

The affective dimension of crisis subjects: Teaching Environmental Communication through intersecting crises

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Confronting the existential threat of climate and ecological crises in undergraduate teaching presents complex challenges. Educators in environmental and climate change studies rightly communicate the scale and urgency of these unfolding crises, yet at times fail to take into account the emotional and mental health impacts upon students acquiring this knowledge. This article examines the affective dimensions of learning in 'crisis subjects'. It draws insights from case study research on the experience of Australian university teachers and students in a subject called Environmental Communication, delivered during a period of intersecting crises: climate-change driven drought, catastrophic bushfires, and the emergence of Covid-19. The psychoanalytic concept of 'difficult knowledge' (Britzman, 1998; 2004) is taken up to shed light on the inherent challenges of teaching and learning in this context. Many students in the study were deeply

affected by their learning experience, and recognise its importance, but also struggle to integrate it with anticipated future roles. The authors argue that students and educators need new knowledge, capacities and resources to address the affective dimension of teaching and learning and to grapple with the collective social trauma of the climate crisis.

Keywords: *crisis pedagogy, affect, environmental communication, climate change education, difficult knowledge*

Introduction

This article examines the affective implications of learning and teaching within a “crisis” subject during a heightened period of intersecting crises. It was prompted by questions of how educators may acknowledge and engage with feelings of distress, anxiety, grief and dissociation in the student body (Wallace et al., 2020; Verlie, 2020), in ways that are meaningful and potentially empowering for both students and educators. The research was conducted by academics teaching an undergraduate level environmental studies subject taught at the University of Technology Sydney (Australia) called Environmental Communication. Environmental communication is a recently defined interdisciplinary field and an emerging area of pedagogical research. Underpinned by a commitment to social and environmental justice, as a field of research it studies science, environment and policy communication in the public sphere (Cox & Depoe, 2015). It has been referred to as a “crisis discipline”, one that confronts urgent existential questions.

The findings presented in this article orient around two central concerns. The first considers the affective implications of subject content and instructional methods in subjects that expose students to climate and ecological crisis, from a normative commitment to both inter-generational justice and an ethics of care toward students. The second considers approaches to pedagogy, and asks to what extent it is possible to assist students to develop a sense of agency (personal and collective) when faced, as young people, with the existential crisis of climate and ecological breakdown. Presenting an evidence-based critical reflection on our experiences of teaching and learning in this context,

the article contributes to scholarly debates of crisis within the field of environmental communication and pedagogical innovation in climate change education (CCE) broadly.

Background context: A period of intersecting crises

With 18.6 million hectares of land burnt, the Black Summer bushfires of 2019-20 were the most extensive and devastating on record in Australia (van Eeden et al., 2020). The fires had widespread media coverage, and for many people, the unprecedented scale and intensity of the bushfire season brought climate change into the present tense. The shock and awe felt by tens of thousands of Australians, was matched with the visceral, affective sensation of *solastalgia*, a term coined by environmental philosopher Glenn Albrecht, to connote the loss of a unifying sense of place and belonging, and a shift in cultural identity brought about by alterations to physical places (Albrecht et al., 2007). Leading up to the unprecedented bushfire crisis, tens of thousands of Australians in rural and regional areas endured intense heatwaves and long periods of drought. For more than a decade, much of the southeast of Australia had received below-average rainfall. While droughts and fire are part of life on the “fire continent”, to climate scientists, these prolonged drought events were an indicator of climate change playing out (Anderson et al., 2018; King et al., 2020).

In the closing months of 2020, a global pandemic began to change the course of the decade. At the time of writing, the Covid-19 confirmed caseload exceeds 525 million with more than 6.25 million deaths worldwide (WHO, 2022). The pandemic altered lives and provoked significant debates in relation to the role of human-induced environmental impacts driving a new ‘age of pandemics’ (Auer, 2021). The full extent of the mental health burden of Covid-19, along with the trauma of extreme fire, drought and flood events in Australia is unknown; nonetheless, each has placed significant, complex pressures on individuals, communities, organisations and governments. Such was the context in which we conducted our research amongst students of the undergraduate subject of Environmental Communication.

Environmental Communication and pedagogies of crisis: Confronting 'difficult knowledge' in higher education

The concept of crisis deeply informs the environmental communication literature. The inaugural issue of the journal *Environmental Communication* (Taylor and Francis), considers the moral position of scholars in the field in relation to the biosphere crisis. In his keynote essay, Robert Cox (2007) argues that because the natural environment upon which society depends is gravely threatened, research in the field is inexorably bound by an ethical duty akin to that of conservation biology, which Soulé (1985) famously defined as a normative 'crisis discipline' dedicated to the conservation of biodiversity, as distinct from a purely formal, descriptive, 'value free' and disinterested approach to ecological research. As a crisis discipline, environmental communication offers a critical perspective on the media and communication industries, and their role in advancing or obstructing the social, political and economic transformations necessary to preserve the capacity of the Earth to support social and biological life. The salience of the field is the opportunity it affords for critical analysis of contestation over environmental science, technology and policy in the public sphere of news, advertising, social media, and political communication (Siperstein et al., 2017). As the etymological root of the word suggests, a crisis refers to a critical turning point in an illness, where a recovery to normal health is possible. This may be too optimistic to describe cumulative and irreversible phenomena like extinction and global heating. While the language of crisis is effective and necessary in raising awareness of the significance of contemporary climate change and ecological breakdown, the term has been problematised and deconstructed in scholarship for several years (Buell, 2004). Schwarze suggests that the crisis problematic establishes a 'unique vantage-point for environmental communication scholars', allowing them to 'claim their distinctive contribution -- richer, more robust explanations of the communication practices that constitute, sustain, and transform environmental crises' (2007, p. 88).

'Communications' as a professional research field emerged from imperatives to manage public opinion in democracies, from corporate and wartime propaganda to the professionalisation of public relations campaigns in response to the legislative gains of environmental movements (Simpson, 1994). For many undergraduate students in

the field of communications, learning about the complexities and the contestation driving ecological and climate crisis is a novel and disarming encounter, provoking a deep sense of ‘ontological insecurity’ (Beck, 2009). Coming to recognise and understand the historical role that their prospective profession has played in organised climate denial can be acutely confronting, presenting as a form of ‘difficult knowledge’ (Britzman, 1998; Britzman & Pitt, 2004).

A concept rooted in psychoanalysis, ‘difficult knowledge’ considers the role that ‘psychic defences play in enabling us to negate, resist, ignore or not know certain truths about ourselves and the world that we inhabit’ (Britzman, 1998, in Bryan, 2021, p. 3). In the context of crisis pedagogy, framing encounters with challenging subject matter as ‘difficult knowledge’ is a useful way to acknowledge and address ‘obstacles to learning’ entailed in socially traumatic knowledge. The concept of ‘difficult knowledge’ helps to illuminate why teaching and learning about climate change presents conundrums, providing a way to think about the ‘ethical obligations, ontological crisis, and anxieties at play’ (Farley, 2009, p. 537). Difficult knowledge has predominantly been used to interpret pedagogical encounters with historical traumas like war, genocide and slavery (Britzman & Pitt, 2004; Garrett, 2017). In the context of climate crisis education, there is a temporal extension of the concept, engaging with the past and present, while also confronting the prospect of future crises, whereby ‘the anticipation of future human-induced suffering becomes an important addition to existing theorisations of difficult knowledge in considering climate crisis’ (Alvey, 2021, p. 68). These pedagogical encounters with a future unknown but predicted based on mounting physical evidence and climate modelling, not only force a reckoning with the past, but they provide a way into the ‘already and impending, accelerating and unknowable future storm’ (p. 69).

Teaching Environmental Communication involves the cultivation of communications professionals as ‘active citizens’ in the public sphere; therefore, educators are tasked with looking at the socio-political field as equally a source of trauma *and* recovery for students. Difficult knowledge can be defined as that which is experienced as burdensome by the learner (Garrett, 2017, in Gallagher, 2018). Understood psychologically, learning experiences can be traumatic, as new narratives about the world emerge. Exposing learners to the power

of corporations to manipulate public opinion and policy to achieve outcomes that damage people and ecosystems on a planetary scale is a significant part of what students are asked to consider. Examples of this from the field of environmental communication include ExxonMobil's history of climate disinformation, the Murdoch media's anti-environmental propaganda, and analysis of greenwashing strategies used by the corporate sector at large.

The notion of 'difficult knowledge' provides a perspective from which to consider the function of ignorance when discomfort prohibits teachers and students from facing controversial issues in the classroom. Acknowledging the affective nature of political controversy may help educators address feelings of ambiguity, anxiety, fear, despair and anger at inter-generational injustice as they arise among students. Furthermore, the recognition of difficult knowledge can shape better understanding of barriers to the aspiration of social science disciplines to improve society, through the active citizenship of graduates (Garrett, 2017).

The affective dimension of learning and teaching: Developments in climate change education (CCE)

Climate research points to a paradox at the centre of environmental and climate dilemmas, arguing that it is very difficult for many people to constructively integrate the knowledge of climate change and ecological destruction (Lertzman, 2015), because such issues inherently challenge sources of social identity and push individuals out of balance with pre-conscious cultural norms. Kari Norgaard (2011) has shown in her sociology of emotions and climate change, that guilt, fear and helplessness are dominant emotions that people in wealthy, fossil-fuel intensive economies feel when faced with the reality of climate change. For some young people emerging from the shelter of conservative schooling or an apathetic upbringing, 'the climate crisis is the first enormous existential crisis that they face [...] and our societies have not been very good in recent decades at building emotional or existential resilience' (Pihkala, 2020). Psychologists note that the existential anxiety provoked by knowledge of climate and ecological crises can be either paralysing or motivating, depending upon the psychological profile of the individual and their available support structures (Doherty & Clayton, 2011).

While educators have pointed to the necessity of including the humanities in climate change curricula, overall scholarship has tended to focus on teaching climate change in science and/or policy disciplines (Siperstein et al., 2017). There has been a tendency for educators within environmental and climate change studies to focus on the scale and urgency of the unfolding crisis without taking into account the affective consequences on students, or the need to foster agency and empowerment in the face of climate disruption. Environmental humanities scholars have argued that the predominant ways that climate change is presented to students commonly generates disempowering emotions (Wilson, 2017), prompting researchers to identify more effective strategies for teaching the climate crisis (Monroe et al., 2019; Reid, 2019).

Developments in climate change education (CCE) increasingly draw upon the emerging field of climate psychology to emphasise the intersection of individual values and the framing narratives of broader social communities, as imperatives to shaping how people understand and respond to climate change (Henderson, 2019). The field of CCE has been moving away from earlier and simplistic versions of information transmission toward a more socially complex form of learning (Reid, 2019). The acknowledgement that individual action is not sufficient for dealing with climate change at scale, is being combined with the use of ‘education to stimulate a broader stirring of an ecological consciousness in learners’ (Henderson, 2019, p. 989). Authors in CCE advocate for pluralistic and experimental approaches that are place-sensitive, and explicitly incorporate issues of justice and ethics (Reid, 2019). A central question underpinning our study asks whether the humanities, arts and social sciences can help reimagine modes of ‘climate literacy’ informed by contemporary research in emotional literacy, maturation and intelligence in self-formation (Powell et al., 2019; Verlie 2019).

Research design: Case study methodology

As teaching academics, the present authors have taught together several iterations of Environmental Communication: an undergraduate elective subject offered by the School of Communication, in the Faculty of Arts and Social Sciences, University of Technology Sydney (UTS). With major study options including social and political science, digital and social media, public communications and journalism, the Bachelor of

Communication degree at UTS attracts a high number of international students, many from mainland China. The subject has been taught twice annually since 2016. Over the years, the authors increasingly noticed signs of eco-depression and climate anxiety amongst students, suggesting a need to find ways to acknowledge these as legitimate responses to the subject material, to support students in processing often-alarming new knowledge and insights which (for better or worse) may have long-term, transformative effects long after they have completed their studies, and to integrate responsiveness to the affective experiences of students within teaching strategies and course materials. Sharing a concern for climate action, and feeling strongly about what the future holds for young people, it is to this aim that our present study hopes to contribute.

As Aldo Leopold once observed, ‘one of the penalties of an ecological education is that one lives alone in a world of wounds’ (1953, p. 165). Students are exposed to an array of information - much of which they may not have encountered before - the acceleration of fossil fuel combustion, global heating and ocean acidification, chemical pollution, species extinction and ecosystem decline. This is combined with an in-depth inquiry into disinformation campaigns mounted by polluting industry and corporate media, resulting in political corruption and the delay, defeat or neutralisation of environmental policy. In teaching Environmental Communication, we recognise that ‘ecological wakefulness’ may result in withdrawal and isolation if students are not supported to ‘navigate and consciously contribute to generative discourse and praxis’ (Milstein et al., 2017, p. 1), with the goal of building and maintaining collective agency to work together to solve complex problems (Passmore & Howell, 2014). We therefore encourage students to investigate the way citizens, scientists, indigenous people, journalists, environmental non-government organisations (ENGOS), artists and activists communicate in the public sphere, with an emphasis on successful movement campaigns and communication strategies and to imagine themselves in similar roles.

This research presents evidence and analysis of a case study involving qualitative research with students enrolled in the 2019-20 summer semester of Environmental Communication. We aim to investigate three main research questions:

1. What are the affective implications of our subject content and instructional methods?
2. What pedagogical approaches can educators adopt in the classroom to assist students to develop a sense of agency (personal and collective) in response to crisis subjects?
3. What strategies, recommendations and/or practical tools can educators develop to empower students in their future roles as environmental communicators and as democratic citizens?

Invitations to voluntarily participate in our research were offered to a cohort of 90 students during the 2019-20 summer semester of Environmental Communication. Of these, 38 opted to provide written weekly responses to two questions over a 6-week period, in addition to the tutorial prompt questions all students reply to addressing specific weekly topic areas. These additional questions asked for subjective reflection on weekly content with 300-500 word responses for each question:

(a) How do you feel about these issues? Please reflect on the emotional impact that the learning content has had on you this week.

(b) Reflect on the examples provided this week related to alternative responses to the issues presented (for example: activism, communication strategies, and technological fixes). Do these examples motivate you on a personal &/or professional level to engage with these issues differently?

Question (a) explores the affective implications of subject content and instructional methods for our students, in response to our first research question. Question (b) explores what might motivate (or otherwise) students around what they have learnt, in response to our second research question.

Two of the authors of this study developed an autoethnography concurrently during the summer semester. The autoethnographic method challenges traditional ways of doing research and treats research as a political and socially conscious act (Ellis et al., 2010). Autoethnographies dismiss the “view from nowhere” and affirm there is always a person - the author - in research. This autoethnography

consisted of semi-structured dialogue each teaching week. We developed the autoethnography by recording weekly reflections relating to our teaching practice. The process was designed to better understand our own emotional responses to teaching the subject in the context of a catastrophic unfolding of unprecedented, uncontrollable wildfires across Australia, the early stages of the global Covid-19 pandemic, and the social upheaval accompanying these intersecting crises. It was informed by the *interactive interview* autoethnographic method, which involves actively witnessing the other in productive ways (Ellis & Bochner, 2006).

The analytical process

Our analysis was informed by an interpretivist framework designed to generate reliability, validity, and generalisability, in ways appropriate to our method. Theory building from the analysis involved an abductive research strategy in which ‘data and theoretical ideas are played off against one another in a developmental and creative process’ (Blaikie, 2010, p. 156). Data was coded to classify emergent themes and subthemes; thematic analysis involved three circular processes: *describing, classifying and connecting* informed by Blaikie (2010). The autoethnographic dialogue was audio recorded, transcribed and analysed, weaving together primary data and theoretical insights. This allowed us to think through the deeper implications and challenges of our teaching practice. The main themes that emerged from the analysis were:

1. Accountability and Responsibility: evaluations of action related to inequality, injustice, indigenous rights, multispecies, intergenerational equity, environmental protection, politics of climate change and ethics.
2. Empowerment and Disempowerment: expressions of power, agency and the capacity to effect change; articulations of purpose and/or motivation in the professional realm, future aspirations and career statements.
3. Hope and Optimism: expressions of hope, positive solutions and future transformations.
4. Learning Impacts: reflexive and reflective learning statements.

Results: Insights from the analysis

The broader context of intersecting crises in which the data was generated became a feature of this study that cannot, and should not be decoupled from the findings. The intense bushfire season was a significant event that fed directly into the learning and teaching experience, given its immediacy. During this time, people in Australia and across the world bore witness to the events and each other in deeply personal ways. The experience of dense, choking smoke enveloping cities and entering homes and workspaces, the work of volunteer firefighters risking death, and the physical destruction of property and environments prompted public concerns about the inadequacy of Australian political leadership, as well as widespread recognition of the arrival of climate change (Leimbach & Palmer, 2022). During the summer semester, media reporting of the fires - which often excluded causal attribution to climate change and fossil-fuel combustion, uncritically quoting politicians denying the obvious reality - became a real-time object of study, highly relevant to the teaching of Environmental Communication. Teachers and students were sensitised and attuned to the confluence of events, with students noting the closeness of course content to their lived reality, for example: *'I have never been more exposed in my life to environmental communication outside of this course which is in itself, very alarming'* (Student 36).

Emotions were intensified, producing a kind of revelatory expression of affect. Media theorists, Mocatta and Hawley (2020), described the Black Summer bushfires in terms of a 'revelation [...] a temporal collapse whereby the future is dragged into the present'. Under the influence of powerful corporate interests, Australian governments have been slow to respond to climate change (Lucas, 2021). Australia is one of the highest per capita emitters of greenhouse gases, and the world's third largest exporter of fossil fuels (Swann, 2019). Australia has one of the most concentrated media in the democratic world: a significant portion of the press is monopolised by News Corporation, which has consistently promoted science denial and opposition to climate policy (Bacon & Jegan, 2020; Walker, 2022).

Students articulated complex feelings in their responses, interweaving reflections on external events with subject content and fluctuations of their affective state, for example: *'Instead of feelings of hope, despair*

or alarm, this week’s topic resulted in frustration and anger at the inherent contestation towards the issue of climate change within the media, especially after the horrendous bushfire season’ (Student 18). While the content delivered in Environmental Communication did not have the same emotional impact on each student, many learners experienced intense feelings, evidenced by the language students chose. A word cloud (Figure 1) generated to trace the recurrence of adjectival terms, shows the affective response to the learning experience, ranging from shock, sadness, anger, empathy and overwhelm.



Figure 1: a word cloud of affective language, tabled and tallied as a quantitative measure of student responses to learning during the semester.

Theme one: Accountability and Responsibility

Environmental Communication pedagogy involves deconstructing power structures and developing new ways of knowing the world. Students must critically engage with the role of the communication industries in framing political and social issues including environmental and climate justice, indigenous rights, multispecies justice and environmental pollution. Inevitably, questions of accountability and responsibility are embedded in the content, and these challenge students to consider what interests are served in any given situation. Making sense of global climate impacts and prevailing politics can take an emotional toll, for example:

I'm depressed to learn that industrialised nations that benefit the most from combustion of fossil fuel contribute the most to climate change and global warming but take the least actions to counter the effects of fossil fuel on the environment (Student 24).

Our students are confronted by the complexity of climate change politics and the polarising effect of contradictory framings in the media, with many expressing frustration in relation to issues of responsibility and accountability. Developing new levels of understanding about the individual versus regulatory, governance and corporate power structures, students have an emotional response to the way institutional structures can impede change and transformation. For example:

I find it frustrating learning more about how climate deniers use certain points and facts to deflect issues and hinder policy change [...] as the environment is being sacrificed for economic gain (Student 19).

The global organisation since the late 1980s of climate denial by the fossil-fuel industry through advertorials, PR agencies, 'free-market' think-tanks, and allied corporate media is confronting and difficult to contend with, as students realise the extent to which their future has been shaped by unethical actors, even before they were born. Bryan (2021) argues that one of the most urgent tasks in climate crisis education is to enable learners to apprehend the conditions that produce 'normalised patterns of denial' and consider how this 'prevents people from taking action and responsibility for climate change' (p. 5).

The learning experience, whereby students more fully apprehend the intentional production of denial, inaction and obfuscation, frequently takes an emotional toll. Such cognitive engagements present forms of ‘difficult knowledge’ that produce disorientating, destabilising and conflicted affective states.

Theme two: Empowerment and Disempowerment

The learning experience can instil an ethical commitment to pursue a career in the field of environmental communication. This was expressed in a range of ways, indicating motivation to act in response to subject content. Some students were able to clearly articulate their own sense of potential agency. Others, affected by their learning experience and recognising its importance, nevertheless struggled to integrate it with anticipated roles as future communication professionals, citizens and decision-makers. A general interest in professional pathways that support climate action exists, however, there is also recognition of ethical dilemmas around work choices, particularly relating to the constraints of working in underfunded organisations versus larger commercial entities. For example:

It's the commercial media outlets with more resources that wield more influence and provide their journalists with more stable work, meaning that independent media companies are experiencing a shortage in journalists willing to communicate the facts about environmental issues (Student 13).

Some students express distrust for specific media organisations and public relations organisations in light of their position on climate change. For others, this conjures complicated, paradoxical emotions relating to the professional sphere they are being trained to work in. Overall, students perceive and communicate agency in broad and nuanced ways, ranging from confusion in the face of larger, seemingly intractable system trajectories, to understandings of agency that reflect a degree of ‘implicated subjectivity’ (Rothberg, 2015) in regard to modes of action. For example:

The lecture brought my attention to constraints on individual agency such as a lack of empowerment, trust and reflexivity. This made me understand better the reason behind my confusion about what kind of action I can take as an individual for the

environment (Student 13).

There is a kind of fatalism about the possibilities of adequate political and economic change, and a common theme of disempowerment when confronting the reality of stasis. Issues pertaining to climate injustice produce strong emotions, particularly in relation to questions of personal agency and empowerment:

The lack of care for our Pacific islands that are so close to home is shocking. It's very difficult to learn all of this and feel helpless and not know what I can do to help. How am I, just one person, going to be able to stop corporations from investing in fossil fuels!? (Student 24).

Environmental Communication pedagogy can be disorientating, making it difficult to remain confident and energised in the world. A sense of disempowerment brought on by learning about the climate crisis can lead to feelings of complacency and the desire to turn away. For example: *'Activism fatigue [...] this is a feeling I get when continuing to learn about the onslaught of misinformation and denial that our country is rife with'* (Student 12). This signals a challenge for teachers (and responsibility for universities broadly), to actively support students in the troubling, unsettling reality of a rapidly changing climate.

Theme three: Hope and Optimism

Students expressed the desire and need to engage with creative and original communication forms in order to overcome apathy, disconnection, and confusion stemming from the learning experience. The work of skilled professionals who generate informative and inspiring pieces of environmental communication is a significant source of hope. Existing solutions that engage directly with problems at scale also have a meaningful impact on students. Many singled-out initiatives, noting how such projects impressed and inspired them, for example: *'It was enlightening to see Bangladesh engaging in a solution that seems to be so amazing and so powerful'* (Student 25). The power of storytelling is a compelling source of hope and motivation for learners, with creative accounts of possible futures often affecting audiences deeply, for example: *'Emotions play a huge role because they are the motivation for action'* (Student 31). These students foresaw

their own potential to create change through applying their skills and creativity, for example: *'Reconceptualising traditional narratives about humans and nature has reminded me of the significance of questioning established norms as a communicator'* (Student 14).

Students express a developing sense of shared responsibility, and the potential to contribute to collaborative efforts to restore and transform (eco)systems: *'Engaging in more collective action has definitely resonated with me'* (Student 18). Collective action feeds optimism and is an antidote to withdrawal and social isolation when experiencing negative emotions. Such a shift from a perception of individual responsibility to a broader recognition of collective responsibility reflects a psychological phenomenon, which works both at the personal level (as self-control and free will), but is also relevant at a societal level where it implies caring or moral values (Kent, 2009).

Theme four: Learning impacts

The learning experience generates reflexivity as students become aware of broader social, cultural and political contexts for action, and increased critical awareness, for example: *'At times, the content this semester has been very distressing, but has also really opened my eyes to the influential players in the climate crisis'* (Student 31). In some cases, students were profoundly affected by the learning experience, describing fundamental changes in perception: *'The content of this course has definitely altered my worldview'* (Student 08). *'It has impacted the way I watch the news, the way I grocery shop and even the way I use communication to discuss ideas with my friends and family'* (Student 07). While many students described overwhelming, distressing feelings, many balanced this, signalling the importance and impact of their learning on future decision making, for example: *'Although distressing, I believe it is incredibly necessary in shaping the way that I participate in contemporary issues on a micro and macro level'* (Student 34). Learning can lead to greater cognisance of social privilege and ethical dilemmas related to professional goals and decision making. A certain narrative tension exists wherein students who did not understand the origins of their prospective profession in climate denial, corporate propaganda and/or greenwashing, struggle to comprehend the implication of their future profession in the climate crisis. In such cases, there may be a severe loss of naivety enfolded in the learning experience,

as students are confronted with the ‘complex entanglements between individual (subjective) and institutional or structural climate-related harms’ (Bryan, 2021, p. 2). This points to a challenge for educators in terms of considering the inner psychological battle of knowing and not wanting to know (resistance), and what this means for representations of difficult knowledge in the classroom (Gallagher, 2018).

Contextual reflections in a time-constrained classroom: Autoethnographic insights

From the fifth floor I walked across the elevated carriageway to the next building where the tutorial was being held. The newest building in the UTS ‘fleet’ full of cathedral-like open space, now filled with smoke. My students sat in their room with that acrid smell of smoke and air vents pulling more into the room as I entered. Most of the international students now wore face masks. In that situation I was at a loss as to what to do – I felt the need to both explain and reassure my students – the fact was that I was not prepared with answers – I was struggling to simply come to terms with this present crisis myself (Kent).

This recollection hints at some of the physical and psychological discomfort associated with teaching Environmental Communication during an extreme climate event. A heightened sense of responsibility to reassure and care for the wellbeing of students, matched with layers of uncertainty produced by the external situation. Catastrophic events place added demands on climate change educators relating to the task of translating stressful, heightened scenarios in real time into learning experiences:

In the midst of a bushfire crisis, we are having to translate this reality into something that is meaningful in the broader context of environmental understanding and environmental studies, and I think there is something deeply emotional about it (Leimbach).

Educators are responsible for creating fertile learning environments. However, teaching climate change can take an emotional toll for educators in ways that undermine their wellbeing and agency (Wallace et al., 2020). Observing apathy and disinterest in the student body can be painful for educators who perceive subject content to be critically important:

The little microcosm of the classroom sort of mirrors back what is going on in society. You've got a minority of very concerned individuals and then you've got this majority who are disconnected (Leimbach).

If there is an obvious disjunct between students' and teachers' responses to content it can be a source of angst that leads to self-censoring for educators: *'sometimes feeling like with the students it's not a safe space'* (Leimbach). There are limitations to expressing emotional vulnerability, which stem from teaching the climate crisis in a busy, time-constrained classroom within the neoliberal university system focused on 'work ready skills' and 'human capital' development. Our teaching experience needs to be considered within this broader context because it shapes and influences what is possible in terms of climate crisis pedagogy and affect-oriented learning. Teaching academics need "brave" spaces in which they can experience solidarity and process painful or difficult emotions relating to teaching crisis subjects.

The emotional complexity of teaching and learning in this context became more nuanced over the semester; indicated by observations relating to students' lived experience, level of exposure to risk and emotional response to subject content. We observed three broad contextual responses. Firstly, students with frontline experiences of climate impacts are emotionally connected to the social trauma of such events, and their participation in learning has a discernible emotional inflection. By illustration, when discussing the impact of extreme weather events in Pacific Island communities, one student revealed that her own family had been recently caught in a destructive cyclone that had been very frightening. On reflection, the educator noted: *'I could just see and felt that it was emotional for her [...] she was talking about a very recent and very dramatic event that was in her homeland, in her mother's place'* (Kent). By contrast, students without prior lived experience are less emotionally connected to climate-related risks in geographically distant communities. Oftentimes our students appeared to be visibly disengaged from such content. As teachers, we came to associate the lack of emotional engagement we observed with the psychic defences that Britzman and Pitt (2004) describe in relation to encounters with difficult knowledge in the classroom. Importantly, we observed a discernible shift for many domestic students as they experienced a climate-driven extreme weather event in geographically

intimate time and space during the Black Summer fires. We also observed that the international cohort (predominantly students from mainland China), were emotionally disengaged, until the ubiquitous smoke of the ongoing bushfire event in Australia connected them to the experience of chronic air pollution in urban China, which (as some explained) they had chosen to study in Australia to escape from. As the increasing threat of the pandemic unfolded, this event assumed major significance, generating heightened anxiety, fear and uncertainty for these students given its direct connection to their homeland.

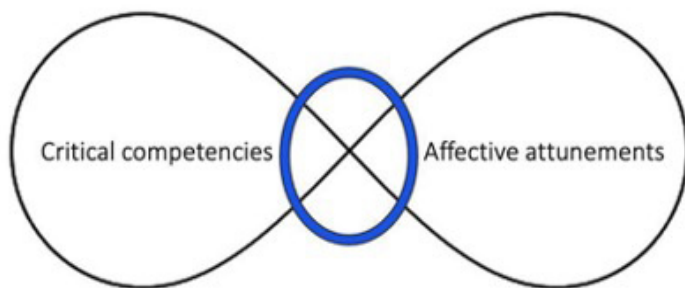
Discussion: Addressing 'difficult knowledge' and the role of emotions in learning and teaching

When we began this study, we were convinced we needed to understand more about the affective implications of teaching environmental crisis, although we were not entirely sure where it would lead. Since then, several major reports, including a large *Lancet* study, have statistically confirmed the widespread experience of climate anxiety among young people (Hickman et al., 2021). Learning about the existential threat of climate change is emotionally challenging for both students and educators, evoking a range of defences (Van Kessel, 2020; Garrett, 2019; Kelly & Kelly, 2020; Wilson, 2017). Critical to this research has been the examination of the psycho-social demands of teaching during an imminent crisis, alongside efforts to understand the prevalence of climate anxiety in the higher education context. As is clear from this study, students can struggle with conflicting motivations, require emotional support in navigating existential threats, and benefit from strategies to support engagement with 'difficult knowledge'.

The decade between 2020-30 is widely understood as the last remaining window within which rapid action to phase-out fossil fuel extraction and combustion must be taken if we are to avert the worst effects of anthropogenic climate change. Teaching during the events of Summer 2019-20 served to sharpen our response to the unfolding long-term reality of global heating. Making greater sense of our own experience was a valuable process. It provided a way to actively consider the challenges educators face in finding ways for the 'unassimilable knowledge' of the climate crisis to be imagined and spoken about (Bryan, 2021). After the semester finished, we focused attention on the development of a climate literacy framework reflective

of our growing apprehension. The mobius loop illustrated in Figure 2, integrates the development of four cognitive skills - particularly relevant to communication graduates - with explicit tools that address the affective dimension of crisis pedagogy. A mobius loop suggests an unbroken engagement – in this instance between the acquisition of *critical competencies and an affective attunement* - that can be adopted in different learning contexts to support (a re-imagined) climate literacy (Reid, 2019). The mobius loop illustrates an active and explicit movement across two domains: on the left, teaching and learning as a means of knowledge production and acquisition, and on the right, the utilisation of methods that address affect and position ‘students as subjects of initiative and responsibility rather than as objects of the actions of others’ (Biesta, 2013, as cited in Reid, 2019).

Figure 2. A cognitive model balancing the acquisition of critical competencies with awareness of affect in climate crisis teaching and learning.



Note. Figure 2 shows a mobius loop balancing four **critical competencies**: climate science literacy; media literacy; critical awareness of business-as-usual; futures thinking, *with awareness of the affective dimension of crisis content*: teaching practices attuned to affect ie. affect-based learning; embodied learning; somatic practice; trauma-informed learning; arts-based methodologies; situated knowledge.

Conclusion

Student feedback survey results from Environmental Communication over the past five years reveal the majority of students highly value

their learning experience. However, many students are emotionally impacted by the scientific characterisation of the scale of climate risks and environmental impacts they did not previously comprehend, and by the history of organised obstruction of effective environmental policy. This is exemplified by a student who found *'some of the content in the subject quite distressing. To the point where I was avoiding class because it was causing me depression'*. Such statements affirm the critical need for pedagogy responsive to the affective dimension of knowledge acquisition. This same student went on to state: *'Could you please provide more support to students if you are going to expose them to such apocalyptic and existential ideas?'* Her request highlights a broad need for tools, techniques and strategies that support students in their translation of learning into empowered action as professional communicators, citizens and leaders in the climate crisis.¹

The existential, emotional and intellectual challenges of crisis pedagogy demand ongoing attention. A lack of a sufficient focus in this area represents 'a missed opportunity that disadvantages faculty and students alike by increasing, rather than decreasing, the likelihood of anxiety and despair' (Wallace et al., 2020, p. 148). The concept of 'difficult knowledge' (Britzman, 1998) can help to illuminate what is regularly under-exposed in the classroom in regard to psychological concepts of trauma, vulnerability and crisis, drawing out layers of personal and collective responsibility (and resistance).

In an age when ever more devastating ecological erosion and climate events are to be expected, and 'environmental anxieties have deeply embedded themselves into present consciousness' (Buell, 2004, p. 245), educators who accept the ethical duty of crisis scholarship and education (Cox, 2007) need new practices that account for the full complexity of learning and teaching. In this paper, we offer a cognitive model and pedagogical practice of care that may assist educators to complement the acquisition of critical knowledge with a compassionate awareness of the affective consequences of learning. In making the climate crisis intelligible, we must also assist students to stay present and remain embodied and connected through their encounters with profoundly unsettling knowledge. Of course, it must be admitted that there is no

¹ To this end, an open-source Climate Toolkit was developed in response to the survey findings and made available to students. It includes resources for mental health and climate anxiety support, and assists students to imagine ethical career paths in communication careers (Creative Commons BY-NC-SA). Available here: <https://indd.adobe.com/view/ba3ff4c0-e554-4230-b23a-533dbe7a26c9>

way to remove the basic causes of climate anxiety, and return those who suffer from it to a 'normal' psychological condition, because there is no position external to the existential conditions of life on Earth now irreversibly transformed by escalating climate change. Yet it is still not too late to work together for intergenerational, multispecies justice. Every fraction of a degree matters in the struggle to limit global heating: there is no time for passive despair.

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