

Fostering the Development of Sustainability Competencies through the SDGs

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Abstract:

As the global community strives to address pressing environmental, social, and economic challenges, the integration of sustainability into educational contexts becomes imperative, as does the need to cultivate the sustainability competencies of students. This paper provides an overview of the development of an elective English course taught over a semester at a private language university in Japan. Specifically, it illustrates how the Sustainable Development Goals (SDGs) can be effectively incorporated in foreign language education to foster the development of sustainability competencies, enabling students to connect language learning with real-world challenges and encouraging them to become active participants in achieving the SDGs. Additionally, the paper highlights key considerations that practitioners should bear in mind when seeking to implement the SDGs and sustainability competencies into their classrooms.

Keywords: Sustainable Development Goals (SDGs) , Sustainability competencies, Education for Sustainable Development (ESD) , Curriculum development, Learning outcomes

1. Introduction

As the United Nations' 2030 target for achieving the Sustainable Development Goals (SDGs) draws ever closer, the need for collective action by all sectors of society becomes increasingly urgent. Educational institutions have a responsibility to prepare their students to contribute towards sustainable development (Redman *et al.*, 2020; Rieckmann *et al.*, 2017), and consequently, the number of universities integrating sustainability into course programmes and curricula has grown exponentially in recent years (Brundiens *et al.*, 2020; Alm *et al.*, 2022). Universities can facilitate the transition towards sustainability through increased student awareness and the development of a specific set of sustainability

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competencies (Wiek *et al.*, 2011). Developing these competencies is one of the central tenets of Education for Sustainable Development (ESD), an approach to teaching and learning that employs action-oriented pedagogy to empower learners to take action for sustainability issues (UNESCO, 2020). In Japan, the government recognizes the need for students who “not only have English language skills, but are also well-versed in the concepts of sustainability to meet the challenges of a globalising and environmentally threatened world” (Jodoin & Singer, 2018: 41). As a result, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has outlined a plan to implement ESD across all educational institutions, and highlighted the empowerment and mobilisation of young people as a priority (MEXT, 2021).

This paper outlines the process of curriculum development and assessment for an elective English course (*The UN Sustainable Development Goals: Key Issues & Taking Action*) taught over a semester at Kanda University of International Studies (KUIS), a private university in Japan. The paper will illustrate how the SDGs can be used as a framework to facilitate the development of students’ sustainability competencies, as well as their English language proficiency. After a brief description of the SDGs, the paper highlights some of the key principles of ESD and their application to sustainability competency focussed pedagogy. The paper concludes with a discussion of some of the key considerations for educators interested in implementing the SDGs and sustainability competencies into their classrooms.

2. The Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) were established by the United Nations in 2015 as a universal call to action to address pressing social, economic, and environmental global challenges (UN, 2015). The 17 goals (see Fig. 1) and their 169 targets encompass a wide range of interconnected issues, including poverty eradication, quality education, gender equality, and climate action. The SDGs are ambitious and achieving them by the UN’s 2030 target will require collaboration and collective action from multiple sectors, with educators, students and higher education institutions all

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highlighted as key stakeholders (Rieckmann *et al*, 2017).

Fig. 1. The UN's Sustainable Development Goals (United Nations, 2015)



3. Education for Sustainable Development (ESD)

Education is widely recognized as being critical for the achievement of the SDGs (UNESCO, 2020), which is why it is included in the 2030 Agenda both as a goal in itself (SDG 4) as well as a key enabler of the other SDGs (Rieckmann *et al*, 2017). In recognition that not all kinds of education support sustainability, the Education for Sustainable Development (ESD) framework was established, which is explicitly referenced in target 4.7 of the 2030 Agenda, as necessary to “enable learners to acquire the knowledge and skills needed to promote sustainable development” (UN, 2015: 17).

In Japan, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), recognizes the need for ESD to achieve its SDG targets and has responded by outlining a plan to implement education for sustainable development across educational institutions (MEXT, 2021). However, according to UNESCO (2020: 9), while many countries have stated that ESD is reflected in their educational policies, this is often interpreted with “narrow focus on topical issues rather than a holistic approach on learning content, pedagogy, and learning outcomes” needed to facilitate the transformation towards sustainable development.

As educators, when considering ESD and mainstreaming sustainability into formal curricula, it is necessary to be aware of what is intended for students to learn from any particular activity or course. University programmes have learning outcomes that outline what students should be able to do at the end of their studies, and developing clear intended learning outcomes are a key component of good course development and assessment for students (Kioupi & Voulvoulis, 2020). For sustainability focused course programmes, learning outcomes are increasingly defined in terms of sustainability competencies (Redman *et al*, 2020).

4. Key Sustainability Competencies (KSCs)

According to Brundiers *et al* (2020), while several frameworks of sustainability competencies have been proposed, the most commonly referenced in the literature is that outlined by Wiek *et al* (2011), who define sustainability competencies as “complexes of knowledge, skills, and attitudes that enable successful task performance and problem solving” with respect to “real-world sustainability problems, challenges, and opportunities” (Wiek *et al*, 2011: 204). Based on a comprehensive literature review, they developed a framework of five key sustainability competencies (KSCs): systems-thinking, futures thinking (or anticipatory), values thinking (or normative), strategic thinking (or action-oriented) and collaboration (or interpersonal).

The first competence, systems thinking, involves analysing complex systems across different domains (society, environment, economy) within both a local and global context, and understanding how different professional activities contribute to, or mitigate sustainability problems. The second competence, futures thinking, is the “ability to collectively analyse, evaluate, and craft rich pictures of the future related to sustainability issues and sustainability problem-solving frameworks” (Wiek *et al*, 2011: 207-209). Specifically, students competent in futures thinking are able to anticipate how sustainability problems might develop over time. Values thinking concerns the students’ ability to understand and reflect on the norms and values that underlie their actions, and to “negotiate sustainability values, principles, goals, and targets” (Wiek *et al*, 2011: 209).

The fourth competence is strategic thinking, which refers to the ability to collectively design and implement interventions and strategies toward sustainability. The final competence is collaboration, which is defined as “the ability to motivate, enable, and facilitate collaborative and participatory sustainability research and problem solving” (Wiek *et al.*, 2011: 211). In other words, students who have acquired this competency are able to recognize and actively engage in various types of collaboration, including teamwork and stakeholder engagement.

4.1. Integrating KSCs into curricula

Wiek *et al.* (2016) state that operationalising the key sustainability competencies should be the first step of curriculum and course design, and consequently developed a set of detailed learning objectives and outcomes for each key competency (summarised in Table 1), which they differentiate into novice, intermediate and advanced levels. These specified learning objectives and outcomes provide a comprehensive reference for educators interested in implementing a competency focused approach to sustainability courses. In addition, Rieckmann *et al.* (2017) adopt the KSC framework to suggest that sustainability competencies are an essential tool for education to develop so that students can take action for the SDGs. However, they argue that sustainability competencies cannot be taught, but must be developed by the learners themselves through action, experience and reflection. They suggest a pedagogical approach that is learner-centred and action-oriented, whereby learners engage in action (such as a project or internship) and reflect on their experiences in terms of the intended learning outcomes. Wiek *et al.* (2016) provide case examples of such action-oriented learning at the high school, undergraduate and graduate levels, and outline how students demonstrated competence acquisition through various activities.

4.2. KSCs and the SDGs

Sustainability competencies have the potential to play a vital role in connecting with and advancing the objectives of the SDGs and sustainability education. Firstly, systems thinking skills enable learners to comprehend the interconnectedness of social, economic, and environmental dimensions, which is fundamental to understanding the SDGs’

complex challenges and potential solutions (Rieckmann *et al*, 2017). Similarly, collaboration and interpersonal skills foster engagement and cooperation among diverse stakeholders, facilitating the collective action necessary for achieving the SDGs. Finally, values-based decision making can empower individuals to make responsible choices that prioritise sustainability (Annelin & Boström, 2023).

Table 1. Key Sustainability Competencies and associated Learning Objectives (Wiek et al, 2011; 2016)

Key Sustainability Competence	Example Learning Objectives (Wiek et al, 2016: 245-251)
Systems thinking competence	Students are able to : <ul style="list-style-type: none"> • Understand how sustainability problems have emerged (historical perspective) • Understand that different intervention points are relevant for sustainability problem-solving • Describe how different professional activities contribute to, or mitigate sustainability problems
Futures thinking (or anticipatory) competence	<ul style="list-style-type: none"> • Understand different concepts about the future, including long-term, short-term: possible, plausible and desirable • Understand cultural differences in concepts of time and the future • Outline basic scenarios and visions for their own lives and for familiar systems (like their university) on different timescales
Values thinking (or normative) competence	<ul style="list-style-type: none"> • Understand concepts of justice, fairness, and responsibility as part of the overarching concept of sustainability • Understand the influence of values on stakeholder actions and activities • Explore their own values, preferences and norms (self-discovery) • Describe some functions of values thinking in sustainability problem-solving

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Strategic thinking (or action-oriented) competence	<ul style="list-style-type: none"> • Understand basic concepts of barriers, assets, roles, as part of the overarching concepts of sustainability transitions, social learning and organisational change • Identify factors that affect the success or failure of transitions and interventions • Create basic transition strategies that intervene in a defined system or problem
Collaboration (or interpersonal) competence	<ul style="list-style-type: none"> • Work effectively and respectfully in teams on simple projects • Identify different groups of stakeholders relevant to a particular project • Understand the basic benefits of listening, communication, teamwork, stakeholder engagement, and other interpersonal skills

5. Course description

This elective course (*The UN Sustainable Development Goals: Key Issues & Taking Action*), with an average enrollment of 28 students from the International Communication department at KUIS, aims to build students' sustainability competences and English language proficiency through focussed content related to the SDGs. The course takes place over a 15-week semester and is broken down into 30 lessons, with the students meeting twice a week for a 90 minute class. The course goals, objectives and student learning outcomes were developed in conjunction with the key sustainability competencies framework (Wiek *et al*, 2011; 2016) and principles of ESD (Rieckmann *et al*, 2017), while assessment for the course was informed by Redman *et al* (2020) and Wiek *et al* (2016).

5.1. Objectives

By the end of this course, students should have developed an understanding of the Sustainable Development Goals, their interlinkages, and the challenges and opportunities associated with achieving them. By engaging in research, discussions and reflection,

students will be better able to critically analyse sustainable development issues, actively engage in sustainable initiatives, and become advocates for sustainable development within their communities.

5.2. Learning outcomes & corresponding KSC

1. Demonstrate an understanding of key concepts related to sustainability and the SDGs, both orally and in writing, using appropriate language and terminology (*systems thinking*).

2. Apply critical thinking skills to assess the effectiveness of current initiatives and policies aimed at promoting sustainable development in Japan and other countries (*systems thinking*).

3. Analyse and interpret authentic English texts, such as articles, reports, and speeches, to gain a deep understanding of the SDGs, their objectives, and the global efforts towards achieving sustainable development (*systems thinking*).

4. Develop communication skills such as turn-taking, sharing ideas and co-operating with classmates by taking part in group discussions and collaborative projects (*collaboration*).

5. Engage in reflective practices to assess personal attitudes, values, and behaviours related to sustainability and the SDGs (*values thinking; futures thinking*).

6. Apply the knowledge and skills acquired throughout the course to propose sustainable development initiatives in a specific context (*strategic thinking; collaboration*).

5.3. Content

The course encompasses a range of content related to sustainability issues and the SDGs. Throughout the course, students delve into the concept of sustainable development, understanding its principles and historical context. They explore the SDGs, their targets, and indicators, analysing their interlinkages and the role of various stakeholders in achieving them. The course covers topics such as education, poverty alleviation, gender equality, sustainable cities, and responsible consumption within the context of the SDGs. Students engage in discussions, reflections, research, and writing tasks that deepen their

understanding of sustainable development challenges, innovative solutions, ethical considerations and implementation.

Materials for the course are developed from authentic texts to provide students with real-world perspectives and experiences related to sustainable development and the SDGs. These materials include research reports (Sachs *et al*, 2022), case studies (Ito & Reid, 2020), news articles (Lee & Inuma, 2022), and multimedia resources (Green, 2018). By utilising authentic texts, students gain exposure to diverse viewpoints, current issues, and practical examples from various sources such as academic research, international organisations, governmental bodies, and non-governmental organisations. This approach allows students to critically analyse and evaluate the information, develop research and analytical skills, and apply their knowledge to real-life scenarios. Additionally, authentic texts enhance students' English language proficiency by exposing them to the vocabulary, discourse, and structures commonly used in the field of sustainable development.

5.4. Structure

The course is broken down into three units: background to the SDGs, making connections, and taking action for the SDGs. In unit 1, students explore the historical context and evolution of sustainable development, before being introduced to the 17 SDGs, their targets, and indicators. Students analyse the interconnected nature of the goals to identify synergies and conflicts between different SDGs, while also discussing the challenges and barriers faced in implementing the goals. This is explored further as students track Japan's SDG progress through a series of sustainability initiatives and assess the roles of government, NGOs, businesses, and individuals in achieving the SDGs.

In unit two, students begin to explore their own values, beliefs, and biases, and the role they play in the pursuit of sustainable development. The central promise of the 2030 Agenda to "leave no one behind" (UN, 2015), emphasises the commitment to ensuring that all individuals, regardless of their background, are included and benefit from sustainable development efforts. This promise aligns with values thinking (Wiek *et al*,

2011) among students by encouraging them to recognize and appreciate the worth and dignity of every individual, and to foster a sense of empathy and inclusivity. Consequently, the unit focuses on aspects of inclusiveness in relation to poverty (SDG 1), gender equality (SDG 5) and sustainable cities (SDG 11), which have been highlighted as some of the most challenging goals to achieve globally (Green, 2018). Students engage in discussions about their personal values and beliefs related to inclusivity, before exploring each of the aforementioned SDGs within the context of Japan in addition to a foreign country of their choice.

In the final unit, students examine Brinkmann's (2021) approach to practical sustainability, which is broken down into lifestyle changes, leadership and education. Students reflect on their daily habits and consumption practices through the lens of SDG 12 (responsible consumption and production), and consider ways to make more sustainable and responsible decisions in their everyday lives. As the unit progresses, the focus shifts to the importance of education both as a goal of sustainable development (SDG 4) and as a catalyst for achieving the other SDGs (Rieckmann *et al*, 2017). Students examine target 4.7 of SDG 4 (UN, 2015), and explore the concept of Education for Sustainable Development (ESD). This is achieved by reviewing campaigns and approaches to sustainability education in various institutions around the world, in addition to priority action areas identified by UNESCO (2020). In particular, students consider the significance of "empowering and mobilising youth" (UNESCO, 2020; MEXT, 2021) and reflect on their own role as key stakeholders in the pursuit of sustainable development. Finally, the course ends by examining the role of universities in achieving the SDGs and students are tasked with evaluating the sustainability practices of their university, and identifying areas for further progress. This is explored through the lens of Goal 17 (partnerships for the goals) and specifically, the concept of multi-stakeholder partnerships in the pursuit of sustainability. Specifically, students are encouraged to think about potential collaboration efforts between their university and other stakeholders in the community. This forms the focus for the final course assessment.

5.5. Assessment

Students are assessed based on the following four criteria:

1. Participation in class discussions (10%)
2. Reflection tasks (25%)
3. Weekly homework assignments (25%) - including vocabulary quizzes, reading texts or watching videos to prepare for class.
4. Unit projects (40%)

Reflection tasks

Reflection forms a key aspect of the course assessment for learning outcomes 1 and 5, as it provides students with an opportunity to introspect, critically analyse their learning experiences, and connect theoretical concepts with real-life applications. By engaging in reflection, students can evaluate their own beliefs, values, and behaviours, enabling them to recognize the impact of their actions on sustainability. In addition, reflection is supportive of student competence development as it is “important for learning and as a sustainability-relevant competence” (Redman *et al*, 2020: 123). Reflection in the course takes place both orally, through group discussions, as well as written reflections conducted throughout each unit. Students’ written reflections are assessed based on the mechanics of their writing in addition to evidence of comprehension and understanding of course content. Such reflective tasks are both highlighted in the literature as a prominent means for assessing students’ sustainability competencies (Redman *et al*, 2020), and are also in line with an ESD pedagogical approach (Rieckmann *et al*, 2017).

SDG Initiative research

The projects for units 1 and 2 require students to conduct research into existing sustainable development focussed initiatives in local and global contexts. In unit 1, students are introduced to The Eco Picture Diary Project in Yokohama, which aims at encouraging children to be aware of environmental issues and solutions through making a poster. Students consider the impact of the initiative by reading and discussing a research paper (Ito & Reid, 2020), and are tasked with identifying their own example of a

sustainability focussed initiative by a Japanese corporation, organisation or citizen group. The assignment utilises higher order thinking skills, as students must critically analyse the impact of the initiative based on available data and evidence, before presenting their findings and conclusions to the class.

For unit 2, students review a news article about the development of various sustainability initiatives in Kamikatsu Japan (Lee & Inuma, 2022). They consider the successes and challenges of the initiatives and reflect on whether they could be implemented in other larger cities. Students are then tasked with finding examples of other initiatives that promote sustainable cities and communities (SDG 11) in a global context. As with the unit 1 project, students must critically analyse the impacts of the initiatives and present their findings to the class. The projects aim to assess students' development of learning outcomes 1, 2 and 3, as they must critically analyse the effectiveness of the initiatives, while also engaging with authentic case studies and demonstrating an understanding of key sustainability concepts. Students are assessed on the content of their presentations in addition to the appropriateness of their language, the quality of their slides, and presentation delivery skills.

Final course project

The final course project empowers students to apply the knowledge and skills they have acquired throughout the course by proposing a sustainable development initiative in the context of their university (learning outcome 6). Inspired by case examples from Wiek *et al* (2016), the project requires students to demonstrate an awareness of sustainability related concepts (learning outcome 1), as they are tasked with identifying ways to help their university take action for one or more of the SDGs. In groups, students collaborate and conduct research on the area they have identified (learning outcome 4), before presenting their proposed initiative to their classmates. Students are free to focus on any particular issue and their initiative can be original or an adaptation of an existing idea, but their presentations must include the stages of implementation, details of resource requirements such as time and money, and how realistic the initiatives are with reference

to expected outcomes. Students must also include details of any potential risks and challenges of their proposals. The project builds on students' knowledge of SDG initiatives from unit 1, while consolidating the focus on sustainable communities (unit 2) and multi-stakeholder partnerships (unit 3), as they are required to specify how their initiative would benefit the local community and which stakeholders are involved. Wiek *et al* (2016: 254) highlight that such projects build students' critical thinking capacity "by making clear that 'solving' sustainability problems is a daunting task", as students become aware that it requires "coordinated efforts, reflection and reconsideration" and various other processes to take action for sustainable development.

6. Discussion & Considerations

A key consideration for the development of this course has been deciding which SDGs to specifically include and which to omit. While each of the 17 goals are important, it would be impractical to attempt to focus on all of them in detail, and therefore the SDGs that are explicitly covered in the curriculum were selected based on sustainability literature. Goal 4 (quality education) is considered essential both as a stand alone goal and as a means of achieving the other SDGs (Rieckman *et al*, 2017; UNESCO, 2020). In addition, Green (2018) highlights goals 1 (no poverty), 5 (gender equality) and 11 (sustainable cities & communities) as some of the most challenging to achieve globally, while goal 12 (responsible consumption & production) aligns with Brinkmann's (2021) approach to practical sustainability. Finally, the concept of multi-stakeholder partnerships (goal 17) is highlighted by UNESCO (2020) and MEXT (2021) as a key requirement to achieve sustainable development.

Another issue to consider is the English ability necessary for learners to engage with SDG themes and authentic content that has not been developed specifically for language learning. Jodoin and Singer (2019) have suggested that in order to effectively engage with SDG content, students require an intermediate or at least B1 level of English on the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001). There is no language tier system for this particular course, and while some

students have found it more linguistically demanding than others, this has not significantly impacted class participation or the quality of assignments. Nevertheless, after each iteration of the course, content is reviewed based on class observation and student feedback from their reflections.

Finally, perhaps the most significant consideration concerns the effectiveness of the course and the extent to which students have acquired sustainability competencies. While the learning outcomes and assessment for this course are informed by sustainability literature, the evidence of educational efficacy remains somewhat subjective. This is perhaps to be expected, since the practice of assessing students' sustainability competencies is still in its infancy (Redman *et al.*, 2020), nevertheless, it is necessary to consider students' understanding of sustainability at the end of their studies to assess whether they feel prepared to apply sustainability in their daily life (Alm *et al.*, 2022). With this in mind, an interesting area for future research for this course would be to empirically investigate students' perceptions of their acquisition of key sustainability competencies.

7. Conclusion

The students of today will become the key change agents of tomorrow, assuming crucial roles and responsibilities in addressing sustainability challenges. They must possess the capacity to navigate intricate and diverse problems that lack simple, direct solutions. Shifting the educational emphasis towards sustainability competencies has the potential to facilitate the acquisition of essential skills, knowledge, and resources needed to effectively address societal concerns. In addition, the SDGs provide a framework through which to explore various global issues, and continue to inspire the development of engaging content which can be utilised by both educators and learners.

The course presented in this paper was designed to introduce learners to significant social, economic, and environmental issues, while also fostering their communication skills to reflect upon their own actions and engage effectively with the SDGs. By enhancing students' awareness and comprehension of local and global sustainable development

challenges, the course develops their linguistic and sustainability competencies, empowering them to take deliberate and impactful steps towards sustainable development. The author hopes that this paper serves as an inspiration for the integration of the SDGs and sustainability competencies into English language curricula, contributing to the pursuit of sustainable development.

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