

## **Learning to change: Climate action pedagogy**

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*This article considers higher education's role in climate crisis, reflecting on the potential of action-oriented pedagogy. As a reflection on practice, the authors consider a new postgraduate course, Climate Crisis and Action (CCA), launched in 2022 as one of a suite of new courses using inside-out pedagogy in one of the oldest (and most recently holistically redesigned) Master of Environmental Management (MEM) programs in Australia, at the University of New South Wales (UNSW). Over ten weeks, while building foundational climate literacy underscored by imperatives of justice and education, CCA prioritises student leadership, active citizenship, and professional agency for real-world impact. We detail four key elements of the course design: 1) repositioning the course convenor as academic-facilitator to empower students to see climate crisis as a shared challenge addressed through joint contribution, 2) establishing an atmosphere of collective intelligence, shared accountability, and affect-based learning, 3) designing assessments that embed solutions and pedagogy to position students as climate innovators and educators, and 4) providing leadership opportunities in real-time to support students to experience*

*their own growing expertise and professional agency. The approach reflects two motivations: to engage students with the immediacy and urgency of climate crisis, and to extend the core function of teaching academics to support real-world problem solving, social innovation and societal transformation.*

**Keywords:** *climate change, climate change education, inside-out pedagogy, climate crisis, climate action, affect-based learning*

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## Introduction

This article considers the role of higher education in climate crisis, reflecting on the potential of action-oriented pedagogy within the structure and constraints of the academy. Our focus is a new postgraduate course, Climate Crisis and Action (CCA), which sits within one of the oldest Master of Environmental Management (MEM) programs in Australia, at the University of New South Wales (UNSW). As program convenor, the second author collaboratively redesigned the MEM to emphasize transformative learning, care, and leadership, launching the revised program in 2021. The revision took “inside-out pedagogy” (Milstein et al., 2017) as its inspiration, a model for teaching about environment and society that takes up an ethical duty to help empower learners as both visionaries and change agents. In particular, inside-out pedagogy is focused on cultivating learning spaces in which students’ “inner concerns and passions find vital connection” (p. 45) with their understandings of, and activation within, the wider world.

CCA is one of the revised MEM program’s suite of new and updated courses<sup>1</sup>, all centring transdisciplinary critical and creative transformative engagement. CCA, collaboratively designed and convened by the first author, examines and engages fields of action in the face of the climate emergency at different scales, locales, and temporalities. As with the program’s coursework at large, the design and delivery of CCA centre inside-out pedagogy approaches, including: 1) turning the inside out to assist learners in environmentally (and

<sup>1</sup> Other new courses include additional reflection and action-focused courses, such as Living Cities: Promises and Risks of Urban Environments, Restorative Ecologies: Permaculture Principles and Practice, and Indigenous Knowledges in Caring for Country.

climatically) locating themselves and to amplify learners' inner queries and lived experience and ground course concepts in personally relevant ways (e.g., through meaningful opportunities for self-reflection), 2) turning the outside in to embed student learning in wider relevance beyond the classroom walls (e.g., through hands-on participation in advocacy or learning from community teachers and field experts), and 3) nurturing change agents by providing opportunities for students to expand from the active learner to informed actor (e.g., through taking on roles in co-teaching or as leaders in action) (Milstein et al., 2022).

This practice reflection addresses two central concerns: 1) How to engage postgraduate students with the immediacy and urgency of climate crisis, while simultaneously instilling a sense of agency, and 2) How to incorporate the climate-based urgency of real-world problem solving, social innovation, and societal transformation. This brief paper presents contextual information about the development of CCA and outlines four areas of innovation that may be useful for others tasked with developing action-oriented approaches to learning and teaching.

### **Course design and framing climate action**

The MEM program caters to a mix of students with different expertise, disciplines and professional experience, who arrive with diverse interests. It is designed to engage all learners by providing multiple pathways through the knowledge and experiences offered. A previous related pre-program revision course, titled *Managing Greenhouse Gas Emissions* and convened by a renewable energy expert, engaged learners with the imperatives of the energy transition. It focused predominantly on renewable energy technologies and emissions reduction critical to climate change mitigation. This is no longer the singular or primary focus of CCA. Instead, in the new course, the technical and managerial dimensions of the energy transition are extended outward to provide learners with wider climate crisis contexts and forms of action across the social world. The renamed and reimagined course has shifted from a managerial orientation toward a custodianship and action orientation, reflecting wider changes in the program. The premise of the new course is that the scope for climate-related action is broadening while simultaneously becoming more refined. Learning scope is, therefore, highly interdisciplinary, drawing together subfields across climate change research, including communication, psychology, human

geography, science and technology studies (STS), social movement theory, and innovation literature. The inside-out pedagogy of the MEM program informed the development of formal course description and learning outcomes<sup>2</sup>. These were combined with the convenor's own teaching goals in climate crisis education, which have evolved through an iterative teaching practice in a variety of contexts (Leimbach et al., 2022).

The CCA course pivots around three core areas of learning: climate science, climate justice and climate education. Taking a prismatic approach, it is designed to interweave the problem context with the action and solutions context throughout. Over ten weeks, CCA builds foundational climate literacy, underscored with the imperatives of effective global education for transformation (Kwauk & Winthrop, 2021). Drawing together insights from the growing field of climate change education (CCE) and the objectives of Sustainable Development Goal 13: Climate Action, the new course addresses the “cognitive, socio-emotional and behavioural dimensions” of learning (UNESCO, 2017). In addition to in-person teaching, a simultaneous online platform provides for distance learning (across continents and time zones), with material profiling climate action across sectors and geographic boundaries.

At the beginning of the course, students focus on the physical basis of the climate crisis. A guest plenary from a prominent climate scientist conveys the latest science, relaying the history of climate research, model-based future projections, and net-zero and carbon budget concepts. Following this, students participate in a collaborative workshop, utilising a climate science “serious game” to extend and apply their learning. The CCA problem context simultaneously foregrounds climate justice and associated politics in order that students apprehend the moral dimensions of climate action and the growth of an “increasingly unified and visible climate protection movement” (Moser, 2016). By attending to historical developments, students come to appreciate that the “movement of movements” is made up of thousands of campaigns with increasing impact on parliamentary politics in Australia and elsewhere. CCA explores campaigns, organisations, alliances, and networks advocating for climate justice around the world, examining how resource extraction, colonialism, territory, and identity are linked. The role of Indigenous leadership in climate justice

2. Course Learning Outcomes for IEST6911.

movements is celebrated as a source of solidarity. The significance of the energy revolution in reducing carbon is detailed in a guest plenary given by a prominent renewable energy expert. This is cast alongside political and imaginative obstacles to decarbonisation, giving focus to the history of organised climate denial and the distortion of facts and false solutions from those who benefit from inaction (Solnit, 2021). The energy transition is framed through a justice lens, acknowledging the energy revolution and its rapid development as a cause for hope, while acknowledging challenges of equity and inclusion (Sovacool, 2021). We examine the energy transition across scales – at the local, state and federal level in Australia – as well as globally. A workshop led by a community organiser further highlights models of deliberative democracy and active citizenship, and the role of collective grassroots organising within the energy transition.

As the course develops, CCA explores mitigation pathways, including reducing greenhouse gases through international agreements, carbon sequestration, drawdown and alternative energy sources; and adaptation measures aimed to help communities become more resilient. Students investigate efforts at local, national, and international scales, including those of communities, governments, and businesses. We consider economic systems based on growth and question what type of socio-political system is compatible with averting catastrophic climate change. Students develop nuanced understandings of (potential) climate solutions, examining issues of legitimacy and efficacy. We also look at ways to develop and apply theories of change and utilise monitoring and evaluation methods for new climate action projects. In the following section, four features of the CCA course illustrate our approach to climate action pedagogy.

### **1) Empower students to see climate crisis as a shared challenge**

Interweaving problems with existing and emerging solutions can empower students to see climate crisis as a shared challenge that must be addressed through the joint contributions of diverse stakeholders. The course convenor positioned herself as academic-facilitator, and incorporated several guest speakers and student-led activities to engage students as empowered actors. Students are given multiple opportunities to interact with professionals and experts working in the field, which also has the effect of bringing students immediately into

the problem space. This approach shifts the “locus of action” beyond theoretical arguments within academia. As Monroe et al. (2019) highlight, climate change education strategies are effective when they move beyond the transmission of climate science, and incorporate activities and educational interventions designed to engage learners in meaningful ways. The collaborative approach of CCA champions the work of individuals and organisations outside academia in order to highlight collective responsibility and to leverage the potential of CCA to intervene in the rhetoric of doom. Given the significance and increasing prevalence of anxieties relating to current crises (Leimbach et al., 2022), it is imperative to offer transformative, generative, and empowering alternative future visions that students can immediately connect with and respond to, prioritising real-world impact.

## **2) Establish an atmosphere of collective intelligence, accountability, and affect**

The CCA prioritises global climate change education as a central component of climate action, emphasising innovative and effective learning design throughout the course. For example, in the second week of the term a 3-hour workshop was facilitated by the climate science education organisation, Climate Fresk. These workshops incorporate embodied, collaborative and affect-based learning. With dozens of translations, more than 80 international country coordinators, and thousands of trained facilitators, Climate Fresk is an initiative that has engaged more than 400,000 people. Its aim is “to create a network of people that is growing exponentially [...] in order to reach a social tipping point that will help guide us to a low carbon world” (Climate Fresk, n.d.). Climate Fresk has a decentralised governance structure and a Creative Commons licence, making it widely accessible. It can be played online or in person. In the first phase of the workshop players collaborate in teams with a deck of climate science cards. They are tasked with mapping cards onto a large roll of paper to make causal links between drivers and impacts across the climate system. In the second phase, participants explore the emotional implications of climate crisis, and in the third, potential solutions through facilitated group dialogue. Learning innovations such as the Climate Fresk workshop enhance overall engagement in climate action pedagogy because they incorporate socio-emotional aspects of learning, which are often

neglected in formal education. Incorporating affect-based learning can help to overcome the ‘psychological distancing’ (Leviston et al., 2014) that occurs when individuals are confronted with distressing information. As a CCA learning experience, students were able to: a) problem-solve collaboratively, b) share prior-knowledge and gaps in understanding, c) develop collective intelligence through serious play, d) delve into emotional impacts and discuss support strategies for mental health and wellbeing, and e) establish clear links between learning innovations and climate action.

### **3) Design assessments that position students as climate educators and innovators**

Two major assessments in the course were designed to facilitate the translation of knowledge into action. In the first assessment, students were tasked with developing and delivering an innovative learning experience in the CCA classroom, inspired by Climate Fresk. Working as education consultants, the students have an opportunity to embody the role of a climate educator and creatively engage with many of the inherent challenges of climate crisis learning. This assessment emphasises the importance of effective global education in overcoming misinformation campaigns that have hindered progress; and highlights education as an essential tool in reducing fear, by ensuring a substantial knowledge base and critical thinking skills to address misinformation and provide solutions. Examples of student work include a global carbon cap and trade game, and a Conference of the Parties (COP) role-play activity. In the second major assessment, students research three existing climate action projects and develop a proposal for a new initiative, which are combined and presented in a digital portfolio. Through this activity, students consider climate solutions at varying scales and critique project aims and outcomes utilising a range of methodologies. The assessment usefully highlights the broad scope for action and strengthens understanding of potential benefits across a range of diverse initiatives.

### **4) Provide student leadership opportunities to embody expertise**

The delivery style of CCA supports students to be empowered local leaders, acknowledging that the nature of leadership in the climate

movement is diffused and collective, rather than individual and hierarchical. In the course, informal aspects of the learning capitalise on immediate action and learning-by-doing (Milstein et al., 2017; Milstein & Pulos, 2015). Examples of collaborative learning praxis in the first offering of CCA in 2022 include:

- As part of an in-class workshop on climate communication presented by Climate for Change, students were invited to host and facilitate a climate change conversation within their own communities. Climate for Change is an Australian environmental organisation focused on helping people to have conversations about climate change with their peers. Their evidence-based approach to social change is based on the notion that ‘people process information - make sense of it, make decisions about it and take actions around it - through conversations with people they trust’ (Climate for Change, n.d.). From this workshop, four CCA students took the initiative to organise and facilitate home conversations.
- As part of a guest plenary about regeneration, students learnt about the Innovate to Regenerate (I2R) challenge, funded by the World Wide Fund for Nature (WWF). The challenge is hosted by ‘WWF-Australia, in partnership with Regen Studios and Monash University, on the purpose-built Impactio platform, which is designed to connect ideas with resources, mentorship, market insights and financial support’ (Impactio, n.d.). Students explored the grant application process in class and were encouraged to pitch their third assessment for project funding.
- Students took up leadership roles in a global 2022 Earth Day online event by the International Universities Climate Alliance, volunteering to facilitate panel discussions and workshops.
- Students were invited to join the Australian Climate Lobby after learning about political organising and deliberative democracy from a representative of the organisation.

## **Conclusion: Transformative pedagogies for collective learning and action**

In this critical decade, education must itself be a form of action and



solution. Alongside the development of critical literacies that enable students to grapple with scientific, technical, political, economic, and socio-cultural information, a learning approach that draws on the potential of localised and scalable solutions is essential (Kwauk & Winthrop, 2021). This practice reflection highlights several ways that climate action courses within the higher education context can provide opportunities for students to experience themselves as educators, innovators and change-makers. Informed by the potential of an inside-out, transformational pedagogy (Milstein et al., 2017; Milstein, 2012), this approach to learning extends the traditional role of higher education in powerful ways, supporting the broader goal of immediate climate action.

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