**Environmental fragility and English language education**

**Introduction**

*We as leaders of countries will begin to witness what we call climate refugees moving – you think migration is a challenge in Europe today because of extremism, wait until you see what happens when there’s an absence of water, an absence of food, or one tribe fighting against another for mere survival.*

John Kerry, U.S. Secretary of State, August 2015.

John Kerry’s statement was made at a conference on global leadership in the Arctic and focused, in part, on the dire effects of climate change in that region. In this part of his address, Kerry refers to the challenges posed by recent refugee movements from the Middle East into Europe, ostensibly as a consequence of ‘extremism’, and suggests that climate change and environmental degradation will lead to even greater instability, violent conflict, and movements of people across the globe in the near future. In this chapter, I explore some of these complex links between environmental degradation and migration, and consider the implications for English language education to promote environmental awareness and intercultural understanding, and to work towards stability and sustainability in a fragile world.

**From the Middle East and China to Sydney, Australia**

In November 2016 a leading global education provider issued an urgent call to recruit English language teachers for its Adult Migrant English Program located in South Western Sydney. Two colleges in that region were experiencing a rapid growth in student numbers as refugees from the conflicts in Iraq and Syria were arriving in their new home as part of Australia’s promised one-off intake of 12,000 additional refugees from those two countries. The promise to accept an increased number of refugees had been made by a Conservative national government in September 2015, at the same time as it announced increased Australian air strikes across Iraq and Syria in response to escalating civil and military unrest and in the wake of violent incursions by rebel and terrorist groups including Daesh (Islamic State) (Henderson & Borrello, 2015). These links between the rise of terrorism, Australian military operations, and the unprecedented flood of refugees into Europe from the Middle East were foregrounded by Australian news media. In contrast, the underlying problems of environmental degradation and climate change as contributing factors in civil conflict and mass migration received relatively little attention. The problem of forced migration, particularly the post-9/11 era, thus continues to be seen through a narrow security-specific lens, while considered discussion about climate-induced displacement has been conspicuously absent (Dumaine & Mintzer, 2015; Held, 2015).

A similarly complex combination of factors has also featured in a far larger voluntary movement of people to Australia from China over recent years. On the one hand, in 2015 over 136,000 Chinese students were enrolled in Australian educational institutions: Chinese students now comprise over 27% of all fee-paying international students, the highest of any nationality (Colbeck, 2016). While many such students will eventually return to China, many enrol in degree programs that will enhance their prospects of migration to Australia. At the same time, Australia has become one of the destinations of choice (along with the USA, UK and Canada) for wealthy Chinese who, in the wake of rapid industrialisation and environmental degradation, cite pollution and food safety concerns as main reasons for emigration (Hurun Report, 2014). Australian media reports about Chinese student numbers tend to focus on the economic value of our international education sector, while news reports about wealthy Chinese property investors reflect concerns about the impact on Australian property prices. Yet again, in these reports the more complex underlying environmental factors that affect people movements are overlooked.

While migrants from Syria and China appear in English language classes in Australia, many more instances of environmental migration are occurring in all regions of the world. It seems that environmental migrants, whether wealthy or poor, voluntary or involuntary, within or across national borders, may come from any strata of society.

In this chapter, I want to first explore some of these complex links between global instability, environmental degradation, and patterns of migration, and to consider the implications for English language education. More specifically, I want to consider the ways in which English language educators might take up the challenges of living in precarious times, to focus attention on environmental crises, and thereby play an important role in building a safe and sustainable environment for present and future generations.

**Environmental degradation and humanitarian crises**

Since the end of WWII, environmental degradation on a global scale has accelerated in the wake of an exponential rise in global population, massive resource-intensive growth in the developed world, and intense industrialisation in Eastern Europe, China and other parts of Asia (Held, 2016). In the 21st century environmental pressures are set to intensify as the global population continues to expand, urbanisation intensifies, and consumption in developing countries increases rapidly, with consequential demands for energy, water and biological resources. Ensuing environmental problems, including pollution, the destruction of natural resources, the loss of biodiversity, and climate change pose great risks for human security, safety and stability. As a consequence of climate change, violent storms, floods, and droughts are becoming more frequent, water access is becoming a battleground, and rising sea levels may displace millions of people from their homes. Changes in agricultural practices, including the replacement of sustainable farming with monoculture cash crops and intensive animal agriculture, have further contributed to greenhouse gas emissions and land degradation. The combined impact of climate change, ecosystem degradation, and the exhaustion of natural resources means that many regions of the world are becoming in inhospitable for human life (Stibbe & Luna, 2009).

Over recent decades, evidence has emerged of the contribution made by climate change and environmental degradation to state fragility, conflict, and migration (see, for example, Ferris, 2015; Kärlin & Schrepfer, 2012; Kolmannskog, 2009; Walker, Glasser & Kambli, 2012; Werrell & Femia 2015; Werz & Hoffman, 2015). Temperature rises related to climate change and increased aridity across the Middle East, Africa and Asia, for example, have led to desertification and depletion of water and food resources and, in concert with significant increases in the likelihood of war, have prompted massive population displacements. Those fleeing such disasters are known as ‘environmental refugees’, a term coined in 1985 and highlighted in a report by the Intergovernmental Panel on Climate Change which stated that ‘the gravest effects of climate change may be those on human migration as millions will be displaced’ (IPCC 1990: 20).

In Syria, one of the hardest hit nations, extreme drought in 2007-2012, intensified by human-induced climate change and the mismanagement of natural resources by the government, contributed to ‘the most severe set of crop failures and livestock devastation in its modern history’ (Werrell, Femia & Sternberg, 2015: 32). The depletion of water supplies and consequent loss of livelihoods led to a mass exodus of around two million farmers and herders to urban areas, in turn fomenting political unrest and eventual civil war. Accordingly, control of the region’s dwindling water supplies in these arid regions has been a major strategic priority for multiple government-backed and rebel groups fighting in Syria and Iraq (Vidal, 2014). In China, too, droughts and desertification have become major problems that threaten economic and political stability. Growing deserts produce dust storms that engulf industrial regions and degrade air quality in the cities, where pollution has become a major cause of domestic protests (Luedi, 2016). Creeping desertification also swallows thousands of productive land every year and threatens the subsistence of about a third of China’s population, prompting a state-sponsored ‘ecological migration’ program to relocate millions of people from barren areas (Nieuwenhuis, 2016) and contributing, in turn, to social and political unrest (Luedi, 2016).

Although at the time of John Kerry’s speech military conflicts and rebel insurgencies across the Middle East and North Africa were readily recognised as the cause of unprecedented mass migrations from those regions into Europe, there is little doubt that environmental crises have also contributed to civil unrest and population movements from degraded regions across the globe (Hunziker, 2016; Lieberman, 2015). In recent years climate refugees and migrants seeking more stable environmental conditions have arrived in Australian waters and Australian educational institutions, but all areas of the globe, and all populations, are affected in one way or another. Climate change and environmental degradation can no longer be seen as solely scientific phenomena requiring technical solutions, but need to be recognised as a social and political issue affecting all aspects of human development.

**Environmental issues and English language teaching in texts and tasks**

Given the fragile and shifting conflicts that affect global populations, and in light of the combined effects of military conflict and environmental degradation, all those involved in English language education need to consider how we might contribute to building a safer and more sustainable world and how English language students – wherever they may be – might be encouraged to analyse, understand, and act on environmental problems. I have written elsewhere (Appleby, 2010; Nelson & Appleby, 2015) about the ways in which military conflict and refugee movements play out in English language education – in the field of conflict, in countries where refugees settle, and in countries that participate, however tangentially, in conflict or peace movements – and the need for teachers to engage critically and creatively with English and/in conflict as an integral part of contemporary global sociopolitics. In the remainder of this chapter I shift my focus towards the related issue of the ways in which English language education can serve to promote intercultural understanding and awareness around environmental issues in a time of global environmental crisis.

While environmental topics have been long been included in English language curricula, the extent and significance of environmental crises in the 21st century represent a more pressing concern for all English language educators. The limitations of a single chapter do not allow for a comprehensive review of literature on environmental education in English language teaching. Within this chapter, then, I will focus initially on the way environmental topics are typically presented in English language textbooks: after all, as Forman (2014) points out, for many teachers and students of English across the globe, ‘the textbook *is* the curriculum’ and many of the textbooks used, both in the developed and developing world, are of Western origin. Along similar lines, Akcesme (2013: 97) suggests that given the widespread consumption of ELT coursebooks, they potentially have the ‘widest readership among academic publications’ and thus represent an ideal forum for ‘bringing into focus environmental issues and problems’. However, because of this wide readership coursebooks can also spread harmful Western-centric discourses in relation to environmental issues, acting as ‘a Trojan horse for spreading the values’ such as consumerism, neoliberalism, and progress ‘that led to environmental destruction in the first place’ (Stibbe, 2012: 8).

Important early studies of linguistic features in environmental education texts noted that environmental problems are typically presented as ‘pre-packaged nominalizations’, such as ‘habitat loss’ and ‘deforestation’, and grammatical agents for these problems are either absent or ‘generic and indeterminate *people*’ (Schleppegrell, 1997: 64). The overuse of abstract nouns and nominalisation, together with the lack of explicit agents, can serve to hinder students’ understanding of complex environmental problems and diminish students’ ability to envisage practical solutions (Chenhansa & Schleppegrell, 1998). (For a more detailed analysis of English linguistic features that shape and limit apprehension of environmental issues, see Stibbe, 2012).

Building on these linguistic insights, several analytical studies have specifically examined the way environmental issues are presented in English language teaching textbooks (for example, Jacobs & Goatly, 2000; Stibbe, 2004; Xiong, 2014). These studies have shown that explicitly environmental topics are included in many ELT textbooks, though they tend to comprise only a small percentage of the total content in each textbook. More significantly, these studies demonstrate that a form of *shallow environmentalism* characterises the treatment of environmental topics. Shallow environmentalism, according to Stibbe (2004: 243), addresses environmental degradation as a set of physical symptoms (such as acid rain or rising sea levels) that can be resolved or ameliorated by technological intervention (such as more fuel-efficient cars), but refuses to address the underlying cultural, social, economic, political and psychological causes, such as consumerism and the addiction to economic growth. Stibbe (2004: 243) contrasts this superficial approach with the *deep ecology* movement which calls for ‘cultural and political change at the most fundamental levels of society’. As Stibbe explains, if a deep ecology perspective were to be incorporated in ELT, texts could draw on alternative nature-centred knowledge systems – such as those alive in many Indigenous cultures – thereby opening a space for dialogue between competing representations of the environment. It is this emphasis on dialogue across competing perspectives that Stibbe sees as fundamental to raising awareness and understanding about environmental problems and as a means of introducing alternatives to taken-for-granted ways of viewing and behaving in the world.

While these analyses have been useful in shedding light on the harmful discourses that are spread through seemingly innocuous textbook topics, Stibbe (2012) warns that privileging discursive analysis of texts may not further the goal of facilitating readers/students towards a practical, material engagement with their own environments. Along these lines, some studies have investigated opportunities for environmentally focused task-based learning in English language education that involves both text-based and activity-based pursuits. In an effort to involve students in their own investigations, Haig (2003), for example, reports that his students in Japan were provided with techniques based on critical language awareness for a collaborative activity in which they examined the way environmental topics were represented in global textbooks. Shifting the focus from global to local issues, Nkwetisama (2011), based in Cameroon, recommends generating English learning tasks that shift students’ focus to specific local environmental problems by collecting and sharing media texts available to teachers and students and of relevance to both local and regional concerns. Taking a more explicitly experiential approach, Calvert (2015) describes an EAP class activity where learning English was woven into a series of field trips to organisations whose work supported marine protection and environmental sustainability within a local coastal community. And in an approach that focuses on active participation, Cutter-Mackenzie (2009) in Canada, and Tangen and Fielding-Barnsley (2007) in Australia, report on school garden and worm farm projects in which young ESL migrant and refugee students plant and harvest vegetables in conjunction with in-class lessons on nutrition. The rich range of activities associated with these projects provide ample opportunities for positive student interaction around shared endeavours in outdoor pursuits. These activities released students ‘from the intensity of classroom seatwork where their lack of proficiency in the English language and learning is revealed’, and helped them ‘feel safe and secure about their learning’ and language development (Tangen & Fielding-Barnsley, 2007:24). These projects also facilitated home-school connections and drew on the cultural backgrounds of the migrant students by including community members in the school activities and creating a new sense of place-based belonging for refugees dislodged from their birthplace.

**A material and textual case study with an EAP class in Australia**

My own pedagogical project to combine environmental inquiry and language development was undertaken in an elective EAP subject for international students at an Australian university. This subject sits within a program that takes Australian Studies as the content for language and literacy development. In this class, where the particular focus was on ‘Natural Australia’, all the students were Chinese, not an unusual occurrence in Australian universities where China is the dominant source of fee-paying international students. Many of these students enroll in tertiary education in Australia with the hope of qualifying for immigration on graduation. These students were undertaking degree courses in a range of disciplines across the university but were enrolled in my subject with the aim of improving their academic English literacies. Although the approach I describe here is designed for EAP study in higher education, it could be easily adapted to other EFL and ESL contexts at any level, or integrated into any number of disciplinary study programs in schools or colleges.

*Environmental education in China*

In China over recent decades there has been a rising concern about environmental consequences of rapid industrialisation; however, as in many nations including Australia, at government levels there is continuing conflict between the aims of economic growth and environmental protection (Tian & Wang, 2016). Nevertheless, environmental education is ‘high on the agenda’ in China and features, to a limited extent and with government encouragement, in a range of EFL school textbooks (Xiong, 2014: 233) and in college English programs (Li, 2013). Since my students had undertaken most of their formal education in China, I expected that learning about environmental issues in an English language and literacy class was nothing exceptional; indeed, I was more concerned that environmental topics in most language textbooks, including those developed and used in China, had become rather clichéd, and so the challenge for me was to counter the potential problems of ennui in the face of environmental education overload.

*Local environmental engagements as prompts for pedagogy*

My aim, then, was to develop an approach that avoided the problems of place-less-ness, abstraction, anthropocentrism, human-nature separation, and the one-way communication of facts and solutions that have been recognised as typical of the way environmental topics are presented in ELT textbooks (Stibbe, 2004; Xiong, 2014). I wanted to model for my students a real, material sense of my own human entanglement in the living ecosystem of the planet; the way that curiosity and a deep sense of place can serve as the basis for research inquiry; to model the feminist principle that the personal is political, and to demonstrate the value of attending to different voices, disciplinary perspectives, and modes of expression that enrich and disrupt our understanding about our place in the world. Borrowing from Haraway’s (2008) and Gruen’s (2015) notion of the environment as an overlapping series of complex *entanglements* between species (human and non-human), objects, and technologies in interdependent ecosystems, I would call this approach a form of ‘entangled pedagogy’.

I chose a phenomenon that was of immediate interest to me in my daily life as an open water ocean swimmer: that is, my puzzlement over what we should think and do about human-shark encounters. Sharks represented a issue of concern where my commitment to environmental protection was being tested. Before I describe how this became a focus for teaching and learning, a little background is needed.

In 2014-2015 Australian media had been flooded with sensational accounts of shark attacks at Australian beaches, reaching alarm proportions when, at the beginning of the teaching semester, a live broadcast from a surfing competition captured a great white shark attacking a champion Australian surfer at a competition in South Africa. Businesses in Australian coastal locations where great white attacks were prevalent called for immediate action to control the sharks by any means, and the State Government organised a summit of experts to determine the best way to manage the increase in shark attacks. There was widespread discussion of proposals to extend the use of shark nets off popular beaches, consideration of various technological tracking and tagging devices, and some calls for revenge-style baiting and culling of sharks. But great white sharks are categorised as an endangered species in Australia: their numbers have declined steeply due to overfishing and entanglement in nets, so they are now protected under government biodiversity conservation legislation. With environmental protection in mind, pro-shark protesters organised ‘No Shark Cull’ rallies and argued against the use of shark nets because of their deadly effect on a great variety of sea animals.

As a regular ocean swimmer I was puzzled by the ardour of the pro-shark protesters. Although I saw harmless sharks swimming below me every day, I was concerned that the removal of shark nets may expose humans (like me) to more dangerous shark species such as great whites. My own curiosity about this situation, about the different perspectives put forward, and the dangers various responses might pose for me – or for the sharks – drove my desire to find out more and to stretch my own environmental education. This was my puzzlement, and my point of resistance to my relatively unquestioning empathy with other animals in the natural world around me.

*Textual analyses*

In the classroom, I explained to my students my own interest in the phenomenon and brought to class a range of texts in which various perspectives on human-shark encounters were represented. These fell into three groups, representing three broad genres: first were the popular news media reports of the recent shark attack on the champion surfer; second were short research-based articles in *The Conversation* (a free online forum where academics respond to current events and debates) based on the same event but from a very different perspective; the third were traditional research articles about human-shark interaction and published in academic journals. My aim in presenting these varied texts was to investigate, together with my students, the different perspectives represented and the various ways in which language was used to support those perspectives.

My students and I collaboratively analysed the shifts in language that occurred across these three groups. In the daily news media (Knox, 2015; Walker, 2015), sensationalised emotional language and personalised narrative structure produced androcentric accounts that foregrounded the inevitable harm to surfers and swimmers, and eventually to coastal tourist businesses, as a consequence of shark encounters. In these texts, sharks were represented as terrifying killers, humans were represented as innocent victims, and the only logical response to human-shark encounters was fear and revenge. These texts are typical of the way sharks are represented in popular mainstream media, and as such they are representative of a hegemonic discourse that shapes the way people commonly view sharks in Australia.

In contrast, the articles in *The Conversation* (Burgess, 2015; Gibbs, 2015), written from a scientific perspective,demonstrated a clear shift towards the linguistic features typical of academic style and a scientific register which, while lacking in emotional drama, was appropriate for a carefully considered, rational, conservation-based argument – based on hyperlinked research data – that sharks, as apex predators, were essential for healthy marine ecosystems. Indeed, the articles pointed out that many shark populations were under threat from human predation and that the sharks most often involved in fatal interactions were now protected species.

Moving further away from immediate local events, the traditional research articles we examined (for example, Muter, Gore, Gledhill, Lamont & Huveneer, 2012) exemplified for my students the typical genre stages and lexico-grammatical features of a research report: here, sharks had become ‘chondrichthians’, individual white male surfers with names had been replaced by ‘the public’, and human narratives about specific shark encounters had been translated into ‘international policy discussions’. Qualitative and quantitative data had been collected, coded, and crunched, results tabulated and trends identified, and more than fifty research sources were cited. The abstraction, as we could see , was completed in these research texts, but the very immediate, visceral entanglement of individual human and shark had disappeared. Before us was the shift from intimate, place-based encounters (including my own) to abstract, scientific writing based on research evidence.

Beyond our concern with language, this process of inquiry – based on personal experience, moving through analysis of various texts, and engaging with the different disciplinary and cultural perspectives put forward in our classroom discussions – led my students and I to a better understanding of, and respect for, sharks in Australia. Our knowledge of the centrality of sharks in healthy marine ecosystems was greatly enhanced, along with an appreciation of the importance of protecting species we might otherwise have simply feared. The process of inquiry and discovery improved our understanding of a difficult environmental issue, moving us one step closer to living in harmony with the world around us.

*Student inquiries into the environment*

In the next step of discovery, my students were encouraged to identify their own personal encounters, puzzlements, or points of resistance in their engagement with the natural world around them. What did they observe and wonder about in their surroundings? What doubts and questions did they have? How were these concerns represented in various texts? These were the points of departure for individual students in their own research inquiries. The most successful student projects were, in my opinion, those that deepened their understanding of the environment and the need for environmental protection by taking up the challenge to pursue an enigma, a problem or inquiry based on direct personal experience or observation. One Chinese student, for example, had been fishing with her family in Sydney waterways when they were approached and reprimanded by a ranger who explained that fishing in that particular location was prohibited because it was a aquatic reserve. Although fishing was a familiar pursuit for her family in China, as it is in many locations in Australia, this was a new experience that provoked her curiosity and prompted her inquiry into the rationale for marine and aquatic reserves in some parts of Australia. In her analysis of collected texts, she identified the distinction between fishing as leisure or sport, and fish as key players in conserving healthy aquatic ecosystems. Her final report, in which she synthesised findings from the texts she had collected, demonstrated a new outlook on aquatic conservation and her presentation to her peers was passionate in its argument for marine protection. In this example of language development, we discovered how research inquiry based on personal experiences could shift an otherwise anthropocentric positioning towards a greater understanding of one person’s place in, and effects on, the natural world, and ‘how we must act as a consequence’ (Haraway, 2008: 260).

More broadly then, this small project drew on our personal experiences together with analyses of textual representations, and encouraged students towards a more explicit engagement with the natural world around them. The project modelled an environmentally focused, embodied, inquiry-based learning that leverages the power of genre analysis and serves as an example of entangled pedagogy. It prompted examination of the varied ways in which social, cultural, economic, and political interests engage with and affect the natural environment, and provided opportunities to share learning and new ideas amongst peers, thereby fostering empathy and intercultural understanding around issues of environmental sustainability. In a world where environmental degradation can threaten livelihoods and promote intercultural conflict, we share a responsibility to focus our attention and our educational endeavors on our own possibilities for environmental protection.

**Conclusions**

In our role as English language educators, and regardless of whether we are involved with recent refugees, migrants, or international students, it is important that we offer our students opportunities to address the pressing problems of our times and to work towards building a safer, more stable, and environmentally sustainable world. The approach to English language teaching I’ve described above is nothing radically new, but I hope it provides some impetus and inspiration for others to follow in a quest for better understanding of, and attention to, our various natural environments and the ways in which these underpin social, economic, and political stability. It shows how an inquiry-based approach, starting from the position of personal, place-embedded engagements, can provide a platform for intercultural exchange and a sharing of experiences as we explore beyond taken-for-granted meanings and practices. More broadly, such an approach can promote empathy for other species and open our minds to ways of living more harmoniously in a fragile, more-than-human world. This is an emphatically bottom-up approach, in a world where global problems such as climate change can appear abstract, complex and confusing, and where top-down government policies have been remarkably inadequate in tackling environmental degradation and consequent humanitarian crises. Our personal questions can, in this way, provide a pedagogical doorway into broader discussions about long term change towards environmental sustainability, and the importance of a healthy environment for safety, security and stability in an interdependent world.

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