

An Integration of the Sustainable Development Goals (SDGs) in Educational Textbooks: The Case of the Malaysian High School English Textbooks

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Abstract

This study examined the Malaysian high school educators' experience integrating the Sustainable Development Goals (SDGs) in English language teaching. A mixed-method design was employed. 110 high school educators participated in this survey. Document analysis was employed, and a thematic analysis was conducted to investigate educators' experiences of teaching SDGs using textbooks. The study found that not all SDGs are found in English language textbooks. The dominant SDGs in the English language textbook were related to the environment. Some of the themes were related to challenges in teaching SDGs in English. Findings from this study can be helpful for school management and policymakers to develop strategies towards the realisation of the SDGs and support teachers' active roles in teaching SDGs through English language learning.

Keywords: SDG, English textbooks, language teaching, sustainability, high schools

1. Introduction

The Sustainable Development Goals (SDGs), proposed by the United Nations in 2015, represent a universal call for action to protect the planet and ensure people enjoy peace and profit for all (United Nations Development Programme, 2018). The SDGs serve as a guide for humanity and a framework addressing every area of human and planetary well-being. While these goals have been debated widely regarding political, economic, and political aspects, effective integration into education, particularly in English language education, remains unexplored. Therefore, this study examined how English teaching and learning activities in the textbooks can significantly contribute to SDG achievement. Leicht and Byun (2021) espouse that SDGs should be adopted globally to educate the future generation with an intercultural perspective to be more responsive and accountable to expeditious changes in various aspects of life and shape a sustainable future.

Education has been recognised as a separate SDG goal (SDG 4: quality education). According to Iyengar (2020), UNESCO's Futures of Education Commissioners meeting on 19th June, 2020, emphasised the need to design an effective curriculum to educate learners (future generations) to be sustainability literate. The United Nations (2017) introduced the Education for Sustainable Development (ESD) initiative to equip learners (i.e. future generations) with the relevant knowledge and skills to promote SDG whilst overcoming the challenges in their personal and professional lives (Singh & Segatto, 2020). However, UNESCO (2020) acknowledges that ESD is too frequently focused on imparting scientific information about environmental challenges rather than a comprehensive approach that includes appropriate pedagogies that engage learners in real transformative learning. This finding implies a misalignment between the goals of ESD and its actual implementation in classroom settings, highlighting the need to examine pedagogical tools such as textbooks that can potentially bridge this gap.

The textbook is widely and extensively used by teachers in their teaching and learning activities, and it could be the integral tool that bridges the ideals of ESD and the practicality of the daily teaching process as teachers use them to facilitate and guide learners. Therefore, understanding current textbooks is essential to understanding "the learning opportunities offered by educational systems around the world" (Valverde et al., 2002, p. 1). Furthermore, English as a global lingua franca offers a strong platform for promoting SDG-related discourses. Researchers have highlighted English's unique potential to disseminate sustainability concepts due to its widespread reach and communicative power (Jodoin, 2020; Allen, 2002).

The research questions for this study are:

- (i) What SDGs are evident in the English language textbooks?
- ii) What are the English language teachers' awareness and knowledge of SDGs?

- (iii) How do English language teachers facilitate learners' understanding of SDG through textbooks?
- (iv) What would be the English language teachers' overall experience of using the textbooks to achieve the SDG?

The findings will indicate to policymakers and teacher educators the key tenets of how future training and professional development of teachers could be improved for a more meaningful and effective implementation of SDGs in their English classroom instruction, particularly syllabus lesson planning and assessment.

2. Theoretical Perspectives and Literature Review

2.1 Engagement Theory

In determining the extent of SDG themes evident in the English language textbooks, the engagement theory is adopted to examine how the contents of the textbooks (imbued with SDG themes) could engage learners in meaningful learning related to SDGs. The basic principle of this theory involves “active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation” as well as “creating successful collaborative teams that work on ambitious projects that are meaningful to someone outside the classroom” (Kearsley & Shneiderman, 1998, p. 20), which are also the core strategies of attaining the SDGs (see Allen, 2002; Jodoin, 2020; UNESCO, 2017 & 2019). Therefore, Engagement Theory is appropriate for the current studies as it aligns with the pedagogical shift toward learner-centered and active learning approaches in promoting SDGs and English language learning. Based on these similarities, the relevance of engagement theory for this study can be highlighted even though its origin, a technology-based framework for teaching and learning, is known.

In addition, the Engagement theory emphasises participatory learning, authentic tasks, and collaboration, demonstrating the goals of SDG-based education, which aims to empower learners with competencies for sustainability. The central premise that students must be actively engaged for effective learning to occur (Kearsley & Shneiderman, 1998) augurs well with the intention of the current study to identify the SDG themes in the textbooks and then how teachers utilise the textbooks for meaningful learning experiences in SDG. The paper adopts the lenses of 'Relate-Create-Donate' (Kearsley & Shneiderman, 1998, p. 20) to examine the English textbooks. In terms of 'relate', the research examined whether the textbooks “emphasise team efforts that involve communication, planning, management, and social skills.” The study also determined if the contents, tasks, and activities in the textbook: (i) encourage learners to “clarify and verbalise their problems” in the process of finding solutions, (ii) increase learners' motivation to learn; and (iii) engage learners from different background and abilities to work together so that they would display “diversity and multiple perspectives” (Kearsley & Shneiderman, 1998, p. 20). As for 'create', the textbooks should: (i) engage learners in creative and purposeful learning activities; (ii) facilitate learners to focus on the “application of ideas to a specific context”; (ii) allow learners to conduct their projects (that are based on problem-based learning), “define the nature of the project” and “have a sense of control over their learning” (Kearsley & Shneiderman, 1998, p. 20). 'Donate' is an aspect which the textbook: (i) emphasises learners and learning that has a “useful contribution” (in this respect, it could be any of the SDG); (ii) caters to and involves various communities and stakeholders, i.e. “outside customers” in the planned projects; (iii) use authentic learning situations that meet learners' interests, leading to learners' “motivation and satisfaction” (Kearsley & Shneiderman, 1998, p. 20).

2.2 Textbooks and SDG/ESD

The analysis of SDG in textbooks is an emerging research trend since SDG was only recently introduced in 2016, and the concepts of ESD/SDGs have been integrated worldwide (Zguir et al., 2021). Nevertheless, studies on SDG and textbooks have primarily focused on the elements of ESD and SDG that are integrated into the textbooks rather than how these elements are interpreted and implemented by educators in classroom teaching and learning activities. This lack of pedagogical focus constitutes a significant gap in the literature.

For instance, Jimenez et al. (2017) analyse social science textbooks and to what extent the contents of the textbooks could facilitate the acquisition of knowledge, skills, and values that are requisite for learners to understand and achieve goal 4.7 of SDG. While informative, their study did not address whether educators actively used the materials to foster transformative learning experiences. In a similar vein, Durrani et al. (2022) analysed the construction of gender in Khazakistan's secondary school textbooks, prompting them to suggest future research that explores “teachers' enactment of textbooks and students' negotiation with gendered textbook messages” that may impact shape new meaningful policies and practices to address gender issues (p. 14). Clearly, merely researching the contents of a textbook and what it offers as a teaching tool is unequal to the value of interaction, engagement, and negotiation of the contents between or among teachers and students in the domain of a meaningful practice of teaching and learning.

Saemee & Nomnian (2021) find that the prominent focus of English language textbooks in ESD/SDG is on native English-speaking cultures and not the ones of the learners, albeit in multicultural school backgrounds. This does not align with SDG 4, emphasising inclusive and quality education and lifelong learning (Hofman-Bergholm, 2020). Such a failure in inculcating SDGs could be explained by the fact that these English language textbooks anchor their content on the four primary language skills (Baig et al., 2021; Wuttisrisiriporn & Usaha, 2019) but tend to overlook the need to incorporate ESD/SDGs such as facilitating critical thinking in the English classroom through global issues (Germain, 2021). These studies ignored the opportunity for English language education to serve as a platform for ESD/SDG integration through discussions on sustainability, equity, and global citizenship. This is worsened by convoluted and complex textbooks that are not easily comprehended by students and require teachers' explanations (Zguir, Dubis & Koc, 2021). But teachers themselves are at a loss when it comes to involving and engaging students in meaningful learning using textbooks, especially those topics related to SDG/ESD (Baig, 2021; Zguir, Dubis & Koc, 2021).

We still do not know much about integrating ESD/SDG into English language textbooks as only limited topics are covered and taught in the classroom (Arslan & Curle, 2021; Ver Steeg, 2019). Perhaps, as observed by Mróz et al. (2020), SDG and ESD-related topics and issues are projected more in science textbooks compared to non-science subjects, like English language education. Literature seems to concur with such a trend, as there is a realisation among educational researchers that other fields, such as environmental sciences, industry, and economy, have dominated the SDG/ESD research (Arslan & Curle, 2021; Kopnina, 2014; Olsson, 2021).

Despite the growing inclusion of SDGs in textbooks, existing research has predominantly focused on the presence and representation of these elements within textbooks. There remains a significant gap in understanding how these SDGs are interpreted, enacted, and pedagogically applied by educators in their English language classrooms. Studies have overlooked the transformative potential of teacher-student interactions with SDG-related content and how such engagement can foster education as envisioned in SDG 4. Moreover, the emphasis of existing research on science or social science disciplines has left the integration of SDGs in English language textbooks underexplored. This imbalance is further compounded by the lack of empirical studies into how English language educators navigate textbook content to create meaningful, contextually relevant learning experiences. Therefore, there is a pressing need for studies that shift from content analysis to pedagogical practice exploring how SDGs are interpreted, adapted, and implemented by educators in English language classrooms.

3. Methodology

The study is a mixed method that captures the phenomenon under investigation in greater depth by utilising (Creswell & Clark, 2011) students, while the qualitative data were gathered through interviews with 12 educators. Such an approach allowed the triangulation of educators and students. The data collection methods were document analysis, a survey, and interviews, and the data analysis procedures used adductive reasoning, which involved deductive and inductive analysis to assess theories and gain an in-depth understanding of the phenomenon being investigated. The quantitative data was analysed with descriptive statistics, and thematic analysis was employed for the qualitative data. Finally, the findings were compared using a side-by-side strategy, and at times, findings were presented separately or merged as suggested by (Creswell & Plano Clark, 2011).

3.1 Research Participants

This study utilised purposive sampling in combination with snowball sampling, as suggested by Patton (1990), to recruit English teachers from Malaysian high school students who were further persuaded by their friends to participate. Purposive sampling was employed to select the educators for interviews, ensuring participants had relevant experience in teaching English in high school settings. Snowball sampling was also employed to recruit more participants based on initial referrals. A total of 10 high school students participated in the survey. More than 20 students agreed to participate in the interview. However, theoretical saturation occurred when new themes stopped emerging from the interview data, so only 12 teachers were chosen to participate (Parker & Northcott, 2016). Nine female teachers and three male teachers were involved in this study. The ages of the interview participants ranged between 26–60 years, and their teaching experience ranged between 5–30 years. Before embarking on the study, the researchers briefed the participants on the nature and objectives of the study. Participants gave verbal consent and were informed that their involvement was optional and that they could withdraw from the research.

3.2 Document Analysis

Document analysis is a qualitative approach in which documents are given voices and meaning. It is a process of “evaluating documents in such a way that empirical knowledge is produced and understanding is developed” (Bowen, 2009, p. 33). It is an effective method because it is readily available, affordable, precise, stable, and offers broader coverage (Wood et al., 2020). The curriculum and the textbooks were analysed according to the suggestions given by Braun and Clarke (2006). Data were analysed for SDG goals, instructions, teaching and learning activities and language skills.

In document analysis, the data is examined and interpreted to elicit meaning, gain understanding, and develop empirical knowledge. It is an efficient method because it is available, cost-effective, unobtrusive, stable, and exact and provides broader coverage (Bowen, 2009). Therefore, thematic analysis was conducted, in which the data were coded for concepts, phrases, and specific words (Neuendorf, 2017), leading to four language competencies: reading and thinking skills, writing skills, grammar, and vocabulary.

3.3 Survey

Survey questions were designed to ascertain participants' experience of various aspects related to SDG and English language learning. It was developed after examining the textbooks, course structure, and activities to capture educators' experiences and views of sustainability and English language learning. The questionnaire comprised three sections. Section A has 17 statements related to the use of English language textbooks to ensure learners' understanding of the Sustainable Development Goals (SDG). Section B comprised six statements related to the use of English language textbooks to facilitate learners' understanding of SDG by focusing on language skills, and Section C related 17 statements. There was a total of 39 statements which were measured using the five-point Likert scale (where 1= strong disagreement and 5 = strong agreement). The questionnaire's final version was created after the evaluation by experts through a pilot study. Two researchers were from the School of Languages (English Section) and another two were from the School of Education (Curriculum). They received the questionnaire along with a rubric so they could evaluate the items' suitability for the study. The final version of the questionnaire was formulated based on their comments.

This is as followed by a pilot study with ten teachers. This process made it possible to modify the initial questionnaire and properly word

the questions. The purposes of the survey were clearly explained to all participating students as a preamble on top of the Google questionnaire form to increase the validity of students' responses. The details of the questions are included in the findings section. The high school's principal was contacted to explain the nature of the study. With the permission of the principal, teachers were requested to complete an online survey on a voluntary basis. The online survey link was open for 4 weeks, and 110 responses were recorded. Data Analysis to illustrate the mean, standard, deviation and frequency is presented. The results were used to answer the main objective of this research which investigates educators' teaching experience with the use of textbooks. The data was guided by the mean values suggested by Julie (2010) which defines 1.00- 2.33 as low, 2.34- 3.66 as medium and 3.67- 5 as high.

3.4 Interviews

The interview participants were recruited through purposive sampling, whereby participants who were knowledgeable about the phenomenon to be investigated (Patton, 1990). This sampling technique is concerned with the participants' willingness and availability of the participants. A total of 12 educators participated in a semi-structured interview conducted via Webex with another member of the research team. One member of the research team conducted the interview and asked questions designed to examine the rationale for the design of online teaching and learning opportunities. The interviews lasted 25-45 minutes, and during this time, the other two members of the research team were taking notes on emerging themes. All interviews were audio and video recorded and were re-watched to ensure the accuracy of quotations used to represent themes. A semi-structured interview was employed, and all interviews were transcribed verbatim. The transcribed data was sent back to the interviewees to confirm as accurate and approved record of the interview. However, the interview questions were adjusted according to the interviewees' answers to explore the reasons, motivations, and feelings, perceptions, underlying the use of Malaysian English language textbooks in teaching SDG. Figure 1 illustrates the research procedure.

4. Findings

Table 1 illustrates the SDGs that are evident in Malaysian high school textbooks. The textbooks are used by upper secondary school students (16-17 years old). Since high school students' cognitive abilities were thought to be higher than those of primary and lower secondary students, it was decided to use EFL textbooks for high school students (Arslan & Curle, 2021).

Table 1. SDGs evident in Form 4 and 5 English Language Textbooks

1	Zero Hunger		
2	Good health and Well being		
3	Quality Education		
4	Clean Water and Sanitation		
5	Gender Equality		
6	Clean Water and Sanitation		
7	Affordable and Clean Energy		x
8	Decent Work and Academic Growth		
9	Industry, Innovation and Infrastructure		x
10	Reduced Inequalities		
11	Sustainable Cities and Communities		x
12	Responsible Consumption & Production		
13	Climate Action	x	x
14	Life Below Water	x	
15	Life on land	x	
16	Peace, Justice and Strong Institutions		
17	Partnerships for the Goals		

From the table, it is evident that not all the SDGs are found in the textbook. However, some SDGs are evident and very much related to the environment and health-related issues. Only six out of 17 themes involve SDGs. The dominating themes were SDG7, SDG9, SDG11, SDG13, SDG14, and SDG15. In the following section, the researchers have selected the Form 5 textbook to examine further the unit/chapter related to 'Environment'. The aspects related to engagement theory (relate, create, donate, creativity and critical thinking) were emphasized during the document analysis.

The documents were coded for concepts, phrases, and specific words (Neuendorf, 2017), resulting in four language competencies: A checklist was used to identify vocabulary, grammar reading, listening, speaking and writing skills. Also ideas related to engagement theory, particularly critical and creative component were also identified.

4.1 Language Skills

At the beginning of the unit/chapter (textbook) certain interesting activities such as problem-based learning, and task-based learning (Figure 1). "The topic seems to emphasize pre-reading skills. Before the reading skill materials were introduced, there were pre-reading

activities for students to think critically. For example, “Watch this short video about the problem of plastic by Ocean Heroes”, “What causes pollution? Complete the table with your own ideas. For example, Look at the list of environmental problems. This is followed by the instructions to read the text. Students are instructed to read the text (Figure 2). The vocabulary introduced in this chapter is related to the environment. For example, “earthquake”, “famine”, “tornado”, “earthquake”, “drought” and “flood” (Figure 3). Also, evident is the grammatical component of future simple tense. Examples of the future tense were also related to sentences related to the environment. For example, “Those people are starving. I’ll give them some food,” and “I think there will be an earthquake soon.” Listening skills are related to wildlife (Figure 4).

The speaking component has exciting tasks that encourage them to work in pairs. Tips were given in the ‘language bank’ section. Figure 5 illustrates the tasks given and the ‘language bank.’ As for the writing component, the learners were provided with tips and sufficient information about the topic and academic writing skills so that students could write confidently and gather the correct information to support the main ideas. They also wrote some drafts and revised and edited them before completing their writing task.

Project-based learning was assigned to students, and they had “to do some research on the Internet about an eco-friendly product and find information showing how it is eco-friendly. make a poster and present it to class” (Figure 7). This instruction also encourages students’ creativity. Also evident is problem-based learning, where students are asked, “i. Why do you think there is so much litter around? ii) What kind of problems does it create? and iii) What do you think can be done about it? (Figure 8).

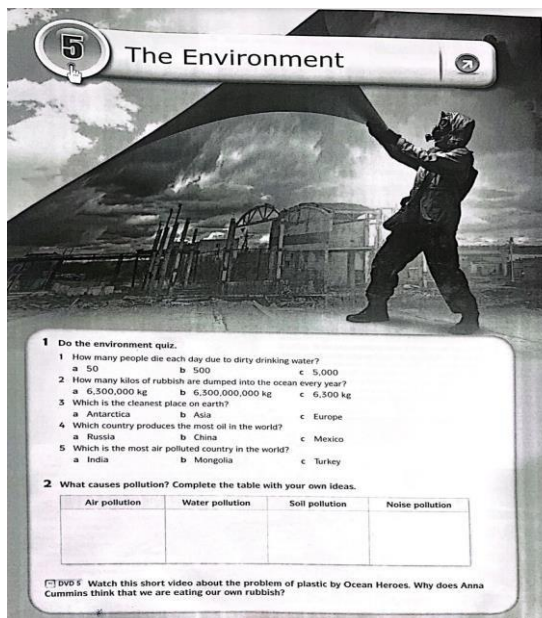


Figure 1. Text Related to Reading skills

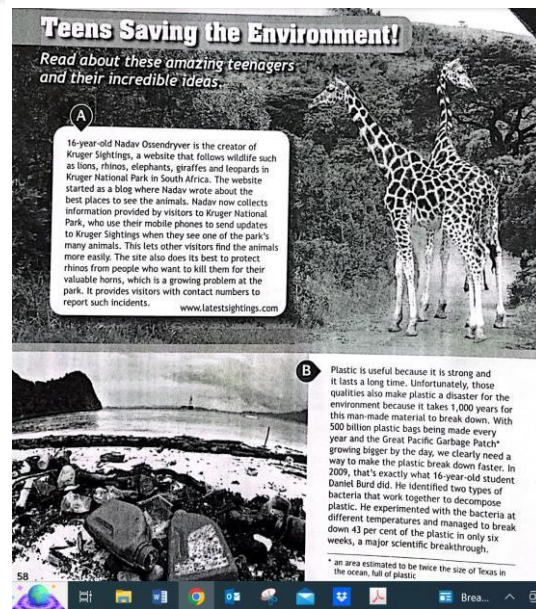


Figure 2. Pre-Reading Activities for Reading Skills

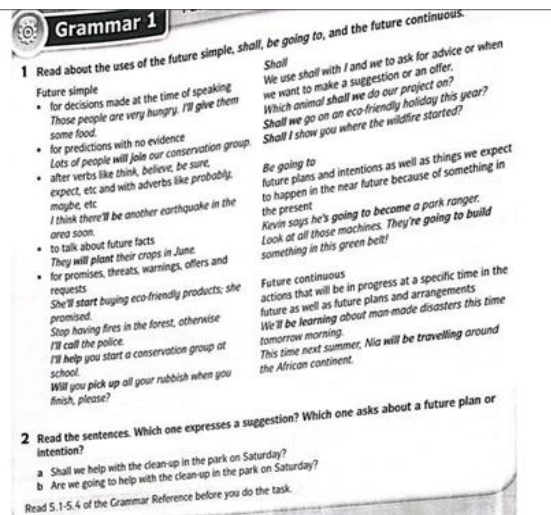


Figure 3. Vocabulary Related to Environment

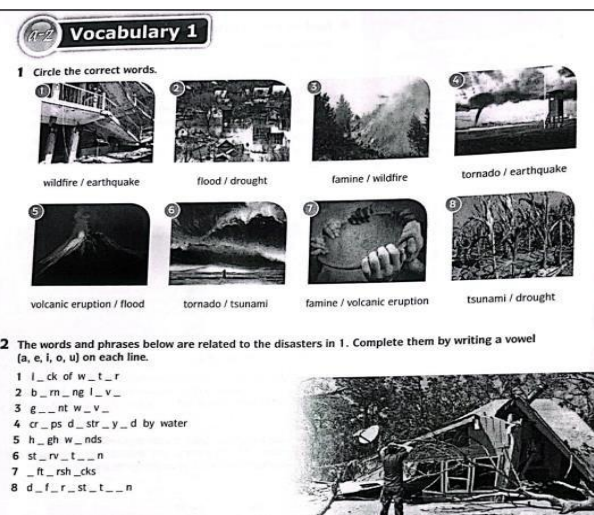


Figure 4. Exercises Related to Vocabulary Teaching

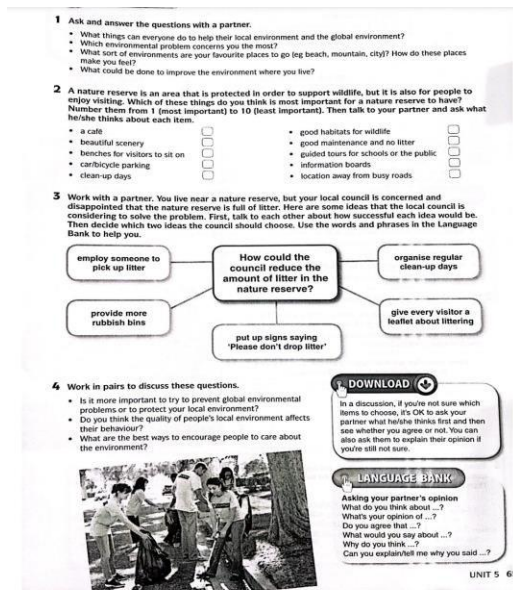


Figure 5. Exercises related to Listening skills

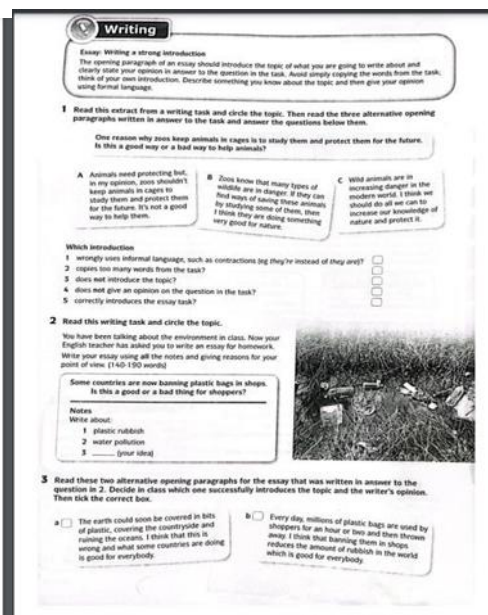


Figure 6. Exercises related to writing skills

Table 2 demonstrates a moderate level of awareness and knowledge of SDGs among English language teachers. Most of participants indicated some awareness, with average scores ranging from 2.21 to 2.84 on a 5-point scale. The highest mean related to “having heard of the term “SDG” (M = 2.84, SD = 1.26), while the lowest was for the item “having conducted research on SDGs” (M = 2.21, SD = 1.20). Overall, findings were focused on the midpoint, implying a general familiarity with SDGs but lack of understanding or engagement, especially regarding research or integration into English language practices.

Table 2. English language teachers awareness and knowledge of SDGs in terms of English language teaching

		1	2	3	4	5	Mean	STD
	In terms of awareness and knowledge , as an English language teacher, I...							
1	Have heard of the term ‘SDG’ (https://sdgs.un.org/fr/goals)	21.8	13.6	33.6	20.9	10.0	2.84	1.26
2	Am aware of SDG	20.9	16.4	33.8	19.1	0.0	2.81	1.25
4	Know what SDG means before this survey	23.6	18.2	31.8	16.4	10.0	2.71	1.27
5	Have read on SDG	20.9	22.7	30.9	15.5	10.0	2.71	1.24
6	Have researched on SDG	35.5	29.1	21.8	6.4	7.3	2.21	1.20
7	Have a comprehensive understanding of SDG	25.5	23.6	30.9	12.7	6.4	2.50	1.19
8	Am aware some of the SDG elements that are relevant to ELT	23.6	18.2	30.9	20.9	6.4	2.68	1.22
9	Can identify some of the SDG elements that are relevant to ELT	21.8	19.1	30.9	23.6	4.5	2.70	1.18
10	Am aware of the SDG elements in the English language textbook	20.9	21.8	30.0	23.6	3.6	2.67	1.15
11	Can identify SDG elements in the English language textbook	22.7	23.6	28.2	20.0	5.5	2.62	1.19
12	Am aware of SDG elements in the English language textbook that could address some of the problems in France	23.6	20.9	28.2	21.8	5.5	2.65	1.21
13	Can identify SDG elements in the English language textbook that could	22.7	21.8	30.0	20.0	5.5	2.64	1.191

From the qualitative data gathered, most participants agreed that “SDGs goals are reflected in the units/topics taught in schools, but not all topics are related to all 17 goals of SDG” (PES4). According to PES8, some “topics are in line with SDG topics. For example, the topic on health and well-being”. Similarly, PES4 further detailed the “Form 4 textbook – about 2-3 units are related to SDGs. For example, in Unit 7, there is a reading. There is material on Keep It Green, where students must read and discuss eco-friendly products. Most of the units related to SDGs are about health and the environment.”

P5 opined that:

Textbooks help integrate SDGs as there is a structure in textbooks related to SDGs. Some of the examples are in the textbook exercises. This helps students think critically when answering the questions. Plus, it provides students with good general knowledge on certain topics. PES1 explained that “textbooks and Internet sources were used.” Students were given writing tasks that “focused on social issues aligned with the

probable solutions from the SDGs. Students will be required to search for information to be able to write. Students will be learning about SDG-related goals directly.” PES described that “whenever the situation permits, I integrate all the SDGs into teaching. For example, when related to environmental issues, I do link it to integrity and the importance of upholding law and order to sustain a clean environment for all.”

PES3 reasoned that “she uses reference books because some topics are backdated. The Pulse Textbook had more grammar components than topics aligned with the SDGs” (PES1). PES7 revealed that “not all SDG are integrated into our textbooks. For example, gender equality is not being openly discussed in the classroom. It's a taboo in Malaysia” (PES7). Similarly, PES7 voiced out that “some SDGs might not go along with the lifestyle and culture we have in Malaysia; thus, a 'bridging' delivery of lessons should be there.” PES4 revealed that “I was not introduced to SDG during the period of my education; instead, I stumbled upon SDG while looking for journals online. I did a little bit of reading regarding this topic and understood on the surface.” Participants claim that educators “need to be well read of the issues as well and knowing them pretty in-depth” (P3) and “doing a little research online and asking experienced teachers.” (PES10).

Table 3 highlights that the data highlighted that teachers apply a variety of language skills when integrating SDGs into lessons, with the highest emphasis on reading ($M = 3.49$, $SD = 1.09$) and vocabulary ($M = 3.34$, $SD = 1.12$). Writing and listening skills also received relatively high mean scores ($M = 3.34$ and 3.29 , respectively). However, grammar and speaking had slightly lower scores but still indicated moderate use ($M = 3.25$ and 3.26). Overall, the findings seem to suggest that teachers are using textbooks to improve both SDG awareness and language skills, particularly through reading and vocabulary activities.

Table 3. English language textbooks facilitate learners' understanding of SDGs and English language skills.

Using the English language textbook, I facilitate learners' understanding of SDG by focusing on the following language skills:		1	2	3	4	5	Mean	STD
1	Vocabulary	8.2	15.5	22.7	41.8	11.8	3.34	1.12
2	Grammar	10.9	12.7	30.9	30.9	14.5	3.25	1.18
3	Writing	8.2	11.8	29.1	40.0	10.9	3.34	1.08
4	Speaking (pairs, presentation)	7.3	15.5	32.7	32.7	11.8	3.26	1.08
5	Listening	8.2	13.6	31.8	33.6	12.7	3.29	1.11
6	Reading	6.4	11.8	23.6	41.8	15.5	3.49	1.09

The findings from the survey were triangulated with qualitative data. Most of the participants agreed that they could teach listening (PES2, PES6, PES7), speaking (PES1, PES8, PES9, PES10), reading (PES3, PES11, PES12), writing (PES4, PES5, PES9), vocabulary (PES1, PES3, PES9) and grammar (PES1, PES2, PES4) skills by integrating SDGs in English language teaching. For example, PES5 pointed out that “the textbook is helpful to a certain extent as I can adapt certain speaking and writing activities that would reflect the lifelong skills to suit it to my students' abilities.”

PES6 stated that:

Yes, the SDGS can be implemented in an English classroom. For example, teachers can give students activities based on the SDG goal and ask them to write about the SDG they have been given.

PES5 pointed out that it is challenging to integrate SDGs in English language teaching because:

too many teaching components have to be taught to the students. Usually, more focus is given to the teaching components rather than SDG, as these are the ones that will be tested in the examinations.

PES6 concern was integrating the SDGs into English language teaching. She further detailed that:

I do face challenges in attempting to integrate SDGs into the teaching and learning of English, bringing in other reading materials related to SDGs such as as newspaper national geographical magazines which discuss all issues related to SDGs

Table 4 illustrates the 22 constructs related to using the English language textbook for the meaningful learning experience of SDGs revealed a medium level of agreement level with ‘think creatively’ (mean score 3.00, STD 1.05) and the lowest agreement to ‘implement SDGs projects in their community’ (mean score 2.46, STD, 0.98). Regarding integrating SDGs into ELT, as an English language teacher, most items fall into an average agreement. However, ‘read academic papers’ (mean score, STD 1.1) and ‘published academic papers’ (mean score 1.35, STD 0.75).

Table 4. Meaningful Learning Experience of SDGs through English Textbooks

	Using the English language textbook, I ensure learners' meaningful learning experience of Sustainable Development Goals (SDG) by facilitating them to....	1	2	3	4	5	Mean	STD
1	concretely experience SDG	8.2	27.3	40.0	23.6	0.9	2.82	0.92
2	be actively engaged in SDG learning tasks	9.1	25.5	39.1	22.7	3.6	2.86	0.99
3	raise any issues related to SDG	10.0	27.3	33.6	26.4	2.7	2.85	1.01
4	communicate their ideas on SDG	10.9	21.8	38.2	25.5	3.6	2.89	1.02
5	reflect on any aspects of SDG	10.9	26.4	34.5	25.5	2.7	2.83	1.02
6	interpret their own experiences of SDG	10.9	24.5	37.3	24.5	2.7	2.84	1.00
7	conclude their SDG experiences	10.9	26.4	39.1	20.0	2.7	2.77	0.98
8	develop an overall understanding of SDG	10.9	21.8	39.1	26.4	1.8	2.86	0.99
9	demonstrate how SDG could be relevant to their lives	9.1	22.7	37.3	28.2	1.8	2.91	0.97
10	put into practice their newfound knowledge on SDG	11.8	21.8	39.1	23.6	3.6	2.85	1.03
11	create new ideas related to SDG	12.7	21.8	40.9	20.9	1.8	2.77	0.99
12	implement SDG projects in their classroom	13.6	24.5	39.1	17.3	5.5	2.76	1.06
13	implement SDG projects in their school	14.5	27.3	40.0	17.3	0.9	2.63	0.96
14	implement SDG projects in their community	20.0	28.2	38.2	12.7	0.9	2.46	0.98
15	solve real problems	15.5	24.5	37.3	20.0	2.7	2.70	1.04
16	think creatively	10.0	18.2	39.1	25.5	6.4	3.00	1.05
17	think critically	10.0	23.6	33.6	26.4	6.4	2.95	1.07
18	Experimented with game-based learning in delivering lessons	24.5	16.4	25.5	23.6	9.1	2.76	1.31
19	Experimented with project-based learning in delivering lessons	25.5	18.2	24.5	20.0	11.8	2.75	1.35
20	Experimented with task-based learning in delivering lessons	21.8	16.4	28.2	24.5	8.2	2.81	1.26
21	Experimented with problem-based learning in delivering lessons	20.0	14.5	35.5	22.7	6.4	2.81	1.19
22	Obtained learners' feedback	20.9	12.7	31.8	28.2	6.4	2.86	1.22

The qualitative data revealed that most participants agreed that integrating the SDGs can teach critical thinking and creativity. PES8 felt that *"creativity and preparation are needed to enable students to connect with the SDGs that are taught"* (PES8). PES3 shared her experience of being *"successful in getting students to think critically and creatively in her lessons."* In her words:

In Unit 5 of the Form 5 textbook – the topic is – Environment. I believe I have successfully integrated SDG for this particular unit because I carried out a PBL with my students involving the Department of Environment Ipoh Perak [a state in Malaysia]. The project aims to create awareness among students about domestic waste and waste management. What happens when waste/ rubbish is mishandled? This project was successful as the final presentation/sharing was done with students, teachers,

and officers in Kinta Utara. Students have worked diligently on the driving questions for 6-7 weeks.

Creativity was emphasised when students were instructed to create *“a webpage and conducted mini competitions entitled Movie Night and Trash Art to call upon all our friends to be wary of the effects of waste on the environment.”* PES11 suggested integrating language games in teaching SDGs:

I use language games related to SDGs, which allow students to work together and collaborate in teams or apply critical thinking skills while participating. Besides, I try to ensure students use basic ICT applications during classes to take part in quizzes or write compositions online, such as Padlet or Quizziz/Kahoot.

A number of emerging themes emerged from the interviews. These themes related to challenges in integrating SDGs in teaching and the need for professional development.

4.1 Challenges in integrating SDGs

Teachers have also voiced their challenges when attempting to integrate English language teaching and SDGs. PES5 lamented that *“teachers don't have much time to pay attention to SDGs as there is a lot of teaching to be done”*. PES8 added that *“creativity and preparation were needed to enable students to connect with the subject matter they are learning”*. PES10 believed a *“differentiated approach is much needed and therefore a lot of thinking and brainstorming is needed”*. Another challenging area would be *“monitoring students and guiding them into the tasks.”* PES9 explained that she *“do face challenges in an attempt to integrate SDG into teaching and teaching of English by bringing in other reading material related to SDG as newspaper national geographical magazines which discusses all issues relate to SDG”* (P7). Another challenge is also the financial part in funding projects and getting the needed materials Most of the time. PES1 said *“I will spend/ splurge on all these. There are times when I ask for some assistance from the panel's allocations.”* (P3).

4.2 Professional Development

When asked about suggestions related to English language teaching and SDGs, most participants suggested the need for professional development (PES3, PES5, PES8, PES10). PES3 realised that *“in my humble opinion, teachers have yet to learn about SDG and the parts they can play to help students reach targets of the SDG related to education.”* Professional development can contribute to effective classroom practices. *“Teachers must master and understand the SDGs to provide quality education to the students”* (PES10). Quite similarly, PES7 said that *“to conduct a fruitful lesson, the teacher has to master it first. Hence, teachers should be taught how to integrate SDG goals into language teaching.”* PES11 asserted that the *“Ministry of Education should organise professional development from time to time to enrich them with SDGs and its importance”*.

5. Discussions

Relating to the first research question, it is evident that not all SDGs are found in English textbooks. The themes in the English language textbooks mainly cover environmental and health-related themes. The limited coverage of SDGs in the textbook limits the learner's exposure to issues related to global challenges such as poverty, inequality and peacebuilding. The study strengthens the notion suggested by Arslan & Curle (2021) that textbooks lack comprehensive SDG-related content, thus limiting students' understanding of global citizenship education. Also, the study supports Mróz et al.'s. (2020) idea that SDG topics are limited to projected social sciences and textbooks like English language education. This highlights a subject-area bias that undermines the interdisciplinary goals of the SDG framework.

The textbook's content introduces environmental themes through several activities. For example, tasks involve analysing, creating inferencing and inductive and deductive reasoning to encourage students to understand sustainability themes critically and creatively. This guides students to pay attention to the actions and knowledge that they have generated related to the environment. Most of the language skills and tasks assigned are student-centred, integrating collaboration elements aligned with pair work, task-based learning and problem-based learning. According to Cates (2002), language teaching involves not only teaching vocabulary, grammar, and communication skills. Language teachers should be responsible for incorporating SDGs into their instruction because teaching should necessitate reflection on the world's problems (Cates, 2002). Teachers can influence students' attitudes and deal with the challenges of teaching SDGs if they have the necessary content and pedagogical knowledge and are ready and able to do so

(Borg et al., 2012). Unlike previous studies (Eli et al., 2020; Winter, 2007), this study demonstrated a connection between English language acquisition and SDGs. A key sign of successful language acquisition is using cognitive and critical thinking abilities. Skehan, (2003) suggested that successful language acquisition is supported by cognitive engagement through critical thinking. The findings offer empirical support for this theory, as learners' participation in environmental discourse simultaneously advanced in linguistic and cognitive development. Therefore, the EASD is evident in Malaysian English high school textbooks. Qualitative analysis demonstrated strong connections between SDG integration and the cultivation of critical and creative thinking skills. This directly encourages interaction, collaboration and student-centred learning. Such findings align with Social Constructivist Theory, where language acquisition is facilitated by interaction and collaboration.

Findings reveal a moderate level of SDG awareness among teachers which is important for English language teachers to consider in their teaching and learning activities. According to Baglama and Uzunboylu (2017), teachers can create positive learning outcomes when they are confident and interested in considering SDGs in their teaching activities. However, Eli et al. (2020) reported that a lack of understanding of SDGs can hinder effective integration. From the findings, it can be inferred that willingness alone is insufficient and

support and resources are important for effective implementation. These findings highlight the need for proper training for teachers to bridge the gap between awareness and implementation.

Also, the current study reinforces the possibility of integrating SDG into English language instruction with the support of curriculum and institutional encouragement (Kwee et al., 2021; Annan-Diab & Molinari, 2017). From the perspective of engagement theory, this study has illustrated that teaching SDGs with the integration of English is feasible since textbook topics support SDGs and align with engagement theory in aspects related to relating, creating, and donating.

According to Cates (2022), language teaching involves not only teaching vocabulary, grammar and communication skills. Language teachers should be responsible for incorporating SDGs into their instruction because teaching should necessitate reflection on the world's problems (Cates, 2022). Teachers can influence students' attitudes and deal with the challenges of teaching SDGs if they have the necessary content and pedagogical knowledge and are ready and able to do so (Borg et al., 2012).

One of the challenges highlighted by the teachers was the lack of professional development training related to SDG integration. This implies that Malaysian teachers in high schools were not provided with training related to SDGs. Without effective training, the successful implementation of SDGs is limited (Borg et al., 2012). The educators have also highlighted the extra time and workload of integrating SDGs in English language learning. In integrating SDGs for English language learning or any other disciplines, educators need to devote more time and certainly increase workload. This relationship between SDG themes and engagement theory shows that meaningful content strengthened learners' autonomy, purpose, and involvement in the learning process.

6. Pedagogical Implications

In terms of the pedagogical implications, the authors propose the following recommendations. The research underscores the necessity for English textbooks to broaden their scope by including a more extensive array of subjects related to Sustainable Development Goals (SDGs). The study proposes that acquiring language skills involves cognitive and critical thinking abilities (Skehan, 2003). English language instruction should concentrate on exercises that promote critical thinking, such as problem-based learning, task-based learning, and activities fostering students' analytical skills concerning SDGs. The research underscores the necessity for professional development, emphasising that teachers lack training related to SDGs. Educational institutions and authorities should provide teachers with the requisite training to incorporate SDGs effectively into their English language teaching practices. Given teachers' concerns about additional time and workload, fostering collaboration among English language teachers for collective lesson planning can be a practical solution. This collaborative approach could help alleviate challenges associated with the individual implementation of SDGs in English language learning.

7. Limitation and Conclusion

Educational institutions are crucial in aligning teaching practices with the 2030 Agenda for Sustainable Development. According to Salovaara et al. (2021), identifying change agents is pertinent for a long-term sustainability integration. This study contributes to a deeper understanding of how SDGs can be systematically embedded into English language education. Therefore, this study offers beneficial knowledge for the future integration of SDGs into schools. Furthermore, the study's sample size (112 participants) meets the data analysis requirements. However, the relatively small sample size limits generalization. Future studies should large survey exploring demographic variables such educators' age, gender, and culture of high school teachers. Also, examining students' experience and perception will also contribute to a more holistic perspective. Since SDGs involve various disciplines, future studies should explore other disciplines such as Management, Business and History studies.

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Authors' contributions

Dr. Nagaletchimee Annamalai and Dr Bilal were responsible for study design and revising. Prof. Kabilan was responsible for data collection. Dr Sari Karmina revised the manuscript. All authors read and approved of the final manuscript. All authors contributed equally to complete the article

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