Edgar A. Burns
The University of Waikato

CONFRONTING CLIMATE CHANGE

Culture, Denial, Recycling, Tree-Hugging

Many registers learning the seriousness of climate change

This chapter explores finding and developing different registers to convey environmental and climate messages to people with different levels of understanding and interest, both inside and outside educational settings. Finding entry points for communicating in multiple ways is more effective than only one or two strategies. Teaching and communication smarts mean gathering ideas from everyone—above us, below us, around us. The teacher is also the learner. This allows, even requires, revitalising and updating our own appreciation and connections to the environment. How do we get across the seriousness of climate change yet also spur people to action not fatalism?

DOI 10.18573/conf2.l

Burns, E.A. 2024. Culture, Denial, Recycling, Tree-Hugging: Many registers learning the seriousness of climate change. In: Bowell, T., Pepperell, N., Richardson, A., and Corino, M-T. (eds.). *Revitalising Higher Education: Insights from Te Puna Aurei LearnFest 2022*. Cardiff: Cardiff University Press, pp. 95-102.

Culture, Denial, Recycling, Tree-Hugging: Many registers learning the seriousness of climate change

Introduction

Teaching or communicating the seriousness of climate change involves energising learning about the environment at many different registers. In this exploration of ways to overcome barriers to environmental education, four starting points inform the conversation: culture, denial, recycling, and tree-hugging. Other educators and communicators will find their voices in different ways, at registers meaningful to themselves and to those they are speaking with. From these starting point examples, this chapter explores an active style of personal learning about climate information and communication practices, bridging listeners to the urgency for climate action (Creutzig & Kapmeier 2020). The reality is that this is an absolutely important topic of concern for humans (Duram 2021). General inattention to the seriousness of climate change, or feelings of hopelessness about how serious climate change is, are both significant pivot points for educating about climate change and the coming consequences of our collective failure to act.

This chapter explores the idea of constantly finding and developing different registers to get key environmental and climate messages across to people with different levels of understanding and interest, inside and outside educational settings. When I refer to the many registers, the nuances, of how we endeavour to communicate this seriousness to students, colleagues, families, and in public venues, I am acknowledging the complexity of getting the climate story across. Each person who tries to do so, in different contexts, for different audiences or readerships, develops their own ways of meeting this communication need. This is a pedagogy of active learning for those of us imparting the climate message. Given the rapidly changing knowledge about climate change and its human impacts, educators and communicators are themselves necessarily involved in a learning process. This involves the *substance* of the speed, urgency, and consequences of environmental change, but also how to *bridge* that understanding to those around us, in classrooms and the wider community. Finding entry points for communicating in different ways, at different registers, will be more effective than only one or two strategies.

Like any instruction, do we speak to the top, the middle, or the lowest common denominator of any group or class? If it is the seriousness we want to communicate, how does our manner get past the formality of learning to enliven the challenge, especially to a younger generation who will inherit what is left of the earth?

For too long the societal context of denialism and lack of focus on environmental issues has left a trail of misinformation about climate change and inadequate awareness that humans are part of nature, depending on water, air, land, and other species on earth, from our personal biome to soil's living biota, for our very being.On a finite planet, the 100 billion tonnes, and rising, of material humans use each year is a problem in multiple ways (Carrington 2020). First, the amount of fossil fuels (coal, oil, and gas) used by humans as an energy source has created an accelerating loop of heating the blanket through the wrapping effect of greenhouse gases (GHG) and water vapour in the atmosphere. Second, the sheer quantum of material extracted from the earth is at odds with the enormous figures we hear from time to time about the plenitude of megalitres and megatonnes of various resources like cement, water, coal, and iron ore. Actually, on a small planet less than 13,000 kilometres in diameter (Gerretsen 2023), the 'great acceleration' of material use over the last 100 years has seen humans—no other species are causing this—push past the sustainable limits of consuming the earth. Third, the rapacious lust for fossil fuel energy, and the gargantuan and growing human appetite for resources, degrades the environment in ways that will be harmful to humanity's future. Fourth, even as the consumption of earth's raw material accelerates, 'the proportion being recycled is falling' to less than 10% (Carrington 2020); aluminium drinking cans are now the largest single use of this element globally.

Modern societies are highly urbanised and education needs many strategies to communicate the importance of environmental issues at every level to open eyes to the importance and enjoyment of what nature provides. Developing teaching and communicating smarts means picking up ideas from everyone—above us, below us, around us. The teacher is also the learner. This allows, even requires, revitalising and updating our appreciation and connections to the environment. How do we get across the seriousness of climate change yet also spur people to action not fatalism?

What Culture, Denial, Recycling and Tree-hugging Open up

These four frames of climate change discussion are always implicit, if not said out loud, in any consideration of climate change.

Culture

As a sociologist I take **culture** to be the sum of all that we do in society, not what different-looking people in 'other' societies do, and not just 'high-end' culture—our education system, our consumer practices, kinds of work, and who is important and why. Yes, we can learn environmentally from Māori and other Indigenous peoples' culture of attachment to place and respect for nature; western secular society has largely lost its ancient roots of being stewards of the land (Stewart 2020). But a powerful cultural lens can teach us to look at what modern culture has become; how premodern values and desires have scaled with technology, often in ways countering human wellbeing.

Unnecessary consumption, wasting water, forgetting that we are biophysical creatures living in urban and digital bubbles

do not change the biophysical facts of our existence. Waking up to the recognition that our individual biomes contain more non-human cells that human ones is an early faint realisation that we forget our grounding in the environment at our peril (Collen 2016). Regenerative agriculture is also re-awakening farmers to the fact that the soil biota holds the secret to fertility, food production, and repairing water catchments (Burns 2021b). More living biomass exists in the first 30cm of the planet's soil than all the bigger creatures combined (Montgomery & Biklé 2016).

Denial

Learning about climate **denial** opens a window on the persistent array of political and corporate egregious self-interested behaviour: restricting uptake of the science, falsely interpreting the evidence of human impacts at scale on our planet. Rather that address social problems, the false belief that more growth will solve them is widespread and needs unlearning (Greiner & McGee 2019). In recent years the politicisation of climate change by business interests and billionaires has spread from domestic United States politics, undermining the global effort to give climate change the serious attention it needs (Leonard 2019). The younger generation coming through schools and universities today have learned a much greater awareness of our need to act to mitigate the worst consequences (Hayes & O'Neill 2021).

We will not change the opinions of the final 20% of climate deniers, but their voices are fading. The present is 'the quiet before' (Beckerman 2023) but we are still held in thrall by the dominant global corporates (Greenberg, Knight & Westersund 2021). We need to learn and teach beyond the usual denialist categories, adding other registers: banal denial may be non-ideological and non-political but disinclination to act is not the opposite of denial, just a bland version of it.

Recycling

Recycling often gets people doing something and starting to think and learn more. Those in an audience who have started to move towards doing the right thing in distinguishing household rubbish often find, when instructors say this is not simply a matter of wrong and right, that it echoes the sense of ambivalence they have already felt. First, we are all learning, seeing things we had never thought about, or recognised previously as waste or gratuitous consumption. Second, in washing plastic, the use of pumped urban water has to be weighed again the reuse of the plastic. Some find it surprising to learn that the nuclear option, favoured by some, is as Co2-producing over its lifetime as fossil fuel options. Food waste affects people at a different register: first the national figures in tonnes, or the millions of wasted loaves in a first world country; then the supply chain moving food around the world in shipping containers; and then overconsumption and fast-food industries. Thinking about waste and recycling at a different register, what should Great Britain do about its 2.5 billion one-use disposable coffee cups (Doward 2020)?

It is not just a matter of personal or family recycling. What about in-the-aggregate? A small country like New Zealand has five million people: what if everyone saved one kilo of Co2 per month? Could that be extended for a year? Do the maths; find a 'doable target'; create enthusiasm, get the mindset going that we are going to do this. We have to, we are committed to doing so. Maybe just a city or a region could start the ball rolling. What rules would be set to measure achieving this goal? A different way of thinking about recycling is the new practice of crushing and re-using concrete; or set student projects for dealing with the billions of worn vehicle tyres globally (Formela 2021).

Tree-hugging

Tree-hugging alerts us to the power of climate and environmental discourses (Risbey 2008). First, environmental activists act at considerable personal cost and vilification, but in the end the 'pen is mightier than the sword'. The common good of responding to climate heating trumps the greed of corporate self-interest (Ostrom 1990). Many websites do fantastic communication work to break the miasma of climate misinformation. The power of words and expectations motivates social change, inspires practices like pro-environment marketing, challenges greenwashing, and resists politicising climate innovation solutions (Montgomery, Lyon & Barg 2023).

'Tree-hugger' has been for a long time a term of opprobrium, dismissing conservation activists for their work. Some audiences I speak to are surprised to hear negative 'tree-hugger', 'greenie' terms and discourse reframed positively: tree-huggers have been and are the vanguards of our waking-up to the seriousness of climate change. We all need to find another step-change in our ordinary lives to do something for the environment. I know one of those tree huggers who now heads a government environment agency. Less travel is controversial, but it is one of the ways in which we can rapidly reduce our carbon footprint. Play with this question for audiences: how much Co2 is produced burning a litre of petrol? Answer, about 2.3kg. A better register that I have found to communicate the significance of this to students and public audiences is: for every 100 litres of fuel you use in your car—a Nissan Tiida does that in two fuel tank fills—you put nearly a quarter of a tonne of Co2 into the atmosphere. That one act, not the rest of your life's activities!

How is Climate Change Serious?

We have known about global warming a for a very long time. Eunice Foote's paper published in 1856 showed the impact of Co2 on heat absorption from the sun (Dee 2023). Since then, 'humans have generated 2,500 billion tonnes of Co2 into the atmosphere, much of it from burning fossil fuels' (Woodside 2022). Since the mid-20th century—our own or our immediate family's lifetime—the global scale of human consumption,

growth in population, and technological ability to mine, burn, fell, drain, fish, extract, and consume has come to be called the 'great acceleration'.

On any graph of human activity that you can think of—production, consumption, distribution, energy generation, or use of materials—the curved lines of the great acceleration go steeply upwards (Steffen et al. 2015). One key part of that acceleration is that some 40 billion tonnes of Co2 are being put into the atmosphere by humans (additional to what nature does) every year, well beyond what the planet can reabsorb even across multiple human lifespans. Nature will get there eventually, but in its own time, measured in millennia. The new equilibrium will be one that fits nature's adjustment to the altered hydrological, atmospheric, land-plant and ocean-circulation cycles. It will no longer match human familiarity with today's planetary environment (Friedman 2010).

Between the cultural drivers of modernisation, in the rush to utilise land, plants, and minerals (Weaver 2006), western culture 'chose' to disregard traditional knowledge about the environmental effects of human activity at scale (Carrington 2020; Chakravarty et al. 2012). Speaking sympathetically, humans, with the advent of modern technologies, have succumbed to the siren song of almost-free fossil fuel energy (Pirani 2018). Humankind has wedged itself. A more critical interpretation is that centuries of colonial extraction globally has transmogrified into a market fundamentalist ideology that today deifies the lust for profit and growth over anything else. A degrowth logic (Hickel 2020; Maier 2023) or proposals for a circular economy (Lacy, Long & Spindler 2020), or a green capitalism (Fox 2022), are blasphemy in the currently dominant economic-political worldview.

Our human species, even if it woke up enough to start taking massive and immediate action, has got itself into a situation that is irreversible, in human time scales— we will not be able to continue to live in today's intermediate mode between hot and cold, wet and dry. Along with ice-ages and other natural planetary cycles, the unbelievable possibility that we humans could change the earth has come to pass. We invented a new word for this, the anthropocene, as part of coming to realise that 'just-little-old-us' humans could have this much effect (Carey 2016). Even so, this understanding has had little effect on our continuing ill-defined belief that earth is somehow infinite in resourcing our species' desires. We humans are relative newcomers on planet earth. Today the momentum of human-induced climate change is compounded by the extent of this damage in multiple sectors, going beyond the planet's capacity to absorb the effects of what corporations *are doing*, and government are *not doing* to protect and build our common good (Ostrom 1990).

Joining Facts and People's Feelings

Reflecting on the statement in the previous paragraph, the phrase 'irreversible in human time scales' does indeed seem negative. No wonder people say to themselves, and sometimes to me, 'Well, that's it'. 'There's no use trying, then', or 'That's terrible, I feel powerless', 'That makes me feel hopeless, really'. The conversation is back to accusations of being negative, or at least comments like this make ordinary people feel like they want to give up. It is a such a fine line to ride in communicating, between comments that seem negative and avoiding dishonest, bland or up-beat explanations, under-playing that there are multiple indicators of how serious climate change is. How, instead, do you create positiveness, a sense of possible action, telling individuals they can do something? Further, how do you avoid the glib, the nice, the non-alarmist tropes in how you speak that amount to a kind of bland denialism? De facto denialism not from the audience, but from you the presenter or teacher! Now that is a reversal isn't it? Obviously, this is not climate denialism, which is something that we communicators are committed to overcoming. It is the subtler danger at a different register: climate-seriousness denialism.

So, it is something else that makes learning about the facts, the serious climate change facts and their implications, feel very negative to people. Actually, not just to ordinary people in the community, but even to educated people, who read a bit, who have had some further education or other exposure acquainting them with the realities of climate change. We could come back to that—it is the implications of my instructional narrative that are shocking because I have learned to tell it simply. Not too many caveats, not details of every type of GHG, not the indefiniteness of more frequent cyclones, and bigger and fiercer forest fires and heat waves. I continue working to refine all the facts and trends and opinions down to something as simple and direct as possible.

The persistence of climate-negligent actions by corporations continues to increase species loss, soil degradation, and sea-level rise the as earth gets hotter. This behaviour is rapidly worsening the emerging consequences, not ameliorating them. It is vastly more dangerous than public discourse acknowledges. Widening acceptance of this new realisation of our environmentally ominous future is like prizing open a clam or opening a locked strongbox. Something must be said about why are we not talking much more about this impending societal shift for humans. Collectively we edge sidewise into language like 'climate smart', 'zero carbon', 'emissions trading' and similar ideas, but when this is not acted on, such talk becomes greenwashing and disingenuous (de Freitas et al. 2020). These are very human responses that must be combatted to even clear a space to talk accurately and with the integrity needed to address humanity's future.

Overcoming Negative Feelings

How does this understandable human response work and neutralise effective engagement with the seriousness of climate change? Like this. Anywhere the urgency or seriousness of what climate change means comes up in conversation, in speaking or writing, in classrooms, public meetings, or at social events, with any age group, or any level of education, or lack of education, a common reaction—perhaps the most common reaction—is the following. Some are disinclined to pay attention to climate change; others find it hard to accept the science or facts; and even among others who think climate heating is important and should be tackled, the response is almost always some version of this kind of statements:

> *'Gosh, that's very dark.'*
>
> *'It's so negative to talk about that stuff.'*
>
> *'That's a very negative outlook.'*
>
> *'Looks like we're doomed then.'*
>
> *'Why are you being so negative?'*
>
> *'Being negative won't help us solve this.'*
>
> *'You spoke well, but that presentation is just so negative.'*

Then there is the more explicit assertion: 'What you are talking about is so negative that people won't listen to what you say'.

Faced with this common response, the communicator is blocked, damned, one way or another. Like Victor Hugo's Jean Valjean in *Les Misérables,* 'If I speak I am condemned. If I stay silent, I am damned' (Lyrics.com nd.). The message does not get out. Either way, what you are saying is unacceptable and cannot be 'heard'; or it is necessary to back up from this mode of engagement and think of other ways of saying it. So even before thinking about conveying new environmental and climate understandings that society is being 'forced' by nature's response to learn, there is a basic issue of communicating the depth and seriousness of the situation in front of us.

I have learned to apply the pedagogical sandwich to how I introduce the utter seriousness of global climate change: (1) something good being done environmentally, (2) something dark about the present and future situation, and then (3) returning to something positive being done or needing action (Cai et al. 2022).

Lines of indirection to bypass the human preference for good news have to get past the sort of thinking in *Peanuts* cartoon character Lucy, who protests at Charlie Brown's lugubrious discussion of life being about 'ups' and 'downs' (Schultz 1962). Lucy speaks through several cartoon frames, amplifying her belief, 'Why can't my life be all "ups"? If I want all "ups", why can't I have them'. She ends with, 'I don't want any "downs"! I just want "ups" and "ups" and "ups"!' In national communities such as the United States with a strong cultural preference for positive and up-beat narratives, the resistance to sombre news is very strong, even before the politicisation of environmental and climate issues. In western cultures, if not a 'wealth theology' the secular ideology of endless economic growth on a finite planet gives not just individuals resistance to hearing bad news, but a cultural growth perspective that has lost most of its sense of human limits. A post-human philosophy will express this failure of human-centric 21st century thought that denied the bio-physical grounds of human life on a finite planet less than 13,000 kilometres across (Klein 2014).

More directly, I have learned to draw out and explicitly challenge the assertion that I am being negative, or that the account I am giving to an audience is negative. Not at all, I reply, I am a positive sort of person. I like new ideas, innovations, and great solutions. By personal temperament I have a positive outlook on life. In countering the put-back that I am being negative in teaching or other communications, that positivity rings true as a rejoinder. But that can only be a start of serious engagement and wrestling with such a pervasive and hegemonic understanding that needs empathy, agreement-where-possible, and back-and-forth, conceding one concern while suggesting a deeper interpretation of it. Then repeating this process, as circumstances allow, with the next concern or a different interpretation of the same concern.

When the strong assertion is made that young people in Greta Thunberg's generation talk environment but still drive their parents' cars, this means pedagogically developing a whole meta-process in the teaching and learning process. It means going below the first level of statement-and-reaction. The cultural ground framing peoples' local, consumerist, but-I'm-only … thinking has to be outflanked, out-thought, invited into a new space. I offer some suggestions from consistently experimenting with these efforts. This is not from having mastered these strategies, but from being 'in the trenches', trying to contribute to people moving in the right direction and starting to address the importance for themselves as individuals, families, communities, and indeed humans *in toto* in the coming decades.

As I struggle with the response that I am being negative, I notice this is almost never a challenge to the facts or the basic narrative I have been presenting, as I set out one or another aspect of the seriousness of climate change. So far, I have not gone down this path in constructing a further reply, but as I write this chapter I am thinking further about what opportunities could be opened up here. Maybe at the end of a session or tutorial, I could come back around to make this observation to participants, and then ask them what it might mean? I am not sure how doing so would work in public

meetings, because often audience expressions of the material being very negative are asides to the speaker after the event. But there are question times at the end of presentations when someone poses a question or a comment is framed in this way. It is worth my learning more about how to handle this.

Let me reiterate, for many people this worry about the dark climate future they are being presented with, implied or explicitly, is what I call a perfectly understandable human response. Perhaps it comes from fearing the unknown, working from a background of public disavowal, maybe a background of politicised denial, social media disinformation, or many other possible reasons. For the most part this is not an issue of hostility or overt political taking sides. These are ordinary people, responding in genuine and ordinary ways to the darkness of an ominous scenario being sketched. This concern raises a plethora of impossible-to-answer issues for people. You mean we humans are causing this? To ourselves? To all of us? The personal safety need is to shut down thinking about such diffuse and too-big-too-handle matters. Frequent storms and flooding, and fires, Greenland melting, food and water conflicts, moving cities away from the coast. But I have been learning to go further than this point in what I choose to do when confronted in these kinds of interactions.

Actively Engaging

First, I now include some comments about the seriousness of the topic *during* the talk, anticipating end-of-talk responses. Then, in replying to the responses about how negative the scenario is, I can now refer back to the framing already provided: I am not just laying these bleak consequences of humans causing climate heating and its inevitable effects thoughtlessly—I too see the grim aspects of what we are talking about. Second, at the beginning or early in the discussion I will now often explicitly name the issue of what can seem negative. I tell them that people often have an understandable definite reaction to this material, suggesting that I am negative in my outlook and what I present to them. Naming my communication problem to my audiences as I start to interact with them, I now often treat this as part of my preamble. I'm giving you a warning; I'm on the same side as you. In other presentations or sessions when I talk people will sometimes say I'm being very negative. You might feel the same way, so let's talk about that.

I give them my problem: some folks' reaction to what I have previously presented. I give them my response: not so, I say. I confide to them that I have to conceptually make a distinction for them, so they can think about the seriousness of climate change in the way I do. See if you can look at it from my point of view—and the planet's point of view. There are two things going on here in what is said and how people respond: a negative possibility on the climate change front that is very serious, and me being telling you about this dark scenario. Just because I am bringing news or information that could have very negative consequences, does not mean I am being negative. Yes, I am telling you the seriousness of climate change and sea-level rising, but I reject you calling me a naysayer. I'm trying to get at the truth, the truth that governments, oil companies, and Facebook rabbit holes are pretending is not the case.

Does that make me negative? Very much my answer is a big fat 'No'. In fact, I am being positive with you in more than one way. First, I'm aiming to give you as much truth as we know about. Not science over-carefulness, not fossil fuel companies who would say what they say because they are making money, damning us to climate hell, and I'm not a denialist who feels that everything they get told is lies. Second, I am joining the dots for you in ways that most people do not. Quite simply, when Greenland melts the calculations are that there is enough ice to add seven metres to the sea-level. I am clear, it is not *if*, but *when*. That's not extreme; wait till Antarctica melts further on. What will seven metres do to London, New York, Florida and coastal cities everywhere? How far, how soon; when will we have to re-locate? What about the costs? And the flooding in the meantime? What about our grandchildren?

Third, I tell audiences it is action, the sooner the better, that gives us any chance of continuing. I am not talking about this very important and desperately serious topic to make you or me feel 'down'. Feeling down is perfectly reasonable, but there is no point in us being ostrich-like and putting our heads in the sand. That way is certain ruin. We must act. I am being positive both because I believe we need to be, and also because as a communicator I believe we need to very strongly message that action, innovation, change is where our best pathway lies. In fact, this is a whole new entry point to the discussion of the seriousness of climate change and its coming impacts on humans. As well as words like anthropocene, a new lexicon is springing up to capture the seriousness of climate change, about the feelings rather than the facts themselves.

I wrote a poem called 'Climate sadness', after coming back from a visit to Cambodia for a conference, realising a large part of that country will go under the sea as climate change progresses (Burns 2021a). So unnecessary, so unfair, such an 'own goal', to use the parlance of football. These feelings were much more visceral than the important academic conversations about climate and development of the conference I'd attended. Epistemologically speaking, social knowledge, and the 'social proof' by which most of us, most of the time, decide on what is true, what is the case, what we should do, applies to climate change no less than other smaller decisions and how we learn to 'know' (Cialdini 2008). That proof often comes from our feelings, or reading the feelings and attitudes of those around us, or those we respect. Look out for other words in this growing lexicon beyond climate sadness (Mufarech 2022): climate anxiety, climate emotions, eco-anxiety, climate sorrow, some of these terms we recognise

from other spheres of life, others become attached to new concepts about our climate situation. Pihkala (2022: 4-5) starts the work of reviewing this rapidly burgeoning field.

Conclusion

One of the privileges of being a teacher and communicator is learning new things while preparing material. This has a special importance in environmental teaching and learning. Adjusting our views allows us to engage with existing ideas and acquire new understandings, terms, and phrases, while developing skills to communicate at different registers. The seriousness of communicating climate change, so people understand clearly and are willing to act, involves every pedagogical skill in the book. It is a pedagogical axiom that teaching makes us learners, regardless of what students or audiences learn. Drawing others along this new path of understanding humanity's place on the planet is central to our future together.

References

Beckerman, G. 2023. *The quiet before: The unexpected origins of radical ideas*. London: Penguin.

Burns, E. 2021a Climate Sadness: The fragile beauty of Tonlé Sap. *Qualitative Inquiry*, 28 (3-4):383-391. doi.org/10.1177/10778004211065804

Burns, E. 2021b Placing regenerative farming on environmental educators' horizons. *Australian Journal of Environmental Education*, 37 (1):29-39. doi.org/10.1017/aee.2020.21

Cai, X., Peng M., Qin J., Zhou K., Li Z., Yang, S. and Yan F. 2022. Sandwich teaching improved students' critical thinking, self-learning ability, and course experience in the community nursing course: A quasi-experimental study. *Frontiers in Psychology*, 13:1-11. doi.org/10.3389/fpsyg.2022.957652

Carey, J. 2016. Core concept: Are we in the 'anthropocene'? *Proceedings of the National Academy of Sciences*, 113 (15): 3908-3909. doi.org/10.1073/pnas.1603152113

Carrington, D. 2020. *World consumes 100 billion tons of material every year, report finds*, 24 January 2020. Available at https://e360.yale.edu/digest/world-consumes-100-billion-tons-of-materials-every-year-report-finds [Accessed 28 September 2023].

Chakravarty, S., Gosh, S., Suresh, C., Dey, A. and Shukla, G. 2012. Deforestation: Causes, effects and control strategies. In: Okia, C. (ed.). *Global perspectives on Sustainable Forest Management*. Croatia: Intech. pp. 3-28.

Cialdini, R. 2008. *Influence: The psychology of persuasion*. 5th ed. New York: Harper Business.

Collen, A. 2016. *10% human*. London: William Collins.

Creutzig, F. and Kapmeier, F. 2020. Engage, don't preach: Active learning triggers climate action. *Energy Research and Social Science*, 70:1-7. doi.org/10.1016/j.erss.2020.101779

de Freitas, N., Vieira, S., Sobral, M., Ribeiro, A. and Soare, G. 2020. Concepts and forms of greenwashing: A systematic review. *Environmental Sciences Europe*, 32(1):1-12. doi.org/10.1186/s12302-020-0300-3

Dee, S. 2021. *Scientists understood physics of climate change in the 1880s—Thanks to a woman named Eunice Foote*, 23 July 2021. Available at https://theconversation.com/scientists-understood-physics-of-climate-change-in-the-1800s-thanks-to-a-woman-named-eunice-foote-164687 [Accessed 28 September 2023].

Doward, J. 2020. *Why Britain's 2.5 billion coffee cups are an eco-disaster*, 26 April 2020. Available at https://www.theguardian.com/environment/2020/apr/26/why-britains-25-billion-paper-coffee-cups-are-an-eco-disaster# [Last accessed 28 September 2023].

Duram, L. 2021. Teaching a social science course on climate change: Suggestions for active learning. *Bulletin of the American Meteorological Society*, 102(8): E1494-E1498. doi.org/10.1175/bams-d-21-0035.1

Friedman, H. and Clarke C. 2022. Deadly consequences of emphasizing profits over human life: how corporate greed has caused the death of millions. *Journal of Intercultural Management and Ethics*, 5(3):19-35. doi.org/10.35478/jime.2022.3.03

Friedman, T. 2010. *Messing with Mother Nature*, 24 July 2010. Available at https://www.mercurynews.com/2010/07/24/opinion-messing-with-mother-nature/ [Accessed 28 September 2023].

Formela, K. 2021. Sustainable development of waste tires recycling technologies—recent advances, challenges and future trends. *Advanced Industrial and Engineering Polymer Research*, 4(3):209-222. doi.org/10.1016/j.aiepr.2021.06.004

Fox, N. 2022. Green capitalism, climate change and the technological fix: A more-than-human assessment. *The Sociological Review*:1-20. doi.org/10.1177/00380261221121232

Gerretsen, I. 2023. *'Earthrise': The photo that sparked an environmental movement*, 12 May 2023. Available at https://www.bbc.com/future/article/20230511-earthrise-the-photo-that-sparked-an-environmental-movement [Accessed 28 September 2023].

Greenberg, J., Knight, G. and Westersund, E. 2011. Spinning climate change: Corporate and NGO public relations strategies in Canada and the United States. *International Communication Gazette*, 73(1-2):65-82. doi.org/10.1177/1748048510386742

Greiner, P. and McGee, J. 2019. The asymmetry of economic growth and the carbon intensity of well-being. *Environmental Sociology*:1-12. doi.org/10.1080/23251042.2019.1675567

Hayes, S. and O'Neill, S. 2021. The Greta effect: Visualising climate protest in UK media and the Getty images collections. *Global Environmental Change*, 71:1-27. doi.org/10.1016/j.gloenvcha.2021.102392

Hickel, J. 2020. *Less is more: How degrowth will save the world*. London: Penguin.

International Panel on Climate Change. 2023. *Synthesis report of the IPCC sixth assessment report (AR6) Longer Report*, nd. Available at https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_LongerReport.pdf [Accessed 28 September 2023].

Joy, M. 2022. *11,000 litres of water to make one litre of milk? New questions about the freshwater impact of NZ dairy farming*, 30 May 2022. Available at https://theconversation.com/11-000-litres-of-water-to-make-one-litre-of-milk-new-questions-about-the-freshwater-impact-of-nz-dairy-farming-183806 [Accessed 28 September 2023].

Klein, N. 2014. *This changes everything: Capitalism vs. the climate*. London: Allen Lane.

Lacy, P., Long, J. and Spindler, W. 2020. *The circular economy handbook: Realizing the circular advantage*. London: Palgrave Macmillan.

Leonard, C. 2019. *Kochland: The secret history of Koch industries and corporate power in America*. New York: Simon and Schuster.

Lyrics.com. *Who am I?* Available at https://www.lyrics.com/lyric/21143591/Les+Mis%C3%A9rables+Original+London+Cast [Last accessed 2 October 2023].

Maier, F. 2023. From why to how: Organising and strategising for degrowth. *Organization*:1-3. doi.org/10.1177/13505084221146372

Mitchell, T 2011. *Carbon democracy: Political power in the age of oil*. London: Verso.

Montgomery, A., Lyon, T. and Barg, J. 2023. No end in sight? A greenwash review and research agenda. *Organization and Environment*:1-36. doi.org/10.1177/10860266231168905

Montgomery, D. and Biklé, A. 2016. *The hidden half of nature: The microbial roots of life and health*. New York: Norton.

Mufarech, A. 2022. *Your crushing anxiety about the climate crisis is normal*, 18 May 2022. Available at https://www.smithsonianmag.com/science-nature/how-to-deal-with-the-anxiety-caused-by-the-climate-crisis-180980093/ [Accessed 28 September 2023].

Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.

Pihkala, P. 2022 Toward a taxonomy of climate emotions. *Frontiers in Climate*, 3:1-22. doi.org/10.3389/fclim.2021.738154.

Pirani, S. 2018. *Burning up: A global history of fossil fuel consumption*. London: Pluto Press.

Risbey, J. 2008. The new climate discourse: Alarmist or alarming? *Global Environmental Change*, 18(1):26-37. doi.org/10.1016/j.gloenvcha.2007.06.003

Schultz, C. 1962. *Peanuts*, 17 October 1962. Available at https://www.gocomics.com/peanuts/1962/10/17 [Accessed 28 September 2023].

Steffen, W., Broadgate, W., Deutsch, L,, Gaffney, O, and Ludwig C, 2015, The trajectory of the anthropocene: The great acceleration. *The Anthropocene Review*, 2(1):81-98. doi.org/10.1177/2053019614564785

Stewart, G. 2020. Mātauranga Māori: A philosophy from Aotearoa. *Journal of the Royal Society of New Zealand*: 1-7. doi.org/10.1080/03036758.2020.1779757

Treli, Ü. and Jacobsen, J.C. 2023. Critical pedagogy and children's engagement with climate change. *Journal of School Administration Research and Development*, 8(1):55-64. doi.org/10.32674/jsard.v8i1.2785

Weaver, J. 2006. *The Great Land Rush and the Making of the Modern World*. Montreal, QC: McGill-Queen's University Press.

Woodside, J. 2022. *Fossil fuels are killing the planet. So why don't we stop using them*, 2 March 2022. Available at https://www.nationalobserver.com/2022/03/02/news/fossil-fuels-are-killing-planet-why-dont-we-stop-using-them# [Accessed 28 September 2023].

Te Puna Aurei LearnFest 2022 was an online conference delivered by The University of Waikato in partnership with Cardiff University on 23 and 24 November 2022.

Bowell, T., Pepperell, N., Richardson, A., and Corino M-T. (eds.) 2024. *Revitalising Higher Education: Insights from Te Puna Aurei LearnFest 2022*. Cardiff: Cardiff University Press.

doi.org/10.18573/conf2

First published 2024

Cardiff University Press
Cardiff University, PO Box 430
1st Floor, 30-36 Newport Road
Cardiff CF24 0DE

cardiffuniversitypress.org

Publication design and layout by
Academic Visual Communication

ISBN: 978-1-9116-5350-9 (PDF)