around the world and embraced in many countries like Japan.

### *1.2.3 The Role of ESD in Japanese Higher Education*

UNESCO has made significant effort in order to have countries make linkages to ESD in their national policies and educational systems and the Japanese government "has been a major donor and supporter of cooperative regional efforts to promote sustainable development through education" (UNESCO 2014, p.46). Japan has also made significant efforts at home to integrate ESD into its educational policy.

Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) is not only promoting the use of English in HE as part of its policy of internationalization, it has also drawn up a plan for ESD at all levels of education (Ministry of Education, Culture, Sports, Science and Technology, 2016). To be clear, formal ESD falls under the responsibility of MEXT, whereas non-formal ESD falls within the purview of the Ministry of the Environment (MOE), which was a strong supporter of the DESD (Singer and Nagata 2017). MEXT has an ESD Action Plan for Japanese HE institutions with the following aims:

- to encourage everyone and every organization to participate in the creation of a sustainable society within the period 2005 to 2014;
- to address the integrated development of the environment, economy, and society, with issues that focus on environmental conservation as a starting point;
- to increase awareness of the challenges facing developing countries and strengthen cooperation with them (Ministry of Education, Culture, Sports, Science and Technology, 2016, p. 5).

However, the implementation of ESD programs and initiatives in Japanese higher education has been slow to develop compared to progress at the primary and secondary level (Singer and Nagata 2017, 28). ESD integration is not occurring very quickly in Japanese HE within the formal curriculum so students are often not exposed to ESD concepts in university unless they take courses related to sustainable development. On the other hand, English is mandatory to a certain extent in all Japanese universities in line with the policies of the Japanese government. UNESCO has recognized that finding ways to better integrate ESD in university subjects is very important as a follow up to the DESD and to implement the Sustainable Development Goals (UNESCO, 2017). ESD in Japan is becoming more well-known through the promotion of the Sustainable Development Goals (SDGs) in the lead up to the Osaka World Expo in 2025 and can be commonly seen in advertising throughout Japan (Figure 1.2). Although SDG–related advertisements have proliferated in Japanese media, there is no literature on whether this is building understanding of SDGs among Japanese university students.


**Figure 1.2: Image of the Kyoto SDGs on a bus advertisement**

Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT) regards ESD as an integral part of Japanese education. All public primary and secondary schools require that each grade's curriculum include a prescribed number of hours for "integrated education," which often includes ESD themes such as environmental sustainability and local cultural heritage, although implementation may vary by school. However, ESD in higher education is yet to be systematically addressed:

> "ESD implementation in curricula or student-led initiatives at Japanese universities have lagged behind what can be found in primary and secondary schools and in universities in many other developed nations, but sustainability-linked research and green campus efforts are expanding" (Singer & Nagata, 2017, p. 28).

As mentioned above, ESD is being implemented throughout the Japanese education system but there is still much debate about how to integrate ESD and what best-practice in higher education is.

### *1.2.4 Best Practice in ESD*

ESD has many powerful implications for Higher Education Institutions (HEIs) if it is embraced as an instrument for educating future leaders in society. First, the goal of ESD is essentially to integrate the principles, values, and goals of sustainable development into the educational realm to promote sustainable societies (UNESCO, 2012). In principle, it is important for HEIs to adapt and mainstream ESD into disciplines as a way of educating future leaders in how to mitigate, become resilient to, and fight challenges like climate change (UNESCO, 2017). Second, ESD has the potential to transform educational institutions and disciplines through the 'mainstreaming' process, or the integration of ESD into institutional policy and discipline course work. This means that universities around the world can better adopt problem-solving approaches that integrate such ESD elements as systems thinking, evidence-supported strategies, clear guidelines and competencies, and strong collaboration between societal institutions including government and businesses (Wiek, Withycombe, Redman, & Banas, 2011). Thus, HEIs lead society in developing the transformational technologies, ideas, strategies and policies that will mitigate the costs of environmental degradation and lead to solutions. Lastly, ESD can be a powerful concept that serves as a nexus between disciplines. Currently, HEIs face pressures to promote internationalization, interdisciplinary research, and cross-disciplinary research. ESD, by its very nature, seeks to cross international divides because global problems like climate change know no border, and the solutions to such problems are to be found between disciplines.

ESD principles and learning approaches have been widely discussed in the literature. For instance, ESD has been linked to the concepts of critical thinking, futures thinking, interdisciplinary thinking, systemic thinking, ecoliteracy, collaboration, active learning and participatory learning, to name a few (Tilbury & Wortman, 2004). Several recent publications have looked at ESD competencies in an attempt to help teaching professionals mainstream ESD into their classrooms (Cebrián & Junyent, 2005; Wiek, et al., 2015; Brundiers & Wiek, 2011). For the purposes of this research and the Japanese higher educational context that it takes place in, ESD best practice can be understood as:

1. Having a **student-centered approach**. According to Wiek et al (2015, pp.258), "a student-empowered approach to competence acquisition is critical as many degree programs elsewhere will face the challenge of integrating undergraduate or graduate students who may have no prior exposure to competence-based sustainability education."

2. Having an element of **problem-solving and critical thinking** in real-world sustainability issues. Competence-based educational practices such as research projects that challenge students critical thinking skills, research skills, and presentation skills are important so that students can understand the complexity of real-world sustainability issues (Brundiers & Wiek, 2011).
3. Tasking students with **Demonstrating knowledge** of environmental and sustainability issues and **communicating this knowledge in a meaningful way**. In other words, students should be able to understand a complex issue like climate change or food waste, and to communicate those insights to others so that the information is relevant and digestible.

The ultimate aim of integrating ESD best-practice into HEIs is to promote Pro-Environmental Behavior (PEBs) in people but this type of behavior change is much more challenging then it first appears.

### *1.2.5 Promoting Pro-Environmental Behavior Using ESD*

As written earlier, the ultimate aim of ESD is for students to adopt Pro-Environmental Behavior (PBE). In recent years some popular conceptual models have been developed to explain the ESD learning paradigm (Turaga, Howarth, & Borsuk, 2010, pp. 211-212). Stern's Value-Belief-Norm Model (2000), or the VBN Model, is one such conceptual model that has been very useful in understanding the "underlying values relevant to the environmental action" (ibid, pp.213). Furthermore, the VBN-Model links two previous models, the Norm-Activation model and the New Ecological Paradigm (NEP) proposed by Dunlap and van Liere (1978), and it links environmental values (Biospheric, Egoistic, and Altruistic) with the awareness of consequence, ascription of responsibility, personal norms, and, most importantly, environmental behavior (See Figure 1.3). A significant body of literature has been created using the VBN-model to explain environmental behavior such as studies that looked at pro-environmental consumption behavior (Stern, 1999).

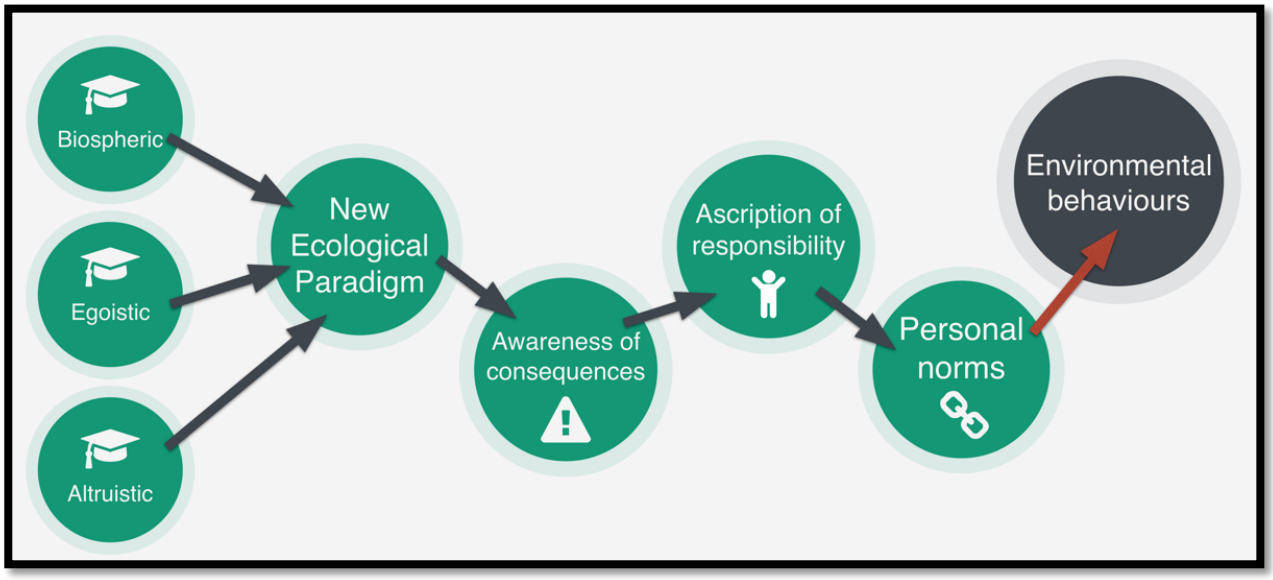


**Figure 1.3: Values, Beliefs, and Norms Model for environmental behavior**
adapted from Bronfman, Cisternas, López-Vázquez, de la Maza, & Oyanedel (2015)

According to Stern (2000), the concepts of Biospheric, Egoistic, and Altruistic form the basis of an individual's environmental values and ecological worldview, referred to as the New Ecological Paradigm (NEP) within the VBN Model (Figure 1.3). Biospheric, as defined by the VBN Model, can be understood as placing value on non-human aspects of the environment such as the feeling of protecting an endangered animal. Egoistic can be defined as self-enhancement and is often negatively correlated with pro-environmental norms (2000, pp.414). Lastly, Altruistic can be defined as self-transcendent and is often positively correlated with pro-environmental norms. 'Awareness of consequence' (AC) can be defined as an awareness that a person's actions have consequences for the welfare of others and 'Ascription of Responsibility' (AR) is the feeling of personal responsibility to undertake an action (Turaga et al, 2010, pp.212). According to Schwartz (1973, p. 353) 'Personal Norms' (PN) are the "expectations people hold for themselves while underscoring that these expectations derive from socially shared norms." For example, people who feel that it is important to carry a reusable shopping bag instead of using plastic bags hold this as a personal norm and often these types of norms are inculcated by popular culture or social media campaigns. Furthermore, personal norms such as the desire to carry a reusable shopping bag are highly dependent on Altruistic and Biospheric values (Steg, Dreijerink, & Abrahamse, 2005). Ultimately, a

person who has a strong desire to act on something (PN) will modify their 'Environmental Behavior' accordingly.

One way of measuring Values, Beliefs, and Norms is by designing survey questions that can be used to measure the relationships between the elements in the VBN-model. Bronfman et al (2015), for example, used a survey to study the environmental behaviors of a Chilean community using sociodemographic and attitudinal data based on the VBN model. Their survey was divided into three sections: a General Ecological Behavior (GEB) scale; a set of predictor variables based on the environmental values of Biospheric, Altruistic, and Egoistic; and a set of attitudinal predictor variables based on the VBN Model. The GEB scale was a set of questions using a Likert scale that asked participants to measure their own behavior within six environmental subscales such as power and water conservation. Predictor variables for Biospheric, Altruistic, and Egoistic were measured by a Likert scale where participants answered questions about how much a statement represented them. For instance, an example of one such statement in the Biospheric category was, "A person who believes that everyone must look after the environment" (2015, p. 14140). Lastly, the survey used a Likert scale to measure five attitudinal, predictive variables from the VBN Model: Ecological Vision (EV) or ecological worldview, Awareness of Consequence (AC), Ascription of Responsibility (AR), and Personal Norms (PN). An adapted survey based on the Bronfman et al (2015) survey has been used for the purposes of this research in order to better match the student profile of the Japanese students in Kwansei Gakuin University (KGU) (See Chapter 6).

## 1.3 English as a Foreign Language

### *1.3.1 Emergence of English as a Foreign Language*

Globalization has made English the dominant language of communication, entertainment, education, and capitalism (Crystal, 1997). Furthermore, it has emerged as the lingua franca, or common language, in Asia (Hamid & Nguyen, 2016, p. 26). As such, English has been integrated into educational higher education curricula across Asia including Japan (Hu & McKay, 2012; Tsui & Tollefson, 2007). Regardless of English's contentious ascent as the world lingua franca, it is part of the socio-political reality of the contemporary world (Hamid & Nguyen, 2016, p. 27). English as a Foreign Language (EFL) is one of many disciplines that fall under the umbrella of Language Teaching (LT), which also includes Content and Language Integrated Learning (CLIL), English for Academic Purposes (EAP), and English as a Second Language (ESL). EFL is what English language teaching is framed under in Japan as originally put forward by Braj B. Kachru's circles in 1990.

Kachru was one of the first academics to start looking at the concept of 'World Englishes' (WE) and 'English as the Lingua Franca' (ELF). In a seminal 1990 paper entitled, "World Englishes and Applied Linguistics," Kachru sought to understand about the countries using English and how English was taught within each country as shown in Figure 1.4 below. Although the population numbers in Figure 1.4 are currently outdated, the contemporary version of Kachru's circles contains most of the same countries today. English as a Foreign Language (EFL) can be defined as the use of English by speakers of other native languages, otherwise known as the L1 language, and is considered in the 'expanding circle' of Figure 1.4 where Japan is located. English as a Second Language (ESL) is another Language Teaching (LT) discipline, which is represented as the "Outer Circle' and can be defined as the use of English by speakers who consider English as a second language, or L2. Lastly, the "Inner Circle" is used to indicate the countries that natively speak English.

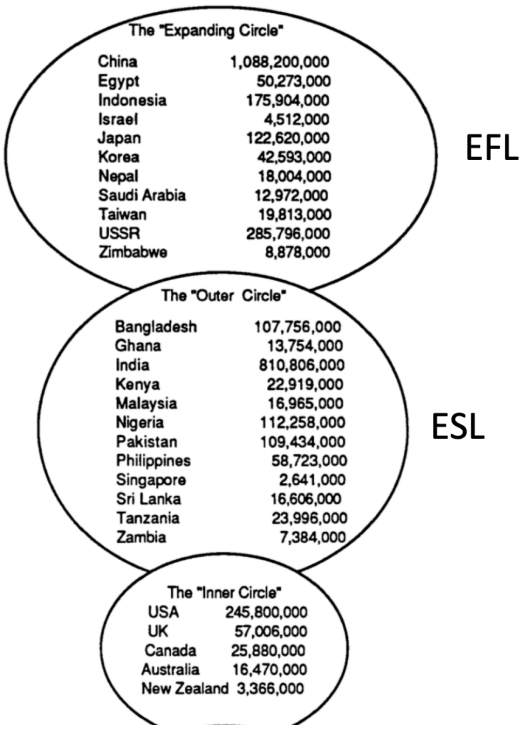


**Figure 1.4: The Relationship between world Englishes**
Taken from Kachru (1990, pp.4)

Learners of EFL in the 'expanding circle' use English for international communication and, in cases like Japan, English proficiency is widely used as a requirement for job applicants and university entrance. Learners of ESL in the 'outer circle' use English for communication in multilingual countries, such as India. Lastly, the 'inner circle' is where the majority of the population speaks English as the primary language.

EFL has four important features, which has been summed up in four ways by Nation (2013):

1. Learners have clear and immediate needs;
2. Motivation to learn the second language (L2) is very strong;
3. There are out of classroom opportunities to observe, learn and use the language;
4. Cultural and integrational aspects of language learning take on a special importance.

A typical EFL classroom environment uses reading, listening, speaking, and writing activities to develop learner fluency and uses a variety of teaching techniques, such as Extensive Reading (ER),

to improve fluency (Nation, 2013, p. LOC 245). Significant resources and time are dedicated to learning English in Japan.

### *1.3.2 EFL in Japan*

The features of EFL mentioned previously can be observed in Japan, as most Japanese students have clear and immediate needs to use English for accessing online information and working in a globalizing society. English has become an integral part of the education system in Japan since 1989, where English oral communication was first introduced into the high school curriculum. Since then, English has been made a compulsory subject in secondary education. (Chang, 2011, pp. 197-198). Generally speaking, Japanese learners are motivated to learn English because they see the language as an opportunity often tied closely to higher paying jobs or professional opportunities. It is also a language that is tied closely with Western culture and entertainment. In terms of opportunities to observe, learn and use English, it is commonly seen in urban environments, used on TV, and even can be seen written on trendy t-shirts. Chang (2011, pp 202-203) writes that English plays an important role in Asian countries like Japan because it is seen as a way to speed up national development, understand other cultures and as a tool for international communication. Clearly, we can see that EFL and, specifically, the learning of English, is an important part of the education system in Japan and plays an important role in a globalizing world.

EFL, as a discipline, falls under the Language Teaching (LT) umbrella, it takes many forms in higher education, such as Content and Language Integrated Learning (CLIL), which takes the teaching English aspects from EFL and combines it with content.

### *1.3.3 Content and Language Integrated Learning in Japanese Higher Education*

According to Rick de Graaff (2016), CLIL is essentially the fusion of language and content in learning, teaching, and research where the teacher's role is to support learners in their second language, or L2, while being attentive to the language needs of the learners. In other words, this is a course that balances the teaching of language skills with a depth in content that offers students knowledge and understanding beyond a surface level. CLIL is commonly found in first and second year undergraduate university courses where professors are asked to teach their subject area in EFL

learners. The challenge for teachers in this situation is to make the content, environmental ethics for instance, accessible to second-language learners in English and to scaffold the content in the course in a way that both offers English skill practice and useful content in the area of study. The use of scaffolding or designing a curriculum that introduces simpler language skills early in a course of study and then advances them over the course of the study, is common in Language Teaching.

The benefits of CLIL courses are multiple according to Coyle (2008, pp. 104-105) and include the following:

- Raise learner linguistic competence and confidence;
- Raise teacher and learner expectations;
- Develop risk-taking and problem-solving skills in the learners;
- Increase vocabulary learning skills and grammatical awareness;
- Motivate and encourage student independence;
- Take students beyond 'reductive' foreign language topics;
- Improve L1 literacy;
- Encourage linguistic spontaneity (talk) if students are enabled to learn through the
- Develop study skills, concentration—learning how to learn through the foreign
- Generate positive attitudes and address gender issues in motivation;
- Embed cultural awareness and intercultural understanding into the curriculum.

As the benefits of CLIL are multiple, many teachers in Japanese HE have adopted CLIL approaches in their classrooms. In order to do this effectively, many teachers use textbooks to teach both CLIL and EFL courses.

### *1.3.4 The Role of Textbooks in Japanese Higher Education*

Japanese tertiary EFL and CLIL courses rely heavily on textbooks that are produced by big international publishers like Cengage, Oxford University Press, and Pearson Longman. "Textbooks represent one of the pillars of formal education and they often represent the actual curriculum, since they may heavily influence the content, the approach, and the teaching style" (Caravita, et al. 2008, 99). In fact, EFL textbooks in Japanese higher education are often representative of the whole curriculum of language teaching, as many university programs rely on EFL textbooks as the only or main part of the curriculum. This means that these textbooks determine the sequence of topics and the topics themselves, and through the text they offer values and beliefs to students. However, very

little research into these values and beliefs have been done in terms of how they affect Japanese student's construction of knowledge, beliefs, and values about the environment.

Currently, Japanese students in higher education are not mandated to engage in 'environmental education' in order to graduate, and many students only get exposed to these ideas in a limited way through EFL textbooks. Thus, better ways to mainstream ESD into the EFL classroom could help to bridge this gap.

## 1.4 Mainstreaming ESD in the EFL Classroom

In terms of internationalization, MEXT has dedicated significant resources to promote English as a medium of studies in Japanese universities and to promote the globalization of HE in Japan. According to a MEXT publication entitled, 'Higher Education in Japan,' there is a clear push towards English as a medium of instruction:

> "Amid ongoing globalization, in order to develop an educational environment where Japanese people can acquire the necessary English skills and also international students can feel at ease to study in Japan, it is very important for Japanese universities to conduct lessons in English for a certain extent, or to develop courses where students can obtain academic degrees by taking lessons conducted entirely in English" (Ministry of Education, Culture, Sports, Science, and Technology, 2016, p. 17).

Furthermore, MEXT is at the forefront of developing 30 Japanese universities as the center for internationalization in HE with a significant budget of 4.1 billion Yen per year for the 'Top Global Universities Project' (Ministry of Education, Culture, Sports, Science, and Technology, 2016, p. 19). This program has English at the core of its implementation plan with, for example, the creation of English University programs, the hiring of English teaching staff, promoting international cooperation, and bringing in English-speaking students from overseas as the goals. The Japanese government clearly has an interest in increasing the level of English for Japanese students but to also to promote Japan as a globalizing society.

In terms of internationalization, MEXT has dedicated significant resources to both promote English as a medium of studies in Japanese universities and to promote more internationalized education

by instituting the Global 30 program and the Top Global University Project. MEXT has also drawn up an Action Plan as the capstone to the DESD with goals that push Japanese HE institutions to integrate principles of sustainability into policy and curriculum. Clearly, the Japanese government sees a need for students who not only have English language skills but are also versed in the concepts of sustainability to meet the challenges of a globalizing and environmentally threatened world. Furthermore, the promotion of EFL in Japanese higher education can be seen as a means of fostering students who can live and work abroad, students who are linguistically competent in a globalizing workplace, and, more broadly, future citizens who can represent Japan in a globalizing world.

Mainstreaming ESD in all disciplines, including English-language education, is an important goal of ESD in order to educate students in sustainable best practices and promote the creation of a sustainable future. Although EFL may not be intuitively related to ESD, English education can contribute significantly in two important ways:

1. First, many topics commonly found in EFL textbooks and classrooms fall within the purview of ESD and;
2. Secondly, English education can play a significant role in not only promoting sustainability concepts, like those found in the Sustainable Development Goals (SDGs), but also initiating a dialogue with the values, beliefs, and norms associated with sustainability.

As mentioned earlier, the SDGs feature some of the most pressing Sustainable Development (SD) challenges the world currently faces and use ESD as a way to frame the SDGs from an educational viewpoint. Integrating the SDGs in the EFL classroom is one way of introducing meaningful content in the language classroom.

Japan's Ministry of Education, as well as most sectors of society, recognizes that Japanese students have a strong need to obtain mastery of English. Consequently, English is a compulsory subject in primary, secondary and higher education (Chang 2011, 197-198). As for expanding ESD-linked content, one approach is to seek to include in the curriculum some discussion of the United Nations Sustainability Development Goals, or the SDGs (Figure 1.1). The SDGs include seventeen goals ranging from, "No Poverty" to "Reduced Inequalities" (United Nations, 2016). Furthermore, each of these broad goals opens onto a wealth of connected ideas and topics that would make for effective chapters in English textbooks or engaging lessons. For instance, "Reduced Inequalities" can be used to create materials on topics such as economic growth, landlocked developing countries, or income

inequality between the rich and the poor. The material and topics that are provided by the SDGs are extremely dynamic in their broad reach, and, more importantly, they deal with real social, economic, and environmental problems with which students have a sincere interest in engaging.

EFL's primary goal is to teach students English, which is often done through the use of content and topics that help facilitate English discussion, writing, reading, and listening. However, the topics used in EFL are often seen as secondary to the goal of learning English and are frequently unappealing for students or are taught in superficial ways. Superficial treatment of topics may result in EFL text content that is quickly forgotten by students as they proceed to the next chapter. Content like the SDGs, however, include engaging and timely topics that can easily be connected to students' fields of study. In addition, EFL, as a communicative and interactive discipline, offers numerous possibilities for exploring topics in the classroom in meaningful ways. By its very nature, "… a well-balanced [EFL] course consists of four equal strands: (1) meaning-focused input, (2) meaning-focused output, (3) language focused learning, and (4) fluency development" (Nation, 2013). This means that learners in EFL contexts are engaged in ample listening and reading (meaning-focused input) and speaking and writing (meaning-focused output), are using language features such as grammar and vocabulary (language focused learning) and are making use of what they know (fluency development). These four strands can be strengthened by integrating interesting content rather than by regarding content as simply a means, for instance, to teach a grammar point. By using content as merely a means to an end, students are deprived of a genuine opportunity to weave in the four strands meaningfully. Furthermore, the very nature of practicing a language allows for use of this language in debates, conversations, and opportunities to reflect or offer opinions. This is not only useful for learning a language but promotes engagement with attitudes and values. Therefore, using the SDGs as a source of content in EFL courses will allow for a more meaningful teaching opportunity in the classroom as well as more memorable lessons for students.

This dissertation seeks to understand how effectively environmental content is currently being employed in EFL textbooks used in Japanese Higher Education and how Education for Sustainable Development (ESD) can effectively be used in the language classroom to improve environmental knowledge, values, beliefs, norms, and promote Pro-Environmental Behaviors (PEBs).

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# CHAPTER 2: METHODOLOGY

## 2.1 Overview

This chapter elucidates supporting research questions and outlines the methodological approaches used in this study. The structure and flow of the thesis is displayed in Figure 2.1 and detailed information of the mixed-method approaches and tools used in the analysis of data is provided. This research aims to understand how environmental content is currently being employed in EFL textbooks and how ESD best-practice can be effectively integrated in the language classroom to improve environmental knowledge, values, beliefs, and norms.

## 2.2 Research Scope, Research Questions, and Structure of the Thesis

The author applied a mixed-methodological approach, including corpus analysis, text analysis, text mining, codification, Semi-Structured Interviews (SSIs), and statistical analysis. The analysis can be broken up into two main sections: Textbook Analysis and a Program-effects Case Study.

Overall, this thesis seeks to answer the following three research questions:

- **RQ1:** How is sustainability-linked content presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ3:** How can ESD best-practice be integrated into the Japanese Higher Education EFL Classroom and can ESD best-practice contribute to students' construction of environmental knowledge, values, beliefs, and norms?

The structure and flow of the thesis is summarized in Figure 2.1 below. The author first examines how sustainability-linked content is currently being used in Japanese Higher Education in relation to ESD. The author then explores how ESD best-practice can be used in the language classroom in

Japanese Higher Education (HE) through research carried out with students over two semesters at Kwansei Gakuin University (Kwansei Gakuin University, 2017). Finally, the author will make recommendations for how ESD can be used in the language classroom through a Language Education for Sustainable Development (LESD) Framework, also known as the 'Framework for ESD Integration into EFL as a Process' (Jodoin & Singer, 2019) (Figure 6.1).

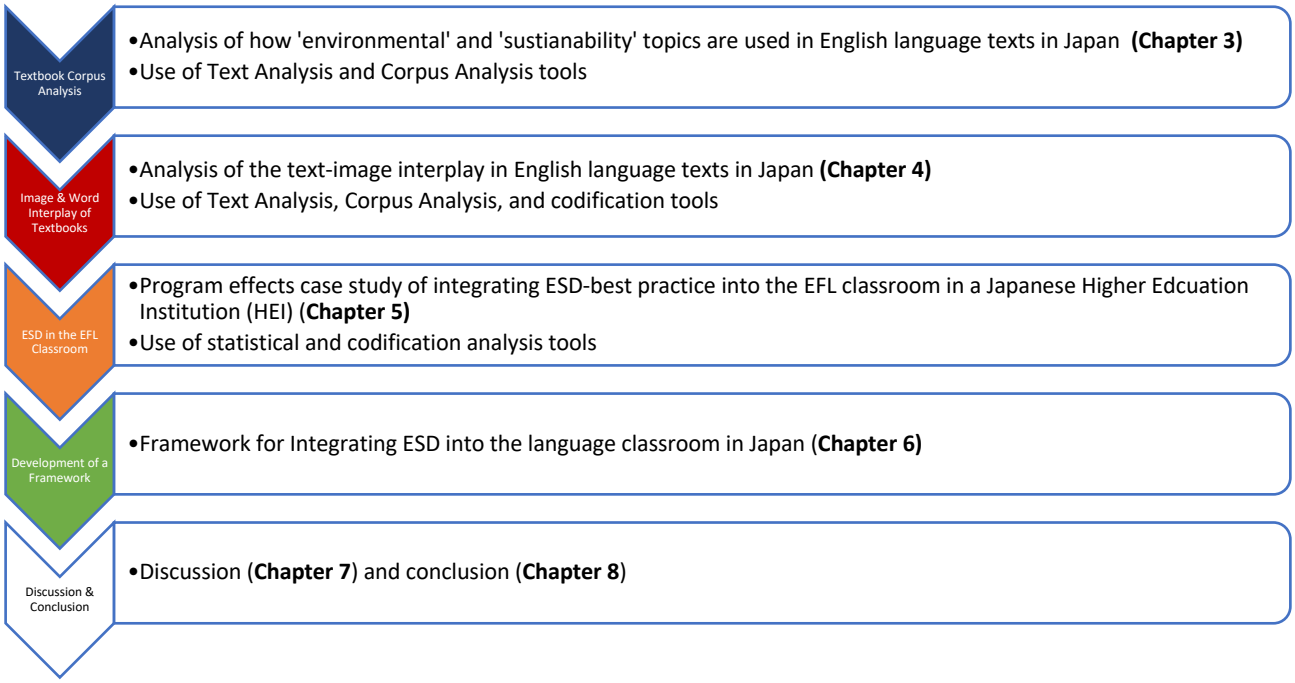


**Figure 2.1: Structure and flow of the thesis**

## 2.3 Methodology

### *2.3.1 Textbook Analysis*

From Fall 2016 to Spring 2018 the author collected samples of sustainability-linked content commonly found in EFL textbooks used in Japanese university language classrooms. These sample texts were often entire chapters found within an EFL textbook on themes ranging from climate change to forests. The corpus was used to examine the linguistic information and the image-text interplay. These texts were transcribed and composed a corpus of over 55,000 words and 140 images from a collection of over 30 sample texts as of Spring 2019. A built corpus is a powerful tool for analysis that can be used to understand the linguistic information that is contained within the

sample texts as well as understanding common themes, concepts, and ideas that appear over multiple sample texts and imagery.

This research used a mixed-method approach to extract results from the built corpus. Four main tools were used to extract results and analyse the corpus: ATLAS.ti, the programming language R, Microsoft Excel, SPSS, and AntConc (Anthony, 2014).

The first tool was ATLAS.ti, which is a qualitative tool used to code texts and perform basic analysis. The software was used to code texts and images found within a corpus using a codification framework. This software allows the user to quickly view and code texts and images found within the corpus and perform some basic analysis as well as quickly search the text for specific codes, words, or images.

The second tool was the programming language R, which can perform very sophisticated quantitative analysis using downloaded packages. Specifically, "tm", "SnowballCC", "RColorBrewer", "ggplot2", "wordcloud", "biclust", "cluster", "igraph", “Rgraphvis” and the "fpc" packages were used to analyse the corpus and produce the word cloud, graphs, and plots found below in the results section. Furthermore, this process involved pre-processing the texts, which allows the user to remove numbers, punctuation, and common words found in English (i.e. stopwords) in order to better analyse the data (Murphy 2017). Stopwords are high frequency words found in the English language and include words like ‘the’ and ‘and.’ A list of stopwords, found in the “tm” or the ‘text mining’ package is found in Figure 3.1 and can be removed from the corpus in the pre-processing stage to better remove noise from the data.

The third tool was Microsoft Excel, to keep track of the data and perform basic statistical analysis on the findings. Microsoft Excel as well as R provided many of the data visualizations found in this thesis.

The fourth tool was SPSS, a software platform that offers advanced statistical analysis and is ideal for the analysis of survey results using a Likert scale. SPSS was used in the analysis of survey results used in the Program-effects Case Study and descriptive statistics and Independent Sample T-tests were used.

The final tool that was used was AntConc, which is a corpus analysis toolkit used for concordance and text analysis developed by Laurence Anthony (2014). This tool is used to compare instances of words found in the corpus. One main feature of AntConc used in this research is called Key Word In Context (KWIC) concordance, which allows the user to look at the context in which each instance of a word is found as well as the frequency in which it appears. This tool is very useful for corpus analysis as it works well with small to mid-size corpora and is relatively easy to use. This tool was used in combination with other tools in a novel approach to analyzing a corpus for the purposes of answering the research questions.

### *2.3.2 Theoretical Approaches to Images and Text in Textbooks*

Imagery plays a significant role in most learning contexts, whether in "image-text relations" (Unsworth, 2006) or in multimodal constructions of knowledge (Kress, 2003; Weninger & Kiss, 2013). The construction of knowledge is achieved through the interplay of written language and imagery in contemporary writing, teaching, materials creation, and assessment (Guo & Feng, 2015, p. 115). There is little dispute that imagery is a powerful medium to convey ideas and to support writing in language teaching and education generally. Therefore, an analysis of the environmental imagery used in EFL textbooks can offer another way to evaluate a textbook's utility in promoting ESD.

Although there are many theoretical frameworks that can be used to understand the interplay between text and imagery in textbooks (Kress & van Leeuwen, 2006; Halliday & Matthiesesen, 2004), the didactics of the sciences (Astolfi, Darot, Ginsburger-Vogel, & Toussaint, 1997) as used by Carvalho et al. (2008) will be adopted for this analysis. This theoretical approach to understanding imagery is particularly useful for environmental studies because the theory has a strong natural science dimension and it is based on the KVP model (Clément, 2006), which conceptualizes three poles (Figure 2.2): Scientific knowledge (K), Values (V), and Social practices (P). Ultimately, ESD has the goal of shaping future citizen's behaviors so student knowledge about the environment (K), the values students place on the environment (V), and the influences of this knowledge and values (P) are important to understand.

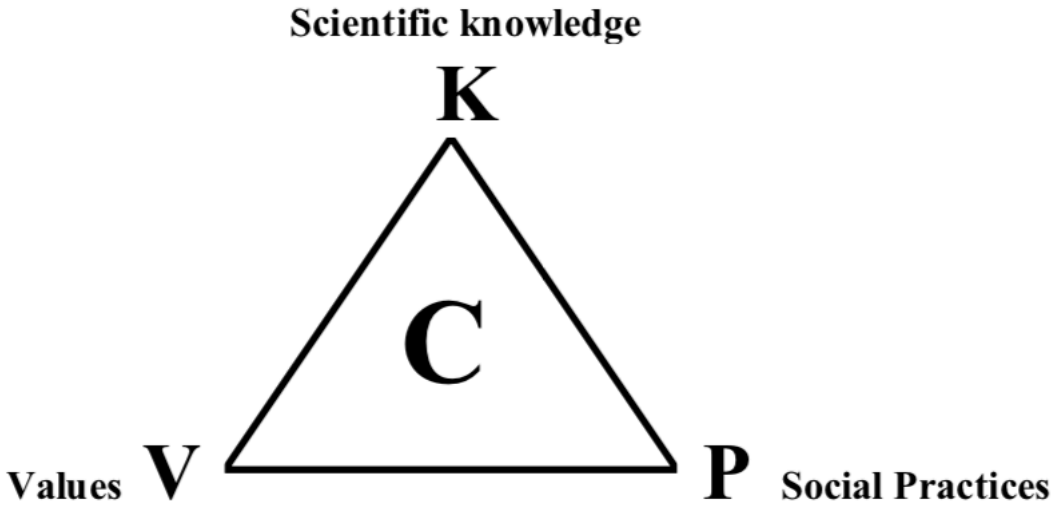


**Figure 2.2: KVP model**

In terms of Scientific Knowledge (K), for the purposes of this research images and their associated text will be analysed for their relevance to contemporary environmental science in terms of the facts and ideas presented. Values (V) are represented as the values, beliefs, ideologies, and opinions imbued in imagery and text interplay. In terms of ESD, specific values that are communicated in the sample texts and related to human-nature interactions are of particular interest. Social Practices (P) are created by the actors in tertiary education, such as the faculty, students, and administrators, as well as the textbook creators. Social Practices (P) could be representative of the messages, whether social or scientific, that are contained within the image-text interplay as intentioned by the actors associated with the text samples. The KVP model will be used as a tool for the analysis of image-text interplay as well as a basis for the four conceptions and codification used in the analysis.

### *2.3.3 Program-effects Case Study*

This research used a mixed-methodology utilizing both qualitative and quantitative techniques as outlined in the timeline below (Figure 2.5). A program effects case study was adopted in order to study how the inclusion of ESD best practice affected students' marks, survey results, and reflection tasks. A program effects case study is used to determine if changes in a course were a success or failure (Davey, 1991). This Program-effects Case Study was carried out at Kwansei Gakuin University (Kwansei Gakuin University, 2017) with students at the higher end of the English ability spectrum

(CEFR B1-B2) in a Special Topics (ST) 'Environmental Ethics' course comparing the Fall 2016 students to the Fall 2017 students. In this program effects case study, the integration of ESD best-practice in the Fall 2017 course was compared to the pre-ESD Integration Fall 2016 course and student marks, survey results, and reflection tasks were used to determine the effect. Figure 2.3 shows the assessments that stayed the same between the Fall 2016 and Fall 2017 courses and were used as a control. Figure 2.4 shows the assessments that changed between the Fall 2016 and Fall 2017 courses and were analyzed to see if student values, beliefs, and norms changed between the two courses. An overview of the criteria used for assessing student Reflection Tasks (RT), teacher-dictated reading projects, poster presentations, and PowerPoint Presentations can be found in Appendix 3.

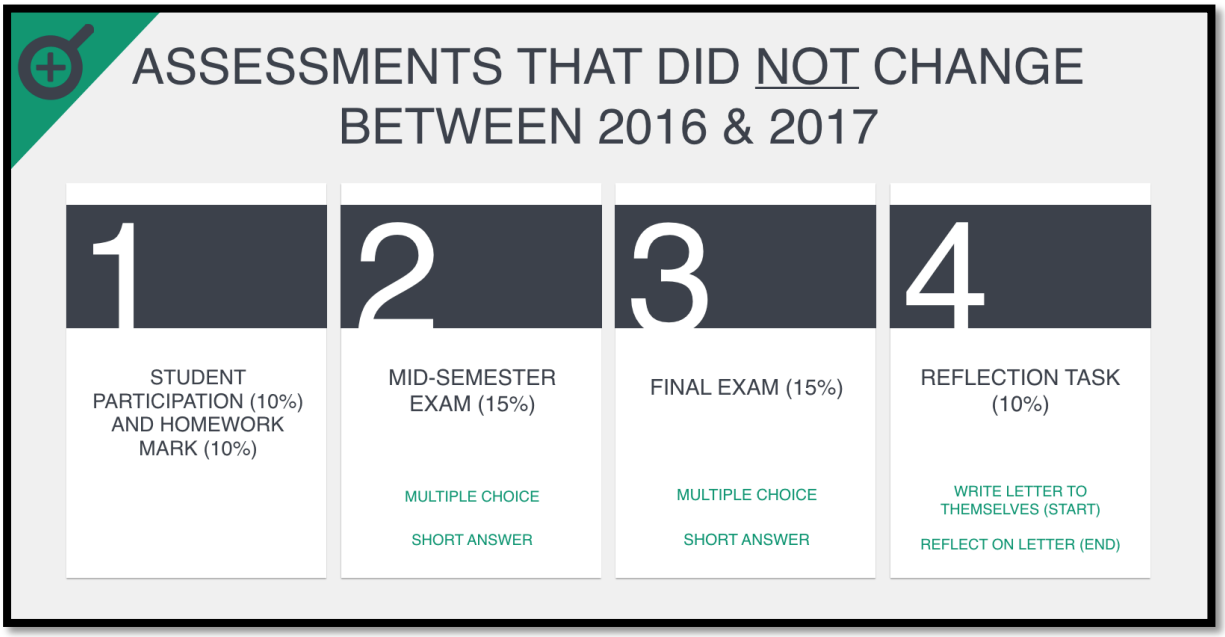


**Figure 2.3: Assessments used as a control in the program-effects case study**

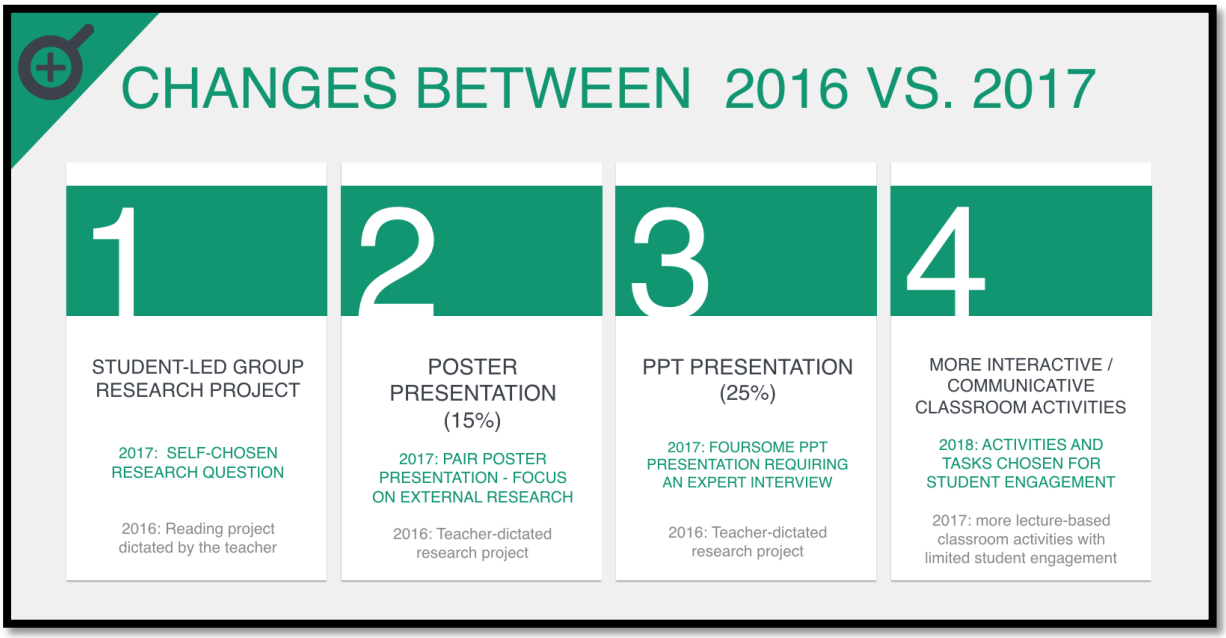


**Figure 2.4: Assessments that changed in the program-effects case study**

During the course of the research the Values, Beliefs, and Norms model (VBN-model: Figure 1.3) has been adapted to inform the creation of the survey and analyze the reflection tasks (See Appendix A3.6) based on the work of Bronfman, Cisternas, López-Vázquez, de la Maza, & Oyanedel (2015) & Turaga, Howarth, & Borsuk (2010). An adapted Bronfman et al (2015) survey was used and, where possible, questions were modified to make them more pertinent to Japanese university students. Each section, except section A, was measured using a Likert scale as represented in Table 5.1.

The marks and survey results were collected and analyzed using statistical software including SPSS and Excel, and several kinds of analysis were applied comparing the Fall 2016 & Fall 2017 classes including descriptive statistics and an Independent Sample T-test. Descriptive statistics were used to describe some of the basic data collected from marks and survey results as well as to compare the Fall 2016 and Fall 2017 classes. An Independent Sample T-Test was used to compare the means of the two independent groups of students (Fall 2016 Vs. Fall 2017) in order to determine if there are any statistically relevant indicators that show similarities and differences between the two groups.

A codification system (Table 5.2) based on the VBN-model was used to analyze student Reflection Tasks and then compare this to the survey results. This codification was confirmed by an external cross-checker for inter-rater reliability, and the results were analyzed using Excel.

Lastly, student interviews were carried out in the Spring and Fall of 2018 with three students (Figure 2.5). Consent forms (Appendix A1.2) were used and a Semi-Structured Interview (SSIs) style was adopted with an interviewer protocol to guide the interview, but the conversation was allowed to go off script at times. Interviews lasted about 30 minutes and were recorded for later analysis and codification.

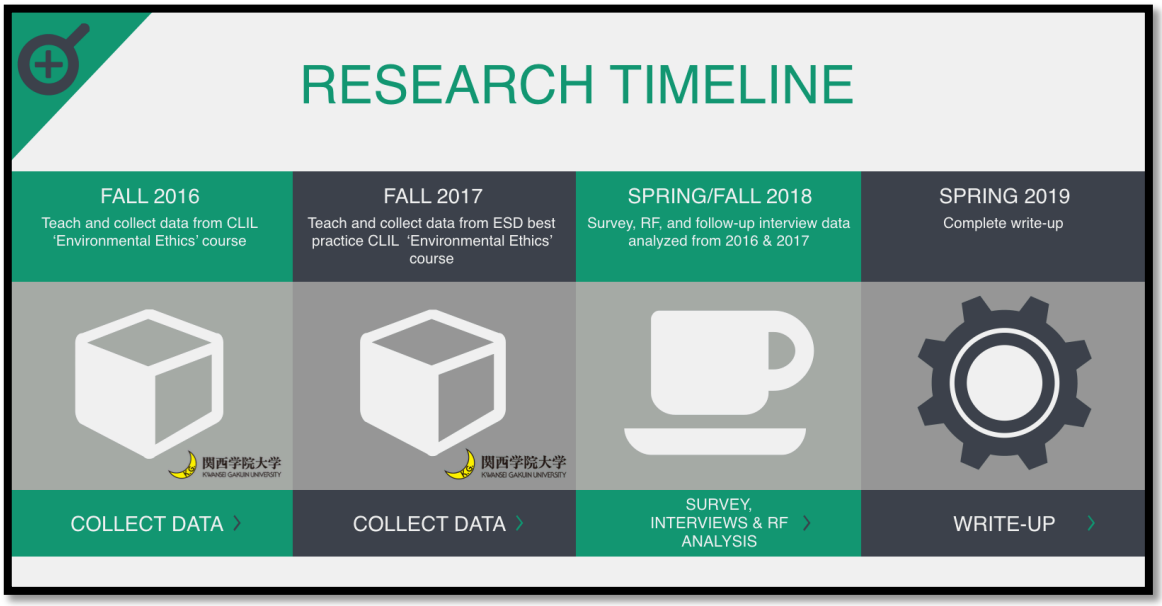


**Figure 2.5: Timeline for the program-effectscCase study research**

## 2.4 References


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# CHAPTER 3: AN ANALYSIS OF ENVIRONMENTAL CONTENT FOUND IN ENGLISH LANGUAGE TEXTBOOKS USING A CORPUS

## 3.1 Overview

This chapter examines the role that environmental topics play in English as a Foreign Language (EFL) textbooks through an analysis of a corpus of more than 55,000 words garnered from EFL textbooks commonly used in Japanese higher education. The research aimed to discover themes and patterns found in the corpus by the novel application of text analysis, data mining techniques, and corpus analysis tools.

## 3.2 Research Questions

This chapter examines the role that environmental topics play in EFL textbooks through an analysis of a corpus of over 55,000 words garnered from EFL textbooks commonly used in Japanese higher education through the use of text analysis, data mining techniques, and corpus analysis tools. This chapter seeks to understand **RQ1:** How is sustainability-linked content presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms? This research question can be broken into three sub-research questions that helped to guide the analysis of the corpus:

1. How is sustainability-linked content presented in EFL textbooks?
2. Is sustainability content found in EFL textbooks contributing to the construction of knowledge and the formation of beliefs and values about the environment?
3. Does sustainability content found in EFL textbooks link with ESD values, competencies, and behavioral transformation?

## 3.3 Methodology

The corpus is a collection of sample texts taken from a variety of EFL textbooks. These textbooks range from low intermediate, or B1 on the Common European Framework of Reference for Languages (CEFR) (Council of Europe (COE) 2001), to advanced, or C1 on the CEFR. Entire texts and chapters were included if they were associated with an 'environmental' topic, including all instructions, picture headings, grammar points, titles, and vocabulary. Most of the words found in the corpus come from reading skill texts and some listening skill transcripts were added when they were readily available. Many of the texts were written specifically for Japanese students, but the majority of texts were from major publishers like Cengage Learning and Oxford University Press, with little having been done to make the textbooks country or culture specific. In other words, many of these textbooks were published for a broad EFL or English as a Second Language (ESL) audience. Texts were chosen that dealt with an 'environmental' theme, which ranged from forests and green technologies to climate change. EFL textbooks naturally prioritize teaching English, not 'environmental' concepts, values, and knowledge. Yet this research focuses on the topic content, specifically the 'environmental' content and the construction of knowledge, beliefs, and values it conveys to students.

Table 3.1 below outlines a simple comparison of evaluation criteria between a typical EFL textbook and ESD materials. It is important to note that this is a very general overview and is purposely fashioned to show the differences a materials creator would consider in the construction of materials. The EFL textbook evaluation criteria below is from Mukundan, Hajimohammadi and Nimehchisalem (2011) and is consistent with the literature on EFL textbook evaluation generally (Rahimpour and Hashemi 2011; Ghorbani 2011). Caravita, et al (2008), on the other hand, provide an overview of a textbook evaluation criteria used for ecology and environmental education. The contrast between the two evaluative criteria is significant.

**Table 3.1: Comparative evaluation criteria of EFL and ESD textbooks**

| EFL Textbook Evaluation Criteria | ESD Evaluation Criteria |
|---|---|
| **General Attributes:**<br>Relation to Syllabus and curriculum<br>Methodology<br>Suitability to learners<br>Physical and utilitarian attributes<br>Supplementary materials<br><br>**Learning-teaching content:**<br>General<br>Listening<br>Speaking<br>Reading<br>Writing<br>Vocabulary<br>Grammar<br>Pronunciation<br>Exercises | **List of values that influence decision making in environmental issues:**<br>Moral values<br>Political values<br>Aesthetical values<br>Economical values<br>Social values<br>Ecological values<br>Spiritual values<br>Religious values<br>Scientific values<br>Egocentric values<br><br>**Conceptions:**<br>Complex vs. Linear systems<br>Relationship of humans in respect to nature<br>Global vs. local approach<br>Individual vs. social responsibility |

Source: Mukundan, Hajimohammadi and Nimehchisalem (2011, 23) and Caravita, et al. (2008, 105-107)

Regardless of how different these two approaches are to the construction of representative textbooks, sustainability themes and topics are prevalent in EFL textbooks. These topics are often used for two main reasons: Either students are familiar with them and would enjoy studying them or they complement the teaching of an English skill effectively such as a grammar point. In other words, sustainability themes and topics have lower intrinsic value when compared to the English skills found within each lesson or textbook chapter, which appears to be in direct conflict with the objectives and outcomes of ESD.

In Japanese HE, most students' exposure to ESD comes from EFL textbooks, which have not yet been deeply explored or understood as a conduit for ESD. These EFL textbooks, and specifically their texts on 'environmental' and 'sustainability' themes and topics, represent and contribute to students' environmental education. Moreover, these textbooks not only offer the only exposure to environmental concepts and values for most Japanese students in HE, but also contribute to a students' world views, attitudes and beliefs as well as convey values either hidden or revealed (Jones, Merritt and Palmer 1999, 354-355). Therefore, understanding how these topics are

represented in EFL textbooks as well as the kinds of values, topics, and understandings to which students are exposed gives us insights into how these textbooks contribute to students' environmental education.

This research used a mixed-method approach to extract results from the built corpus. The first step was building a corpus from environmental topics and themes found in EFL textbooks published after 2004. As of July 2018, the corpus contained approximately 55,000 words from a collection of over 30 sample texts. Two main tools were used to extract results and analyse the corpus. The first tool was ATLAS.ti, which is a qualitative tool used to code texts and perform basic analysis. This software allows the user to quickly view and code texts and images found within the corpus, perform some basic analysis, and quickly search the text for specific codes, words, or images.

The second tool was the programming language R, which can perform very sophisticated quantitative analysis using downloaded packages. Specifically, "tm", "SnowballCC", "RColorBrewer", "ggplot2", "wordcloud", "biclust", "cluster", "igraph", "Rgraphvis" and the "fpc" packages were used to analyse the corpus and produce the word cloud, graphs, and plots found in the results following section. Furthermore, this process involved pre-processing the texts, which allows the user to remove numbers, punctuation, and common words found in English (i.e. stopwords) in order to better analyse the data (Murphy 2017). Stopwords are high frequency words found in the English language and include words like 'the' and 'and.' A list of stopwords, found in the "tm" or the "text mining" package is found below in Figure 3.1 and can be removed from the corpus in the pre-processing stage to better remove noise from the data.

```
> stopwords("English")
  [1] "i"          "me"         "my"         "myself"     "we"         "our"        "ours"       "ourselves"
  [9] "you"        "your"       "yours"      "yourself"   "yourselves" "he"         "him"        "his"
 [17] "himself"    "she"        "her"        "hers"       "herself"    "it"         "its"        "itself"
 [25] "they"       "them"       "their"      "theirs"     "themselves" "what"       "which"      "who"
 [33] "whom"       "this"       "that"       "these"      "those"      "am"         "is"         "are"
 [41] "was"        "were"       "be"         "been"       "being"      "have"       "has"        "had"
 [49] "having"     "do"         "does"       "did"        "doing"      "would"      "should"     "could"
 [57] "ought"      "i'm"        "you're"     "he's"       "she's"      "it's"       "we're"      "they're"
 [65] "i've"       "you've"     "we've"      "they've"    "i'd"        "you'd"      "he'd"       "she'd"
 [73] "we'd"       "they'd"     "i'll"       "you'll"     "he'll"      "she'll"     "we'll"      "they'll"
 [81] "isn't"      "aren't"     "wasn't"     "weren't"    "hasn't"     "haven't"    "hadn't"     "doesn't"
 [89] "don't"      "didn't"     "won't"      "wouldn't"   "shan't"     "shouldn't"  "can't"      "cannot"
 [97] "couldn't"   "mustn't"    "let's"      "that's"     "who's"      "what's"     "here's"     "there's"
[105] "when's"     "where's"    "why's"      "how's"      "a"          "an"         "the"        "and"
[113] "but"        "if"         "or"         "because"    "as"         "until"      "while"      "of"
[121] "at"         "by"         "for"        "with"       "about"      "against"    "between"    "into"
[129] "through"    "during"     "before"     "after"      "above"      "below"      "to"         "from"
[137] "up"         "down"       "in"         "out"        "on"         "off"        "over"       "under"
[145] "again"      "further"    "then"       "once"       "here"       "there"      "when"       "where"
[153] "why"        "how"        "all"        "any"        "both"       "each"       "few"        "more"
[161] "most"       "other"      "some"       "such"       "no"         "nor"        "not"        "only"
[169] "own"        "same"       "so"         "than"       "too"        "very"
```

**Figure 3.1: List of stopwords found in the "tm" package**
Source: Feinerer and Hornik 2017

The final tool that was used was AntConc, which is a corpus analysis toolkit used for concordance and text analysis developed by Laurence Anthony (2014). This tool is used to compare instances of words found in the corpus. One main feature of AntConc used in this research is called Key Word In Context (KWIC) concordance, which allows the user to look at the context in which each instance of a word is found as well as the frequency in which it appears. This tool is very useful for corpus analysis as it works well with small to mid-size corpora and is relatively easy to use. This tool was used in combination with other tools in a novel approach to analyzing a corpus for the purposes of answering the research questions.

## 3.4 Results

### *3.4.1 Word Frequency and Word Cloud*

The words that relate directly to the topic of 'environment' and have a frequency of more than 50 occurrences in the corpus are represented in Table 3.2 below with their frequency.

**Table 3.2: List of the top 16 'environmental' words with their corresponding frequency**

| Word in Corpus | Frequency in Corpus |
|---|---|
| people | 231 |
| water | 161 |
| animals | 140 |
| species | 135 |
| energy | 105 |
| pollution | 89 |
| endangered | 83 |
| global | 79 |
| plants | 78 |
| warming | 66 |
| habitat | 65 |
| rain | 65 |
| forests | 61 |
| population | 55 |
| human | 54 |

```
head(freq, 50)
   people         can       water        will         use     animals     species      listen        many
      231         174         161         157         153         140         135         133         117
questions       think         one      energy        make   pollution     partner   endangered      global
      115         112         106         105          92          89          83          83          79
   plants       words        work       write        like        used     example     warming       world
       78          77          74          69          68          68          66          66          66
  habitat        rain        time information     forests    problems         new   listening         two
       65          65          64          64          61          61          61          60          60
  answers         get   something       cause       cars      change         oil        also        much
       60          60          59          58          57          56          56          55          55
    group  population        talk        help       human
       55          55          55          54          54
```

**Figure 3.2: List of the top fifty headwords with their corresponding frequency**

Figure 3.2 indicates that only 15 out of the 50 most frequently found words, or headwords, are directly related to the 'environment.' As mentioned earlier, these texts are usually focused on teaching English and, as such, the vast majority of the words are expected to be unrelated to the topics within the textbook.

The word cloud in Figure 3.3 below represents the words most frequently found in the corpus. Words in the word cloud appear in the text with a frequency of over 30 and the larger the word, the more often it appears in the corpus after stopwords are removed. For instance, the word 'people' is the largest because it occurs in the corpus the most frequently at 240 times.

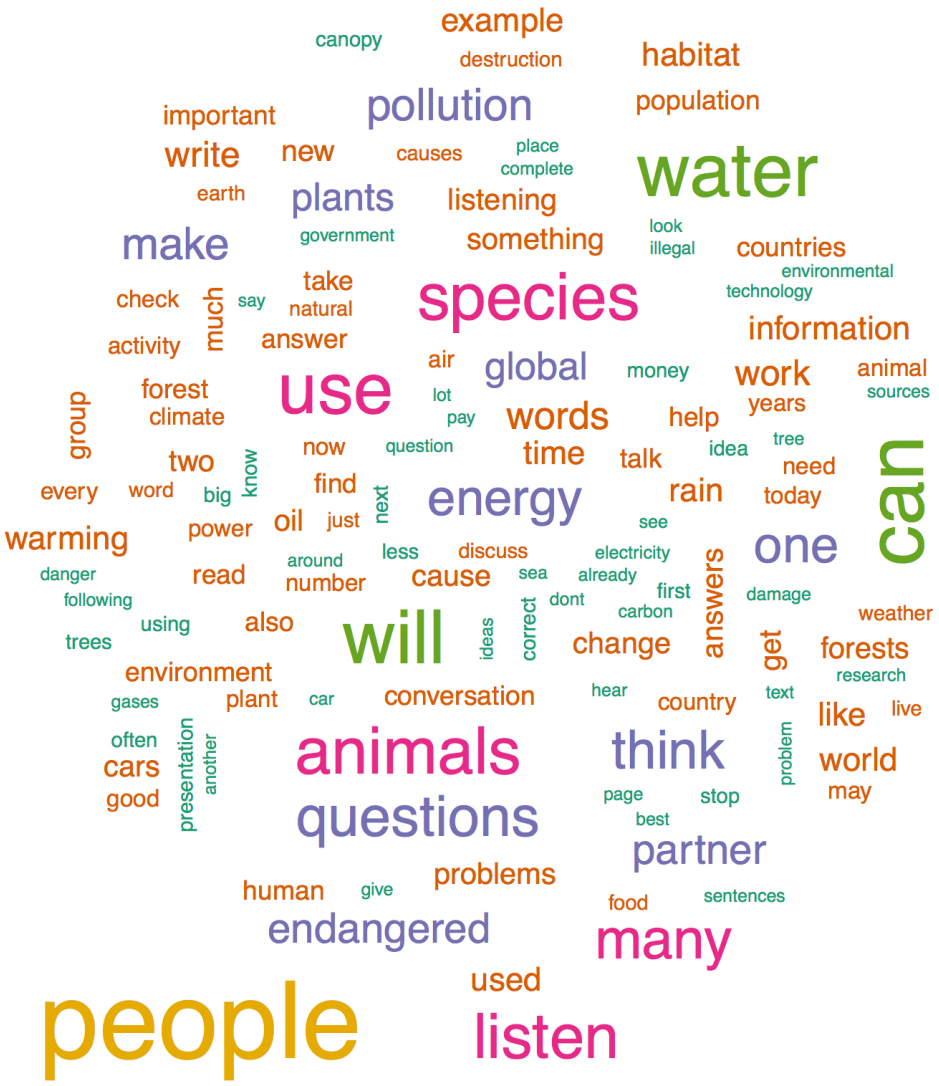



**Figure 3.3: Word cloud visualization of words found in the corpus**

The word cloud offers a clear visualization of the frequency of the words used in the text and show that there are few sustainability themes that emerge from the data. If the texts were more focused on the values and beliefs around sustainability topics, the expectation would be that clear sustainability themes would emerge from the relationship between words in the corpus.

### *3.4.2 Frequency Correlation Plot*

The frequency correlation plot in Figure 3.4 below was created by looking at high frequency words found in the corpus and their relationship to each other (Maceli, 2016). The plot shows 21 words that appear with high frequency in the corpus as nodes (in blue). These nodes show words that have strong links to each other with a threshold of at least 0.7, which indicates a relatively high correlation in relation to the size of the corpus. The higher the threshold, the more likely words are to appear close to each other in the corpus texts. The words represented in green are high frequency words connected to the environment with low relationships and links to other high frequency words in the corpus. The words in blue are words that highly correlate with each other in the corpus.

The frequency correlation plot shows some environmental themes emerging from the data, like the strong link between the word 'animal' and 'endangered' as well as the connection between the words 'global' and 'warming.' Although these trends appear in the data, there are no words appearing that are strongly related to values and beliefs. This means that the texts do not seem to be promoting thinking and attitudes necessary to cope with environmental issues such as climate change.

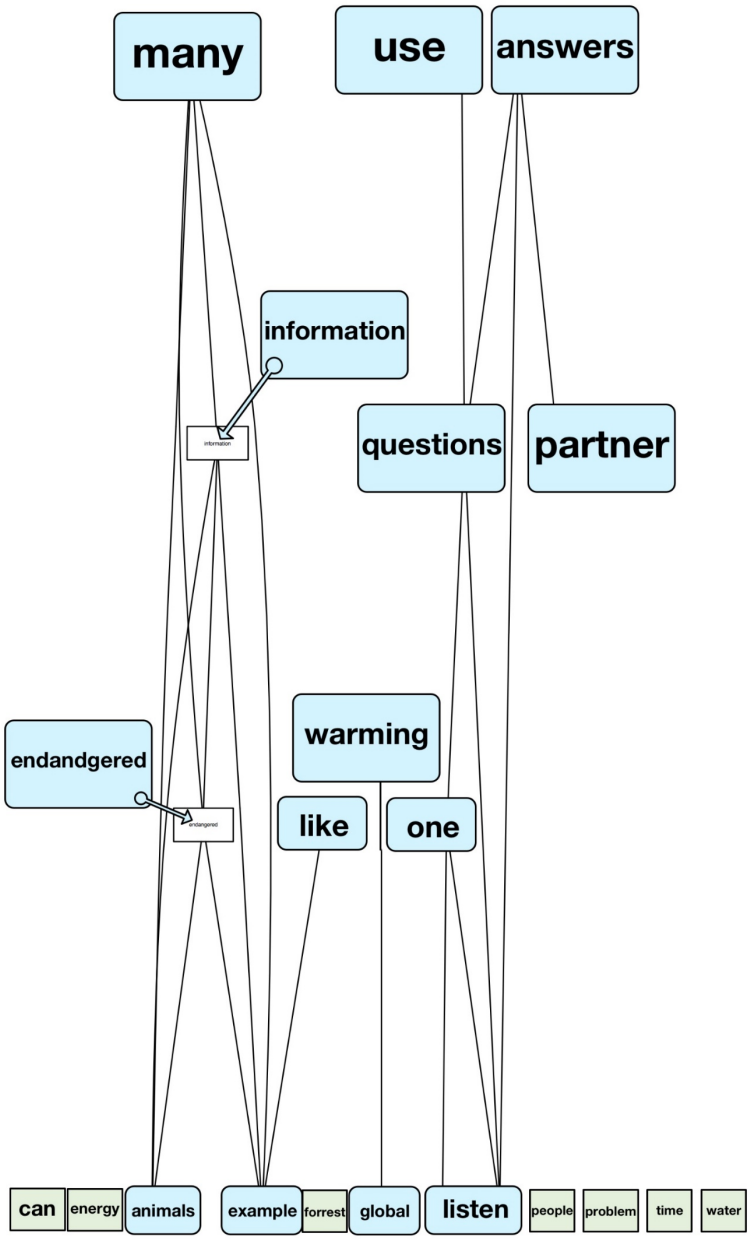



**Figure 3.4: Frequency correlation plot showing emerging themes and word relationships**

There is another theme that appears in the corpus, which seems to be related to EFL instructions in the texts regarding answering questions from a text or a listening passage. Words such as 'listen,' 'questions,' 'answers,' and 'partner' appear to correspond with instructions found in the text samples used for the purposes of guiding students on tasks and activities.

### *3.4.3 Concordance using AntConc*

The concordance hits as seen in Figure 3.5 were processed using 'AntConc.' They show a selection of the sentences containing the high frequency word 'endangered' (highlighted in blue). This word was explored in detail as it was a high frequency word that emerged from the corpus as seen in Figure 3.3 and Figure 3.4. The instances of the word 'endangered' are shown under the 'hit' column in Figure 3.5 below. The 'KWIC' (Key Word In Context) column shows briefly what happens before each instance as well as afterwards. The 'File' column on the far right indicates the text file where each instance occurred. The highlighted words in red, green, and purple are used to show the words following each instance. Concordance can be used to confirm themes that emerge in the text as well as look closer at specific instances where the text alluded to environmental knowledge, values, and beliefs.

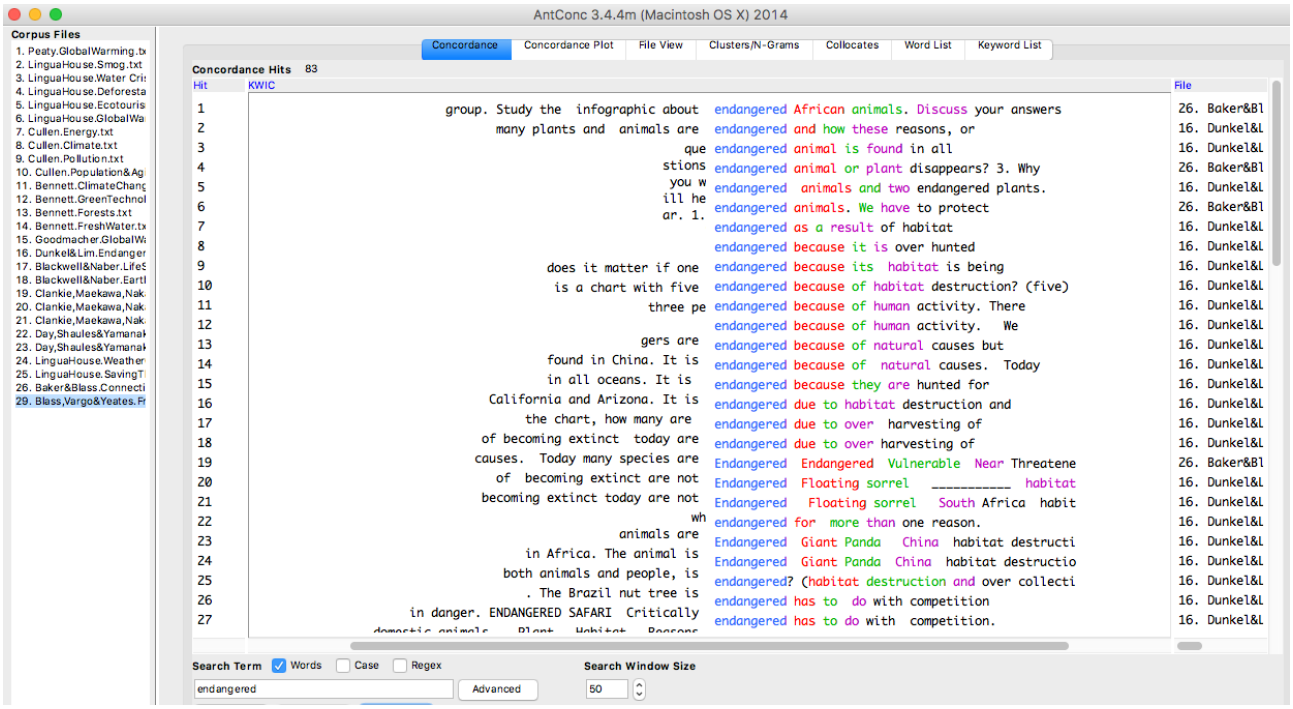
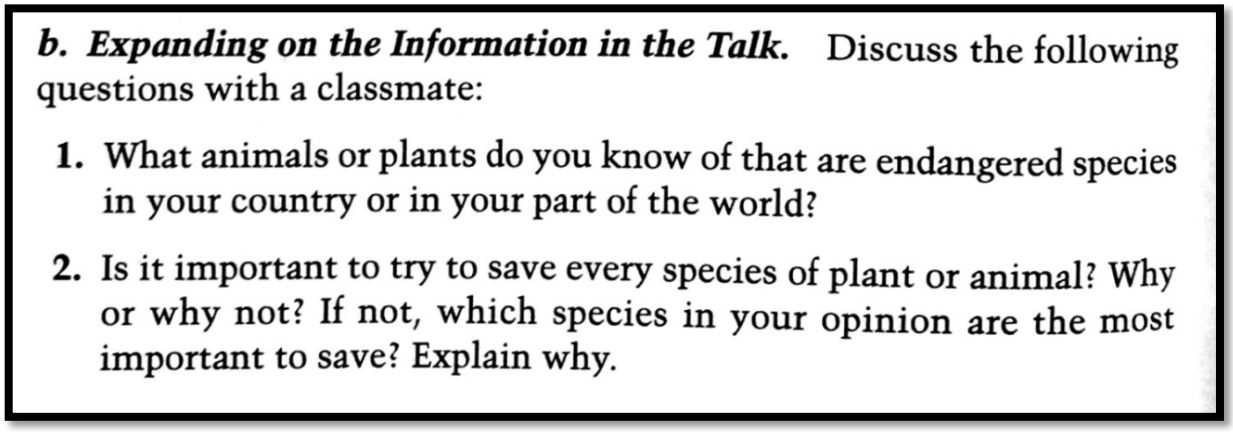



**Figure 3.5: Concordance information for the word 'endangered' from the corpus**

From the concordance information above, only three of the texts from the corpus contain all instances of the word 'endangered' and the majority of instances come from one textbook chapter entitled 'Endangered Species.' This chapter contains informative text about the topic, some short mainly informative listening excerpts, and a short two-question section about 'Using and Expanding on Information from the Talk,' seen below in Figure 3.6. In terms of knowledge about the topic,

many of the facts about endangered species are offered to students in the reading and listening texts with a follow-up set of questions to check student understanding. This approach is typical of an EFL lesson, where the focus is on learning a skill and understanding a reading or listening text. However, this approach is not conducive to challenging student values and beliefs as promoted in ESD. In this textbook chapter, students are not really challenged on their own beliefs or understandings about endangered animals until the very end of the chapter, as seen below in Figure 3.6.



***b. Expanding on the Information in the Talk.*** Discuss the following questions with a classmate:

1. What animals or plants do you know of that are endangered species in your country or in your part of the world?
2. Is it important to try to save every species of plant or animal? Why or why not? If not, which species in your opinion are the most important to save? Explain why.

**Figure 3.6: Example student expansion exercise found in a sample corpus**

It should be noted that the activity described in Figure 3.6 does not appear to make connections to new or contrary opinions and, therefore, would not lead to new learning (see above).

Looking specifically at the concordance for ‘global’ and ‘warming’ in AntConc produces a set of data that confirms the strong frequency correlation of the two words, as shown in Figure 3.7.

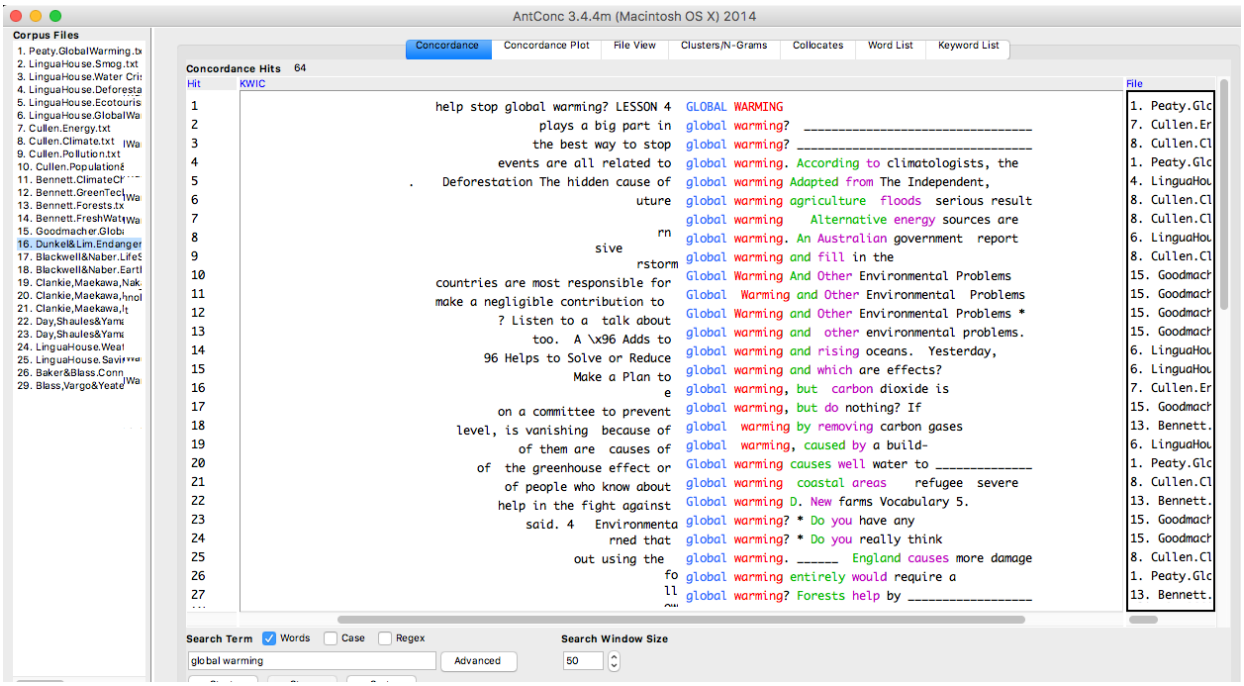



**Figure 3.7: Concordance information for the word 'global' from the corpus**

These results simply show several sentence fragments that contain the words 'global' and 'warming' and the high correlation of these terms is clear from the data analysis. Figure 3.7 clearly shows that the theme of global warming appears several times in the corpus and in several different instances within source texts. This is most likely explained by the fact that global warming is a popular topic in EFL textbooks generally as well as a common topic in the news media.

## 3.5 Summary

EFL textbooks that use 'sustainability' topics fail to apply ESD approaches in order to further the vision of the United Nations SDGs. The results of this research suggest that ESD and EFL, in their current form, are mostly discordant. There are fundamental understandings in how each discipline is taught and evaluated that make it very difficult for there to be a shared goal. The sustainability content found in EFL textbooks is offering knowledge about the subject, however, in terms of value and belief formation or behaviour transformation, there is little found in the corpus to suggest that EFL textbook writers see this as an important learning outcome for their materials. Unlike many other disciplines in higher education that have done the challenging work of mainstreaming ESD, the EFL discipline is just starting on the path to ESD integration. A Language Education for Sustainable Development (LESD) Framework offers a small step in bridging this seemingly large gap. The LESD Framework is further explored in Chapter 6.

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# CHAPTER 4: MAINSTREAMING ESD: AN ANALYSIS OF THE IMAGE-TEXT INTERPLAY FOUND IN EFL TEXTBOOKS

## 4.1 Overview

This chapter presents a further analysis of the corpus from chapter 3. The research used a novel approach to mapping image-text interplay within a corpus using the KPV-model (Scientific Knowledge, Social Practices, and Values). This chapter focuses on answering **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?

## 4.2 Introduction

This research used a mixed-method approach to examine the role that environmental topics play in EFL textbooks through an analysis of a 55,000-word corpus and the image-text interplay found within the corpus. Several techniques were used in the analysis of the corpus, including codification and corpus analysis. The research sought to create a general framework for incorporating ESD in tertiary EFL content based on a case study of Japanese textbook samples. This chapter examines **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms? The following sub-research questions guided the analysis of this research:

1. How can image-text interplay be understood by applying a KPV-model to environmental content in EFL textbooks?
2. Is imagery found alongside environmental content in EFL textbooks contributing to the construction of knowledge and the formation of beliefs and values about the environment?
3. Do images presented alongside environmental content in EFL textbooks link with ESD values and competencies including behavioral transformation?
4. How can ESD and the SDGs be integrated more broadly into EFL curricula?

## 4.3 Methodology

A novel mixed-method approach was used in this research in order to develop a framework for ESD integration into the EFL classroom. A corpus was used as the primary research data. The corpus consists of environmental topics and themes found in EFL textbooks published after 2004. The corpus, composed of over 30 sample texts, mainly consists of entire chapters found within an EFL textbook on themes ranging from "climate change" to "forests." The corpus also includes over 140 separate images that have been analysed for the purposes of this research. Text and image data were gathered for analysis using two primary research methods: codification and corpus analysis. This chapter will focus on the codification but uses some corpus analysis results when applicable.

### *4.3.1 Codification of Data from the Corpus*

During the codification process, two primary tools were used: ATLAS.ti and Microsoft Excel. ATLAS.ti is a qualitative tool used to code texts and perform qualitative analysis of data. The software was used to code texts and images found within a corpus using a codification framework developed in Tables 4.1, 4.2, and 4.3 below. This data was then used to understand patterns, links, and associations in the corpus for further analysis. The second tool was Microsoft Excel, to keep track of the data and perform basic statistical analysis on the findings.

Several codes were developed based on the model of the BIOHEAD – Citizen Project (Carvalho, Clément, Bogner, & Caravita, 2008) and this system was used to analyse the Scientific Knowledge (K), the Values (V), and the Social Practices (P) found in the sample texts based on the KPV-model. More specifically, the sub-topics (Table 4.1) as well as the "Four Conceptions" (Table 4.2) were adapted from the BIOHEAD – Citizen Project (Carvalho et al., 2008) as well as from a subsequent paper by Caravita et al (2008). These sub-topics and the "Four Conceptions" offer a useful tool to understand how ideas are presented in environmental texts and have been adapted for this research. The four sub-topics common to ESD are identified in Table 4.1 below.

**Table 4.1: Sub-topics commonly found in Education for Sustainable Development**

| Sub-topics commonly found in Education for Sustainable Development (ESD) | Explanation |
|---|---|
| Ecosystem and Cycles (EC) | Comes from modern understandings in the field of ecology and is linked strongly to system dynamics |
| Biodiversity (BDY) | Central to understanding concepts of evolution, ecological management, inter and intra-species diversity and culture |
| Pollution (PO) | Relates to the presence or introduction of substances poisonous or harmful to an environment. Often closely related to human impact on the environment: associated with human values and beliefs |
| Use of Resources (UoR) | Relates to resources used by humans, associated with human values and beliefs |

*Adapted from:* (Caravita S., et al., 2008, pp. 108-109)

The sub-topics in Table 4.1 can be codified and applied to imagery in the corpus. These sub-topics are useful to understand how imagery found in the corpus is being used in relation to ESD principles such as giving citizens a better scientific understanding of environmental problems and facilitating and encouraging greater awareness of these issues (McKeown, 2002, pp. 8-9).

In addition to codifying the sub-topics, a set of four important conceptions are used and targeted in the image-text analysis. These conceptions are not only used by Caravita et al (2008) and the BIOHEAD – Citizen Project, but also have been used in a variety of research since they were originally posited in relation to the New Environmental Paradigm (NEP) scale of indicators as defined by Dunlap and Van Liere (1978). The “Four Conceptions” are found in Table 4.2 below.

**Table 4.2: The Four Conceptions with examples**

| The four conceptions | Examples |
|---|---|
| Complex / linear systems | Webs and chains of ecological components<br>Presence and absence of feedbacks, retroactions, cycles |
| Relationship of humans in respect to nature | Emphasis on risks, hazards, problems vs. balanced information about problems and about possible solutions<br>Humans as external sources of pressures, pollution, destruction and humans as legitimate agents and users of resources |
| Global / local approach | Focus only on local environments and multiple environmental typologies, Locally focused view of resource management and globally oriented view of resource distribution and management |
| Individual / social responsibility | Emphasis on change in individual behaviours and emphasis on change in lifestyles at society level,<br>Moral responsibility and political responsibility |

*Taken from:* (Caravita S., et al., 2008, pp. 109-111)

The "Four Conceptions" serve to show the way people integrate ESD aspects into their lives as well as present their worldviews (Caravita S., et al., 2008, p. 109). In terms of curriculum writers and content creators of textbooks, these conceptions can offer insight into the purpose for writing or using particular imagery. Furthermore, the "Four Conceptions," as applied to imagery found in the corpus, offer a convenient simplification of worldviews espoused in the environmental themes and topics found in the corpus. Using the "Four Conceptions" to code imagery offers an insight into the Social Practices (P) as well as the Values (V) from the sample texts as used in the KVP-model.

Several other aspects of the corpus have been codified and mapped within the corpus such as the relationship of the image to the text, the themes of the sample texts, target skills and the learner level as related to the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001). These codes are found in Table 4.3.

**Table 4.3: Codification categories and codification options**

| Codification Category | Code Options |
|---|---|
| Relationship of Image to the Text? | Yes, direct<br>No, indirect<br>No association to the text (appears to be decorative) |
| Themes of Sample Texts | Global warming / Climate change<br>Pollution<br>Water<br>Shortage/Drought<br>Deforestation<br>Ecotourism<br>Energy<br>Climate / Weather changes<br>Population<br>Green technology<br>Forests<br>Water shortage<br>Endangered species<br>Life sciences<br>Earth science<br>Garbage disposal<br>Road construction<br>Alternative energies<br>Transportation<br>Food<br>Saving the rainforest<br>Safari<br>Saving water and resources<br>Wind energy<br>Forests<br>Food<br>Ecological footprint<br>Pollution |
| Target Skill | Reading<br>Writing<br>Listening<br>Speaking<br>Mixed (e.g. Reading into Speaking, Listening into Writing) |
| Learner Level (CEFR) | Basic User (A1) / Beginner low<br>Basic User (A2) / Beginner high<br>Independent User (B1) / Intermediate low<br>Independent User (B2) / Intermediate high<br>Proficient User (C1) / Advanced low<br>Proficient User (C2) / Advanced high |

### *4.3.2 Corpus Analysis*

The programming language R and AntConc software (Anthony, 2014) were used as the primary tools for the corpus analysis. R is used to perform very sophisticated quantitative analyses using downloaded packages. Specifically, "tm," "SnowballCC," "RColorBrewer," "ggplot2," "wordcloud," "biclust," "cluster," "igraph," “Rgraphvis,” and the "fpc" packages were used. AntConc was used for some basic word frequency and concordance analysis. For the purposes of this paper, the corpus analysis will only be referred to when applicable.

## 4.4 Results

The "Subtopics commonly found in ESD" were coded as outlined in Table 4.1. There were several sample texts that used two topics, such as a unit entitled “The Footprint of Fun,” which was coded with both PO (pollution) and UoR (Use of Resources), as the unit dealt with the idea of humans creating pollution such as plastic waste and then talked about ways of recycling and composting. The results of this analysis are found below in Figure 4.1.

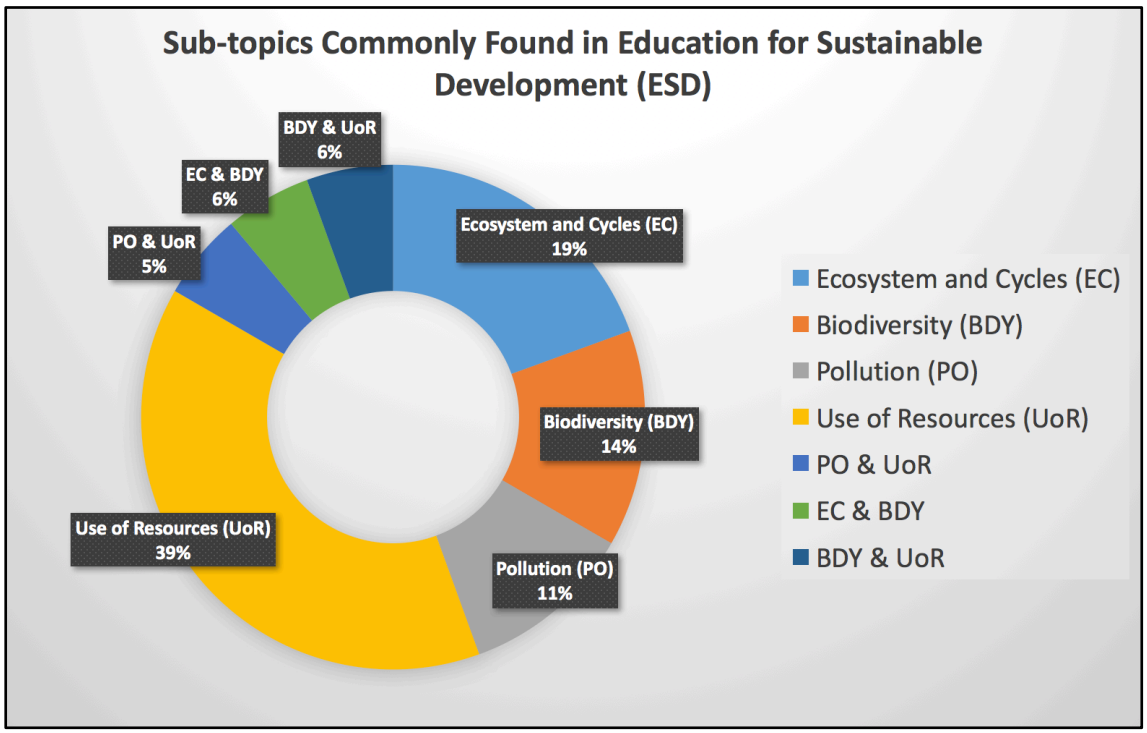


**Figure 4.1: Sub-topics commonly found in Education for Sustainable Development**

The results from Figure 4.1 shows that Use of Resources (UoR) was by far the sub-topic most commonly found within the sample texts, accounting for 39 percent of the total. UoR appears to be a popular topic in EFL textbooks. Ecosystems and Cycles (EC) made up the second most common sub-topic, at 19 percent. The lowest frequency was for Pollution (PO), at 11 percent.

The "Four Conceptions" as outlined in Table 4.2 were coded to each image found in the corpus (Figure 4.2). Many images were codified as embodying two conceptions.

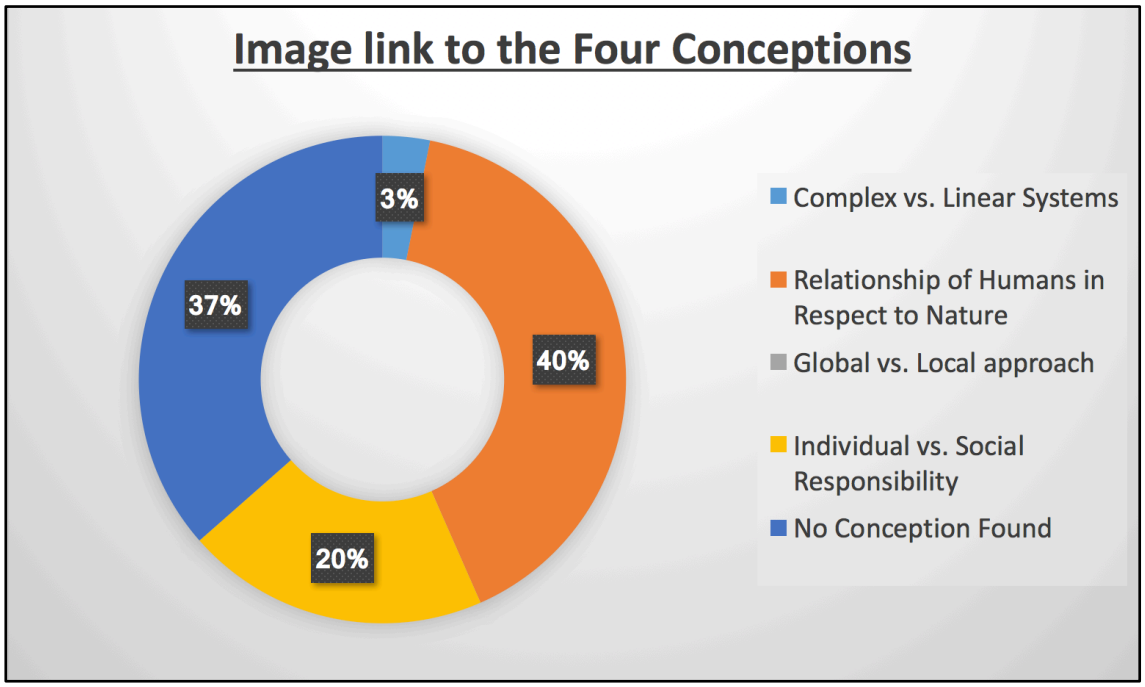


**Figure 4.2: Image link to the "Four Conceptions" used in Education for Sustainable Development**

The data in Figure 4.2 revealed that most images were used to show the "relationship of humans in respect to nature" at 40 percent. A typical example of this kind of image is a chainsaw lying next to a cut down tree. 37 percent of the images found in the corpus did not seem to represent a conception at all. Only 3 percent of images showed the conception of "Complex vs. Linear Systems."

The relationship of the image to the text was coded for each image found in the corpus by looking at the associated text as shown in Figure 4.3. A coding system was designed to show three relationships between the text and image: directly related, indirectly related, or seemingly decorative in purpose. An example of an image "directly related" to the text would show a lumberjack cutting down a forest and the associated text would talk about forests in terms of how wood can be used as a resource for human beings. An example of an image "indirectly related" to

the text would show a sand dune in a desert and the associated text would be about climate change, but no direct links to desertification would be present in the text. An example of an image that "appears decorative in purpose" would be a student jumping in the air when the associated text would be about endangered animals.

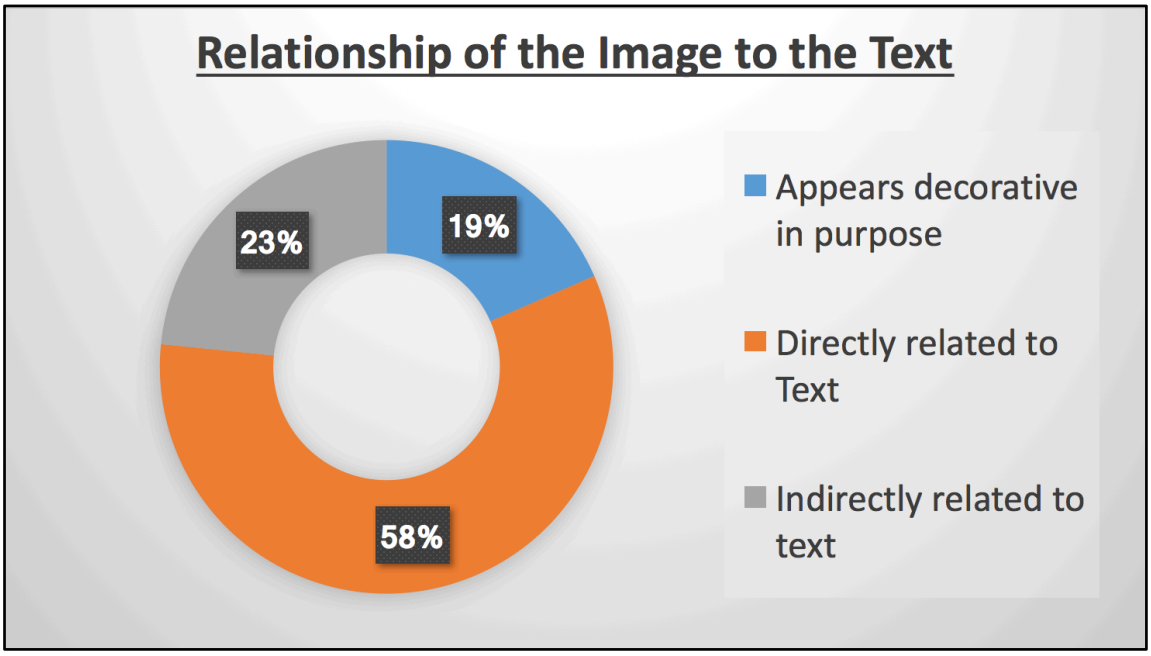


**Figure 4.3: Relationship of the image to the text**

As shown in Figure 4.3, 58 percent of the imagery found in the corpus appears to be "directly related" to the associated text, 23 percent is "indirectly related" to the text and 19 percent appears to be "decorative in purpose."

The word cloud in Figure 3.3 represents the words most frequently found in the corpus and was produced by the programming language R using quantitative research methods. In general, words that are larger in size appear more often in the corpus text. The word "people," for instance, is the largest because it occurs in the corpus the most frequently at 240 times. Words in the word cloud appear in the text with a frequency of over 30 instances after stopwords such as "the" and "and" were removed.

## 4.5 Summary

Using a corpus built from environmental content found in EFL, the image-text interplay was analysed and assessed for usefulness in promoting ESD concepts. The results suggest that the image-text interplay found in the sample texts of the corpus often do little to further attitudes, values, and practices inherent in ESD. Furthermore, there appears to be little interconnectedness between topics, images, and texts. Lastly, there appears to be a clear gap between the decisions that textbook creators make and what the SDGs promote in mainstreaming ESD, so more holistic approaches are recommended. Although EFL is primarily concerned with increasing English ability rather than increasing ESD competencies, the discipline would benefit tremendously from exploring how to mainstream ESD and use the SDGs as a rich source for content and topic ideas.

As the findings suggest, a more holistic framework to mainstreaming ESD (Figure 6.1) is possible not only for Japanese higher education but as a model for more broadly applying ESD principles in English language teaching. Moreover, as many textbooks already feature helpful, scientifically accurate environmental content and educators are increasingly aware of the importance of the SDGs, improving students' understanding of sustainable development is a good step forward. Clear steps can be taken to improve the way that images and environmental content are presented in EFL textbooks to further ESD outcomes as well as advance the SDG agenda.

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# CHAPTER 5: A PROGRAM EFFECTS CASE STUDY USING ESD BEST PRACTICE

## 5.1 Overview

This chapter examines how ESD can be integrated into a university EFL course in Japanese higher education by using a program effects case study. The data was collected from a total of six classes over two subsequent semesters of an EFL special topics course on 'Environmental Ethics' from the fall 2016 semester (pre-ESD integration) and the fall 2017 semester (ESD integration). The research had two main aims:

1. How can ESD be best integrated in EFL courses in Japanese higher education?
2. Are there any noticeable differences between a pre-ESD integration course and a course that integrates ESD?

The research used three main methods of data collection including student reflection tasks, examination of artifacts from a major research assignment, and follow-up survey results from both semesters.

## 5.2 Introduction

ESD principles and best practice have been widely discussed in the literature. For instance, ESD approaches been linked to several academic competencies, such as critical thinking, futures thinking, interdisciplinary thinking, systemic thinking, ecoliteracy, collaboration, active learning and participatory learning (Tilbury & Wortman, 2004). Several recent publications examine the role of ESD competencies in helping teaching professionals mainstream ESD into their classrooms (Cebrián & Junyent, 2005; Wiek, et al., 2015; Brundiers & Wiek, 2011). For the purposes of this research at Japanese HEIs, ESD best practice can be understood as:

1. Having a **student-centered approach**. According to Wiek et al (2015, pp.258), "a student-empowered approach to competence acquisition is critical as many degree programs elsewhere will face the challenge of integrating undergraduate or graduate students who may have no prior exposure to competence-based sustainability education."

2. Having an element of **problem-solving and critical thinking** in real-world sustainability issues. Competence-based educational practices such as research projects that challenge students critical thinking skills, research skills, and presentation skills hep students to understand the complexity of real-world sustainability issues (Brundiers & Wiek, 2011).
3. **Demonstrate knowledge** of complex environmental and sustainability issues and be able to **communicate this knowledge in a meaningful, accessible way**.

These three elements of ESD best practice constitute baseline competencies and expectations for Japanese undergraduate students taking Content and Language Integrated Learning (CLIL) courses.

### *5.2.1 Values, Beliefs, and Norms of Environmental Behavior*

Pro-Environmental Behavior (PBE) is difficult to define but recent conceptual models have yielded many valuable insights (Turaga, Howarth, & Borsuk, 2010, pp. 211-212). Stern's Value-Belief-Norm Model (2000), or the VBN Model, is one such conceptual model that has been very useful in understanding the "underlying values relevant to the environmental action" (ibid, pp.213). Furthermore, the VBN-Model links two previous models, the Norm-Activation model with the New Ecological Paradigm (NEP) proposed by Dunlap and van Liere (1978) and links environmental values (Biospheric, Egoistic, and Altruistic) with the awareness of consequence, ascription of responsibility, personal norms, and, most importantly, environmental behavior (See Figure 1.3). A significant body of literature has been created using the VBN-model to explain environmental behavior such as studies that looked at pro-environmental consumption behavior (Stern, 1999).

According to Stern (2000), the concepts of Biospheric, Egoistic, and Altruistic form the basis of an individual's environmental values, or ecological worldview (NEP) within the VBN Model (Figure 1.3). Biospheric values, as defined by the VBN Model, can be understood as placing value on non-human aspects of the environment such as the feeling of protecting an endangered animal. Egoistic values can be defined as self-enhancement and is often negatively associated with pro-environmental norms (2000, pp.414). Lastly, Altruistic values can be defined as self-transcendent and is often positively correlated with pro-environmental norms.

‘Awareness of consequence’ (AC) can be defined as an awareness that a person’s actions have consequences for the welfare of others and ‘Ascription of Responsibility’ (AR) is the feeling of personal responsibility to undertake an action (Turaga et al, 2010, pp.212). According to Schwartz (1973, p. 353) ‘Personal Norms’ (PN) are the “expectations people hold for themselves while underscoring that these expectations derive from socially shared norms.” In other words, people who feel that it is important to carry a reusable shopping bag instead of using plastic bags hold this as a personal norm and often these types of norms are received from popular culture or social media campaigns. Furthermore, ‘personal norms,’ such as the desire to carry a reusable shopping bag are highly dependent on Altruistic and Biospheric values (Steg, Dreijerink, & Abrahamse, 2005). Ultimately, a person who has a strong desire to act on something (PN) will modify their ‘Environmental Behavior’ (BN) accordingly.

One way of measuring Values, Beliefs, and Norms is by designing survey questions that can be used to measure the relationships between the elements in the VBN-model. Bronfman et al (2015), for example, used a survey to study the environmental behaviors of a Chilean community using sociodemographic and attitudinal data based on the VBN model. Their survey was divided into three sections: General Ecological Behavior (GEB) scale; a set of predictor variables based on the environmental values of Biospheric, Altruistic, and Egoistic; and a set of attitudinal predictor variables based on the VBN Model. The GEB scale was a set of questions using a Likert scale that asked participants to measure their own behavior on six environmental subscales such as power and water conservation. Predictor variables for Biospheric, Altruistic, and Egoistic were measured by a Likert scale where participants answered questions about how much a statement represented them. For instance, an example of one such statement in the Biospheric category was, “A person who believes that everyone must look after the environment” (2015, p. 14140). Lastly, the survey used a Likert scale to measure five attitudinal, predictive variables from the VBN Model: Ecological Vision (EV) or ecological worldview, Awareness of Consequence (AC), Ascription of Responsibility (AR), and Personal Norms (PN). An adapted survey like the Bronfman et al (2015) survey has been used for the purposes of this research in order to better match the student profile of the Japanese students in Kwansei Gakuin University (KGU).

The survey was adapted in two main ways. First, reference to statements of daily life were updated to better reflect the kinds of activities Japanese students may participate in. For instance, most Japanese students do not typically own vehicles so the statements were updated to reflect

transportation that a student in Japan may use on a daily basis such as public transportation or bicycles. Secondly, statements that referred to owning and maintaining things like vehicles or houses were modified to better reflect what a typical Japanese university student may own or reflect the household in which they currently live. Survey questions and translations can be found in Appendix 2.

### *5.2.2 Description and Student Profile at Kwansei Gakuin University*

Kwansei Gakuin University (KGU) is a private university in Japan that was established in 1889 and is spread over six campuses spanning the Kansai area. The university has a strong reputation as a private institution in the Kansai area and is currently ranked 26$^{th}$ in Japan out of close to 800 universities on the 2019 World University Rankings (World University Rankings, 2019). According to the university website (Kwansei Gakuin University, 2019), KGU has a student body of approximately 24,500 students and the "University maintains academic standards that rank among the highest of all Japanese universities and colleges." The university has several graduate, undergraduate, and special graduate schools, which all offer English education to students either as optional courses in the graduate school or as a mandatory class in the first and second year undergraduate program. Each school of education is responsible for their own English education offerings.

This research was done within the School of Policy Studies (SPS) located on KGU's Sanda campus. The SPS offers a unique English education program with some of the strictest English requirements for entry into the program. The English Language Program (ELP) offers a two-year intensive ELP for students of the SPS and was started in 1995 (Kwansei Gakuin University, 2017). The ELP uses TOEFL test scores to stream students into either a gold stream at the lower levels or a blue stream at the higher levels (Figure 5.1). The ELP program is based on a skill-based approach to language learning where students take courses based on the language skills of reading, listening, speaking, and writing through six levels of the program. At the higher end of the program, students are able to take special topics courses, which are specially designed Content and Language Integrated Learning (CLIL) courses that range in topic from 'Cool Japan' to 'Environmental Ethics.'

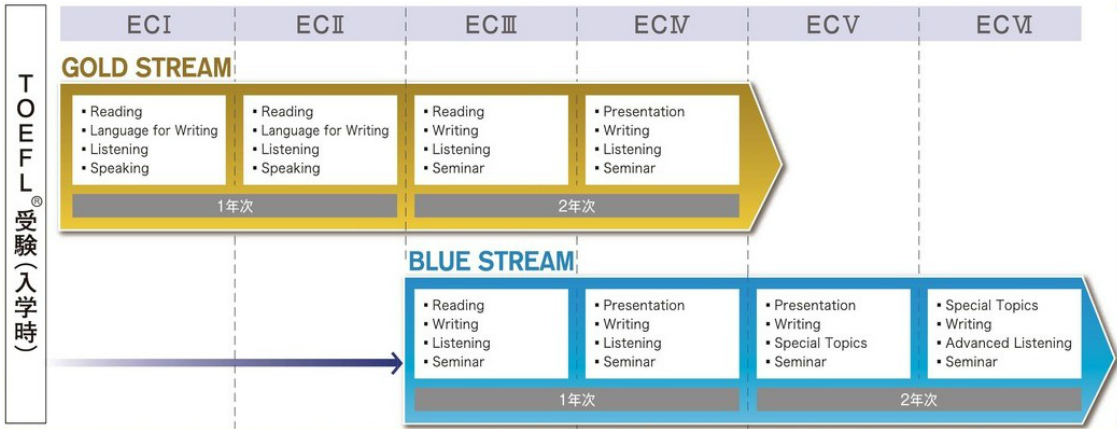


**Figure 5.1: A curriculum overview of the English Language Program in the SPS**
(Kwansei Gakuin University, 2017)

The program itself has 12 Associate Lecturers of English (ALEs) and about 70 part-time language teachers. The ALEs job entails designing and implementing the curriculum for each of the skill-based courses. Unlike most Japanese universities, the ELP does not use commercial textbooks and relies on the ALEs to write all materials used allowing for the curriculum to better integrate the Goals and Objectives (G&Os) of the program both vertically and horizontally as well as better suit the context-specific needs of learners and be responsive to the needs of KGU students over time.

### *5.2.3 Research Questions*

This research examines how ESD can be integrated into a university EFL course in Japanese higher education by using a program effects case study. Program effects case studies are used to determine the impacts of changes between one semester to the next. In this case study, the integration of ESD best practices was tested to see if it had any influence on student marks, environmental values, environmental beliefs, and environmental norms using a VBN-model of environmental behavior (Values, Beliefs, Norms model). The data was collected from a total of six classes over two subsequent semesters of an EFL special topics course on 'Environmental Ethics' in the fall 2016 semester (pre-ESD integration) and the fall 2017 semester (ESD integration). The concept of 'environmental literacy' can be understood as the knowledge, values, beliefs, and norms that students hold about the environment generally. This Chapter sought to answer the following research question **RQ3:** How can ESD best-practice be integrated into the Japanese Higher

Education EFL Classroom and can ESD best-practice contribute to students' construction of environmental knowledge, values, beliefs, and norms? RQ3 was divided into 3 sub-research questions to guide this Program-effects Case Study. The following three sub-research questions guided this chapter:

1. Are there any noticeable differences between a pre-ESD integration course and a course that integrates ESD (ESD best-practice)?
2. Can CLIL courses use ESD to improve environmental literacy?
3. Can ESD be used to influence student environmental values, beliefs, and norms in the language classroom?

## 5.3 Methodology

This research used a mixed methodology utilizing both qualitative and quantitative techniques. In this program effects case study, the integration of ESD best-practice in the Fall 2017 course was compared to the pre-ESD Integration Fall 2016 course and student marks, survey results, and reflection tasks were used to determine the effect (see Figure 5.2). During the course of the research a Values, Beliefs, and Norms model (VBN-model, Figure 1.3) has been adapted to create the survey (Appendix 2) and analyze the reflection tasks (See Appendix A3.6) based on the work of Bronfman, Cisternas, López-Vázquez, de la Maza, & Oyanedel (2015) & Turaga, Howarth, & Borsuk (2010).

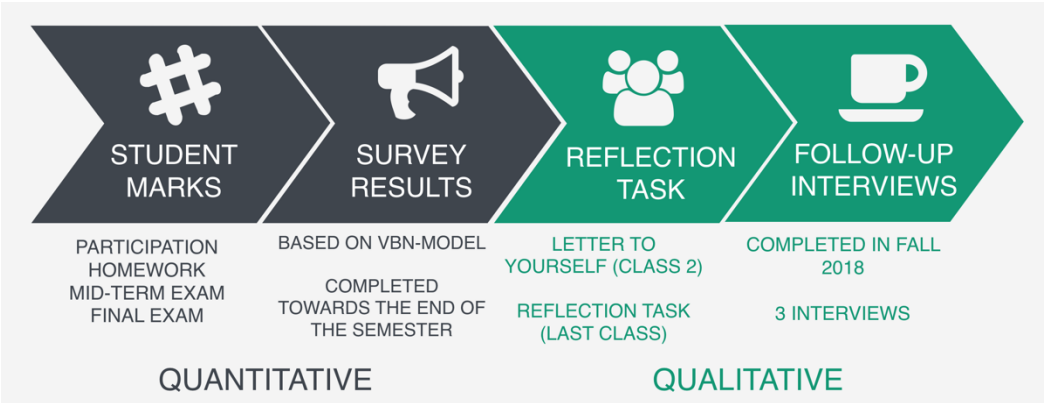


**Figure 5.2: Data collected from Fall 2016 & 2017 classes**

### *5.3.1 Data Collection*

The marks and survey results were collected and analyzed using statistical software including SPSS and several kinds of analysis were applied comparing the Fall 2016 & Fall 2017 classes including descriptive statistics and an Independent Sample T-test. Descriptive statistics were used to describe some of the basic data collected from marks and survey results as well as to compare the Fall 2016 and Fall 2017 classes. An Independent Sample T-Test was used to compare the means of the two independent groups of students (Fall 2016 Vs. Fall 2017) in order to determine if there are any statistically significant similarities or differences between the two groups.

An adapted Bronfman et al (2015) survey was used and, where possible, questions were modified to make them more pertinent to Japanese university students. Each section, except section A, was measured using a Likert scale as represented in Table 5.1. The survey was set up using Google Forms, a free online survey platform, and all questions were translated into Japanese so that students would not have a problem understanding the questions. For a complete list of survey questions, see Appendix 2.

**Table 5.1: Survey sections and Likert scale**

| Survey Sections | Likert Scale |
|---|---|
| **Section A:** General Questions | N/A |
| **Section B:** Environmental Knowledge | Not heard of, Heard of but could not explain, Have some Knowledge, Know a lot, N/A |
| **Section C:** Environmental Behaviors | Never, Rarely, Sometimes, Often, Always, N/A |
| **Section D:** Environmental Values (predictor variables) | Not at all like me, Not like me, Neutral, Like me, Very much like me |
| **Section E:** Environmental Values (attitudinal predictor variables) | Completely disagree, Slightly disagree, Neither agree nor disagree, Slightly agree, Completely agree |

The reflection tasks were analyzed using a codification system based on an adapted VBN-model that was validated by an external cross-checker for inter-rater reliability. The Codification process was based on the following rules and Table 5.2:

- Based at the sentence level or on the clause level i.e. a sentence with a conjunction can have 2 codes;
- Not every sentence needs a code;
- Look for meaning; not for grammatically correct sentences. i.e. ignore spelling and grammar and focus on meaning;
- If meaning is not immediately apparent, ignore sentence and move on.

**Table 5.2: Codification system developed and peer-checked by external researcher**

| | |
|---|---|
| Factual Knowledge | Any specific factual knowledge of the environment<br><br>1. Knowledge of environmental issues<br>2. Knowledge of environmental legislation, policy, and standards<br>3. Knowledge of environmental tools, technology, and approaches<br>4. Knowledge of sustainability topics<br><br>e.g. cars produce CO2 by burning fossil fuels / food chains are very important to human well being<br><br>-ignore false statements about the environment. i.e. Trees use O2 as food<br>- ignore generalized statements about the environment i.e. people are connected to the environment (this is more of a belief – Eco Vision) |
| Ecological Vision | Any general beliefs on the environment<br><br>Any general beliefs held by an individual regarding the environment. Statements often start with "I think…"<br><br>e.g. Human beings are connected to the environment through the food we eat and/or the resources we use<br>e.g. Businesses have a negative effect on the environment |
| Ascription of Responsibility | Any acceptance at some level of responsibility on issues relating to the environment<br><br>e.g. Humans are responsible for the current high levels of CO2 in the atmosphere |
| Awareness of Consequence | Any awareness of the consequences of their behavior for environment or the consequences that environmental degradation could have on them in the future<br><br>e.g. increases in CO2 lead to increases in global temperatures → stronger hurricanes/typhoons<br>e.g. pollution will harm my children |
| Personal Norms | Any sense of moral obligation (personal norms) to protect the environment.<br><br>e.g. Using more public transportation instead of driving in an effort to decrease the amount of CO2 in the air<br><br>- generalized norms (i.e. "people should…") do not count.<br>- It should be specific about what that person will do. i.e. I will…, I want to…, ~~I should, I want to change my life~~ (too general so it should not be coded) |

Semi-structured follow-up interviews were carried out with a total of three students who agreed to meet in Fall 2018. An information sheet was offered to students beforehand (Appendix A1.3) and students were offered a gift card to encourage their participation. Consent forms (Appendix A1.2) were used and a Semi-Structured Interview (SSI) style was adopted with an interview protocol to guide the interview (Appendix A1.3), but the conversation was allowed to go off script at times. Interviews lasted about 30 minutes and were recorded for later analysis and codification if necessary.

### *5.3.2 Data Handling*

A total of 76 students from 3 separate classes were analyzed during the Fall 2016 semester and 75 students from 3 separate classes were analyzed during the Fall 2017 semester. All students who participated in the study signed consent forms (See Appendix A1.2) and the research was approved by the ethics committee at Kwansei Gakuin University. All data related to the students, including all identifying information, has been removed for the purposes of publication.

### *5.3.3 Special Topics Course: Environmental Ethics*

The course used for this research was a special topics "Environmental Ethics" course that was offered to students in the top levels of the ELP curriculum in the blue stream (Figure 5.1). The students taking this course are B1 to B2 level students in the Common European Framework of Reference for Languages (CEFR) meaning that these students can, in general, have conversations on general topics in English, write short essays, and read long passages. However, these students still need language support, especially for specialized subject matter and content and, therefore, a CLIL approach was adopted for the course. According to Rick de Graaff (2016), CLIL is essentially the fusion of language and content in learning, teaching, and research where the teacher's role is to support learners in their second language (L2)while being attentive to the language needs of the learners. Thus, this course aimed to raise complex and challenging issues related to Environmental ethics but was scaffolded in a way that would be accessible to the EFL students.

The course was based around several topics including population growth and resources use, sustainability, animal welfare, biodiversity loss, and global climate change (Appendix A3.7). Table

5.3 shows the breakdown in the assessment for the course, which differed in important ways between the fall 2016 course and the fall 2017 course. The fall 2016 (CLIL) course had a lecture component to it in every class, which was largely teacher led with students taking notes or following along in their teacher-made textbook. Some activities were done in class linked to each of the topics and several videos and outside readings were used to teach the material. All materials were scaffolded to best suit the learners' L2 language needs so, for instance, reading texts were simplified, or scaffolded with short-answer questions to help guide students and point students towards the salient parts in the materials. Transcripts were offered with all video and listening materials and students had access to the teacher before and after classes as well as during a weekly office hour.

**Table 5.3: Assessment differences between the Fall 2016 & 2017 Special Topics courses**

| **Fall 2016 (CLIL)** | | **Fall 2017 (ESD best-practice)** | |
|---|---|---|---|
| Participation | 10% | Participation | 10% |
| Homework | 10% | Homework | 10% |
| Mid-Semester Exam | 15% | Mid-Semester Exam | 15% |
| Final Exam | 15% | Final Exam | 15% |
| Reflection task | 10% | Reflection task | 10% |
| Research Assignment 1 | 15% | Poster Presentation | 15% |
| Research Assignment 2 | 25% | PowerPoint (PPT) Presentation | 25% |

The assessments for the fall 2016 and fall 2017 courses were exactly the same except for the last two major assessments: Research Assignment 1 & 2 in fall 2016 (See Appendix A3.1) and the poster and PowerPoint presentations (See Appendix A3.3 & A3.4) in fall 2017. The assessment criteria for Research Assignment 1 & 2 can be found in Appendix A3.2 and the assessment criteria for the Poster and PowerPoint presentations can be found in Appendix A3.5.

### *5.3.4 Goals of the Fall 2017 ESD Best-Practice Course*

Based on the research found in Chapter 2 and the overlap that these ESD best-practice objectives have with EFL the fall 2017 course integrated best practice in ESD in three ways:

1. **Student-centered Approach:** Every effort was made to make the classes more student-centered and interactive. For example, the teacher avoided lengthy lectures and instead attempted to make each class more interactive by getting students to do in-class research or institute more group and pair work activities.
2. **Elements of Problem-Solving and Critical Thinking:** Major research projects, such as the poster and PPT presentations, were largely student-led way, which increased scope of problem-solving and critical thinking. For instance, students were put into groups of 3-4 early on in the semester and asked to devise a problem-based research question and possible solutions. Pairs presented their research in the poster presentation and then joined their entire group to do the final PPT presentation.
3. **Demonstrate Knowledge on the Topic and Communicate this in a Meaningful Way:** Students were asked to do group posters and group PowerPoint presentations to the class so that students could communicate what they learned from their research questions. This meant that students had to consider the audience for their presentations, define challenging terms and concepts, and make it accessible to their peers.

### *5.3.5 Breakdown in Assessments Between the 2016 & 2017 Course*

An important part of the analysis was to have many of the assessments the same between the 2016 and 2017 courses to act as a control and ensure the student profile was similar in language ability and environmental knowledge. Table 5.4 below outlines the assessments that did not change between the 2016 and 2017 Special Topics ‘Environmental Ethics’ courses.

**Table 5.4: Assessments that remained the same between the 2016 & 2017 courses**

| Assessment that were the same between 2016 & 2017 | Explanation |
|---|---|
| Participation (10%) | The participation mark was based on student attendance, preparedness, and in-class participation. |
| Homework (10%) | The homework mark was based on the completion of homework assignments such as mini-research tasks or answering questions based on a text. |
| Mid-Semester Exam (15%) | This was based in two parts: a multiple-choice section and a written section. All material covered was from the first half of the course and the same exam was used in fall 2016 and fall 2017. |
| Final Exam (15%) | This was based in two parts: (1) a Multiple-choice section (2) and a written section. The final exam was cumulative over the entire semester and the same exam was used in fall 2016 and fall 2017. |
| Reflection Task (10%) | This was a letter that the students wrote to themselves in the first or second class, which aimed to see how much knowledge students had about environmental ethics and environment topics. In the final class, students were given back their letters and asked to reflect upon what they learned over the course. |

Table 5.5 shows the assessments that did change between the 2016 and 2017 courses and explains what each assessment entailed. Importantly, the changes reflect the integration of ESD best-practice in the 2017 course. Appendix 3 has additional information about the rubrics used in assessment of the different tasks as well as images showing the poster and PowerPoint presentations in the 2017 course.

**Table 5.5: Assessments that were different between the 2016 & 2017 courses**

| Assessment that were different between 2016 & 2017 | Year | Explanation |
|---|---|---|
| Research Assignment 1 (15%) | 2016 | In the fall 2016 there was a homework activity where students needed to read a set of three related texts concerning Genetically Modified Organisms (GMOs) and animal experimentation respectively. The students were required to mark-up each text by underlining key words, looking up challenging vocabulary, and writing comments about the texts. The three readings were followed by a set of questions challenging students' views on the topics and were marked according to a rubric (see Appendix A3.2). |
| Research Assignment 2 (25%) | 2016 | |
| Poster Presentation (15%) | 2017 | The poster presentation and the PPT presentation were group activities. The poster presentations were done in pairs and were opportunities for the students to present some preliminary findings about their research question to their classmates. The research from the poster presentation informed the PowerPoint Presentations (see Appendix A3.5) |
| PowerPoint (PPT) Presentation (25%) | 2017 | The PowerPoint Presentations were done in groups of four and the goal was to present the findings of their research question to their classmates. The PowerPoint Presentation also included the requirement that students present the results of a mini-interview with an expert on their topic (see Appendix A3.5). |

## 5.4 Results

The results of the program-effects case study can be seen below. An analysis of student marks, survey results, and codification of the Reflection Task (RT) was carried out using Excel and SPSS between the 2016 and 2017 classes.

### *5.4.1 Overall Marks between 2016 & 2017*

All assessments were analyzed using descriptive statistics as seen in Table 5.6 below including absences, total grade, and the grade components as outlined in Table 5.3.

**Table 5.6: Descriptive Statistics of absences, total grade, and grade components**

| | Year | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Absences | 2016 | 76 | 1.0066 | 1.00828 | .11566 |
| | **2017** | **75** | **1.4267** | **1.37961** | **.15930** |
| Homework | 2016 | 76 | 73.2895 | 7.37349 | .84580 |
| | **2017** | **75** | **74.4667** | **7.90883** | **.91323** |
| Mid-semester Test | 2016 | 76 | 69.6447 | 8.87649 | 1.01820 |
| | **2017** | **75** | **67.2067** | **10.55142** | **1.21837** |
| Final Reflection | 2016 | 76 | 70.8553 | 16.48005 | 1.89039 |
| | **2017** | **75** | **71.9333** | **17.24022** | **1.99073** |
| Final Exam | 2016 | 76 | 65.8947 | 9.97140 | 1.14380 |
| | **2017** | **75** | **63.9080** | **15.31078** | **1.76794** |
| Participation Behavior | 2016 | 76 | 72.5000 | 7.85281 | .90078 |
| | **2017** | **75** | **73.7333** | **8.34612** | **.96373** |
| Total Grade | 2016 | 76 | 66.6250 | 8.30805 | .95300 |
| | **2017** | **75** | **71.1440** | **6.65408** | **.76835** |
| Research Assignment 1 | 2016 | 76 | 8.6184 | 3.02530 | .34703 |
| **Poster Presentation** | **2017** | **75** | **10.2050** | **1.52050** | **.17557** |
| Research Assignment 2 | 2016 | 76 | 16.0197 | 4.12445 | .47311 |
| **PowerPoint Presentation** | **2017** | **75** | **19.5500** | **1.61012** | **.18592** |

Deleting the "no show" students for both 2016 and 2017 data yields 76 and 75 population size respectively. Table 5.6 shows the average absences, total grade, and grade components for the students for each year. The average number of absences increased from 2016 to 2017. There's a decrease in the average grade for the mid-semester test and final exam from 2016 to 2017. However, an increase is evident on the students' average scores for homework, final reflection, participation, assignment 1, poster presentation, assignment 2, PowerPoint presentation, and in their total grades.

The results show that scores for the 2017 course, or ESD best-practice course, increased overall, especially with the poster presentation and PowerPoint presentation, which was an alternative to the research assignment. To further analyze the results between the two courses, an Independent Sample T-test was performed between the 2016 and 2017 data as seen in Table 5.7 below. An Independent Sample T-test is used to determine if two populations means are equal.

**Table 5.7: Independent Sample T-test of 2016 and 2017 data**

| | t-test for Equality of Means | | | | |
|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| **Absences** | **-2.134** | **135.442** | **.035** | **-.42009** | **.19686** |
| Homework | -.946 | 149 | .346 | -1.17719 | 1.24416 |
| Mid-semester Test | 1.537 | 149 | .126 | 2.43807 | 1.58601 |
| Final Reflection | -.393 | 148.494 | .695 | -1.07807 | 2.74528 |
| Final Exam | .944 | 126.965 | .347 | 1.98674 | 2.10568 |
| Participation (Behavior) | -.935 | 149 | .351 | -1.23333 | 1.31862 |
| **Total Grade** | **-3.686** | **149** | **.000** | **-4.51900** | **1.22594** |
| **Research Assignment 1 / Poster Presentation** | **-4.080** | **110.942** | **.000** | **-1.58658** | **.38891** |
| **Research Assignment 2 / PowerPoint Presentation** | **-6.945** | **97.594** | **.000** | **-3.53026** | **.50833** |

Table 5.7 shows that the average absences (t = -2.13, p = .035), assignment 1/poster presentation grade (t = -4.08, p < .000), assignment 2/PowerPoint presentation grade (t = -6.95, p <.000), and total grade (t = -3.686, p <.000) are significantly different between 2016 and 2017. There are more recorded absences but the scores on the mentioned components as well as the total grade significantly increased. On the other hand, the increase in homework scores (t = -.946 ,p=.346 ), final reflection scores (t = -.393,p= .347), participation grade (t = -.935,p= .351), as well as the decrease in mid-semester test grade (t = 1.537,p= .126) and final exam grade (t = .944,p= .351) are all insignificant.

The results show that the student populations between 2016 and 2017 are very similar in ability and language ability as their mid-semester and final exam scores do not show significant differences. As these tests were identical in design, they were used as a control. Thus, the significance between the 2016 and 2017 classes for the assignment 1/poster presentation score (t = -4.08, p < .000) and assignment 2/PowerPoint presentation scores (t = -6.95, p <.000) can be understood to mean that the change in task produced significant differences in the ESD best-practice course.

### *5.4.2 Survey Results between 2016 & 2017*

Results from the survey used to test students' Knowledge, Values, beliefs, and Norms (Appendix 2) in the 2016 and 2017 courses were analyzed using descriptive statistics to determine if there were any significant changes. Table 5.8 shows the results of the analysis and Figure 5.3 visualize these results.

**Table 5.8 Descriptive Statistics for the average response for the survey's question groups**

| | Year | N | Mean | Std. Deviation |
|---|---|---|---|---|
| Overall knowledge of environmental issues | Fall 2016 | 10 | 3.00 | .37118 |
| | **Fall 2017** | **14** | **3.05** | **.64301** |
| Overall knowledge of environmental legislation, policy, and standards | Fall 2016 | 10 | 2.18 | .44756 |
| | **Fall 2017** | **14** | **2.20** | **.89914** |
| Overall knowledge of environmental tools, technologies, and approaches | Fall 2016 | 10 | 2.56 | .56902 |
| | **Fall 2017** | **14** | **2.77** | **.69139** |
| Overall knowledge of sustainability topics | Fall 2016 | 10 | 2.22 | .41903 |
| | **Fall 2017** | **14** | **2.38** | **.92831** |
| Overall Ecological vision | Fall 2016 | 10 | 3.34 | .45753 |
| | **Fall 2017** | **14** | **3.35** | **.37365** |
| Overall awareness of consequences | Fall 2016 | 10 | 4.25 | .68606 |
| | **Fall 2017** | **14** | **4.26** | **.59094** |
| Overall ascription of responsibility | Fall 2016 | 10 | 3.80 | .79271 |
| | **Fall 2017** | **14** | **4.01** | **.91162** |
| Overall personal norms | Fall 2016 | 10 | 4.00 | .58119 |
| | **Fall 2017** | **14** | **4.31** | **.67352** |

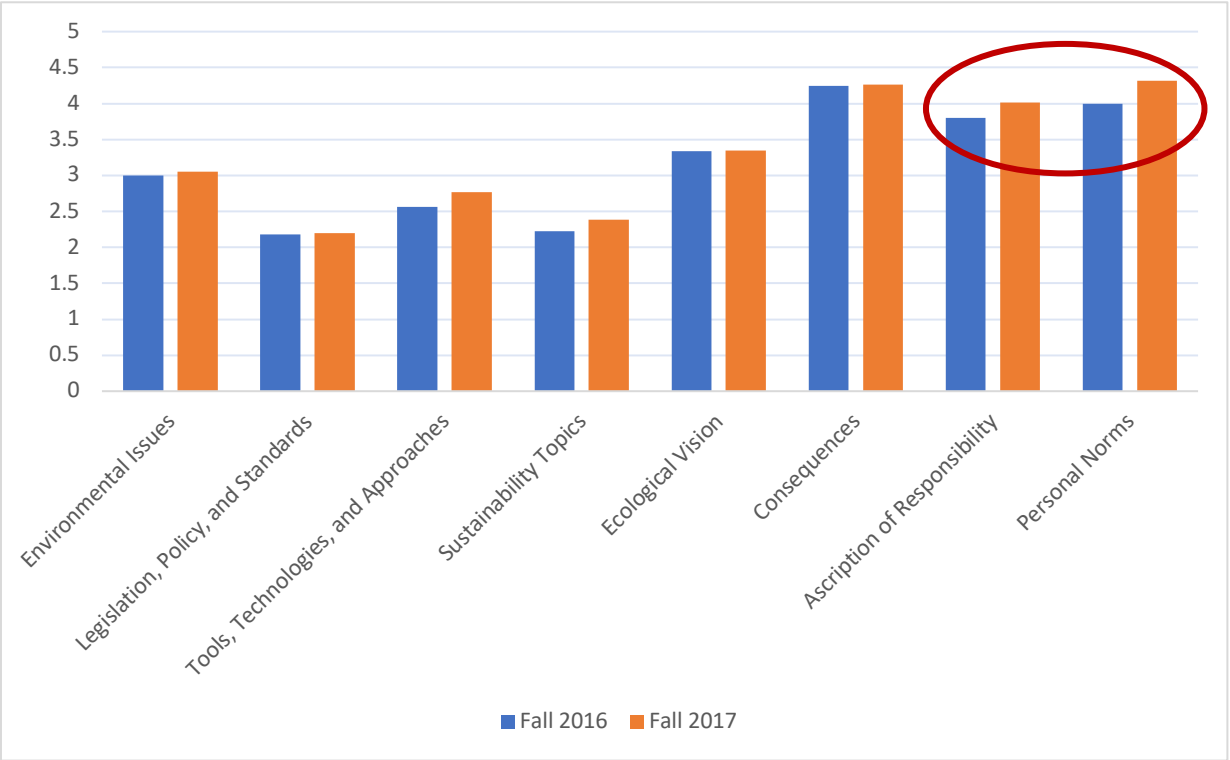


**Figure 5.3: Average responses of 2016 and 2017 students**

To summarize the survey results, the responses for the questions pertaining to a single category on the survey were averaged per student. Then, overall averages were calculated based on the year when the student took the environmental ethics course: Fall 2016 or Fall 2017. The means presented on table 5.8 show that on average, the students who took the fall 2017 class rated themselves higher on the survey questions among all the question categories, especially in 'Ascription of Responsibility' and 'Personal Norms' (Figure 5.3). However, these differences are still small. Thus, a formal test is needed to assess if the difference on the mean ratings are significant. An Independent Sample T-Test between the responses of 2016 and 2017 was carried out to determine if this difference is significant as seen in Table 5.9 below.

**Table 5.9: Independent Sample T-Test between the responses of 2016 and 2017 students**

| | t | df | Sig. (2 tailed) | Mean Difference |
|---|---|---|---|---|
| Overall knowledge of environmental issues | -.220 | 22 | .828 | -.05000 |
| Overall knowledge of environmental legislation, policy, and standards | -.061 | 22 | .952 | -.01905 |
| Overall knowledge of environmental tools, technologies, and approaches | -.770 | 22 | .449 | -.20536 |
| Overall knowledge of sustainability topics | -.503 | 22 | .620 | -.15873 |
| Overall Ecological vision | -.059 | 22 | .954 | -.01000 |
| Overall awareness of consequences | -.046 | 22 | .964 | -.01190 |
| Overall ascription of responsibility | -.592 | 22 | .560 | -.21190 |
| Overall personal norms | -1.191 | 22 | .246 | -.31429 |

Table 5.9 shows the results for the independent samples t-test to formally analyze if the difference on the average responses between 2016 and 2017 students are significant. In essence, the following hypothesis are being tested:

Ho: $\mu_{2016} = \mu_{2017}$

Ha: $\mu_{2016} \neq \mu_{2017}$

All significance values for the question categories are greater than 0.05. Thus, there's no significant evidence to conclude that mean responses differ between 2016 and 2017 student. However, the codification of the Reflection Task (RT) in the next section supports the findings shown in Figure 5.3 and offers support that the 2017 course did improve environmental literacy.

### *5.4.3 Reflection Task Codification between 2016 & 2017*

A codification system (Table 5.2) was designed in order to codify a random sample of Reflection Tasks from the 2016 and 2017 classes based on the VBN-model. Figure 5.4 and Figure 5.5 show the results of the 2016 and 2017 codification analysis respectively.

**Codification Results of Reflection Tasks from 2016**

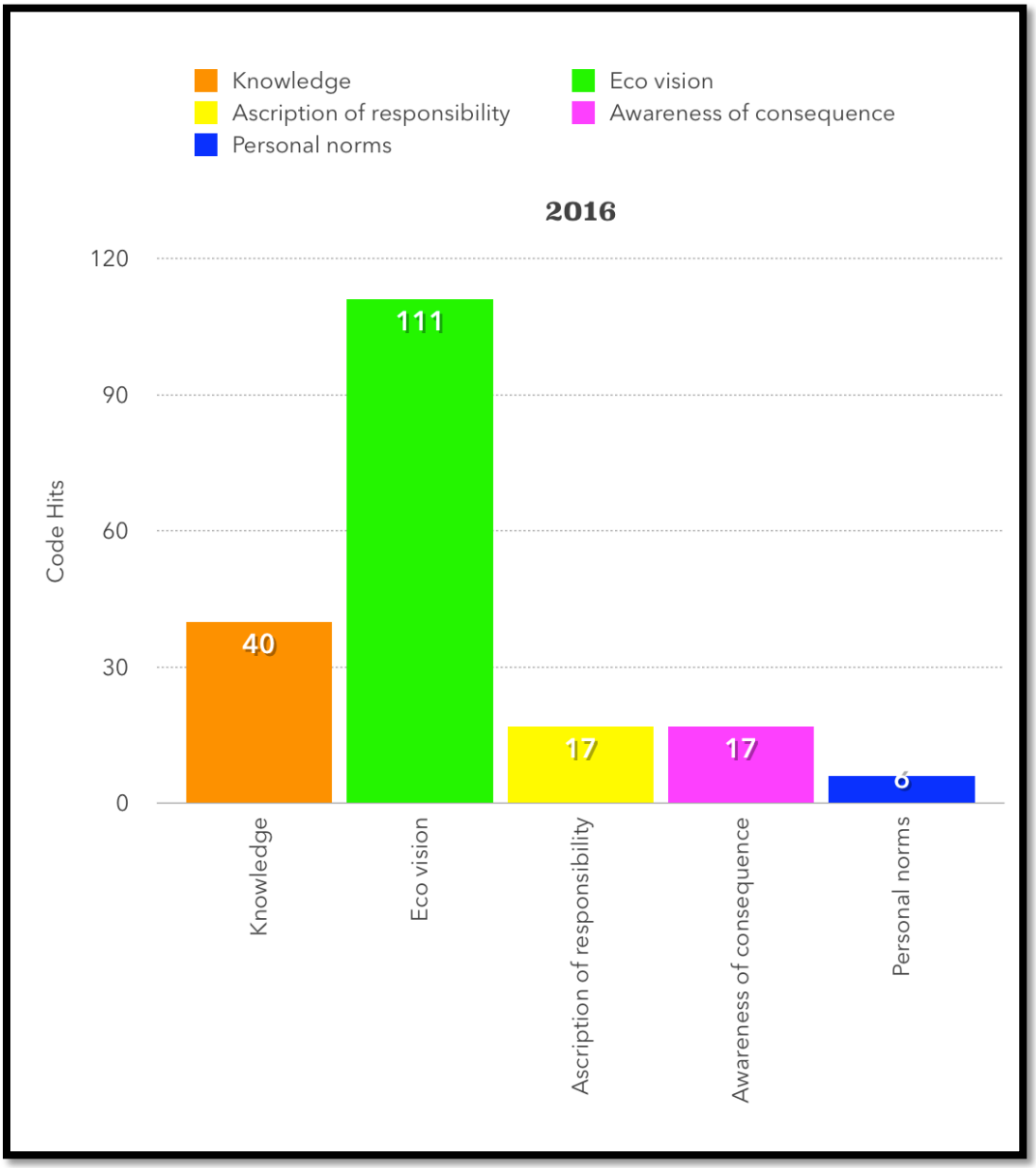


**Figure 5.4: Codification of 2016 students' reflection tasks**

Figure 5.4 shows that in the 2016 class student Reflection Tasks (RT), Ecovision was highest with 111 hits, followed by knowledge (40), Ascription of Responsibility (17), Awareness of Consequences (17), and Personal Norms (6).

**Codification Results of Reflection Tasks from 2017**

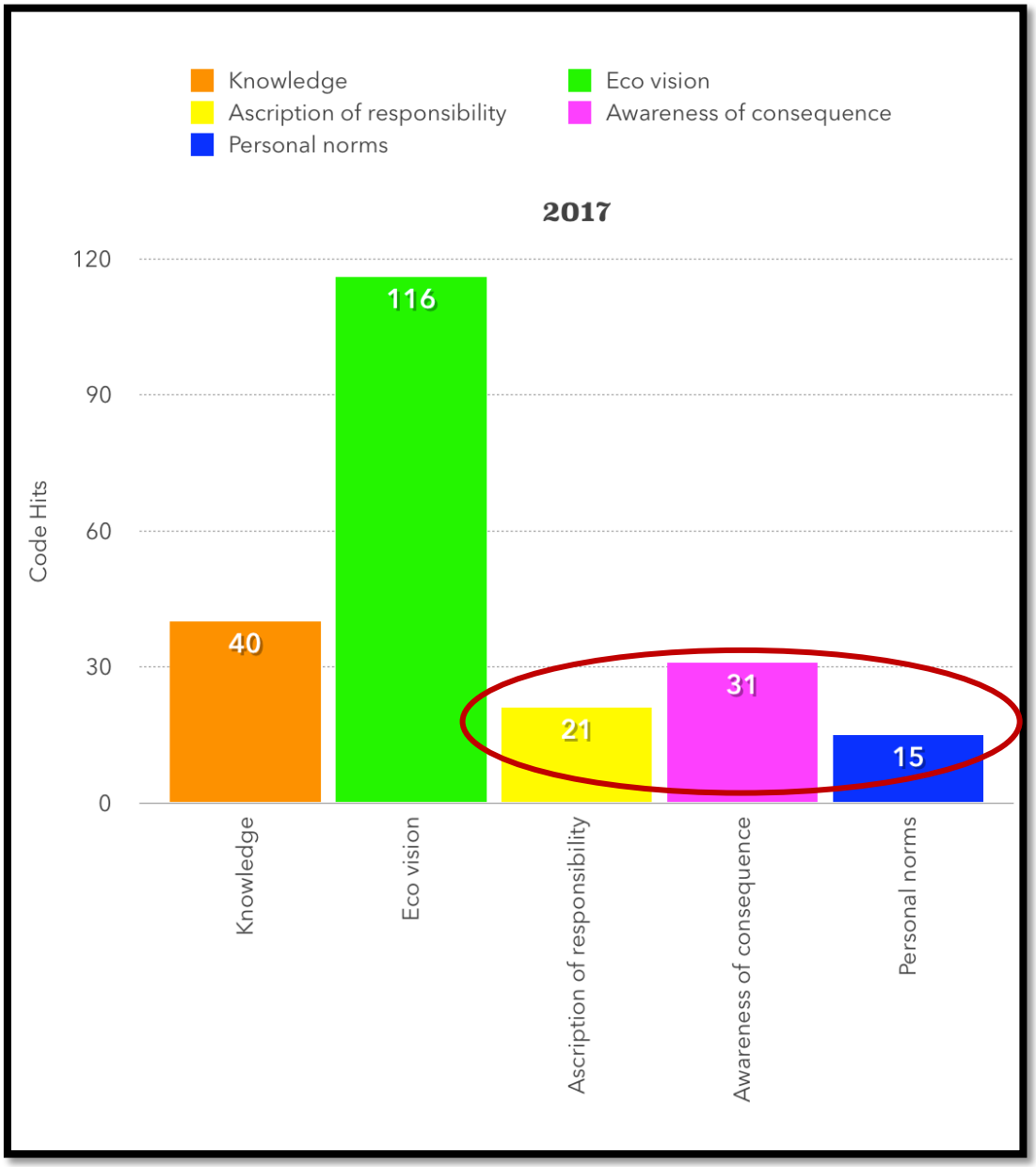


**Figure 5.5: Codification of 2017 students' reflection tasks**

Figure 5.5 shows that in the 2017 class student Reflection Tasks (RT), Ecovision was highest with 116 hits, followed by knowledge (40), Ascription of Responsibility (21), Awareness of Consequences (31), and Personal Norms (15).

When comparing 2016 and 2017 codification hits, every category was higher in the 2017 class compared to the 2016 class except for knowledge, which had exactly the same amount of hits at 40. Importantly, Ascription of Responsibility, Awareness of Consequences, and Personal Norms had significantly more hits in 2017 compared to 2016, suggesting that students in 2017 were further along the VBN Model for Environmental behavior (Figure 1.3). Furthermore, this data supports the survey data, which shows that students in the 2017 demonstrated a strong understanding of the environment, especially with regards to 'Ascription of Responsibility' and 'Personal Norms' (Figure 5.3).

## 5.6 Summary

There is a large gap between educating students about 'sustainability' content and seeing meaningful PEBs, which is the ultimate goal of ESD. Using ESD best-practice as outlined earlier in this chapter can have meaningful effects on student 'ascription of responsibility,' 'awareness of consequences,' and 'personal norms' as shown by the results of the survey and the codification of the Reflection Tasks. Using student-centered approaches, challenging students through problem-solving and critical-thinking tasks, and having students present to their classmates appears to promote environmental literacy in the Language Classroom in Japanese HE.

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# CHAPTER 6: Language Education for Sustainable Development (LESD) Framework

## 6.1 Overview

This chapter will introduce the Language Education for Sustainable Development (LESD) Framework (Figure 6.1) to conceptually and theoretically align ESD and EFL, as explained in chapter 4. The chapter will also discuss how the Sustainable Development Goals (SDGs) can be utilized in EFL classrooms as a source for timely, relevant, and important content and topics within this framework. Lastly, the chapter will make the case that mainstreaming ESD in EFL will not only provide students with meaningful content rooted in important social, environmental, and economic issues but also help Japanese students to become better future citizens and English communicators. This chapter is a culmination of the work from chapter 3, 4, and 5 and aims at bringing together the three research questions outlined in chapter 2:

- **RQ1:** How is 'environmental' and 'sustainability' content presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms?
- **RQ3:** How can ESD best-practice be integrated into the Japanese Higher Education EFL Classroom and can ESD best-practice contribute to students' construction of environmental knowledge, values, beliefs, and norms?

## 6.2 LESD Framework

Integration of ESD and EFL in classrooms, textbooks and departmental outcomes can be understood based on a theoretical framework, as shown in Figure 6.1. It should be noted that effective engagement with SDG content would require students to have a fair level of English language ability. The LESD framework will most likely work best with students at an intermediate, or at least B1 level on the Common European Framework of Reference for Languages (CEFR) (Council of Europe (COE),

2001). Students below this level of English may have the capability to engage with the topics in their native languages but to have useful 'meaning-focused output' with SDG topics, a minimal level of English skill is required. The LESD framework helps to demonstrate that ESD mainstreaming in EFL is quite feasible since many tools, such as content related to the SDGs, are readily available.

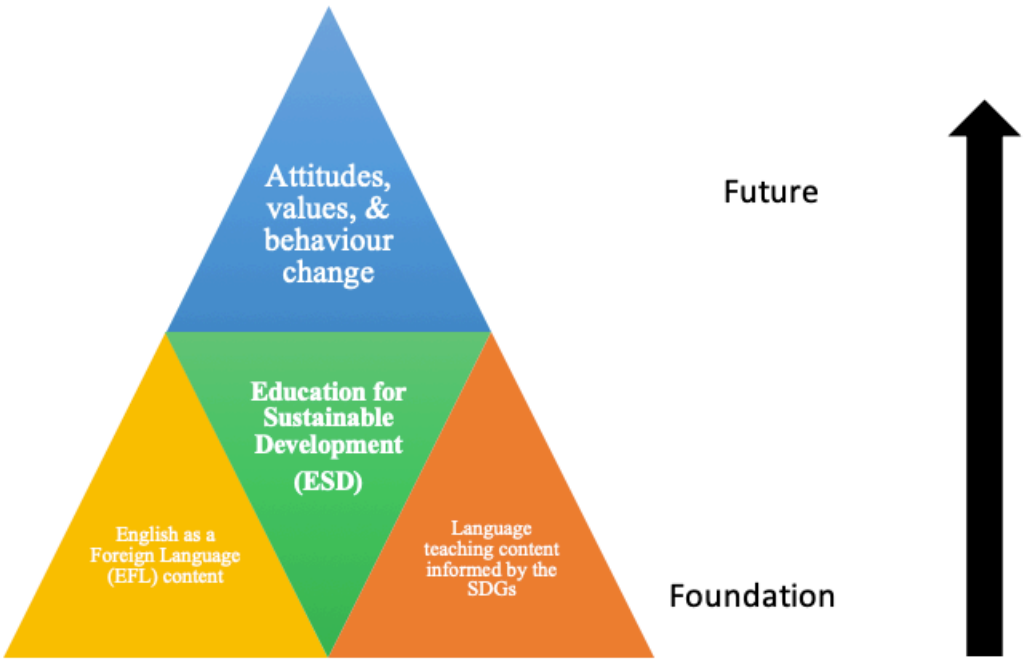


**Figure 6.1: Language Education for Sustainable Development (LESD) framework**

The LESD framework in Figure 6.1 consists of a set of triangles, with Education for Sustainability (ESD) making up the central keystone of the framework. ESD is directly linked to the foundational blocks, English as a Foreign Language (EFL) and Language Teaching informed by the Sustainable Development Goals (SDGs), as well as the peak block. At the peak of the LESD framework are the attitudes, values, and behavior change that students will develop as a result of the mainstreaming process. The arrow to the right of the triangle is representative of the process over time. The foundation is laid by EFL and content informed by the SDGs with the implication that via ESD approaches, students' understanding of sustainability through ESD grow into future values, attitudes, and, most importantly, behavior change.

### *6.2.1 EFL Content*

As mentioned earlier, EFL can be regarded as presenting an opportunity to advance student understanding of ESD. What is currently missing from EFL, however, is the commitment to topics and content that have social, economic, and environmental value. That is not to say that all EFL content is of poor quality, but that content needs to be considered more seriously in the early stages of course and lesson development. EFL can not only provide students with language skills but it could also inform and challenge students using compelling and critical topics. EFL, in terms of the LESD Framework, is a foundational cornerstone.

### *6.2.2 Language Teaching Content Informed by the SDGs*

The SDGs are a significant source of relevant topics as seen in Figure 1.1. These seventeen broad topics are further divided into several related sub-topics and fields that can easily be linked with common topics in EFL. For instance, "Good Health and Well-Being" could easily be worked into a lesson about the benefits of healthy eating or sports. The topic also can be connected to a broad range of university department curricula, from "Decent Work and Economic Growth" in economic and mathematics departments to "Industry Innovation and Infrastructure" in engineering and architecture departments. This can be more broadly applied to English for Academic Purposes (EAP) or Content and Language Integrated Learning (CLIL). More importantly, the SDGs prioritize real world issues and how to overcome these challenges:

> "The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet" (United Nations, 2016)

The broad appeal of the topics found in the SDGs, and their importance in terms of setting priorities for the world to act, make the inclusion of the SDGs in informing EFL content a foundational cornerstone of the LESD Framework.

### *6.2.3 Education for Sustainable Development (ESD)*

Education for Sustainable Development (ESD) has been scaling up since the Decade of Education for Sustainable Development (2005-2014), or DESD, ended. In part due to strong promotion by the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2014), implementation of good practice is on the rise in universities around the globe. There is evidence that the promotion of ESD in curriculum, tailored to local social, economic, and environmental contexts, can foster the knowledge, values, and behavior needed to achieve sustainable societies (Laurie, Nonoyama-Tarum, McKeown, & Hopkins, 2016, p. 240). Although there is still divergence on how ESD is interpreted as well as how ESD is implemented in higher education, ESD continues to transcend barriers between schools, universities, and communities, and interest is flourishing (UNESCO, 2012). ESD sits at the nucleus of the triangle, as it is considered the pedagogical philosophy that can foster future citizens who can overcome our current social, economic, and environmental challenges.

### *6.2.4 Attitudes, Values, and Behaviour Change*

Ultimately, we want citizens who can not only communicate ideas using the *lingua franca*, or English as the current most dominant language in terms of diplomacy, business, and science, but we also want these citizens to possess *attitudes* that promote sustainability, to adopt *values* that promote sustainability, as well as to demonstrate *behaviors* in line with these attitudes and values. To do this, ESD can be used as a teaching tool to challenge students' understanding about the world around them. Thus, *attitudes, values, and behavior change* sit at the pinnacle of the triangle.

## 6.4 Summary

This chapter further explains the rationale for including EFL curriculum designers and teachers in mainstreaming ESD into tertiary-level curricula. The advantages of adopting the LESD *Framework* are multiple. First, the content introduced in EFL classrooms will be informed by meaningful, real-world challenges as embodied by the SDGs. The SDGs offer a breadth of topics that will appeal to students, as they are grounded in their experiences and consequential global and local issues.

Second, mainstreaming ESD offers EFL practitioners language learning opportunities through topic recycling and overlap and it challenges students from many different perspectives and contexts. This helps to localize topics of interest for students and promotes their ability to engage with their values and attitudes in worthwhile ways through meaning-focused output, meaning-focused input, and fluency practice. Introducing students to important social, environmental, and economic topics in meaningful ways while imparting the English language skills necessary to engage with the world around them is critical for addressing current global environmental challenges.

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# CHAPTER 7: Discussion

## 7.1 Overview

This chapter offers a detailed discussion of the findings in Chapters 3, 4, 5 and 6. The chapter also offers recommendations for future research based on the findings from the previous chapters.

## 7.2 Discussion from Chapter 3

The English language textbooks analyzed in chapter 3 were never intended to integrate an ESD approach. This is the most likely reason that so little evidence of integration with the skills, attitudes, and behaviours associated with ESD is found in the corpus. Although much of the content and knowledge appears to be accurate and of acceptable quality, it is not linked to necessary information or learning about pro-sustainability behaviour. For instance, the emergence from the data of the 'endangered animal' theme offers students good information about the reasons behind these endangered animals, but only a very small part of the lesson is dedicated to what students can do about it and this is relegated to a minor 'expanding on information in the lecture' section. Furthermore, the vast majority of the lesson follows what would be expected of a typical EFL lesson with a predictable organization: pre-listening, vocabulary, listening questions, post-listening with a comprehension check, and a listening expansion section. This lesson, from a linear EFL perspective, is a solid lesson. Moreover, the lesson hits many of the targets outlined in the EFL evaluative criteria shown in Table 3.1 as it contains several skills, identifies important vocabulary, and is suitable to the learner level, to name a few.

Nevertheless, the lesson fails to engage students beyond presenting a light introduction to very pertinent and important subject matter: the loss of animal species as a direct result of human activity. For instance, Figure 3.6 outlines an example of an expansion exercise that focuses on the loss of animal species. On the surface, this kind of exercise appears to challenge student values and beliefs about the loss of endangered species, however, this exercise is a very small part of the lesson plan, focuses on speaking as a language objective, and is very limited in scope. Students simply respond to the questions briefly with a classmate and move on without the need to do further research, have a detailed conversation about the issue, or share their ideas more broadly in a classroom discussion. Ideally, EFL content creators and textbook would adopt a more dynamic

paradigm finding value through ESD integration and 'greening the curriculum'. This starts by looking for ways to go beyond the content as well as looking for better ways to engage students with the subject matter, especially when it comes to human-environmental relationships such as student-led research projects. Of course, teaching English as a discipline, and its goal of imbuing students with English abilities, is still necessary. However, thinking about the content in a more dynamic way will not only add value to the field of EFL, by making it more learner-centered and include more participatory approaches, but it will also contribute to training students "to deal with change, complexity, controversy, and uncertainty" (UNESCO 2012, 65), which is a foundational principle of ESD.

There were several examples of environmental topics being presented in effective ways. For instance, one chapter entitled 'Population and Aging Society' from the corpus gave a salient overview of the problems with a graying society, using Japan as a case study. The text offers students a historical overview of demographic change in Japan since the mid-1800s and describes the possible challenges Japan could face by 2050 as well as possible solutions. For Japanese learners, in particular, this highly factual text offers relevant opportunities for interesting post-discussion activities, text analysis, and comprehension questions. Not only is the text nicely linked to sustainability concepts like healthcare and women's rights, but it presents a succinct overview of the issue from a Japanese perspective. However, the text is only a small part of a chapter that seeks to address many other tasks and, like most topics in the corpus, the topic itself is not recycled or mentioned in subsequent chapters of the textbook, promoting a 'learn and forget' student mentality. Moreover, sample texts like 'Population and Aging Society' were a rarity in the corpus analysis in chapter 3 and, therefore, did not have much influence on the World Cloud (Figure 3.3) or the Frequency Correlation Plot (Figure 3.4). Thus, sample texts that challenge student environmental beliefs, values, and norms were mostly absent from the corpus, and environmental topics presented in effective ways, like the 'Population and Aging Society' sample text, are exceptions to the rule in EFL textbooks used in Japan.

To help bridge this gap between the worlds of EFL teaching and best practice in ESD, a cross-disciplinary model can be adopted as seen below in Figure 7.1. This model is loosely borrowed from Desha and Hargroves (2014, pp. 137-140) and outlines a shared knowledge between two seemingly disparate educational disciplines. On one side is EFL, with its more linear progression and a significant body of literature supporting best practice. On the other side is ESD, which is a relatively

new discipline that focuses on more dynamic evaluative methodologies, as explained earlier in Table 3.1. Figure 7.1 should be seen as a model for integrating ESD approaches to material design in EFL textbooks where applicable. This means that EFL retains its integrated skills approach, for instance, but looks to better utilize environmental content and themes as promoted by ESD.

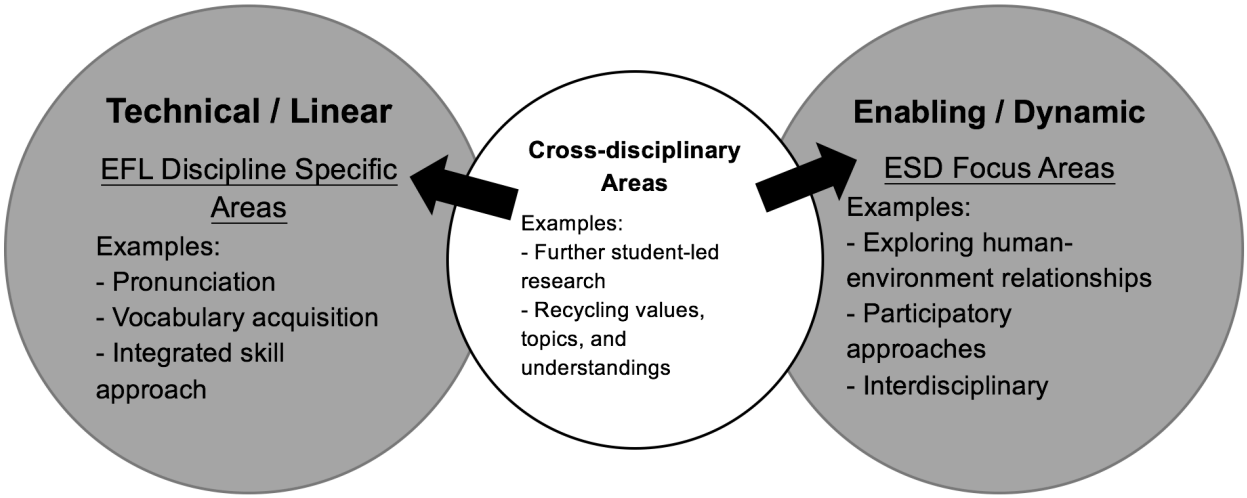



**Figure 7.1: ESD integrated EFL framework**
Adapted from Desha and Hargroves 2014, 137-140

Figure 7.1 offers several benefits for EFL students beyond the traditional technical/linear model. First, EFL textbooks often dedicate a single chapter to an environmental theme like endangered species, but the topic is not recycled or used again anywhere else in the textbook. The result is that student exposure to ideas occur only once and students do not have an opportunity to engage with the material again from other perspectives. Although some textbooks offer extension activities like the example found in Figure 3.6, these activities rarely present new information or different opinions on the topic. Furthermore, these are usually included as a way to integrate a speaking skill or offer students a post-reading activity, which are meaningful in the EFL paradigm, but do little to challenge student ideas about the environment. This idea of challenging ideas and norms in society on issues surrounding the environment is fundamental for ESD and is meant to challenge student values and, ultimately, lead to behavior change.

A second benefit of the ESD integrated EFL Framework is that it is in line with the post-DESD approach of integrating ESD into HE disciplines. This Framework opens the door to not only better ways of exploring environmental themes and concepts that are already readily available in the EFL world, but it also offers more opportunities for students to practice and recycle the English they are learning. For instance, students could cover a class on endangered animals from an EFL textbook and then be given a project where students are asked to research a local endangered animal, create a poster, and present that poster to the class. In this example, students are localizing their acquired knowledge about endangered animals and gaining valuable research, presentation, and speaking skills in the process. Moreover, other topics in EFL textbooks could be designed with crossover material. For instance, a later chapter in the same textbook on 'city life' could be used as a platform to explore how cities and the people that live there have contributed to endangering or aiding wildlife in the surrounding areas. Again, this offers an opportunity to solidify environmental content by recycling it and showing it from a different perspective as well as providing opportunities to reuse and scaffold essential EFL skills and vocabulary.

Lastly, the ESD integrated EFL Framework challenges the field of EFL to become more adaptive to a globalizing world. EFL textbooks tend to teach content in isolation from each other. Looking back at the emergence of themes in Figure 3.4, it is clear that these themes are disproportionately found in a single chapter text. Textbooks often have a chapter dedicated to an environmental theme, but this theme is never recycled or even mentioned in the rest of the textbook. Content is treated by EFL content makers as a means to integrate skills and, in most cases, appears to be an afterthought, as general attributes and learning-teaching content (Table 3.1) take priority. Again, from a purely EFL position, there is nothing wrong with this approach, however, the content is often not given the consideration it demands. As mentioned previously, this content can be used in a way that extends ideas and challenges student beliefs. It could also be recycled throughout a textbook and given opportunities to be used in new ways or from new perspectives. It should be noted here that it is not only 'environmental' content that is treated this way, which means that a more integrated EFL-content Framework could benefit other topics as well in the sense that having better integration between topics opens the door for better scaffolding and learning opportunities.

Overall, EFL textbooks using environmental content have an opportunity to expand students' environmental literacy as well as provide additional opportunities to use English skills and reinforce learning-teaching content by using the ESD integrated EFL Framework. The analysis from this

research suggests that there are several opportunities for integration of ESD in EFL textbooks, but these opportunities are either unknown to EFL material creators or are not prioritized compared to EFL outcomes and goals.

The analysis of the corpus used in this research shows that the environmental content present in EFL textbooks used in Japanese HE is inadequate once an ESD lens is applied in a critical way. The environmental content appears to be limited in scope, rarely challenges student values and beliefs, and the 'learn and forget' EFL textbook paradigm is not conducive to the types of deeper understandings and interdisciplinary approaches championed in ESD. Ultimately, the 'environmental' content found in the corpus appears to be factually accurate but rarely challenges student values and beliefs and, therefore, is unlikely to lead to behavioral transformation, which is the central goal in ESD. This is a major challenge in Japanese HE if future citizens need to be equipped with the skills necessary to manage major environmental challenges of the 21st century, like global climate change. Having English skills to participate in global conversations about these issues is important but understanding the complex environmental, economic, and social challenges of the 21st century will be vital. Integrating ESD into EFL and beginning the mainstreaming process is an important first step.

## 7.3 Discussion from Chapter 4

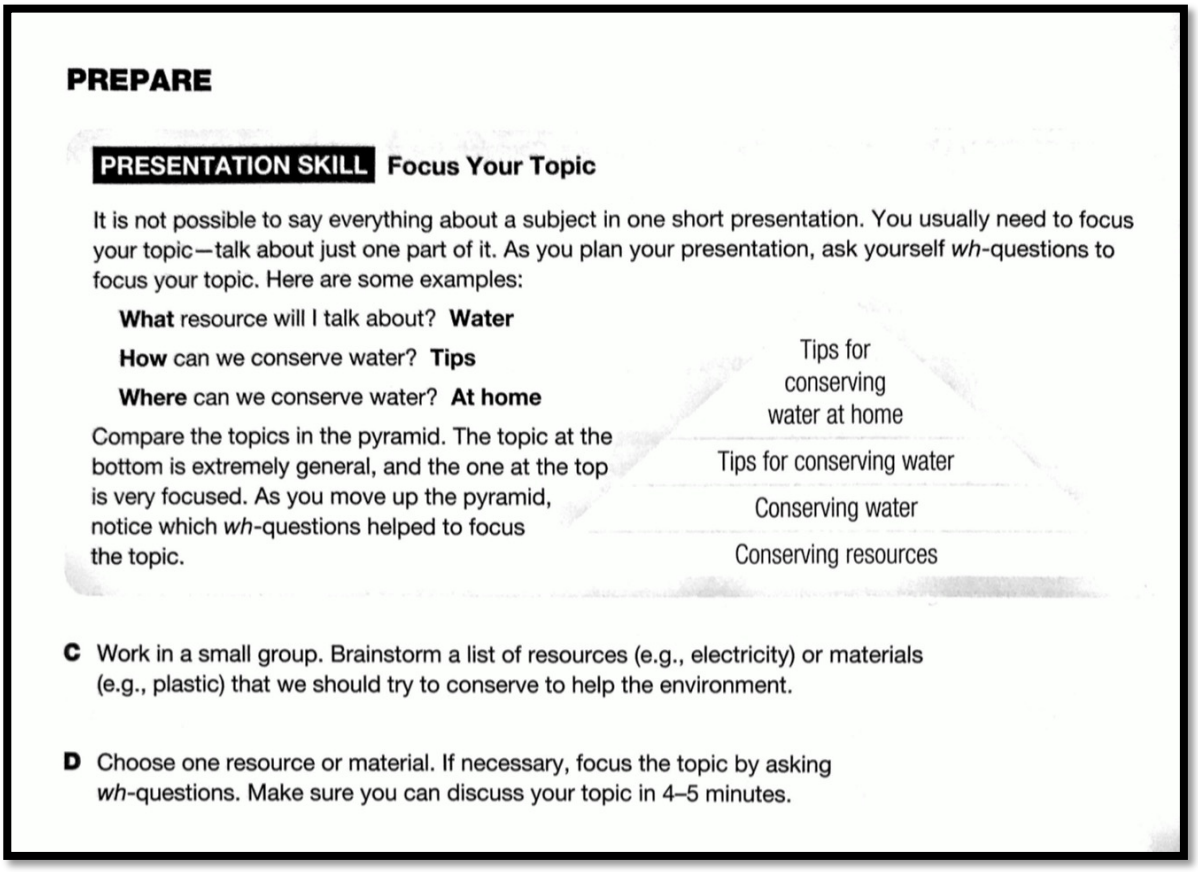
It should be noted that there is no mention in the forward or other parts of the textbooks used in the chapter four and five analysis that the creators intended to integrate ESD or SDG content or approaches. The explicit objective of these textbooks is to improve students' English language skills. Nevertheless, there is a great scope for ESD integration as well as developing novel approaches for using the SDGs in the EFL classroom. Three main findings from the textbook analysis can be derived:

1. Topics found in textbooks with 'environmental' and 'sustainability' content rarely challenge social Practices (P) or Values (V);
2. There appears to be a lack of synthesis between the topics, images, and texts found in textbook with 'environmental' and 'sustainability' content;
3. There is a general lack of holistic approaches to Education for Sustainable Development (ESD) found in textbooks with 'environmental' and 'sustainability' content.

### *7.3.1 Topics Rarely Challenge Social Practices (P) or Values (V)*

As indicated by Figure 3.3, textbooks present many environmental topics but very few strong themes emerged from the sample texts in the corpus. In terms of the KPV model, the texts generally provide students with factual and accurate information (K) but do not seem to be addressing student values (V). This means that students studying these environmental topics from their EFL textbooks are gaining some scientific knowledge and understanding. However, there are several areas, particularly as regards the P (Social Practice) and V (Values) elements, that can be improved to better promote ESD.

One way to do this is to have ideas and concepts recycled and integrated into subsequent lessons rather than teaching something in isolation from the rest of the topics in a textbook. To achieve effective ESD, Filho, Manolas, & Pace (2014, p. 124) state that "there needs to be more of a focus on developing activities that challenge competencies like understanding complexity, as well as questioning systems, routines, and policies that show signs of being unsustainable." In terms of EFL textbooks, a wider variety of topics could be developed to better challenge student values and beliefs (V), question the status quo (P), and show interconnectedness between topics. Figure 7.2 below shows one way of presenting content that improves student competencies as taken from a sample text in the corpus (Baker & Blass, 2017, p. 20).



**PREPARE**

**PRESENTATION SKILL** **Focus Your Topic**

It is not possible to say everything about a subject in one short presentation. You usually need to focus your topic—talk about just one part of it. As you plan your presentation, ask yourself *wh*-questions to focus your topic. Here are some examples:

**What** resource will I talk about? **Water**

**How** can we conserve water? **Tips**

**Where** can we conserve water? **At home**

Compare the topics in the pyramid. The topic at the bottom is extremely general, and the one at the top is very focused. As you move up the pyramid, notice which *wh*-questions helped to focus the topic.



**C** Work in a small group. Brainstorm a list of resources (e.g., electricity) or materials (e.g., plastic) that we should try to conserve to help the environment.

**D** Choose one resource or material. If necessary, focus the topic by asking *wh*-questions. Make sure you can discuss your topic in 4–5 minutes.

**Figure 7.2: Extension activity from a sample text entitled, "Small actions; Big results"**

The activity in Figure 7.2 is a good example of an activity that challenges student values (V) and social practices (P) by giving the student an opportunity to present about conserving water and, at the same time, practicing EFL skills like presenting and using wh-questions. Unfortunately, examples like Figure 7.2 were rare in the corpus sample texts.

Furthermore, Figure 4.2 suggests that the choices made in adopting imagery for environmental topics used in EFL textbooks are not always challenging our students' conceptions of the world around them. For instance, the data shows that 37 percent of all images found do not connect to the four conceptions associated with ESD. This means that more than one in every three images found in the corpus are intended to decorate the page, make a loose association with text on a page, or are incorporated by writers or editors for some reason unknowable to the researchers. One suggestion is to have textbook creators think more carefully about the images they use and make an effort to connect these images directly with values (V) or social practices (P). A good example of this connection can be found in Table 7.1- Example 2 below.

### *7.3.2 Lack of Synthesis between Topics, Images, and Text*

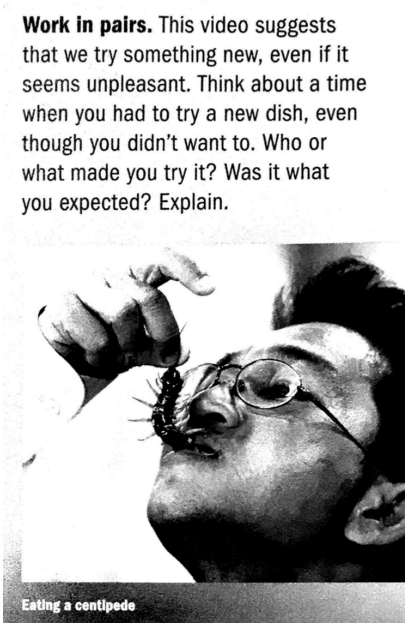
The analysis also found that the sub-topics used in EFL textbooks predominantly concern the Use of Resources (UoR) at the expense of other topics like Biodiversity (BDY) and Pollution (PO), as illustrated in Figure 4.1. Particularly, the connection between what we use (UoR) and the waste that is produced (PO) is not strong within the sample texts. As Caravita et al mention, "Pollution and the use of resources are crucial topics that particularly involve values and beliefs, and that are central in an education for a sustainable future" (2008, pp. 108-109). As such, the connection and overlap between topics around pollution (PO) and the use of resources (UoR) could be significantly strengthened within a lesson or textbook chapter as well as throughout the different chapters and topics within a single textbook.

Furthermore, the lack of topic synthesis and overlap could be considered problematic from the perspective of furthering sustainability learning, because sustainable development is a complex and dynamic topic that requires integrating and synthesizing many fields of study. In fact, one of the ways of integrating sustainable development into university programs is by holistically considering subject material. Filho notes the importance of "the holistic handling of sustainable development issues, integrating them with social and economic matters, as well as with biological and ecological issues, hence enhancing the quality of education provided to students as well as the quality of research" (2011, pp. 432-433).

ESD, when integrated into curricula, is a powerful tool for strengthening students' educational and research capabilities. Many examples of this kind can be found in the corpus. For instance, a unit called, "Small actions; Big results," discusses the costs associated with wasting water, and then introduces ways to recycle paper waste (Pollution, PO) in order to conserve water resources. Furthermore, the unit ends with activities, as seen in Figure 7.2, which prompts students to recycle what they learned from the reading and challenges students to relate the topic to their lives. Overall, the unit succeeds in synthesizing concepts from two different subtopics (UoR and PO) as well as pushing students to think about their own values in terms of the conservation of resources. In terms of integrating sustainable development into the curriculum, the unit does an effective job of introducing important ESD concepts while teaching students English. In other words, EFL textbooks using environmental topics can do a better job of integrating topics and showing environmental issues from several different points of view to holistically introduce sustainable development issues.

Another area that could be improved in EFL textbooks is the use of imagery associated with the four conceptions. For instance, “Complex vs. linear systems” is only representative of 3 percent of the images found in the sample texts and there were no images referencing a “Global vs. local approach.” In terms of sustainable development, having a more balanced representation of important concepts throughout EFL textbooks would be beneficial. “Complex vs. linear systems,” for instance, can be used as an approach in discussing climate change. In Table 7.1 below, the Example 1 image-text interplay is limited. The image could be placed next to many kinds of texts without a deep or direct connection to the text itself. In terms of the KVP model, this appears to be an opportunity lost. The image, as presented has almost no direct association with the activity itself, is not offering any knowledge (K), challenging student values (V) or modeling social practices (P). On the other hand, Example 2 from Table 7.1 provides an example of an image and text interplay that directly challenges students on their values (V) and societal beliefs (P) concerning global food supplies. As one of the suggested activities in the textbook, students are asked to watch a video that challenges their ideas of what food is (V), to answer questions about the environmental impact of this choice of food (K or P), and then to discuss them based on the image in example 2 (V). Example 2 would appear to be a much more effective choice of image in relation to the text than example 1 as it challenges students’ ideas about the world directly.

**Table 7.1: Sample images found in the corpus with their associated codification**

| | Example 1 | Example 2 |
|---|---|---|
| Image |  |   |
| Associated text explanation | This image is next to a chapter section entitled, "You shouldn't buy that stuff." Students are asked to listen to the conversations and write an appropriate phrase. The man sitting and thinking atop the earth shows a relationship of humans to nature but is not directly related to the associated text in a meaningful way. The image does not have any associated text or explanation. | The image is found in a section where students watch a video about eating insects and answer questions about eating insects and its environmental impact. This follows a text about different techniques of food production and the importance of creating enough food for the human population. The image is directly related to the video and activities on the page. The image has associated text as seen above. |
| Unit/Chapter name | Pollution | Food Matters |
| Code(s) assigned: Link to the four conceptions (Figure 4.2) | Relationship of humans with respect to nature | Relationship of humans with respect to nature, individual vs. social responsibility |
| Code(s) assigned: relationship of the image to the text (Figure 4.3) | Appears decorative in purpose | Directly related to text |

### *7.3.3 General lack of Holistic Approaches to Education for Sustainable Development*

As mentioned earlier, EFL textbooks often use environmental topics in isolation from other topics and these topics tend to be subordinate to EFL goals. To reconcile the disparities between EFL as a discipline and the participatory and holistic approaches that ESD integration espouse, a LESD framework (Figure 6.1) was introduced in Chapter 6.

Currently, EFL goals and objectives appear to overshadow choices in textbooks, and the content and topics seem to be regarded as somewhat incidental. In this LESD framework, however, EFL content and language teaching content are given more balanced consideration in the creation of content for EFL classrooms as the foundational corners of the triangle. Based on more participatory and holistic approaches to integrating the SDGs into higher education, ESD can be used as a bridge to further the kinds of changes that are desirable in terms of student knowledge, values, and practices. As the SDGs provide a diversity of branching topics, the SDGs can inform the language teaching content of EFL classes at a foundational level.

In applying the LESD framework, EFL content creators would need to understand how to provide the language skills common to EFL curricula while using topics and content informed by the SDGs. A good example of this is creating a lesson about water use in Myanmar's dry zone and linking this to SDG #13 on Climate Action. The content creator would then create EFL materials that not only teach English through using relevant topics from the SDGs, but also challenge student values and attitudes about the topic through appropriate image-text interplay and ESD best practice. Ideally, units and lessons are scaffolded in such a way that EFL concepts and unit topics are interconnected and build upon each other giving students a holistic understanding of the content while they learn English.

This kind of framework can not only be used to help inform EFL materials and curricula within Japan but may be more broadly applicable as English language education continues to expand globally. Additionally, this proposed LESD framework adds value to the field of EFL by making content more purposeful and integrated and contributes to training our students "to deal with change, complexity, controversy, and uncertainty" (UNESCO, 2012, p. 65) to achieve a more sustainable future.

## 7.4 Discussion from Chapter 5

Chapter 5 proposed three research questions: (1) Are there any noticeable differences between a pre-ESD integration course and a course that integrates ESD (ESD best-practice)? (2) Can CLIL courses use ESD to improve environmental literacy? And (3) Can ESD be used to influence student environmental values, beliefs, and norms in the language classroom? In doing so, three major implications from the research were discovered.

Firstly, there were some noticeable differences between the pre-ESD and the ESD best-practice courses. Overall, the average mark in the course was higher in the 2017 course compared to the 2016 course (Table 5.6). This result can be interpreted as an increase in student motivation due to the elements of ESD best-practice, namely a student-centered approach, more critical thinking and problem-solving activities, and the inclusion of a presentation element (i.e. poster presentations and PowerPoint presentations) in the 2017 course. Furthermore, the survey and codification of the RTs shows a definite increase in 'Ascription of Responsibility' and 'Personal Norms,' which is at the far end of the VBN-model (Figure 1.3) spectrum, suggesting that these students are more likely to demonstrate PEB in their daily lives. Despite the Independent Sample T-test of the survey results showing insignificance at this far end of the spectrum (Table 5.9), the addition of the codification results (Figure 5.5) and a general increase in all categories in the 2017 survey data (Table 5.8 & Figure 5.3) can be considered conclusive that there are noticeable differences in the ESD best-practice course. One unanticipated result was the higher rate of absences in the 2017 course that was statistically significant. This could be attributed to the fact that students in the 2017 course needed to present a poster and a PowerPoint presentation (Appendix A3.3 & A3.4) in front of their peers, which was more challenging than the research 'marking-up' task (Appendix A3.1). It is possible that this task, and the higher expectations designed into the marking criteria (Appendix A3.5), explain the higher rate of absences in the 2017 ESD best-practice class.

Secondly, the results, especially the marks, survey and codification data suggest that ESD in combination with a CLIL approach can improve overall environmental literacy. Furthermore, the reflection tasks from the 2017 course include instances where students demonstrate environmental literacy. For instance, 'Ecovision' and 'Knowledge' was demonstrated on many occasions by students in the 2016 and 2017 course but students in the 2017 course added layers of depth to their answers by tying their responses to content and understandings found in the course materials.

Student A from the 2017 course demonstrates 'Ecovision' in the following transcription from their RT:

> *"Environment is more value than I did at the start of the course. Because I thought environment is not connect to human. However, environment is connect to human society, for example, population growth and resources use, global climate change."*
>
> – Student A from the 2017 Course RT

In this example, student A is clearly showing an understanding of their place within the natural world. Furthermore, the student is linking this understanding to the knowledge and content found within the 'Environmental Ethics' course.

Students in the 2017 course also showed a much higher understanding of 'Ascription of Responsibility' and 'Personal Norms,' which is further along the VBN-model spectrum and can be considered a higher order level of environmental literacy. Student B from the 2017 course demonstrates 'Ascription of Responsibility' and 'Personal Norms, in the following transcription from their RT:

> *"…ecofootprint is very useful for me to understand my using resource. Eating meat many times leads to bad environment. Therefore, I want to reduce eating meat"*
>
> – Student B from the 2017 Course RT

In this example, student B is demonstrating responsibility for an ecological footprint on the earth by consuming valuable resources. This kind of reflection shows an awareness connected to 'Ascription of Responsibility.' Student B takes this thought one step further by giving a specific example, eating meat, and concluding that they have a desire to change their behavior based on the recognition that meat has a higher ecological impact. In other words, the student is demonstrating an unmistakable desire to tread more lightly on the earth and a desire to do that by changing behavior ('Personal Norms'). Although it is hard to measure if this student will follow through with their desire to cut down on meat consumption, this student appears to be willing to change behavior (PEB) in the future, which is the ultimate aim of Environmental Education. Thus, one can conclude that the

combination of CLIL and ESD best-practice can improve student environmental literacy overall with the aim of PEB.

Lastly, the language classroom can be used as a platform to positively influence student's environmental values, beliefs, and norms. The use of the VBN-model for surveys (Table 5.8 & Figure 5.3) and codification of RT (Figure 5.4) is evidence of this result. Furthermore, the opportunity for students to engage in a student-led research project in small groups was highly motivating and very interesting for students. Not only were students able to pick a question that interested them, but they were also able to present the results of their research to their classmates in a meaningful way. This allowed students to transcend the confines of the university classroom by researching a topic like, 'food waste in Japan' and finding an expert in their community to interview outside of the university. A common theme in the 2017 RTs as well as in the interviews with students was that this experience was invaluable in promoting deeper thought about themselves and their connection to the world. For instance, an interview participant reflected about her thoughts on her place in the world when she was asked about what she remembered about the course:

> *" for the future we live in the earth. Protecting the environment is protecting the other species in the earth. It's all connected. Its connected to the animals, humans… connected to all … future generations. My children and grandchildren."*
>
> – Student C from the 2017 Course during the Interview

Student C shows that they see themselves as both connected to the world and as a protector of the earth. Clearly, the student declares the value they place on protecting the environment because of their connection to other living creatures. In addition, Student C also speaks about protecting the next generation, specifically their children and grandchildren, which is a fundamental tenet in sustainability. Later in the interview, the student talks about how 'environmentalism' needs to become more popular in Japan and issues like 'plastic waste' need to become more mainstream. Student C's awareness of environmental issues and their desire to do something about these challenging problems shows a high level of environmental literacy, which demonstrate environmental values, beliefs, and norms.

Overall, it is evident that the ESD best-practice course in 2017 had a positive influence on student's environmental literacy and that providing a CLIL-style course that integrates student-centered ESD approaches can not only increase environmental literacy but can also be a motivating factor for students.

## 7.5 Discussion from Chapter 6

The LESD Framework (Figure 6.1) is meant to help address two main concerns with current EFL instruction: (1) EFL curriculum designers and teachers could more carefully consider the topics and contents in courses and textbooks and; (2) Mainstreaming ESD into EFL is Beneficial.

### *7.5.1 EFL Curriculum Designers and Teachers Could Place more Importance on EFL Content*

EFL teachers with a few years of experience often complain that many of the topics in university English texts are either uninteresting or forgettable, soon extinguished from a student's memory upon finishing a chapter. Furthermore, topics and content are often taught in isolated chunks of information that rarely complement or feed into each other. The LESD Framework in Figure 6.1 envisions the content as being an important part of courses and textbooks - timely, engaging, and prioritizing real world issues and solutions. The 17 SDGs offer this kind of content. This promotes language acquisition using impactful content that, by its very nature, is interconnected and will scaffold nicely through an EFL course or textbook. For instance, a textbook could start with a chapter on sea level rise in major Japanese cities and the impact of this on local communities, which would fall under the 13$^{th}$ goal, or "Climate Change" in the SDGs. A subsequent chapter of the same textbook could focus on how clean water is guaranteed for Osaka citizens and how that clean water is produced, which would fall under the 6$^{th}$ goal, "Clean Water and Sanitation." This example not only envisions applications in a local context, but it also allows for ample overlap in vocabulary, themes, concepts, and ideas. Lastly, a textbook, or course of this kind, will push students to consider the language necessary to discuss and write about the content (meaning-focused output), learn about something that is relevant to them through reading and listening (meaning-focused input), and build fluency through the recycling and scaffolding of vocabulary, grammatical structures, and

topics. Curriculum makers and teachers already have tools, like the SDGs, at their disposal to create meaningful content alongside effective language teaching.

### *7.5.1 Mainstreaming ESD into EFL is Beneficial*

Mainstreaming ESD is essential for EFL. ESD is an approach for teaching sustainability in light of social, economic, and environmental challenges faced by citizens. This means that ESD covers not just environmental concerns, but how the resources we use intersect with the values we ascribe to them in society and how this affects people. ESD, in essence, is a way of envisioning content in ways that overlap with real-world issues and solutions from many perspectives, addressing how people, resources, and money are used in the world and creating relationships between relevant ideas. For instance, teaching students about animals is a popular topic in EFL textbooks but this is often taught as an isolated chapter and the content is not revisited in any meaningful ways. Moreover, much of the vocabulary, grammatical forms, and concepts are presented only once and recycling is limited. By applying an ESD lens to the topic of animals, several possibilities arise in terms of recycling topic material and offering students more opportunities to use language and develop opinions. This could be done by examining animals through social (What is the purpose of cat cafes in Japan?), economic (What are the costs associated with caring for animals in Japan?), and environmental prisms (Are there any endangered animals in Japan?). A simple topic can be expanded to become a much more dynamic set of topics that will have positive language learning repercussions (e.g. vocabulary overlap and recycling) as well as positive ESD impacts in terms of challenging students to think about their own local contexts and different perspectives on the same topic. Lastly, the topic of animals can be linked to SDG 14, “Life below Water,” or SDG 14, “Life on Land,” offering further possibilities for real-world applications. Overall, ESD can be used as a meaningful way to explore important topics in more depth as well as provide opportunities to use language in meaningful ways. EFL practitioners can add significant value to their English language lessons while giving students knowledge and exposure to consequential content.

Considering topics for EFL courses and textbooks from a sustainability point of view, particularly in terms of the SDGs, can encourage students to engage in the material more critically, expand their understanding of the world, and encounter important and timely ideas.

## 7.6 Future Research

### *7.6.1 Overview of Future Research*

As outlined in chapters 1-6, there are several areas where this research can be further developed and the gap in ESD integration in EFL can be closed. There are two important areas that would be benefited by further development: (1) How textbooks and textbook publishers in EFL can better utilize ESD best-practice in their materials and (2) How ESD mainstreaming in EFL curriculum is better accomplished.

ESD best-practice would add another layer to what textbook publishers and EFL practitioners are already doing in the classroom so clear guidance on how to do this would be very useful. In designing EFL curriculum, several steps are necessary for the successful implementation of a course of study. For instance, a course needs a set of 'goals' that are directly tied into a 'needs' assessment of the students, 'principles' that guide the creation of the course, and an awareness of the 'environment,' or context, in which the course is situated (See Figure 7.3). Furthermore, this process of creating a course of study entails having 'content and sequencing' of the topics, the 'format and presentation' of the materials should be consistent, and the 'monitoring and assessing' should be in line with goals and what is taught. Overall, there are many elements that should be connected seamlessly to allow for a successful course that fulfills its goals and gives the students the knowledge and skills they need.

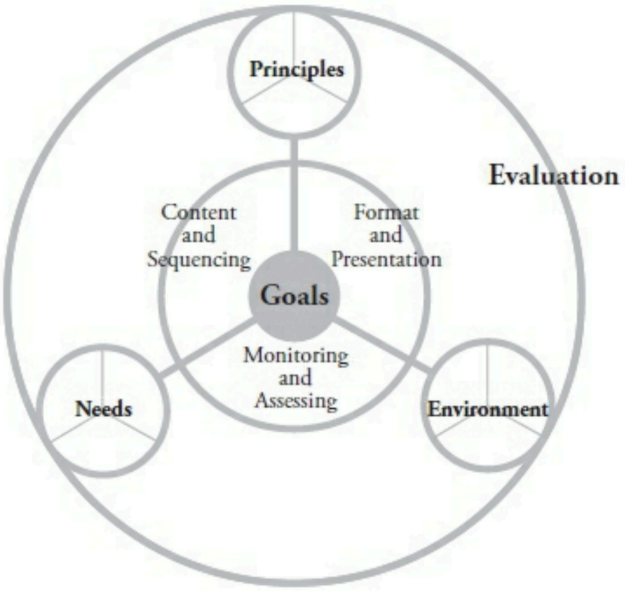



**Figure 7.3: Designing an EFL course**
Taken from Nation (2013, pp. LOC3088)

Already, designing and implementing an EFL course, or any course for that matter, is challenging. ESD mainstreaming into EFL can simplify some of the elements of course design by offering meaningful content from the SDGs, for instance, but, in general, ESD integration adds another layer of complexity and challenge to this process. Thus, having detailed guidance on how this process is done in an accessible way can help guide textbook developers as well as EFL practitioners in mainstreaming ESD. Further research in how Frameworks, like the LESD *Framework* from Chapter 6, can be integrated into EFL course design will be useful to this purpose. Moreover, additional research in how ESD best-practice can be further refined in the EFL and Content and Language Integrated (CLIL) classroom add significantly to closing the research gap and contribute to refining frameworks for designing language courses integrating ESD.

Another area where this research has potential is in the wider language teaching world. The textbooks used in the corpus from chapter 3 and 4 were often developed for broader markets in Asia and not simply for Japan only. This implies that the integration of ESD into Language textbooks in broader markets could also benefit. In addition, Language Teaching (LT) in this thesis has referred to the teaching of English but the LT market includes other popular languages that are widely taught such as French, Spanish, and German. As ESD is universal in its outreach and scope and the LT disciplines share a common body of language teaching literature and techniques, ESD integration has the potential to benefit other languages as taught in HE contexts. Thus, this thesis may be more widely applicable in other international HE settings.

### *7.6.2 Future Research from Chapter 3 and Chapter 4*

The corpus will continue to be developed, analysed, and mined as a means to learn more about environmental content and how it can be better integrated in EFL textbooks and material. This corpus will also be made available to other researchers who may be interested in using it for further analysis. As mentioned in the discussion of chapter 3 and 4, it is often not clear why texts, content, and images were chosen for textbooks, so collecting data from publishers as well as content creators would be a useful next step to understand the motivations behind content choice. At present, there is very little research about how environmental content used in EFL materials could be improved or how this content impacts university students in Japan or other countries. Thus, further research into

corpora here in Japan or comparative studies between countries would contribute greatly to learning more about this topic and improving student PEB.

### *7.6.3 Future Research from Chapter 5*

There are several avenues where follow-up studies and further research about integrating ESD into EFL curriculum could be useful. For instance, setting up a similar program-effects case study in a general EFL classroom, where all 'environmental' and 'sustainability' content used ESD best-practice. This would be useful as an inquiry into the ESD best-practice techniques adopted for this study. Furthermore, it would be interesting to see if ESD best-practice can also be more broadly applied to smaller content units of study with similar results.

Moreover, there is an opportunity to take the results of this ESD best-practice research and apply it more generally to EFL curriculum design in CLIL or general EFL classrooms. This approach could look at ways to not only integrate ESD best-practice throughout the units of a course but also look at ways to scaffold language, vocabulary, and Skill-based design to improve both student environmental literacy and English language skills.

Lastly, based on the results from chapter 5 of the benefits of integrating best practice into language classrooms and the gap in the literature of ESD integration into the language classroom, there is ample room to introduce a new field of study based on the LESD framework (Figure 6.1). This new field of study would be aimed at investigating how ESD and SD, more generally, could be used in language classrooms. This new field of study could be called the Language Education for Sustainable Development, or LESD (Figure 7.4). LESD will aim to close the gap between the disciplines of Language Education and Sustainability Education by exploring the areas where these two disciplines would benefit from each other in meaningful ways such as in the area of critical thinking. The hope is that LESD could help to promote and popularize the use of ESD in the EFL discipline in Japan but also appeal more broadly to the Language Education community across the world as many of the same methods and principles are shared. Furthermore, LESD would emphasize ways of challenging student environmental beliefs, values, and norms while building language skills so students can better participate in global conversations about important issues. These global conversations would necessitate an understanding of environmental challenges commonly shared by all people on earth

such as climate change, and entail the ability to understand, share, and negotiate in a common language while being able to negotiate cultural differences. LESD sets out to bridge this gap and develop students who can be future leaders in solving these environmental challenges.

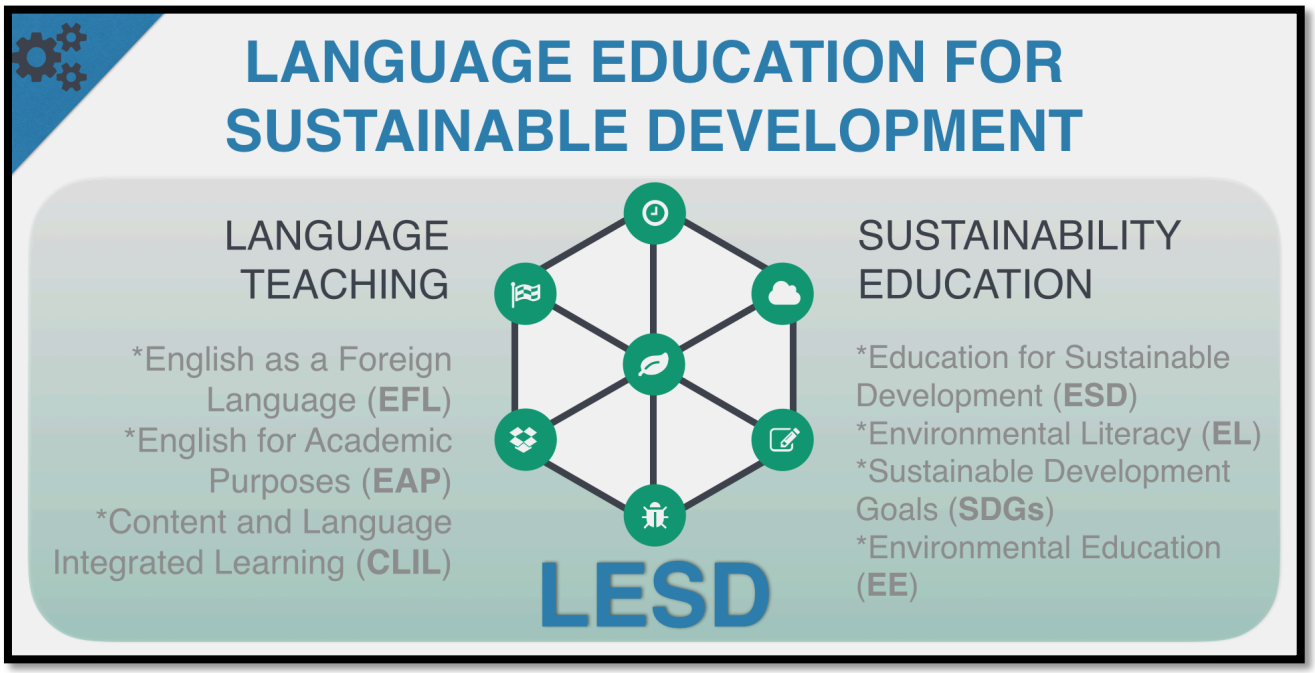



**Figure 7.4: Language Education for Sustainability (LESD) as a field of study**

# CHAPTER 8: CONCLUSION

## 8.1 Overview

This chapter briefly summarizes the findings of chapters 1-6 by offering synopses of early chapters, the main research findings, the limitation of the thesis, and overall conclusions are introduced. Lastly, the author presents an argument for how Education for Sustainable Development (ESD) could be better utilized in the English as a Foreign Language (EFL) classroom in Japanese Higher Education (HE) and how ESD could be applied more generally to Language Teaching (LT).

## 8.2 Synopses of Earlier Chapters

### *8.2.1 | Chapter 3: An Analysis of Environmental Content Found in English Language Textbooks Using a Corpus*

This chapter examined the role that environmental topics play in EFL textbooks through an analysis of a corpus. The research used text and corpus tools to analyze the corpus. This chapter concludes by proposing a framework to support and improve EFL lessons that integrate environmental content with the ultimate aim of strengthening ESD mainstreaming.

### *8.2.2 | Chapter 4: Mainstreaming ESD: An Analysis of the Image-Text Interplay Found in EFL Textbooks*

This chapter presented a further analysis of the corpus from chapter 3 by looking at the text-image interplay found in EFL textbooks. The research used a novel approach to mapping image-text interplay within a corpus using the KPV-model (Scientific Knowledge, Social Practices, and Values).

### *8.2.3 | Chapter 5: A Program Effects Case Study Using ESD Best-Practice*

This chapter examined how ESD can be integrated into a university EFL course in Japanese higher education by using a program effects case study. The research used three main methods of data

collection including student reflection tasks, examination of artifacts from a major research assignment, and follow-up survey results from both semesters.

### *8.2.4 | Chapter 6: LESD Framework*

This chapter further unpacked the Language Education for Sustainable Development (LESD) *Framework* to conceptually and theoretically align ESD and EFL that was first introduced in chapter 4. The chapter also discussed how the Sustainable Development Goals (SDGs) can be utilized in EFL classrooms as a source for timely, relevant, and important content within this LESD framework.

## 8.3 Main Research Findings

In Chapter 2 the author posed the following three Research Questions (RQ) and sought out to answer them by using a Textbook analysis (Chapters 3 & 4) and a Program-effects Case Study (Chapter 5). Based on the abovementioned findings, the responses to each question can be summarized as follows:

- **RQ1:** How is 'environmental' and 'sustainability' content presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms? (Chapter 3) *Topics are taught in isolation and are not connected meaningfully to other topics within a course or textbook. There is little opportunity for scaffolding or reinforcement of key vocabulary, ideas, and concepts in ESD. Few activities challenge student Environmental Values, Beliefs and Norms. The Sustainable Development Goals (SDGs) can be used as a powerful source of 'environmental' and 'sustainability' content in the EFL classroom.*
- **RQ2:** How is the image-text interplay presented in Japanese Higher Education EFL textbooks and is this contributing to students' construction of environmental knowledge, values, beliefs, and norms? (Chapter 4) *Images rarely have meaningful relationships to the associated text and rarely challenge student's environmental Values, Beliefs, and Norms. Images rarely allow for meaningful conversations and are often decorative in purpose.*

- **RQ3:** How can ESD best-practice be integrated into the Japanese Higher Education EFL Classroom and can ESD best-practice contribute to students' construction of environmental knowledge, values, beliefs, and norms? (Chapter 5) *ESD best-practice can positively correlate with environmental Values, Beliefs, and Norms further along the VBN spectrum. ESD can be used as a tool to increase students' VBNs but also teach English in the EFL classroom through increasing problem-solving ability, deepening critical-thinking skills, and improving motivation by using presentation skills and student-led research projects.*

## 8.4 Limitations

### *8.4.1 Limitations from Chapter 3 and Chapter 4*

A 55,000-word corpus (at the time of writing) is a good size considering the specific area of study i.e. environmental topics within EFL textbooks after 2004. However, a corpus is used as a representative sample, or a snapshot of the area of study, and, therefore, a larger body would be better. The corpus will continue to grow as more samples are found, and new findings will be published in future papers.

There is a huge body of EFL textbooks published with differing balances between EFL teachings, text themes, and topics. The majority of texts found in the corpus showed a disproportionate emphasis on learning-teaching content over a more topic-based approaches. The LESD Framework in Figure 6.1 offers a more balanced strategy for balancing content with EFL skill training, where the content (i.e. topics and themes) used in textbooks are given a more considered weighting with the learning-teaching content. Although this is ideal when using 'sustainability' topics and themes in EFL textbooks, there are several other factors that would enhance textbooks such as the context, learner ability, and purpose, that may affect how this balance is reached. Furthermore, language learner levels and the contexts in which learners are studying are important in terms of content understanding and conceptual understanding. For instance, lower level students of English may simply not have the ability to deeply understand their own values and beliefs or be able to talk about them accurately in a second language. Integrating ESD in EFL is likely to be more effective at certain language levels and contexts and, therefore, this paper's findings may not be applicable in all circumstances.

### *8.4.2 Limitations from Chapter 5*

This research was done in an 'Environmental Ethics' CLIL course where the content already had an environmental theme. This means that the results of an ESD best-practice course may not be more widely applicable to a general EFL course in Japanese Higher Education. EFL courses often contain environmental topics where the application of ESD is appropriate but the application of ESD to other non-environmental topics in an EFL course needs further research. ESD best-practice, as defined pedagogically, could have a positive influence in all teaching content, not just in 'environmental' content, as student-centered approaches, problem solving and critical thinking, and communicative activities, like presentations, are wide-spread in EFL literature and correlate highly with increased motivation and learning outcomes.

In addition, CLIL courses and ESD best-practice may have limitations at the lower English levels, or lower language levels more generally, of the Common European Framework for Languages (CEFR). Students that do not have basic speaking, presentation, reading, and listening skills in the target language may struggle with the content, much of which is authentic in CLIL courses, and the course tasks, such as poster and PowerPoint presentations. A bare minimum of a B1+ level student would be ideal for ESD best-practice integration. A1 and A2 levels may not be sufficient enough to see environmental literacy increases and language learning opportunities.

Lastly, this research is one of the first studies of integrating ESD bet-practice into a CLIL course in Japanese HE. Although the results are encouraging that integrating ESD best-practice in the LT classroom in HE is a worthwhile endeavour, more research looking at this issue could help support the findings of this thesis. Currently, the gap in research looking at the nexus between ESD and EFL is large and more research is needed.

## 8.5 Final Conclusion

As mentioned in previous chapters, ESD mainstreaming in the discipline of EFL has had very little exposure in the research and limited guidance on how to do it effectively. Furthermore, sustainability content used in EFL courses in Japanese HEIs is being underutilized or being taught

ineffectively through textbooks. Therefore, curriculum designers and textbook creators could improve their courses by better considering the nexus of effective language teaching with meaningful 'environmental' and 'sustainability' content. EFL as a discipline can benefit from ESD best-practice as EFL and ESD share many of the same goals such as improving problem-solving, advancing critical-thinking, and promoting better research and presentation skills. Most importantly, however, the discipline of EFL can participate in challenging student environmental Values, Beliefs, and Norms, and, ultimately, creating future leaders that can promote more sustainable societies. English as a Foreign Language and Education for Sustainable Development can work together in accomplishing this goal. Based on the results from chapters 1-6, three main research findings can be deduced:

1. Textbooks commonly used in language teaching classrooms in Japan often contain sustainability-linked content, but this content is doing very little to challenge student's environmental Values, Beliefs, and Norms (VBNs).
2. Education for Sustainable Development (ESD) could be better utilized in the Language Teaching classroom to foster language learning and better challenge student's VBNs.
3. There is untapped value between the nexus of English as a Foreign Language (EFL) and Education for Sustainable Development (ESD) in Japanese HEIs.

### *8.5.1 EFL Textbooks are not Challenging Student VBNs*

Textbooks are often chosen for the EFL classroom in Higher Educational context because it is convenient. The course is conveniently organized into accessible units and chapters for the students and the teachers do not have to worry about the complexity of developing curriculum and thinking about the pedagogy for EFL. Textbook writers and curriculum makers create textbooks with the goal of providing this convenience and grounding their textbooks in solid Language Teaching methodology and Learning Outcomes considering the complexities found in Figure 7.3. In creating worthwhile textbooks, the 'environment,' or the context-specific needs of students is important. However, pressures on the publishing industry in recent years have allowed for country-specific textbooks to diminish in favor of broader region-specific (e.g. Asia market) textbooks as revenues from textbook publishing decrease. Furthermore, the slow uptake of important topics, like those

outlined in the SDGs (Figure 1.1), has created a situation where sustainability-linked topics found in textbooks are not challenging students' environmental Values, Beliefs, and Norms (VBNs).

Chapters 3 & 4 were dedicated to understanding how sustainability topics and images are presented in popular EFL textbooks used in Japanese HE. The findings show that, in general, textbooks are doing a poor job of challenging students' VBNs and offer very little scaffolding or reinforcement of key vocabulary, ideas, and concepts in ESD. Although it has been acknowledged that the objective of English language textbook publishers is not to teach ESD, ESD best-practice can offer EFL textbook writers and curriculum developers opportunities to not only provide meaningful content but to also teach English better.

### *8.5.2 ESD can Enhance Language Learning and Environmental Literacy*

Offering textbooks that enhance language learning while, at the same time, improving environmental literacy is enormously valuable. This can be accomplished in many ways as outlined in this thesis. One way is by using articles that are not simply informative in nature but also aim to challenge students' beliefs about sustainability. One research finding discussed in chapters 3 and 4 was that textbooks often utilize reading and listening texts that simply offer information on subject-matter but do not offer opportunities for students to think critically or question their own beliefs about climate change, for instance. Additional activities could be created that challenge students' current environmental values, beliefs, and norms as well as creating links and connections with other topics within a course or textbook. By creating links and connections to other topics, for instance, students have the opportunity to: (1) make broader connections to sustainability content and think critically about this interconnectedness and (2) offer language learners an opportunity to see vocabulary, concepts, and language uses in multiple instances contributing to their language proficiency. Lastly, as outlined in chapter 6, ESD best-practice can offer overlap with EFL and ESD in terms of the common goals of enhancing problem-solving, improving critical-thinking skills, and offering students an opportunity to develop presentation skills and share student-led research.

Textbook writers and curriculum developers should consider how mainstreaming ESD best-practice can enhance their curriculum because it is not only beneficial for language learners, but it is also a

means to integrate content that addresses critical global challenges, which can only strengthen the appeal of their products to HEIs.

### *8.5.3 The Nexus between ESD and EFL has Enormous Potential*

The ultimate goal of Environmental Education (EE) is to promote Pro-Environmental Behaviors (PEBs) at the far spectrum of the VBN-model. The commonly held belief that simply giving students environmental knowledge will translate into meaningful PEBs is ignorant of the many processes that people need to go through in order to turn values, beliefs, and norms into meaningful, day-to-day actions.

Based on the findings of chapter 5, students benefit from ESD best-practice and this potential for mainstreaming ESD into EFL and, more generally, language education has enormous potential. As ESD mainstreaming becomes more common in HE disciplines, students are empowered with an increased awareness of sustainability issues and, more importantly, the skills, as future leaders, to solve them. This push for mainstreaming in ESD as well as wide-scale behavior change, the ultimate goal of ESD, has recently been discussed by the IPCC:

> "Education, information, and community approaches, including those that are informed by indigenous knowledge and local knowledge, can accelerate the wide-scale behaviour changes consistent with adapting to and limiting global warming to 1.5°C. These approaches are more effective when combined with other policies and tailored to the motivations, capabilities and resources of specific actors and contexts (high confidence). Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences. Public acceptability depends on the individual's evaluation of expected policy consequences, the perceived fairness of the distribution of these consequences, and perceived fairness of decision procedures (high confidence) {1.1, 1.5, 4.3.5, 4.4.1, 4.4.3, Box 4.3, 5.5.3, 5.6.5}" (Masson-Delmotte, et al., 2018, p. D.5.6: 22)

Thus, it is not just important to initiate ESD mainstreaming in the EFL discipline; it is essential if education is seen as instrumental to raising public awareness and policy creation in order to stem some of the worst consequences of Climate Change (CC). Moreover, EFL often uses sustainability-

linked content so there is an imperative to ensure that EFL practitioners are offering their students effective knowledge about sustainability issues as well as challenging their students' VBNs.

Based on the findings in chapter 5 and the LESD *Framework* (Figure 6.1) from Chapter 6, EFL and ESD have enormous potential to work together to not only improve student PEBs but also offer them the language skills necessary to participate in global conversations around these important issues. EFL can thus play a large role in empowering students to address environmental challenges.

In order to get students to adopt meaningful actions, however, Higher Education has an important role to play. Language classes, as mandatory in Japanese HE, can contribute significantly. The EFL classroom, for instance, offers students the opportunity to learn English through exposure to many topics, many of which are sustainability-related. Empowering language teachers with the tools to integrate ESD best-practice in their classrooms in not only a pedagogically sound way to present language (i.e. student-centered, critical thinking and problem-solving), but it can also encourage students to move further along the VBN-model spectrum. Figure 8.1 shows how the VBN model can be used in the language classroom through ESD integration.

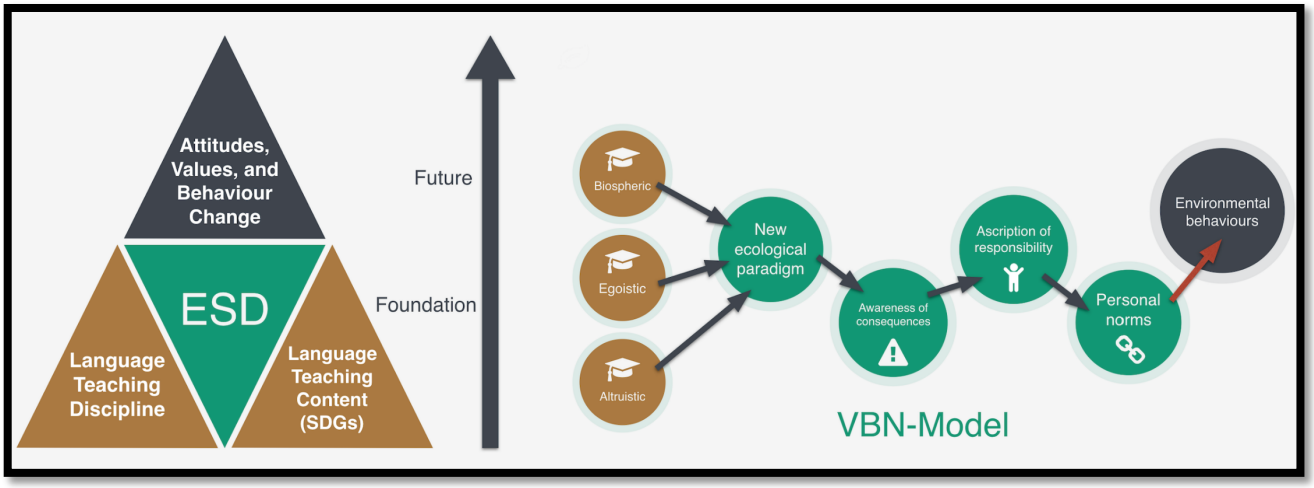



**Figure 8.1: LESD framework and the VBN-model**
Source: Jodoin & Singer (2018); Bronfman, Cisternas, López-Vázquez, de la Maza, & Oyanedel (2015)

The LESD Framework on the left side of Figure 8.1 (Figure 6.1) shows how EFL, as a language discipline, supported by meaningful content based on the Sustainable Development Goals (SDGs), can elevate students' environmental values, beliefs, and norms through the use of ESD integration.

Essentially, the language support and the meaningful content build on their existing values and knowledge when students enter a course. Through ESD best-practice, students can begin to develop their own sense of 'Awareness of Consequences,' 'Ascription of Responsibility,' and 'Personal Norms.' Through ESD best-practice, students gain the opportunity to learn about sustainability issues as well as learn about possible solutions and how they can be applied at the local, national, and global levels. Furthermore, students gain an opportunity to share what they have discovered in meaningful ways, whether through presentations, discussions, or writing. Lastly, content units can be integrated in a way that allows for students to recycle their understandings of topics as well as be challenged to apply their knowledge to other related topics. Thus, students will come away with a deeper understanding of 'environmental' and 'sustainable' topics and have the ability to apply their knowledge more widely, which are transferable skills to other disciplines and domains of inquiry. In other words, ESD best-practice integration does not just aid students in the discipline of language teaching or environmental education, but these skills can then be more broadly applied to other courses of study or problem-solving areas.

Overall, ESD best-practice integration in the language classroom improves environmental literacy, is a pedagogically sound approach to teaching at the university level and offers students transferable skills that can be applied in other domains of study.

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# Appendix 1: Consent forms from Program-effects Case Study

## A1.1 Participation in the Research

**Please read the following consent form. If you agree to participate in the research, you will be asked to sign at the bottom of the form prior to participating. The researcher will keep the original of the consent form and you will be given a copy of the consent form for your records.**

**Researcher:** Joshua Jodoin

**Affiliation and position:** Associate Lecturer of English, School of Policy Studies, Kwansei Gakuin University and PhD student in Kyoto University Graduate School of Global Environmental Studies

**What you will be asked to do:** The researcher would like to collect data over the Fall 2017 Special Topics - *Environmental Ethics* course for analysis. Students will be asked to take an online Sustainability Test (Sulitest - http://www.sulitest.org/en/) at the start (September 29th, 2017) and end of the semester (January 12th, 2018). The researcher will also be collecting research assignments in lesson 5 (October 20th, 2017) and lesson 10 & 11 (December 8th and 15th, 2017), reflection tasks in lesson 2 (September 29th, 2017) and lesson 13 (January 12th, 2018), and results from the mid-term exam in lesson 6 (October 27th, 2017) and the final exam in lesson 12 (December 22nd, 2017). All marks and assignments will be anonymized, meaning that no one will be able to know your mark or name on tests, assignments and reflections. The researcher may publish short examples or excerpts of anonymized writing from the collected data at a later date.

**Voluntary participation:** Your participation in the study is completely voluntary and you may choose to stop participating at any time. The study is not connected to your coursework in any way. Your participation will not affect your course grade. If you choose not to participate in the study, it will not affect your grade or your relationship with your teacher in any way.

**Withdrawal:** You can stop participating in the study at any time, for any reason, if you so decide. Please feel free to contact Joshua Jodoin if you wish to stop participating.

**Confidentiality:** All information you supply in your writing will be held in confidence and your name will not appear in any report or publication of the research. Only the researcher will have access to your information.

**Questions?** If you have questions about the research please contact **Joshua Jodoin** at jjodoin@kwansei.ac.jp.

I _____, consent to participate in this study. I have understood the nature of this project and wish to participate. My signature below indicates my consent.

**Signature** _____ **Date** _____

Participant (Class _____ )

**Signature** _____ **Date** _____

Researcher: Joshua Jodoin

下記の同意書を読んでください。調査の参加を同意していただける場合、ご署名をお願い致します。調査員が同意書の原本を保管しますが、同意書のコピーをご自身で保管して下さい。

**調査員:** Joshua Jodoin

**所属およびポジション:** 関西学院大学総合政策学部 外国人常勤講師 、京都大学大学院博士課程学生

**調査内容：研究者が分析目的で** Fall 2017 Special Topics - *Environmental Ethics（2017 年度秋期特別トピック－環境倫理）コースに係るデータ収集を行います。生徒には開始時（2017 年 9 月 29 日）と学期末（2018 年 1 月 12 日）にオンラインでの* Sustainability Test（サステナビリティ・テスト）（Sulitest - http://www.sulitest.org/en/）を受けていただきます。さらに研究者はレッスン 5（2017 年 10 月 20 日）とレッスン 9 & 10（2017 年 12 月 8 日 & 2017 年 12 月 15 日）の研究課題、レッスン 2（2017 年 9 月 29 日）とレッスン 13（2017 年 12 月 22 日）の復習タスク、レッスン 6（2017 年 10 月 27 日）での中間試験の結果、ならびにレッスン 12（2017 年 12 月 22 日）での最終試験の回収を行います。得点と課題は全て匿名化され、すなわち、試験の点数、氏名、課題は他の誰にも開示されません。研究者は後日、収集したデータを基に匿名化した短い事例や引用を発表する場合があります。

**任意調査:** この調査への参加は、任意のものであり、希望であれば何時でも参加を辞退することができます。 この調査は講義に直接的に関連するものではなく、またいかなる場合も、調査への参加の有無が成績や講師との関係に影響するものではありません。

**辞退:** 調査への参加は何時でも、またどんな理由であっても、ご自身の決定で辞退することができます。辞退を希望される方は、調査員 Joshua Jodoin までお知らせください。

**守秘義務:** 収集された課題から得られた情報に関しては守秘義務を守り、レポートや論文 の中で個人情報を公表することはありません。調査員だけが収集された課題に記載された情報を見ることができます。

**質問:**この調査に関する質問がございましたら、Joshua Jodoin (jjodoin@kwansei.ac.jp) までご連絡ください。

私_____は、この調査の主旨を理解し、調査に参加する ことに同意致します。下記の署名を持って、参加の意とします。

**Signature** _____ **Date** _____

Participant

**Signature** _____ **Date** _____

Researcher: Joshua Jodoin

## A1.2 Voluntary Interview Consent Form

Please read the following consent form. If you agree to participate in the research, you will be asked to sign at the bottom of the form prior to participating. The researcher will keep the original of the consent form and you will be given a copy of the consent form for your records. The interview will take about 30 minutes. We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time. Thank you for agreeing to be interviewed as part of the above research project.

以下の同意書をお読みいただき，もしこの調査に参加いただけるようであれば，インタビューを受ける前に本同意書の最後にご署名をお願いいたします。調査者は本同意書の原本を保管いたしますが，確認のため同意書の写しをお渡しいたします。このインタビューはおよそ 30 分かかります。この研究への参加には，なんら身体的な危険は伴いませんが，いつでもインタビューの中断または調査への参加を辞退できます。研究プロジェクトの一環としてのインタビューへのご理解につきまして感謝いたします。

**Researcher:** Joshua Jodoin 調査員：Joshua Jodoin

**Affiliation and position** 所属および職位**:** Associate Lecturer of English, School of Policy Studies, Kwansei Gakuin University and PhD student in Kyoto University Graduate School of Global Environmental Studies 関西学院大学総合政策学部 外国人常勤講師，京都大学大学院 地球環境学舎博士後期課程

**What you will be asked to do** あなたが質問される内容: Based on what the researcher collected over the Fall 2016 or Fall 2017 Special Topics - Environmental Ethics course, the researcher would like to collect additional data from a recorded interview for further analysis. 2016 年度秋学期または 2017 年度秋学期に受講された Environmental Ethics 環境倫理コースにおける成果に基づき，調査者は今後の分析に必要な追加のデータをインタビューの録音によって収集したいと考えております。Would you therefore read the information below and then sign this form to certify that you

approve the following: 以下の説明をお読みいただき，同意していただけるようでしたら，ご署名をお願いいたします。

- the interview will be recorded, and a transcript will be produced
- このインタビューは録音され，逐語録（文字起こしされた記録）が作成される予定です。
- you will be sent the transcript and given the opportunity to correct any factual errors
- 逐語録は後日お渡しさせていただき，ご自身の発言が誤りなく記録されているか確認・訂正していただくことができます。
- the transcript of the interview will be analyzed by Joshua Jodoin as research investigator
- インタビューの逐語録は Joshua Jodoin が研究調査者として分析いたします。
- access to the interview transcript will be limited to Joshua Jodoin and academic colleagues and researchers with whom he might collaborate as part of the research process
- インタビューの逐語録の閲覧は調査者 Joshua Jodoin ならびに調査者が所属する研究室の研究者，共同研究者のみに限られます。
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed
- 論文その他の学術成果物において分析され掲載されたインタビューの要約もしくは引用はすべて匿名化され，個人が特定されない表記にいたします。
- any variation of the conditions above will only occur with your further explicit approval
- 今後，あなたが確実に承認されない限りは，上記の条件を変更することは決してありません。
- **Compensation 謝礼について:** You will be given 1,500 yen worth of book vouchers in exchange for your time. インタビューに参加いただいた謝礼として 1500 円分の図書券を差し上げます。

**Voluntary participation この調査への任意の参加について:** Your participation in the study is completely voluntary and you may choose to stop participating at any time. この調査に参加するか

どうかは，あなたの任意かつ自由です。希望される場合は，いつでも参加を辞退することができます。The study is not connected to your coursework in any way. Your participation will not affect your course grade. If you choose not to participate in the study, it will not affect your grade or your relationship with your teacher in any way. この調査は，あなたの大学での単位取得または学習課程とはまったく関わりのないものであり，調査に参加しなかったとしても，あなたの成績や講師との関係にはまったく影響はありません。

**Withdrawal 辞退について:** You can stop participating in the study at any time, for any reason, if you so decide. この調査は，いつでも，またどんな理由であっても，ご自身の意思で辞退することができます。Please feel free to contact Joshua Jodoin if you wish to stop participating. 辞退を希望される場合は，ご遠慮なく Joshua Jodoin( jjodoin@kwansei.ac.jp )までご連絡ください。

**Questions?** 質問について： If you have questions about the research please contact **Joshua Jodoin** at jjodoin@kwansei.ac.jp. この調査に関する質問がございましたら，Joshua Jodoin ( jodoin@kwansei.ac.jp )までご連絡ください。

I _____, consent to participate in this study. I have understood the nature of this project and wish to participate. My signature below indicates my consent.

私_____は，本研究への参加について同意をいたします。研究の目的について理解し，研究に参加にいたします。以下の署名は私の同意を表します。

Signature 署名　　Date 年　月　日

Participant 参加者 (Student ID 学生 ID _____ )

Signature 署名　　Date 年　月　日

Researcher 調査者: Joshua Jodoin

## A1.3 Follow-Up Interview Information for Students

追加インタビュー

If you are willing to participate in a follow-up interview, please record your information below.もし，確認のための追加インタビューにすすんで参加してもらえるならば，以下に記入をお願いいたします。 If not, please leave this section blank.追加インタビューを希望されない方は空白のままで結構です。 The follow-up interview will take about 30 minutes to conduct and Mr.J will contact you to set up a time. この追加インタビューは Mr.J があなたと連絡をとり日時を設定して，30 分程度のお時間をいただいて行うものです。The follow-up Interview will take place in English only.追加インタビューは英語のみで行う予定です。 **Compensation** 謝礼について**:** You will be given 1,500 yen worth of book vouchers in exchange for your time. インタビューに参加いただいた謝礼として 1500 円分の図書券を差し上げます。

1. I would be interested in a follow-up interview
   追加インタビューに興味がありますか。
   a. Yes はい
   b. No (Please skip the following questions and push the 'submit' button at the bottom of the page)
   いいえ（以下の項目は空白のままで結構です。もしくは，ページ下部の submit ボタンを押してください。）
2. First name
   名前（姓）
3. Last name
   名前（名）
4. Email address メールアドレス

# Appendix 2: Post-class Survey Questions used in the Program-effects Case Study

You are being asked to take this post-class survey as a follow-up to the Environmental Ethics (Special Topics) course that you took in either FALL 2016 or FALL 2017 at Kwansei Gakuin University. Your participation in this post-class survey is completely optional and you may quit the post-class survey at any time. The post-class survey should take no more than 20 minutes.

**Researcher:** Joshua Jodoin (Mr.J)

**Affiliation and position:** Associate Lecturer of English, School of Policy Studies, Kwansei Gakuin University and PhD student in Kyoto University Graduate School of Global Environmental Studies

**What you will be asked to do:** The researcher would like to collect data in this post-class survey as a follow-up to the Environmental Ethics course taken in either FALL 2016 or FALL 2017. All post-class survey answers will be anonymized, meaning that no one will be able to know your answers on this post-class survey unless you agree to participate in the follow-up interview. The researcher may publish short examples or excerpts of anonymized writing from the collected data at a later date.

**Voluntary participation:** Your participation in the study is completely voluntary and you may choose to stop participating at any time. The study is not connected to your coursework in any way. Your participation will not affect your course grade. If you choose not to participate in the study, it will not affect your grade or your relationship with your teacher in any way.

**Withdrawal:** You can stop participating in the study at any time, for any reason, if you so decide. Please feel free to contact Joshua Jodoin (jjodoin@kwansei.ac.jp) if you wish to stop participating.

**Confidentiality:** All information you supply in this post-class survey will be held in confidence and your name will not appear in any report or publication of the research. Only the researcher will have access to your information.

Questions? If you have questions about the research, please contact Joshua Jodoin at jjodoin@kwansei.ac.jp.

## Section A: General Questions

**1.** Which year did you take the Environmental Ethics Course with Mr.J?

Mr.J の Environmental Ethics 環境倫理の受講時期はいつですか。

a. Fall 2016 2016 年秋学期
b. Fall 2017 2017 年秋学期

**2.** What is your gender?

あなたの性別について教えてください。

a. Male 男性
b. Female 女性
c. Prefer not to say 答えたくない

**3.** How old are you?

年齢はいくつですか。

**4.** What year of your undergraduate study are you currently in?

現在は何年生ですか。

**5.** What department are you currently in?

現在の所属学科はどこですか。

a. Social Policy 総合政策学科
b. Applied Informatics メディア情報学科
c. Urban Studies 都市政策学科
d. International Policy Studies 国際政策学科

**6.** Did you have any environmental education in high school?

高等学校では，環境に関する学習を行いましたか。

**7.** Have you had environmental education in any other university courses at Kwansei Gakuin University not including 'Environmental Ethics'?

関西学院大学では Environmental Ethics 環境倫理以外の授業で環境に関する学習を行いましたか。

A8If you answered “yes” for question A7, please explain briefly.

## Section B: Environmental Knowledge

B1. How do you rate your knowledge of the following environmental issues?

以下の環境問題について，あなたの知識をご自身で評価してください。

| | Not heard of<br>聞いたことがない | Heard of but could not explain<br>聞いたことはあるが説明できない | Have some Knowledge<br>多少の知識はある | Know a lot<br>詳しく知っている | N/A<br>どれにも当てはまらない |
|---|---|---|---|---|---|
| Global Warming / Climate Change<br>地球温暖化・気候変動 | | | | | |
| Damage to the ozone layer<br>オゾン層の破壊 | | | | | |
| Acid Rain<br>酸性雨 | | | | | |
| Deforestation<br>森林破壊 | | | | | |
| Desertification<br>砂漠化 | | | | | |
| Animal rights<br>動物の権利 | | | | | |
| Biodiversity<br>生物多様性 | | | | | |
| Species extinction<br>絶滅危惧種 | | | | | |
| Air pollution<br>大気汚染 | | | | | |
| Water pollution<br>水質汚染 | | | | | |

B2. How do you rate your knowledge of the following environmental legislation, policy, and standards?

以下の環境問題に関する国際的な取り決め・枠組・基準について，あなたの知識をご自身で評価してください。

| | Not heard of 聞いたことがない | Heard of but could not explain 聞いたことはあるが説明できない | Have some Knowledge 多少の知識はある | Know a lot 詳しく知っている | N/A どれにも当てはまらない |
|---|---|---|---|---|---|
| Intergovernmental Panel on Climate Change (IPCC) 気候変動に関する政府間パネル(IPCC) | | | | | |
| The Sustainable Development Goals (SDGs) 持続可能な開発目標 (SDGs) | | | | | |
| Montreal Protocol on CFCs (1987) モントリオール議定書 (1987) | | | | | |
| Rio Declaration on Environment and Development (1992) 環境と開発に関するリオ宣言(1992) | | | | | |
| Kyoto Protocol (1992) 京都議定書 (1992) | | | | | |
| The Paris Agreement (2016) パリ協定 (2016) | | | | | |

B3. How do you rate your knowledge of the following environmental tools, technologies and approaches?

以下の環境保全に関わる手段・技術・取り組みについて，あなたの知識をご自身で評価してください。

| | Not heard of 聞いたことがない | Heard of but could not explain 聞いたことはあるが説明できない | Have some Knowledge 多少の知識はある | Know a lot 詳しく知っている | N/A どれにも当てはまらない |
|---|---|---|---|---|---|
| Clean technology クリーンテクノロジー（環境への悪影響を削減したもので，環境問題の解決策となる技術） | | | | | |
| Solar power<br>太陽光発電 | | | | | |
| Hydroelectric power<br>水力発電 | | | | | |
| Wind power<br>風力発電 | | | | | |
| Geothermal power<br>地熱発電 | | | | | |
| Eco-labelling<br>エコ表示・エコラベリング | | | | | |
| Fuel cells<br>燃料電池 | | | | | |
| Waste minimization<br>有害廃棄物最小化 | | | | | |

B4. How do you rate your knowledge of the following sustainability topics?

以下の持続可能性に関する話題について，あなたの知識をご自身で評価してください。

| | Not heard of<br>聞いたことがない | Heard of but could not explain 聞いたことはあるが説明できない | Have some Knowledge<br>多少の知識はある | Know a lot<br>詳しく知っている | N/A どれにも当てはまらない |
|---|---|---|---|---|---|
| Components of sustainability (economy, social, and environment)<br>持続可能性をつくる要素（経済，社会，環境） | | | | | |
| Inter- and intra-generational equity<br>世代間衡平（公平）性と世代内衡平（公平）性 | | | | | |
| Connection between poverty, population, consumption and the degradation of the environment<br>貧困，人口，消費と環境破壊との関係 | | | | | |
| Earth's carrying capacity<br>地球の環境収容力 | | | | | |
| Eco-footprint<br>エコロジカルフットプリント（環境・生態系への足跡） | | | | | |
| Actions that can be taken by companies and engineers to promote sustainability<br>企業や技術者による持続可能性を推進させる活動 | | | | | |
| food supply, food kilometers and sustainability<br>食料供給，フードマイレージ（食料の輸送距離）と持続可能性 | | | | | |
| sustainable tourism versus unsustainable tourism<br>持続可能な観光と持続不可能な観光との対立 | | | | | |
| urban and rural sustainability<br>都市と地方の持続可能性 | | | | | |

## Section C: Environmental Behaviors

C1. In your view, how much does each of these statements represent you? (***Energy Use***)

**エネルギー使用**に関して，あなたの行動は下のどれに当てはまりますか。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも |
|---|---|---|---|---|---|
| In winter, I keep the heat at such a temperature that I can wear light clothing inside my house.<br>冬，家では薄着で過ごすことができるぐらい暖かい室温を設定している。 | | | | | |
| In winter, I leave the windows of my house open for long periods of time to air the house.<br>冬，換気のため長時間窓を開けている。 | | | | | |
| In winter, I turn off the heat in my house at night.<br>冬，家では夜間，暖房器具のスイッチを消している。 | | | | | |
| In winter, when I leave my house for more than 30 min, I turn off the heat.<br>冬，30 分以上の外出をする際，暖房器具のスイッチを消している。 | | | | | |
| I make the most use out of natural light.<br>自然光を最大限に活用している。 | | | | | |
| I turn off any lights I'm not using.<br>使わないときは部屋のすべての明かりを消している。 | | | | | |
| I unplug any electrical appliances I'm not using.<br>使わないときはすべての電気機器のプラグを抜いている。 | | | | | |

C2. In your view, how much does each of these statements represent you? (Ecologically aware consumer behavior) 環境を意識した消費について，あなたの行動は下のどれに当てはまりますか。

*If you live alone, you can answer your own situation.

＊一人暮らしの場合は，ご家族ではなくご自身の行動を答えてください。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも |
|---|---|---|---|---|---|
| My household uses biodegradable detergents to wash laundry.<br>家では洗濯には生分解性（自然に還元されやすい性質）の洗剤を使っている。 | | | | | |
| My household uses organic products.<br>家ではオーガニック（有機栽培）の製品を使っている。 | | | | | |
| My household uses rechargeable batteries.<br>家では充電式電池を使っている。 | | | | | |
| My household uses energy-efficient light bulbs.<br>家では省エネ電球を使っている。 | | | | | |
| My household uses products in reusable or returnable containers.<br>家では再利用または返却可能な容器の製品を使っている。 | | | | | |

C3. In your view, how much does each of these statements represent you? (***Biodiversity protection***)

**生物多様性の保護**について，あなたの行動は下のどれに当てはまりますか。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも | N/A<br>どれにも当てはまらない |
|---|---|---|---|---|---|---|
| After spending a day outdoors, I leave the site as clean as it was when I got there.<br>野外で過ごした後は来た時と同じ状態になるように清掃をして帰る。 | | | | | | |
| I visit national parks, nature reserves, and mountains.<br>国立公園や自然保護区，山々を訪れる。 | | | | | | |
| I have many plants in my household.<br>家では多くの植物を育てている。 | | | | | | |
| I collect plants, seeds and organic matter when I visit natural areas.<br>自然のあるところに出かけた時，植物，種，生物を収集する。 | | | | | | |

C4. In your view, how much does each of these statements represent you? (***Water conservation***)

**水の保全**について，あなたの行動は下のどれに当てはまりますか。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも | N/A<br>どれにも当てはまらない |
|---|---|---|---|---|---|---|
| I try to repair leaky faucets quickly.<br>水漏れしたら蛇口をすぐに修理するようにしている。 | | | | | | |
| I leave the water running in the shower until it reaches the proper temperature.<br>シャワーの際，適切な温度になるまで水を流しっぱなしにしている。 | | | | | | |
| I try to turn off the faucet when I brush my teeth.<br>歯を磨く時，水を流したままにしないようにしている。 | | | | | | |
| I wait until I have a full load of laundry before putting it in the washing machine.<br>洗濯物が容量いっぱいに溜まるまで洗濯機を使わない。 | | | | | | |
| I try to take short showers (less than 10 min).<br>短時間でのシャワーを心がけている（10 分以内）。 | | | | | | |

C5. In your view, how much does each of these statements represent you? (***University Life***)

**大学生活**において，あなたの行動は下のどれに当てはまりますか。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも | N/A<br>どれにも当てはまらない |
|---|---|---|---|---|---|---|
| To travel short distances, I prefer to walk or use a bike.<br>短い距離であれば歩きか自転車で移動する。 | | | | | | |
| I use public transportation.<br>公共交通機関を利用する。 | | | | | | |
| I drive a car.<br>車を運転する。 | | | | | | |
| I bring a lunch to school.<br>学校に昼食を持ってくる。 | | | | | | |
| I bring my own utensils for school lunch.<br>学校にマイ箸（フォーク・スプーン）やマイカップ（タンブラー）を持ってくる。 | | | | | | |
| I am careful about wasting paper when I print.<br>印刷する際は，紙を無駄遣いしないように気をつけている。 | | | | | | |

C6. In your view, how much does each of these statements represent you? (***Ecological waste management***)

**生態系に配慮したごみの管理**について，あなたの行動は下のどれに当てはまりますか。

| | Never<br>まったくない | Rarely<br>めったにない | Sometimes<br>ときどきある | Often<br>よくある | Always<br>いつも | N/A<br>どれにも当てはまらない |
|---|---|---|---|---|---|---|
| When I go shopping, I use cloth instead of plastic bags.<br>買い物に行くとき，ビニール袋の代わりに布製のカバンを使用している。 | | | | | | |
| I reuse plastic bags (from the supermarket).<br>スーパーではレジ袋をもらわないようにしている。 | | | | | | |
| I refuse to take plastic bags from the convenience store when I have only a few items.<br>コンビニエンスストアで，少量しか買わないとき，レジ袋をもらわないようにしている。 | | | | | | |
| I buy products with less packaging.<br>簡易包装の製品を買う。 | | | | | | |
| I buy eco-friendly products when they are available.<br>手に入る限りは環境に優しい製品を買う。 | | | | | | |

## Section D: Environmental Values

D1. In your view, how much does each of these statements represent you? (***Predictor Variables***)

あなたは下の人物描写のうち，どの立場に最も近いですか。（**予測変数**）

| | Not at all like me<br>まったく異なる | Not like me<br>異なる | Neutral<br>どちらともいえない | Like me<br>当てはまる | Very much like me<br>非常に当てはまる |
|---|---|---|---|---|---|
| A person who believes that everyone must look after the environment.<br>すべての人が環境に責任を持たなければならないと信じている人物。 | | | | | |
| A person who respects the environment and believes that we should live in harmony with other living beings.<br>環境に敬意を払い，人間は他の生物とバランスを保って共存しなければならないと信じている人物。 | | | | | |
| A person who believes it is important to help others around them.<br>周りの人々を助けるのは大切だと信じている人物。 | | | | | |
| A person who believes in the fair treatment of all people, including persons who are unknown to them.<br>たとえ知らない人でも，全ての人に公平な対応を取らなければならないと信じている人物。 | | | | | |
| A person who makes decisions and likes to be a leader.<br>決断力があり，リーダーになることが多い人物。 | | | | | |
| A person who believes it is important to have a lot of money.<br>たくさんのお金を持つことは大切なことだと信じている人物。 | | | | | |
| A person who believes it is important to have influence over people and their actions.<br>多くの人々の考えや行動に影響を与えることは大切だと信じている人物。 | | | | | |

D2. How much do you agree with the following statements? (***Ecological vision***)

**生態系や地球環境**に関する下の考え方にたいして，どの程度賛成または反対しますか。

| | Completely disagree<br>反対 | Slightly disagree<br>やや反対 | Neither agree nor disagree<br>賛成でも反対でもどちらでもない | Slightly agree<br>やや賛成 | Completely agree<br>賛成 |
|---|---|---|---|---|---|
| In recent times, the human population has grown at a faster rate than the planet can support.<br>近年，地球が支えるよりも早いスピードで人間の人口が増加している。 | | | | | |
| The earth has limited resources and space (e.g., like a space ship).<br>「宇宙船地球号」のたとえが示すように，地球の資源と空間は限られている。 | | | | | |
| Human beings have the right to modify the environment as fits their needs.<br>人類はニーズ（需要）に合わせて環境を変える権利がある。 | | | | | |
| Plants and animals have the same right to life as human beings.<br>植物と動物は，人間と同じ権利を持っている。 | | | | | |
| Nature is sufficiently strong to support the impacts of modern life.<br>自然環境は現代の生活を支えられるほど十分な強さを持っている。 | | | | | |
| The balance of nature is very fragile and easily disrupted.<br>自然のバランスはとても壊れやすく簡単に再現不可能になる。 | | | | | |
| Most environmental problems can be solved by using better technology.<br>技術の進歩によって多くの環境問題は解決できる。 | | | | | |
| Human beings will learn enough about how nature works to control it.<br>人類は自然をコントロールする方法を学んでいくはずである。 | | | | | |
| Environmental degradation is not as bad as people normally say it is.<br>環境破壊は人々が言うほど深刻なものではない。 | | | | | |
| We will soon experience a major natural disaster.<br>私たちは，近々大きな自然災害を経験するだろう。 | | | | | |

D3. How much do you agree with the following statements? (***Awareness of Consequences)***

**行動の帰結**に関する下の考え方にたいして，どの程度賛成または反対しますか。

| | Completely disagree<br>反対 | Slightly disagree<br>やや反対 | Neither agree nor disagree<br>賛成でも反対でもどちらでもない | Slightly agree<br>やや賛成 | Completely agree<br>賛成 |
|---|---|---|---|---|---|
| Protecting the environment benefits everyone.<br>環境を守ることはみんなの利益になる。 | | | | | |
| Protecting the environment will help to improve the quality of life for everyone.<br>環境を守ることはみんなのクオリティ・オブ・ライフ（QOL:生活の質）を向上させることにつながる。 | | | | | |
| Protecting the environment will create a better world for me and my family.<br>環境を守ることは自分や自分の家族にとってより良い世の中をつくることにつながる。 | | | | | |
| Degradation of the environment directly affects my health (e.g., air pollution).<br>環境破壊は，自分の健康に直接影響する。（例：大気汚染） | | | | | |
| Environmental degradation caused in my neighborhood will often affect people in other parts of the world.<br>身の回りで起こる環境破壊は，世界の人々の暮らしに影響する可能性がある。 | | | | | |
| In the next 10 years, thousands of animal and plant species will go extinct.<br>今後 10 年間，何千もの動物や植物が絶滅するだろう。 | | | | | |

D4. How much do you agree with the following statements? (***Ascription of Responsibility)***

**責任の所在**に関する下の考え方にたいして，どの程度賛成または反対しますか。

| | Completely disagree<br>反対 | Slightly disagree<br>やや反対 | Neither agree nor disagree<br>賛成でも反対でもどちらでもない | Slightly agree<br>やや賛成 | Completely agree<br>賛成 |
|---|---|---|---|---|---|
| Every person is responsible for protecting the environment.<br>全ての人には環境を守る責任がある。 | | | | | |
| The government bears the most responsibility for protecting the environment.<br>政府は環境保護に関して最大の責任を負っている。 | | | | | |
| Corporations bear the most responsibility for reducing environmental degradation.<br>企業は，環境破壊を減らすことに関して最大の責任を負っている。 | | | | | |
| My household is responsible for reducing environmental degradation.<br>自分の家族は環境破壊を減らす責任がある。 | | | | | |
| All households are responsible for reducing environmental degradation.<br>全ての家庭には環境破壊を減らす責任がある。 | | | | | |
| I am unwilling to cooperate to reduce environmental degradation if others do not do same.<br>他の人々がしなくても，私は環境破壊を減らすことにすすんで協力する。 | | | | | |

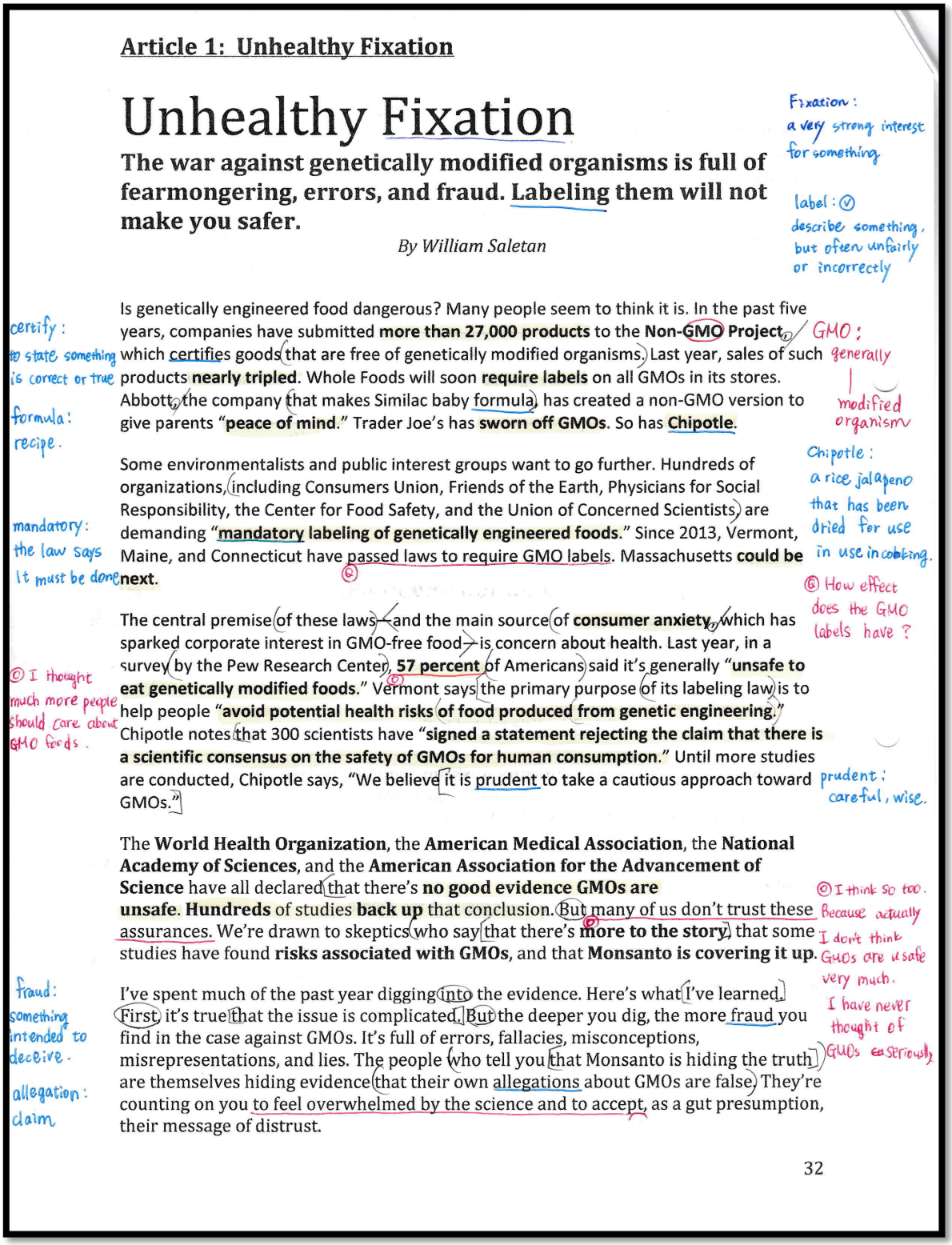
D5. How much do you agree with the following statements? (***Personal norms***)

**個人の規範意識**に関する以下の考え方について，どの程度賛成または反対しますか。

| | Completely disagree<br>反対 | Slightly disagree<br>やや反対 | Neither agree nor disagree<br>賛成でも反対でもどちらでもない | Slightly agree<br>やや賛成 | Completely agree<br>賛成 |
|---|---|---|---|---|---|
| I have an ethical obligation to protect the environment.<br>私には，倫理的な理由から，環境を保護する責任がある。 | | | | | |
| Environmental problems cannot be ignored.<br>環境問題は無視できない。 | | | | | |
| I think it is important that people protect the environment.<br>私は人々が環境を守るのは大切だと思っている。 | | | | | |
| The government should require greater environmental protections.<br>政府は大々的に環境保護を指示するべきである。 | | | | | |
| Corporations should reduce their impact in degrading the environment.<br>企業は環境破壊への影響を減らすべきだ。 | | | | | |

# Appendix 3: Fall 2016 & 2017 Environmental Ethics Course at Kwansei Gakuin University

## A3.1 Fall 2016 Research Assignment Sample



Article 1: Unhealthy Fixation

# Unhealthy Fixation

**The war against genetically modified organisms is full of fearmongering, errors, and fraud. Labeling them will not make you safer.**

*By William Saletan*

Fixation : a very strong interest for something

label : ⓥ describe something, but often unfairly or incorrectly

Is genetically engineered food dangerous? Many people seem to think it is. In the past five years, companies have submitted **more than 27,000 products** to the **Non-GMO Project**, which certifies goods that are free of genetically modified organisms. Last year, sales of such products **nearly tripled**. Whole Foods will soon **require labels** on all GMOs in its stores. Abbott, the company that makes Similac baby formula, has created a non-GMO version to give parents "**peace of mind.**" Trader Joe's has **sworn off GMOs**. So has **Chipotle**.

certify : to state something is correct or true

formula : recipe.

GMO : generally modified organism

Some environmentalists and public interest groups want to go further. Hundreds of organizations, including Consumers Union, Friends of the Earth, Physicians for Social Responsibility, the Center for Food Safety, and the Union of Concerned Scientists, are demanding "**mandatory labeling of genetically engineered foods.**" Since 2013, Vermont, Maine, and Connecticut have passed laws to require GMO labels. Massachusetts **could be next.**

Chipotle : a rice jalapeno that has been dried for use in use in cooking.

mandatory : the law says it must be done

Q

Q How effect does the GMO labels have ?

The central premise of these laws—and the main source of **consumer anxiety**, which has sparked corporate interest in GMO-free food—is concern about health. Last year, in a survey by the Pew Research Center, **57 percent** of Americans said it's generally "**unsafe to eat genetically modified foods.**" Vermont says the primary purpose of its labeling law is to help people "**avoid potential health risks of food produced from genetic engineering.**" Chipotle notes that 300 scientists have "**signed a statement rejecting the claim that there is a scientific consensus on the safety of GMOs for human consumption.**" Until more studies are conducted, Chipotle says, "We believe it is prudent to take a cautious approach toward GMOs."

Ⓒ I thought much more people should care about GMO foods.

prudent : careful, wise.

The **World Health Organization**, the **American Medical Association**, the **National Academy of Sciences**, and the **American Association for the Advancement of Science** have all declared that there's **no good evidence GMOs are unsafe. Hundreds** of studies **back up** that conclusion. But many of us don't trust these assurances. We're drawn to skeptics who say that there's **more to the story**, that some studies have found **risks associated with GMOs**, and that **Monsanto is covering it up.**

Ⓒ I think so too. Because actually I don't think GMOs are usafe very much. I have never thought of GMOs seriously

fraud : something intended to deceive.

allegation : claim

I've spent much of the past year digging into the evidence. Here's what I've learned. First, it's true that the issue is complicated. But the deeper you dig, the more fraud you find in the case against GMOs. It's full of errors, fallacies, misconceptions, misrepresentations, and lies. The people who tell you that Monsanto is hiding the truth are themselves hiding evidence that their own allegations about GMOs are false. They're counting on you to feel overwhelmed by the science and to accept, as a gut presumption, their message of distrust.

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## A3.2 Fall 2016 Research Assignment Assessment Criteria

RESEARCH ASSIGINMENT #2 (DUE DECEMBER 2)

Name: _____ Student #:_____ Class: _____

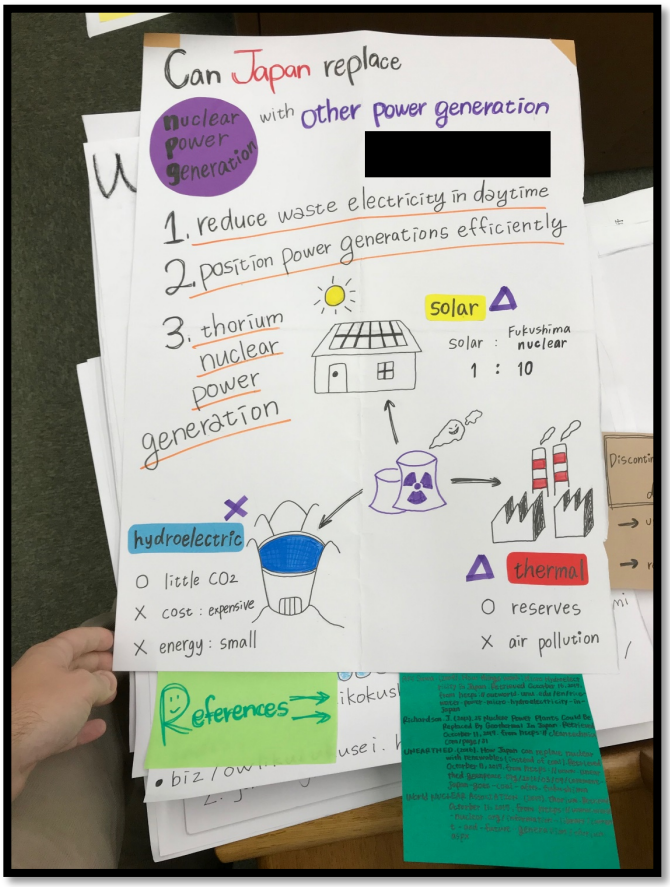
**Reading Guide:**

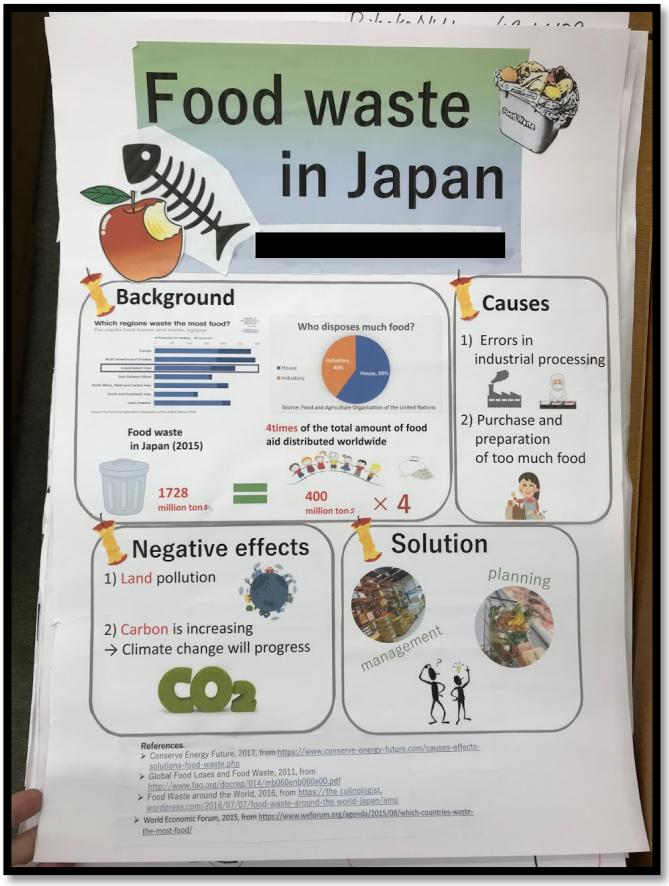
For the 3rd article, you must research on your own and include a copy of the full article when you hand in your research assignment. Please fill in the chart below with the details:

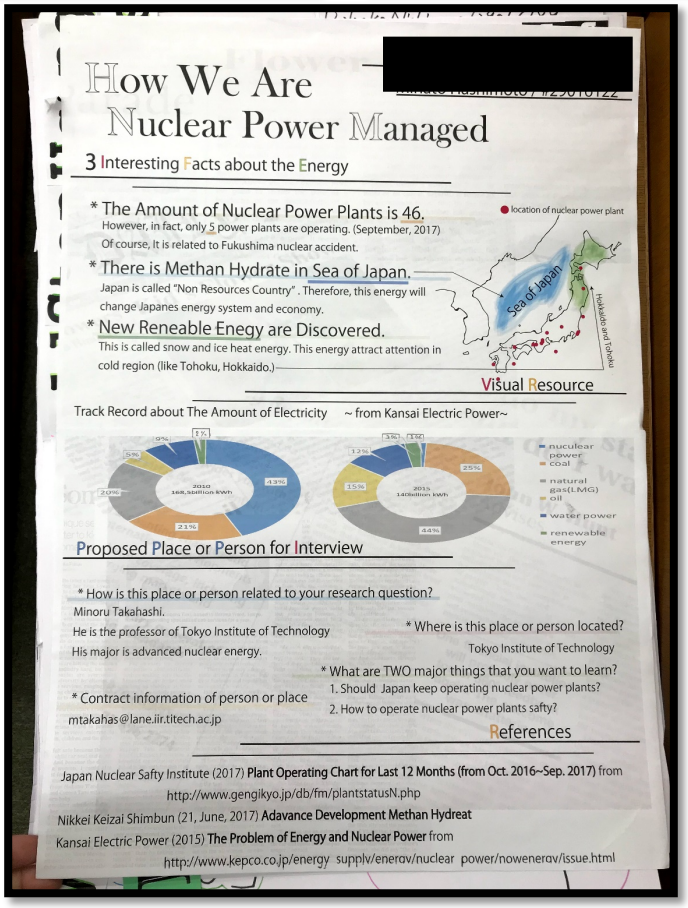
| Article | Article Title | General Topic | Key Vocabulary | Page Number |
|---|---|---|---|---|
| **1** | "The Debate: Should Testing on Animals be banned" | The debate on animal testing | banned, experimentation, torture, advocate, vivisection | |
| **2** | "Background: Should Animals be used for Scientific and Commercial Testing" | The background on animal testing | public opinion, regulations, liberation, cosmetics, treatments | |
| **3** | | | | |

| **Preparation Evaluation and Reflection** | **Grade (15% of final)** |
|---|---|
| **1. Carefully interacted with the articles**<br>❑ Took good notes in the margins (e.g., opinions, comments, questions, definitions)<br>❑ Underlined/highlighted important facts<br>❑ Found an appropriate 3rd article related to the topic | /10 |
| **2. Carefully answered comprehension questions with complete notes**<br>❑ Paraphrased answers to comprehension questions<br>❑ Provided enough detail in question answers<br>❑ Answered all of the questions | /10 |
| **3. Reflection**<br>❑ Shows evidence of linking to other topics in the course<br>❑ Uses appropriate vocabulary from the course<br>❑ Demonstrates a deep understanding of the material | /10 |
| **Teacher comments:** | **Total**<br>**/30** |

## A3.3 Fall 2017 Poster Presentations Samples



## A3.4 Fall 2017 PowerPoint Presentation Sample


## A3.5 Fall 2017 Poster and PowerPoint Assessment Criteria

# **Poster Presentation** Poster Rubric

Name: _____ ID: _____

Partner Name: _____ ID: _____

| | **Excellent (4)** | **Good (3)** | **Adequate (2)** | **Inadequate (1)** |
|---|---|---|---|---|
| **Organization and clarity** | Logical, smooth flow of information in poster; main points clearly stated and explained | Logical, smooth flow of information in poster; main points clearly stated | Reader can follow poster's flow of information, but some gaps are evident | Poster jumps between disconnected topics; main points unclear |
| **Content** | Content thoroughly presented/ analyzed in an interesting, knowledgeable way; key points clearly expressed and integrated with logical links; presented appropriate, forward-thinking insights | Content presented/ analyzed in an interesting, knowledgeable way; key points clearly expressed and integrated with logical links; presented appropriate insights | Content presented in an interesting way, some key points linked, but others left "hanging"; poster may lack clear synthesis and/or insight | Content patchy, lacks specific important information; little effort to synthesize key points |
| **Visual Resource** | Well-selected visuals, clearly related to the topic and make it easier to understand | Well-selected visuals; visuals support ideas presented and most make it easier to understand | Visuals related to topic but does not contribute to understanding of topic | Visuals not connected to topic and/or poorly ordered; too much or not enough detail; distracting |
| **Mechanics** (Grammar & Spelling) | No or minor errors | Some errors | Numerous errors | Readability significantly impaired by errors |
| **Overall Effectiveness** | Eye-catching, organized layout; not too busy | Organized layout | Layout mostly acceptable | Layout distracting or disorganized |

**Poster Total**: / 20

# **Poster Presentation** Oral Rubric

Name: _____ ID: _____

Partner Name: _____ ID: _____

| | Excellent (4) | Good (3) | Adequate (2) | Inadequate (1) |
|---|---|---|---|---|
| **Opening / Introduction** | Clearly, quickly established the focus of the presentation; gained audience attention | Established focus by the end of the intro, but went off on a tangent or two; gained audience attention | Audience had an idea of what was coming, but the intro did not clarify the main focus | Little or no intro, or intro unfocused such that audience did not know the speaker's main focus |
| **Organization and clarity** | Main points clearly stated and explained; logical, smooth organization | Main points clearly stated; logical, smooth organization | Main points must be inferred by audience; audience can follow presentation, but holes are evident | Presentation jumps among disconnected topics; main points unclear |
| **Style & Delivery** | Presentation clearly seen and heard, using appropriate eye contact, gestures, and language; intonation, pauses, and transitions effective | Presentation clearly seen and heard, using appropriate eye contact, gestures, and language; intonation, pauses, and transitions mostly effective | Presentation contained a few distracting gestures or odd language; may be poorly timed; presenter hesitant or uncertain | Presenter spoke to the poster or mostly to one person in the audience; difficult to hear and/or understand; poor timing; presenter appears not to have practiced |
| **Synthesis / link to Final Presentation / Summary** | Link to final presentation clearly stated; summary integrated main points and brought the presentation to a logical and effective closure | Link to final presentation clearly stated; summary integrated main points and brought the presentation to an appropriate closure | Link to final presentation poorly explained by speaker; audience has to summarize main points for themselves | Link to final presentation non-existent or very abrupt; lack of synthesis of main points |
| **Addressing Questions** | Questions handled with confidence and in a knowledgeable way; speaker clearly demonstrated greater depth of knowledge than just the information in his/her presentation | Questions handled in a knowledgeable way but with some hesitation; speaker demonstrated greater depth of knowledge than just the information in his/her presentation | Speaker made a strong effort to answer questions, with some hesitations; speaker lacked depth of knowledge beyond what he/she presented | Speaker lacked answers to obvious questions the audience would be likely to ask; speaker struggled to link answer to content of presentation |

## **Oral Poster Presentation Total**: / 20

Adapted and modified rubric from: (https://www.eoas.ubc.ca/courses/eosc449/poster_rubric.pdf

# **PPT Presentation** PPT Rubric

Name: _____ ID: _____

Name: _____ ID: _____

Name: _____ ID: _____

Name: _____ ID: _____

| | **Excellent (4)** | **Good (3)** | **Adequate (2)** | **Inadequate (1)** |
|---|---|---|---|---|
| **Organization and clarity** | Logical, smooth flow of information in poster; main points clearly stated and explained | Logical, smooth flow of information in poster; main points clearly stated | Reader can follow poster's flow of information, but some gaps are evident | Poster jumps between disconnected topics; main points unclear |
| **Content** | Content thoroughly presented/ analyzed in an interesting, knowledgeable way; key points clearly expressed and integrated with logical links; presented appropriate, forward-thinking insights | Content presented/ analyzed in an interesting, knowledgeable way; key points clearly expressed and integrated with logical links; presented appropriate insights | Content presented in an interesting way, some key points linked, but others left "hanging"; poster may lack clear synthesis and/or insight | Content patchy, lacks specific important information; little effort to synthesize key points |
| **Visual Resource** | Well-selected visuals, clearly related to the topic and make it easier to understand | Well-selected visuals; visuals support ideas presented and most make it easier to understand | Visuals related to topic but does not contribute to understanding of topic | Visuals not connected to topic and/or poorly ordered; too much or not enough detail; distracting |
| **Mechanics** (Grammar & Spelling) | No or minor errors | Some errors | Numerous errors | Readability significantly impaired by errors |
| **Overall Effectiveness** | Eye-catching, organized layout; not too busy | Organized layout | Layout mostly acceptable | Layout distracting or disorganized |

**PPT Total**: / 20

# **PPT Presentation** Oral PPT Rubric

Name: _____ ID: _____

Partner Name: _____ ID: _____

Partner Name: _____ ID: _____

Partner Name: _____ ID: _____

| | **Excellent (4)** | **Good (3)** | **Adequate (2)** | **Inadequate (1)** |
|---|---|---|---|---|
| **Opening / Introduction** | Clearly, quickly established the focus of the presentation; gained audience attention | Established focus by the end of the intro, but went off on a tangent or two; gained audience attention | Audience had an idea of what was coming, but the intro did not clarify the main focus | Little or no intro, or intro unfocused such that audience did not know the speaker's main focus |
| **Organization and clarity** | Main points clearly stated and explained; logical, smooth organization | Main points clearly stated; logical, smooth organization | Main points must be inferred by audience; audience can follow presentation, but holes are evident | Presentation jumps among disconnected topics; main points unclear |
| **Style & Delivery** | Presentation clearly seen and heard, using appropriate eye contact, gestures, and language; intonation, pauses, and transitions effective | Presentation clearly seen and heard, using appropriate eye contact, gestures, and language; intonation, pauses, and transitions mostly effective | Presentation contained a few distracting gestures or odd language; may be poorly timed; presenter hesitant or uncertain | Presenter spoke to the poster or mostly to one person in the audience; difficult to hear and/or understand; poor timing; presenter appears not to have practiced |
| **Conclusion** (What you learned from the experience) **/Synthesis / Summary** | Conclusion clearly stated; summary integrated main points and brought the presentation to a logical and effective closure | Conclusion clearly stated; summary integrated main points and brought the presentation to an appropriate closure | Conclusion poorly explained by speaker; audience has to summarize main points for themselves | Conclusion non-existent or very abrupt; lack of synthesis of main points |
| **Addressing Questions** | Questions handled with confidence and in a knowledgeable way; speaker clearly demonstrated greater depth of knowledge than just the information in his/her presentation | Questions handled in a knowledgeable way but with some hesitation; speaker demonstrated greater depth of knowledge than just the information in his/her presentation | Speaker made a strong effort to answer questions, with some hesitations; speaker lacked depth of knowledge beyond what he/she presented | Speaker lacked answers to obvious questions the audience would be likely to ask; speaker struggled to link answer to content of presentation |

## **Oral PPT Presentation Total**: / 20

Adapted and modified rubric from: (https://www.eoas.ubc.ca/courses/eosc449/poster_rubric.pdf

## A3.6 Fall 2016 & 2017 Reflection Task

**FINAL REFLECTION TASK (10%): END OF SEMESTER**

In the first lesson of the course, you wrote a letter to yourself about your understanding of nature (questions below). You will now use this for your final reflection task worth 10%. You will be marked on how well you interacted with the 'letter to yourself', carefully answered the questions, and made links to the course content (page 4 rubric).

You have approximately 50 minutes to write your reflection task below by answering the following questions. Plan on spending about 5-7 minutes on each question.

1. What is your definition of 'environment' now? Has anything changed? Is there any way to improve the definition?
2. What is the most important thing you have learned from the course? Explain with examples.
3. Do you value the environment more than you did at the start of the course? Less? Explain with examples.
4. Do you think you should be doing more to save the environment? How? Explain with examples.
5. What aspects of Environmental Ethics would you like to learn more about? Why? Explain with examples
6. Are you happy with your relationship to the environment? With your place in the environment? Is there anything you would like to improve?
7. Please include any final thoughts about the course and the topics (Population Growth and Resource Use, Sustainability, Non-human Animal Welfare, Biodiversity Loss, Global Climate Change).

# REFLECTION TASK (10%): START OF SEMESTER

## LETTER TO YOURSELF: UNDERSTANDING NATURE

In this lesson, you will write a letter to yourself that will be used for the final reflection task worth 10% in Lesson 13. Your teacher will not read these reflections until the end of the semester, but it is important that you write as much as you can and be as honest as you can. It is best to write in English, but you can write in Japanese if you forget a word or are not sure of the English translation.

Write a letter to yourself in the future reflecting on the questions below. Remember that your teacher will not see this letter until the end of the semester. Your future self will read this letter so write as much as you can.

Reflect on the following questions:

1. Why did you take this course? What do you hope to learn?
2. How do you define 'environment'? Do you see yourself a part of the environment?
3. Do you think it is important to protect the environment?
4. Has your relationship with the earth been a relationship with a friend or stranger? Or sometime friend and sometime stranger?
5. How do you "see" the earth? Is it beautiful or ugly or somewhere in between?
6. What do you "feel" about the natural world? Do you feel joy or sorrow, pain or pleasure about animals or sunsets or white-capped waves?
7. Do you "understand" the natural world and how its components are related? Or are its ways foreign?
8. Do you "love" the earth - or do you feel alien from it?
9. Do you care for its well-being, feel for its suffering, want to heal its wounds? Or does thinking about the earth in such terms seem inaccurate and far-fetched?
10. What is your most significant experience of nature? An experience undertaken in the course of work or recreation or other? Are there one or two experiences of an encounter with the natural world that stand out in memory?

| REFLECTION EVALUATION | Grade (10%) |
|---|---|
| **1. Carefully interacted with the letter to yourself**<br>❑ Reflected on your past beliefs<br>❑ Demonstrated how your beliefs have changed over the course | /30 |
| **2. Carefully answered questions**<br>❑ Answered the questions in a reflective way<br>❑ Provided enough detail in question answers<br>❑ Answered all of the questions | /30 |
| **3. Link to Course content**<br>❑ Shows evidence of linking to other topics in the course<br>❑ Uses appropriate vocabulary from the course<br>❑ Demonstrates a deep understanding of the material | /40 |
| **Teacher comments:** | **Total**<br>**/100** |

## A3.7 Fall 2016 Environmental Ethics Course Syllabus

### 4. WEEKLY SCHEDULE

| | DATE | UNIT TOPIC | CONTENT | HOMEWORK |
|---|---|---|---|---|
| **1** | September 23 | **Introduction to Environmental Ethics** | • Introduction to Environmental Ethics<br>• Lecture / Note-taking<br>• Letter to Self<br>• In-class Research task | Reflection Task |
| **2** | September 30 | **Population Growth and Resource Use** | • Introduction to Population Growth and Resource Use<br>• Lecture / Note-taking | Reflection Task |
| **3** | October 7 | | • Introduction to Population Growth and Resource Use cont…<br>• In-class Research task | Reflection Task |
| **4** | October 14 | **Sustainability** | • Introduction to Sustainability<br>• Lecture / Note-taking | Finish Research Assignment |
| **5** | October 21 | | • Introduction to Sustainability cont…<br>• In-class Research task | **RESEARCH ASSIGNMENT #1 DUE (15%)**<br><br>Study for the Mid-Term Exam |
| **6** | October 28 | **MID-TERM EXAM (15%)** | | Reflection Task |
| November 4 - **NO CLASS** | | | | |
| **7** | November 11 | **Non-human Animal Welfare** | • Introduction to Non-Human Animal Welfare<br>• Lecture / Note-taking | Reflection Task |
| November 18 - **NO CLASS** | | | | |
| **8** | November 25 | **Biodiversity Loss** | • Introduction to Biodiversity Loss<br>• Lecture / Note-taking | Finish Research Assignment |
| **9** | December 2 | **Global Climate Change** | • Introduction to Biodiversity Loss cont…<br>• In-class Research task | **RESEARCH ASSIGNMENT #2 DUE (25%)**<br>Reflection Task |
| **10** | December 9 | | • Introduction to Global Climate Change<br>• Lecture / Note-taking | Study for the Final Exam |
| **11** | December 16 | **FINAL EXAM (15%)** | | Review Lectures and vocabulary |
| December 23 & 30 – **NO CLASS** | | | | |
| **12** | January 6 | REFLECTION TASK | **Final Reflection Task (10%)**<br>• Course Evaluation | No Homework |