



TIRF Insights
Volume 3

Climate Change Education



Daniel Barber

Students demonstrate
commitment to sustainability
by restoring a New York
oyster reef



“TIRF Insights” profiles recent research in the field of English Language Teaching (ELT) in a practical and accessible format. Our publication is written for parents, teachers, school leaders, and all student advocates who want to review recent educational trends in a nonacademic way. This paper on Climate Change Education is available in English, Arabic, Chinese, and Spanish.

What are the key issues?

What is Climate Change Education?

Our world faces a number of challenges, and for many people, the most serious global issue is climate change, driven by the unsustainable use of the planet’s resources. Global temperatures are now at 1.1°C above pre-industrial levels (Intergovernmental Panel on Climate Change, 2023) and the consequences threaten to impact the natural world and the welfare and safety of people everywhere. The Intergovernmental Panel calls climate change “a threat to human well-being and planetary health” (IPCC, 2023), and the scientific community is urging that we follow a more sustainable path (IPCC, 2023) so we continue to live and thrive in the world.

But what does climate change have to do with English language teaching? If you are an educator or parent of learners, you are rightfully concerned with developing the competence of the students’ English language abilities.

Surely, the priority in the classroom must be with supporting and growing their English skills. At first glance, English Language Teaching (ELT) might have little to do with environmental concerns. However, there are convincing reasons for ELT professionals to integrate sustainability into their teaching, such as helping students 1) join the global conversation on climate change which takes place in English, 2) develop English skills for science and other cross-curricular study, and 3) promote critical thinking skills through project-based-learning lessons on environmental topics.

Climate Change Education, or CCE, is the education sector’s response to the growing global concern for global warming. Sustainability is steadily becoming a focus of education in science syllabi, through student-based action, and as part of national curricula.

Given the general objectives of education, to teach about the world and prepare people for the future, CCE takes several forms, including:

- *scientific knowledge*, e.g., climate science, so that learners understand the issues better;
- *eco-literacy skills*, so that students can critically analyze solutions and ideas around global warming;
- *systems thinking*, in which students study the interconnectedness of society, politics, economics and the environment;



Teacher explains renewable energy to students

SPOTLIGHT on Climate Change Education



Maritza Morales Casanova is a teacher whose job she says is “to train the next explorers of Grandmother Earth to be teachers, to be environmental instructors” (National Geographic, 2018). At Ceiba Pentandra Park, in Mérida, southern Mexico, children learn the science and methodologies to become environmentalists. Through play and cooperation, the children in Maritza’s classes develop an understanding of the vital role clean and plentiful water, biodiversity, and effective planting play in securing the future health of people in their community.

Morales aims to bring the curriculum of her organization to a global level. Other organisations are taking her lead, in Paraguay and in the north of Mexico, and Morales hopes that soon there will be parks worldwide (Cairns, 2021). For now, she continues to spread the message that a love of our planet is a valuable moral code to live by and that alongside our students we can aspire to becoming part of the solution. English is the tool through which students engage in global climate change conversations and share their personal sustainability pledges.

- promotion of *ideas around sustainability and sensitivity* towards the living world, so that students feel connected to the world;
- understanding of *individual, social, and institutional roles* in countering global warming, to help learners grapple with current events and topical news; and
- motivation for *eco-centered service and action*, to offer students hands-on participation in problem solving activities and projects.

Why is CCE important?

Before turning our attention to the curriculum implications for English teachers in the context of CCE, it’s important to develop a shared understanding of today’s climate change challenges.

Many aspects of modern society will need to change to reduce carbon use to sustainable levels. Former U.S. Vice President Al Gore said: “the future ... will be extremely different from anything we have ever known in the past ... There is no prior period of change that remotely resembles what humanity is about to experience” (Gore, 2013 as cited in Sterling, n.d). Adaptation to change requires learning. According to Stephen Sterling, Emeritus Professor of Sustainability at the University of Plymouth, in the UK, how we manage the transformation to a more ecological civilization is very much dependent on education. Sterling calls

the unfolding environmental dilemma humanity’s “greatest ever *learning challenge*” (Sterling, n.d). Irina Bokova, former Director-General of the United Nations Educational, Scientific, and Cultural Organization, notes: “Education is at the heart of our efforts both to adapt to change and to transform the world within which we live” (UNESCO, 2015, p. 3). Simply put, in Nelson Mandela’s (2003) famous words: “Education is the most powerful weapon which you can use to change the world” (para. 12).

International organizations such as UNESCO and government bodies such as the Egypt Ministry of Education recognize the need to address our climate challenge through international cooperation. As our world is globally interconnected, many national and international education frameworks underscore the need for young people to become *global citizens* who take action in support of the United Nations’ Sustainable Development Goals, such as clean drinking water for everyone. Pioneering educators in the field of sustainable development are leading the way in preparing young people to become the global citizens of the future. One example is Maritza Morales Casanova, whose outdoor educational theme park in Mexico empowers children to become teachers and environmental instructors, as highlighted above (National Geographic, 2018).

What is the role of English language education in CCE?

First, English is the lingua franca of many fields related to climate action, from science and engineering to international relations and even protest (Granirer, 2021). If learners are to participate in global discussions in any of these areas, they will need to be able to speak the language of climate change and climate action. Environmental sustainability will become an ever larger concern in the professional sphere, as companies, governmental institutions, academic bodies, and legal frameworks adapt to a changing world. The World Economic Forum estimates that 24 million jobs could be created by the green economy within the next six years (Kimbrough, 2021). For career success, many learners will need both *green skills*—the skills needed for adapting products and services to address climate change—and English language skills to communicate and negotiate with colleagues (Joshi, 2023).

Second, there is a growing demand from students and teachers to include climate-focused topics in ELT curricula. Before the 2021 United Nations Climate Change Conference, the British Council carried out a survey with 2,500 teenage students and 1,887 teachers from 196 countries. The British Council found that 76% of students wanted more climate-change topics in school and 72% wanted these topics featured

in English lessons. Further, nine out of 10 English teachers believed they had a significant role to play in CCE (British Council, 2022). A report conducted by Shift Insight published similar figures: 85% of UK teachers felt the urgency of sustainability education (Barkway & Mai, 2022). As ELT curricular standards increasingly integrate content from other subject areas such as STEM (Science, Technology, Engineering, Mathematics), education leaders have an excellent opportunity to create curricula which satisfy student and teacher interest in CCE. Additionally, the popularity of ELT approaches such as Project-Based and Task-Based Learning provide opportunities for extended critical-thinking and problem-solving activities related to environmental topics.

Third, sustainability education provides topical richness for the communicative teaching methodologies used in most ELT settings. English language curricula regularly incorporate the development of communication strategies and intercultural and interpersonal skills development all of which are essential skills for the international collaboration required to tackle the climate crisis. Students will naturally deploy the “4 C’s” of communication, collaboration, critical thinking skills, and creativity as they develop their environmental literacy skills.

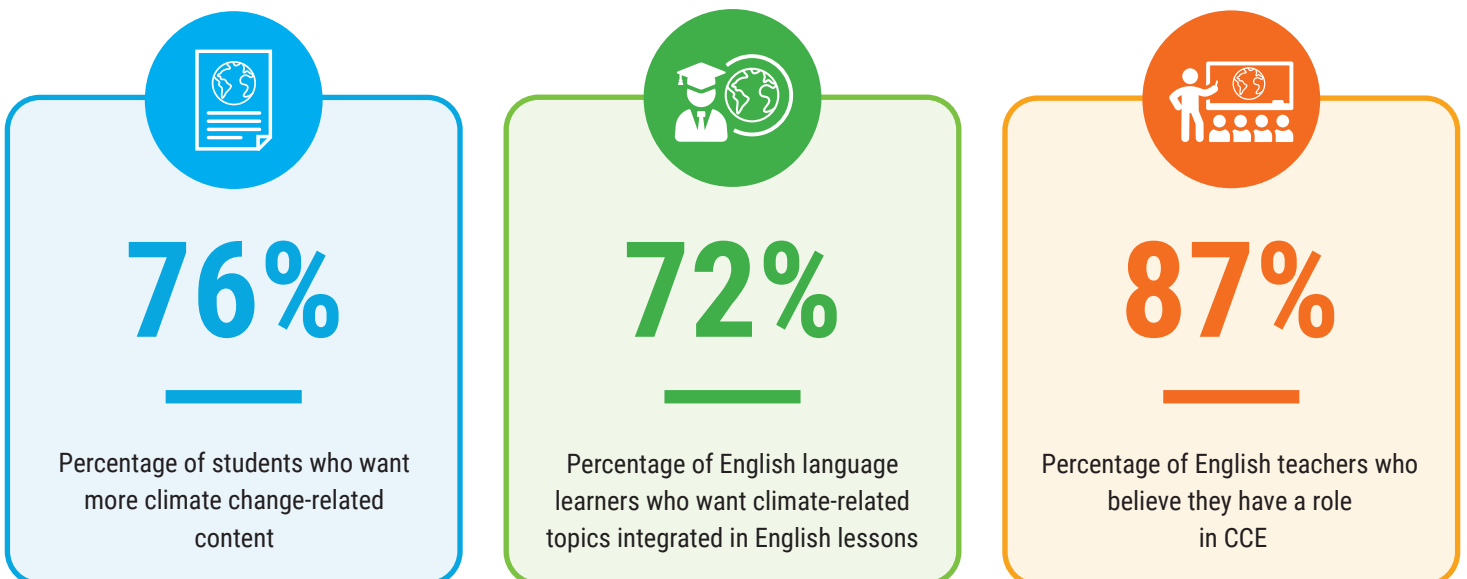


Figure 1: Data from large-scale survey conducted by the British Council as part of their *Climate Action in Language Education* initiative

What do we know?

What is the current state of CCE in ELT?

Many governments have implemented CCE into their national curriculum or education policy (UNESCO, 2022). In Italy, schools dedicate one hour a week to discuss climate change issues (Earth Day, 2019). Finland has developed a climate studies program with the idea that climate change should be part of every subject (Cord, 2019). Given the trend toward bilingual education and the teaching of subjects in English, especially STEM subjects (Gibbins, 2023), these examples indicate an increase in English language instruction and coverage of CCE at the national level.

Increasingly, we are seeing sustainability addressed in many ELT courses, especially in primary and secondary sectors. A wealth of resources is now available to educators, some of which are profiled in this paper.

For the practicing teacher or concerned parent, it is often hard to know where to look, and specific teacher development in this area is scarce. To some extent, however, CEE guidance is already present in ways that

will be familiar to educators. The UN's Sustainable Development Goals (SDGs) set out 17 objectives, from ending poverty to providing clean water for all, to be met by 2030. The SDGs provide a framework of topical areas to cover for educators (e.g., affordable and clean energy), extensive materials to support curriculum planning, and CCE activities for different age groups.

Many ELT educators use the framework of social and emotional learning (SEL) to present thematic units around environmental protection (Stannett, 2022). A SEL approach in class raises students' awareness of themselves as agents whose actions have consequences. Language lessons on using natural resources responsibly or consuming sensibly deploy SEL values to deepen students' environmental awareness.

But what about specific guidance on CCE within language learning? Various frameworks have evolved to define the components of environmental literacy and help educators structure educational programs, set learning outcomes, and allow for standards and assessment of educational achievement to be created. One example is GreenComp, a reference framework



Students learn about the importance of sustainable living and growing your own food, Thailand



Primary school teacher encourages students to talk about sustainability issues

created by the European Union to outline guidance for educators in teaching sustainability awareness. GreenComp organizes competencies under four categories: embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability. GreenComp uses descriptors to define these competencies, so for example, learners are assessed in the area of embracing complexity in systems according to their knowledge, skills, and attitudes. Students are measured against descriptors such as: “knows that every human action has environmental, social, cultural, and economic impacts,” and “can describe sustainability as a holistic concept that includes environmental, economic, social, and cultural issues” (Bianchi et al., 2022, p. 20).

To date there is no overarching framework for designing courses of study that straddle both environmental competencies and language outcomes. Attempts are underway. In their article, “ELTCanDoEco,” Katherine Bilsborough and Ceri Jones invite teachers to write “Can do” statements to describe basic eco-literacy competences, such as “*explain* reasons why social practices have a significant carbon footprint” and “*outline* actionable solutions to

address local issues of unsustainability” (Bilsborough & Jones, 2021). Notice the communication implications of *explain* and *outline* in these statements. In ELT, it’s not enough to “know” about sustainability; you need to be able to communicate about it, too. The identification of clear learning goals that relate to language learning is a start, but there is still much that can be done to knit together ELT and environmental studies.

There is no widely recognized course in climate education for language teachers in the way that there are with business English or teaching younger learners. If you want to specialize in sustainability language education, you need to go it alone. Neither are there published sustainability word lists containing useful language to describe environmental issues. Any initiatives to fill these gaps would be very welcomed by ELT teachers.

What are the main challenges presented by CCE in ELT? And how can we overcome these challenges?

Lack of expertise. Teachers feel poorly equipped to deal with climate change in the classroom. According to the Shift survey, 55% of teachers feel they have not received sufficient training (Barkway & Mai, 2022), and

that figure rises to 67% in the British Council report. Nevertheless, language teachers' existing skill sets mean that they are ideally suited to creating speaking opportunities, setting up inquiry-based projects, and facilitating communication. Consequently, the language classroom is an ideal space to allow learners to express their opinions and report their findings. CCE provides a rich source of authentic communication tasks, such as finding out the environmental cost of a product, or presenting ways to *green* the classroom. Notice that in projects and activities of this nature, teachers do not need to be experts in environmental issues to allow their students to grow their knowledge.

Climate anxiety. Defined as a condition in which someone feels frightened or worried about climate change, climate- or eco-anxiety is often seen as something negative and to be avoided, especially in young-learner classrooms. However, anxiety isn't alleviated through silence and denial, it is increased. Anxiety is a healthy response to the climate situation; indeed, a lack of anxiety suggests a lack of understanding of the consequences of global warming.

While many students may feel pessimistic or anxious about our planet's future, teachers can provide a counterpoint by adopting a hopeful approach that seeks solutions and positive actions in their learning

outcomes. Here, Eric Liu, founder of Citizen University, makes a useful distinction: "To be optimistic is to assume things will work out. To be hopeful is to realize things can work out if you work at them. Hope requires responsibility and agency; optimism relieves us of both" (Liu, 2018).

It is possible to be anxious about the future, yet at the same time hopeful. Liu's quote serves to remind us that hope is fostered through empowering learners to become change makers, and that meaningful action inside and outside the classroom is the means to making a difference.

Lack of integration and relevance. Climate issues are often presented in courses as a separate topic, situated in units or discrete lessons on "The Environment," with clichéd images of pollution from smokestacks and texts that fail to discuss the relevance of such far-away stories to the students' lives. The good news is that in this regard, educators and publishers are developing new pedagogies that show how climate change touches many of the topics that fall within a standard curriculum—travel, work, fashion, sport, etc.—by embedding sustainability issues throughout courses. In addition, by personalizing topics (asking learners about their lives, friends, cities, and so on), learners are encouraged to see the relevance to them.



Cycling to school can help build students' awareness of environmental issues as well as reducing emissions

What are the implications?

Global warming is a visible force. We can see its effects on our landscapes, in our jobs, in our schools, and in our homes. Climate change and the debate surrounding it is similarly a constant undercurrent, penetrating every media platform we consume. ELT instructors can play a key role in helping students develop language skills to participate in the climate change debate. Preparing learners to be a part of this ongoing conversation and to act with informed awareness is the very basis of

education. Bringing climate change discussions into the ELT classroom will help students develop their voices for sustainability discussions outside of class.

What are the principles of lesson design for CCE in ELT?

From the preceding observations, we can arrive at a set of instructional design principles. We propose the following set of characteristics for CCE lesson design in the ELT classroom:

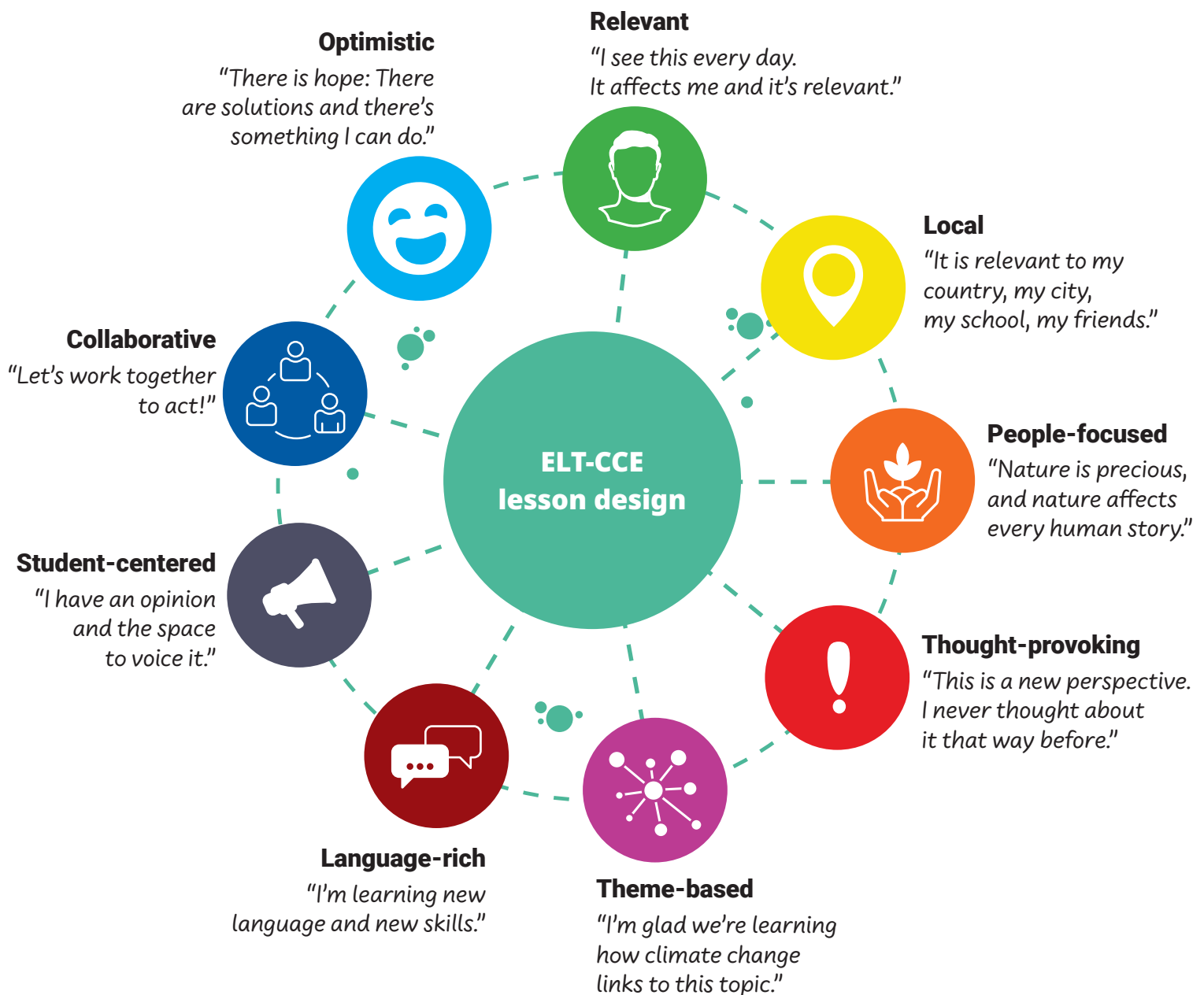


Figure 2: Lesson design approach: climate change education in ELT

How can we incorporate CCE in lessons?

Here are four strategies for effectively addressing sustainability issues in ELT classroom lessons:

1. Discussion slot. One idea is to use topics as a springboard to explore CCE through class discussions. Imagine the topic is clothes and fashion, and this particular lesson is on jeans and how they are made. The text the students will read makes no mention of the environmental impact of denim manufacture. The teacher takes a few minutes to prepare some questions for the students to talk about after the reading. The teacher dictates these questions, then puts students in groups to discuss.

- *How many pairs of jeans does your group own in total?*
- *It takes 45,000 liters of water to make a pair of jeans. How many Olympic swimming pools did all your jeans use?*
- *Where do you think this water is used in the manufacture of jeans? How could you find out?*
- *What can we do to reduce the cost of our clothes on the environment?*

Notice that the first questions personalize the topic; then students are actively working on a problem and discovering answers for themselves. Finally, they are asked to consider potential actions they could take. Meaningful discussions serve to promote communication and collaboration between learners, and exercise their critical thinking skills.

2. Using an image. Photos, infographics, and other visuals can directly raise awareness of the issues of sustainability on familiar topics. For instance, this photo could stimulate critical thinking when paired with an article on contemporary fashion trends.



Fashion waste piled and ready for disposal, Jakarta, Indonesia

As before, the teacher would prepare questions to prompt students to think about the overall effect of this striking image, such as:

- *How does this image relate to today's lesson on contemporary fashion?*
- *What's your personal reaction to seeing this photo?*
- *What creative solutions do you and your classmates have for re-using this fashion waste? List five ideas.*

3. Inquiry-based task. In the third strategy, the teacher provides students with a research challenge on the topic of fashion, calling on them to deploy their communication, collaboration, creativity, and critical thinking skills.

Find out the cost to the environment of a pair of jeans. Present an action plan based on what you have learned to reduce this cost.

This activity is something students can do in pairs or groups, or they could be given different tasks, for different items of clothing, for example.

4. Taking action. Finally, projects provide students the space to research, express their opinions, and initiate solutions-based schemes. Students could start a school clothes swap to reduce waste, organize an awareness-raising event, or upcycle old clothes. The teacher's first role is to explain the process: outline the scope of the project; brainstorm and agree on possible action points; implement the project; and assess its

success. Then, teachers must facilitate each stage in order for students to find their expert voices and develop their ideas. Many ELT coursebooks include carefully scaffolded projects, such as the example below, designed to develop students' environmental literacy skills.

Projects promote collaboration, communication, and creativity, and are action based, with positive practical outcomes. Importantly, they get students activating their English in ways that they might not get the chance to in normal class lessons.



Upper Primary students collaborate to learn about environmental issues, Czech Republic

PROJECT
Make a world map of water.

- 1 Work in a group of three.
- 2 Research two bodies of water in the world, such as rivers, lakes or oceans. You can include waterfalls.
- 3 Write a short summary about each body of water.
- 4 Print or find a world map. Stick each summary at the location of the body of water.
- 5 Add photos and pictures to your map.

Our World Map of Water

The Amazon River flows more than 4,000 miles from the Andean Mountains to the Atlantic Ocean in Brazil. The river curves through the rocks along the way. It also changes speed and colour! Near the city of Manaus in Brazil, you can see dark and white water flowing side by side for 16 kilometres!

The Caspian Sea is the largest lake in the world. It is a saltwater lake. It is 380 thousand square kilometres. 29 rivers flow into the Caspian Sea. It is bordered by Russia, Azerbaijan, Turkmenistan, Iran and Kazakhstan. It is the only saltwater lake that has seals. Caspian Seals are very odd!

The Caspian Sea is the largest lake in the world.

Now I can ...

- learn about different types of water.
- describe recent activities.
- talk about saving and wasting water.
- use numbers and facts to explain things.

74 Unit 4

75

An activity that focuses on protecting our oceans from the *Our World* ELT program (National Geographic Learning)

What should schools and other institutions consider?

Looking at education more broadly, there are actions institutions may take. For example, some schools have adopted *green charters*, or formal statements, that lay out their intentions and strategies as an organization to reduce their environmental impact. These may be declarations made independently of any standardizing body, or generated through association with official bodies that recognize their efforts. Green Standard Schools is a not-for-profit association of language schools committed to protecting the environment, which has developed policies and practices that institutions can adopt and adhere to, and which awards them with accreditation.

English language examinations include climate and environmental issues in their tests, and key words, such as *climate* and *global warming*, feature on vocabulary lists in even relatively low-level exams. As such, the inclusion of climate change vocabulary and concepts on high-stakes English exams will be reflected in general and exam preparation



School clean-up projects demonstrate the importance of working together to achieve environmental change

courses, as candidates must study the language of climate change. And there's an additional silver lining: The move toward offering online versions of high-stakes tests will lower the carbon footprint of paper-based testing, test centers, and the travel involved in taking and administering exams.

School-wide projects and community service activities in the local area can offer learners enriched practical learning experiences. These might include plastic clean-ups, conservation action, and awareness-raising events. Not only can such events provide authentic, real-world practice of English in giving presentations, designing websites, conducting surveys, and so on, they have the potential to bring school members together in meaningful participation and the shared meeting of goals.

What's on the horizon?

The science of global warming is clear. As climate change awareness increases globally, we can expect to see a much greater focus on climate action in all areas of life, including English language education. Below are a few predictions of what we will see in ELT in the coming years:

- increase in climate-related content in courses, lessons, and examinations;
- formal recognition of the need for climate-change ELT professional development, through initial training and in-service training;
- development of a branch of ESP (English for Specific Purposes) around climate change and environmental sustainability, with courses expressly designed for this purpose;
- development of coherent frameworks for sustainability education, built on existing eco-literacy frameworks but integrating linguistic competences; and
- action research by teachers in their own classrooms, such as trialling new lessons, assessing emotional responses to climate themes in learners, and evaluating the outcomes of environmentally themed projects.

How can we take action?

To promote further exploration and discussion for you and your colleagues on the issues raised in this paper, here are some questions to guide a conversation around the topic of CCE.

1. What role does climate change currently play in our students' lives? How can we support students in learning more in a supportive atmosphere?
2. What are the most relevant and impactful environmental issues that affect the learners' local area and home country? How can we raise awareness of these issues and the part our learners might play in tackling them?
3. Which cultural factors arise when discussing climate change in our classrooms? Is there more we can do to support one another to handle these cultural sensitivities?
4. What misgivings do we have regarding the adoption of CCE? Lack of training? Uncertainty around content that could be seen as political? Our own climate anxiety? What support could be helpful in overcoming these obstacles?
5. What climate education projects would our students and our school like to take part in? What actions might benefit students, parents, the school, and the local community?

Where can we find additional resources?

For a wide range of lessons and other resources around the theme of the UN's SDGs, visit The World's Largest Lesson. <https://worldslargestlesson.globalgoals.org/>

The British Council's website dedicated to climate action in language education offers a wide range of training, events, lessons, and other resources that are designed to help teachers explore and support positive climate action in their schools. Visit the Climate Connection. <https://www.britishcouncil.org/climate-connection>

To find a community of English language teachers with a shared interest in teaching sustainability and helping the profession to become part of the solution, join ELT Footprint (on [Facebook](#) and [LinkedIn](#)). Also find materials, links and other resources on their website. <https://eltfootprint.org>

To find out more about integrating sustainability issues into the ELT classroom, read this National Geographic Learning series of blog posts:

<https://infocus.eltngl.com/tag/sdgs/>

Also, watch this webinar: <https://webinars.eltngl.com/7-novemberstrategies-for-engaging-sustainability-lessons-in-the-english-classroom/>

For webinars on topics related to climate and ELT, or for support for schools in the UK who want to adopt climate-friendly policies, go to Green Action ELT. <https://green-action-elt.uk/>

For more accreditation for schools on how to be more sustainable in reducing emissions, consumption, and their carbon footprint, visit Green Standard Schools. <https://greenstandardschools.org>



About the author

Daniel Barber is an English teacher, teacher trainer, and materials writer. He has taught in Mexico, the UK, and Spain and written for many publishers. Daniel speaks and writes regularly about the role English educators can play in addressing the consequences of unsustainable human behavior—and to protect the natural world. Daniel is the co-founder of ELT Footprint, an online community for sharing projects, initiatives, and materials supporting climate change education.

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Barber, D. (2024). *TIRF insights: Climate change education*. TIRF & National Geographic Learning.

Credits

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