Workshop Briefing Paper

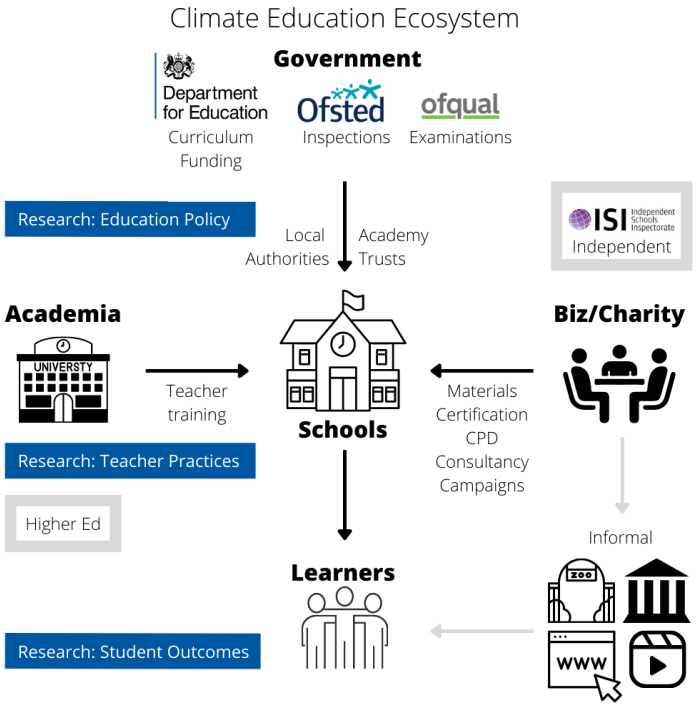
Oxford ClimatEdLab, May 2022

We look forward to welcoming you to a workshop on climate change education, organised by the Climate Education Lab, a project at the Oxford School of Geography and the Environment with support from the Social Science Integrated Impact Fund, and hosted by the Oxford Department of Education. This event will bring together academics, researchers, students and staff from across the University of Oxford as well as guests from University College London, University of Bristol, and University of Reading.

This briefing document begins with some context on international and UK climate education policy and the field of environmental and sustainability education. The document then provides short summaries on research and other relevant activities led by other academic institutions and charities. The final section describes current Oxford activities and potential funding sources for the next phase of this project. There are many ways to define and approach climate change education, and the illustration below shows a high level view of the climate education ecosystem to spark a discussion about intervention points for research and other activities. At the end of this document are a few citations for additional reading if you would like to dig more into different definitions of and debates regarding climate education.

Our hope is that this new Climate Education Lab can serve to convene educators and researchers, coordinate climate education activities at Oxford, and support future regional collaborations. Thank you for your participation.

Bill Finnegan and Tina Fawcett



Context

Before getting into the details of climate education activities in the UK, we'll briefly provide some context in terms of international agreements, environmental and sustainability education, and the recently launched DfE Sustainability and climate change strategy.

International

Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC) refers to education, training and public awareness, a commitment that was reinforced by Article 12 of the Paris Agreement:

> Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement.

At the UNFCCC COP26 events in Glasgow, climate education activities included:

- The Glasgow work programme on Action for Climate Empowerment, which outlined four priority areas (Policy coherence; Coordinated action; Tools and support; Monitoring, evaluation and reporting) and six ACE elements of Article 12 (Education, Training, Public awareness, Public access to information, Public participation, International cooperation).
- A statement from the Education and Environment Ministers Summit reaffirming their commitments to sustainability and climate change education.

The United Nations Sustainable Development Goals are another reference point for the intersection of education and climate change. Under Goal 4 (Quality Education), indicator 4.7 references education for sustainable development. Goal 13 (Climate Action) includes two indicators related to climate education:

- 13.3.1: Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment.
- 13.3.2: Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions.

UNESCO has long advocated for environmental and sustainability education, including promoting whole-school approaches to sustainability. In a recent report – Getting every school climate-ready: how countries are integrating climate change issues in education (2021) – they reviewed curricula of 100 countries to find only 53% make any mention of climate change. The report also included results of an international survey of teachers and profiles of climate education in 20 countries. UNESCO is also the home of the Office for Climate Education.

Environmental/Sustainability Education in the UK

Climate education also builds on the tradition of environmental and sustainability education. The UK National Association for Environmental Education (NAEE) was founded in 1971 and recently launched Young People's Learning and the Environment: a Manifesto, which outlines a series of 16 commitments for school leadership, teachers and learners, with cross-cutting principles of partnership, integrity, building capacity and inclusiveness.

The King's College London research project Understanding environmental education in secondary schools (2017-2019) mapped environmental education from both a policy and practitioner perspective, with recommendations targeted at DfE, Ofsted, and examination boards.

In 2021, a British Education Research Association (BERA) funded research commission on environmental sustainability released Manifesto for Education for Environmental Sustainability that was co-created with teachers and young people, and outlines values, capabilities, and solutions in four categories: classroom, school, community and policy.

Climate Education in England

As a devolved issue, climate education and school sustainability are handled differently in England, Scotland, Wales and Northern Ireland. Focusing on the national curriculum for England, Andrew Charlton-Perez at the University of Reading has written in Carbon Brief about the small number of references to climate. In a presentation at SoGE, Martin Evans from University of Manchester echoed that the curriculum requires very little climate education, all of which is limited to the sciences and geography, although it provides footholds for motivated teachers to respond to student interest and incorporate more climate-related content across various subjects.

On 21 April, 2022, Secretary of State for Education Nadhim Zahawi announced a new DfE strategy for sustainability and climate change. While this strategy is not a formal education policy, in terms of changes to the curriculum or new funding, it sets out clear language about the importance of a systems-based approach to climate education in the context of net-zero. The two banner programmes of the strategy are:

- National Education Nature Park: a virtual national park composed of school grounds.
- Climate Leaders Award: a new award scheme modelled on the popular DoE award.

DfE will soon be releasing tenders for both delivery and evaluation of the programmes, with early interest from a consortium of charities led by WWF and educational publishing company Pearson. The government also has announced a new GCSE in natural history.

Activities

In this section, we provide brief snapshots of current climate education activities at other universities and led by charities.

Academic institutions/networks

Below are short summaries of three relevant initiatives led by other academic institutions that will have representatives at the workshop. Please see the appendices for one page descriptions of each.

UCL: Centre for Climate Change and Sustainability Education (CCCSE)

Based on the model of the Centre for Holocaust Education at UCL, this new centre will conduct high-quality research to shape teachers' and school leaders' professional development across all phases, subjects and career stages. Initial projects are focusing on geography and history education.

Reading: Partnering for the Planet: Climate Education

Following the Climate Education Summit, Reading University has developed a National Climate Education Action Plan. They also created a new Climate Ambassador Scheme – in partnership with STEM Learning and the Royal Meteorological Society – which is referenced in the new DfE strategy.

GW4: Climate Change Education Research Network (CCERN)

With seed funding from GW4, the collaboration between the University of Bath, the University of Bristol, Cardiff University & the University of Exeter, this project established a transdisciplinary network involving researchers across university disciplines working with teachers to orient and provide active support for research on climate change education. Research outputs include a recent study of teacher attitudes on climate education in England: https://doi.org/10.1080/13504622.2021.1937576

Charities & NGOs

Teach the Future / NUS SOS

Teach the Future is a youth-led campaign to urgently repurpose the entire education system around the climate emergency and ecological crisis. The English campaign has two parent organisations, UKSCN and SOS-UK. The Scottish campaign has two parent organisations, FFF Scotland and NUS Scotland. The Welsh campaign has one parent organisation, UKSCN Wales. The campaign is led by a team of over 40 young volunteers.

Ashden / Let's Go Zero

Let's Go Zero is a national campaign run by Ashden in which schools sign on to the ambition of being a zero carbon school by 2030. To date, over 1,300 schools have signed on to the campaign. Ashden is also working with the UK government to ensure the right support is in place to help all schools reach this goal through seven policy actions and has created a Schools Climate Action Planner.

Global Action Plan / Transform Our World / UKSSN

Transform Our World is a collaborative online hub that supports teachers in bringing environmental and social action into the classroom through showcasing quality-rated resources, programmes and events available from various organisations. Transform Our World is coordinated by environmental charity Global Action Plan, which also manages the UK Schools Sustainability Network (UKSSN) of teachers and students that actively participated in both COP26 and the DfE strategy consultation.

Keep Britain Tidy / Eco-Schools

Eco-Schools is a programme (managed in England by the charity Keep Britain Tidy) which provides a simple, seven-step framework that guides, empowers and motivates pupils to drive change and improve environmental awareness in their school, local community and beyond. After completing the seven step process, schools can then apply for Eco-Schools Green Flag accreditation, which recognises, rewards and celebrates the environmental achievements of young people. There are over 20,000 schools in England that participate in Eco-Schools. The international Eco-Schools network operates in 70 countries and engages 19.5 million young people globally, making it the largest educational programme on the planet.

WWF / COP26 Resources

The "Our Climate Our Future" COP26 classroom resources pack was created by a consortium of expert organisations chaired by WWF, which served as the UK government's education partner in Glasgow. Contributors include The Climate Coalition, Fairtrade Foundation, Oxfam, Global Action Plan, Christian Aid, Soil Association, Ashden, Young Climate Warriors, ZSL, Let's Go Zero and InterClimate Network. Included within this pack are all the resources you will need to introduce and reinforce the significance of climate change, COP26 and the role of schools in shaping the future, with customised age-appropriate resources provided for different age groups from 7-16.

RMetS / Maths for Planet Earth

The Royal Meteorological Society is involved in a number of climate science education initiatives, including partnerships with the University of Reading (see Climate Ambassador Scheme above) and the University of Oxford (see Maths for Planet Earth below).

Other:

There are many other small organisations in the climate education space working locally or on specific topics/approaches. A comprehensive mapping exercise isn't possible at this point, but a few other efforts are worthy of mention:

- AimHi (https://www.aimhi.earth/) online climate education portal in partnership with the Eden Project
- eduCCate Global (https://educcateglobal.org/) teacher and school certification
- Thoughtbox Education (https://www.thoughtboxeducation.com/) systems-thinking and emotionally supportive resources and training
- Energy Sparks (https://energysparks.uk/) smart meter data dashboards and energy saving materials and campaigns for schools

University of Oxford

A major goal of this workshop is to bring together people already working on climate education research and other activities together to explore common themes and share resources. If your activities are not included in this document, please come prepared to share more at the event.

Current Activities

ECI: SoGE Inspiration Fund Project on Climate Change Education

During 2019/2022, Tina Fawcett led a collaborative activity on climate change and education, funded by the School of Geography and the Environment's 'Inspiration Fund'. The project aimed to develop resources for schools, engage with teachers, pupils and parents, build a stronger climate change education network within the university and beyond, and to create advice on how universities can engage with schools. A number of activities took place under the umbrella of the project, including a seminar on the place of climate change in the geography curriculum, the development of an educational resource 'Maths for Planet Earth', networking with local educators and NGOs and providing training for staff on how to speak to primary school children about climate change.

The aim of 'Maths for Planet Earth' is to integrate climate change into the school curriculum, beyond the usual suspects of geography and environmental science. The website and resources are being transferred to the Royal Meteorological Society who will maintain and expand the site.

Education: Climate Change Education Futures in India

Steve Puttick is Associate Professor of Teacher Education at Oxford's Department of Education. His research is located at the interface between the academic discipline and school subject of geography. Recent work on climate change education focuses on the sources of information that teachers' use (scoping review here), and Climate Change Education Futures in India. The

project CCE Futures in India, conducted in conjunction with IISER Pune, seeks to improve climate change education in India and beyond by exploring the impacts of the TROP ICSU (Trans-disciplinary Research Oriented Pedagogy for Improving Climate Studies and Understanding) intervention, asking: How do teachers mobilise new knowledge about climate change after completing an online climate change programme? What barriers do teachers face in their implementation of CCE? How do these teachers conceptualise the ways in which students' future work and employment might engage with climate change?

TORCH: Climate Crisis Thinking in the Humanities and Social Sciences

The TORCH Climate Crisis Thinking network, convened by Amanda Power (History) and Nayanika Mathur (Anthropology), hosted a series of events during COP26, including a panel on education: 'How does climate crisis change the curriculum?' Innovating in education and the future of work, Participants: Rahul Chopra (IISER, Pune; TROP ICSU project), Kim Polgreen (Wytham Woods/Oxford teachers), Amanda Power (History, Oxford), Steve Puttick (Education, Oxford), James Robson (SKOPE, Oxford), Arjen Wals (Wageningen, NL; UNESCO Chair of Social Learning and Sustainable Development), Chair: William Finnegan (OUCE, Oxford).

Smith School: Water Learning Partnership

The Water Learning Partnership, currently active in Cameroon and Kenya, helps secondary school environment clubs and classes make the most of water as an interdisciplinary learning topic. This initiative brings water researchers and educators together to deliver a range of learning activities offering a deep dive into the universally relatable and critically important subject of water. We would be interested to explore ideas around adding perspectives from young people in other parts of the world into materials for climate change education in the UK.

Earth Sciences: Geologise Theatre

The *Climate Change: Science, Research and Performance* project by Roberta Wilkinson, Matthew Kemp and Helen Johnson was funded by the University of Oxford Public Engagement with Research Seed Fund. Their project explores creative responses to climate science and research through performance and music. The project is aimed primarily at children and young people and consists of two strands:

1. Climate workshops for young people with a theatrical twist. In these workshops, young people from local schools and community groups interview Oxford climate researchers about their work. The young people then devise their own dramatic scenes inspired by these discussions. At the end of the workshop, we experiment with setting their ideas to music.
2. An original musical theatre show about climate change aimed at children (11+) and teenagers, written and performed by Geologise Theatre (Roberta Wilkinson and Matthew Kemp). The show will be inspired in part by interviews and discussions with climate researchers.

Wytham Woods: Oxford Earth Academy and ECI Ecosystems Lab

Kim Polgreen, youth educator in residence and Wytham Wood and leader of the ECI-affiliated Oxford Earth Academy, has been coordinating a number of youth activities, including: Oxford Earth Academy Summer Schools, nature-based and outdoor education training, and youth events on fashion and green careers. Wytham will be hosting an event in July for young people involved in UKSSN.

SoGE: Could a country disappear?

Postdoctoral researcher Liam Saddington has been adapting his research into a series of resources around the question of "could a country disappear?". Building on a collaboration with Oxplore, Liam has developed materials which encourage young people to think about the geopolitics of climate change. He has run approximately 13 lectures/workshops with primary and secondary school pupils and facilitated an event at the Festival of Social Science last year.

Education: FEDORA

Postdoctoral researcher Olga Ioannidou works in the FEDORA project, which is a 3-year (2020-2023) Horizon 2020 project focusing on future-oriented skills in science education. As part of this project, she has been working closely with teachers and museum representatives in order to co-develop teaching resources on climate change. She is planning to use these resources to deliver three workshops at the Museum of Natural History in June that would focus on climate change and action. These workshops will target secondary school students' understanding and views of climate change.

SoGE: Digital storytelling about climate futures

SoGE DPhil student Bill Finnegan has led a series of digital storytelling workshops with sixth form students in which they create multimedia letters from the future.

TORCH: Arts, Biodiversity, Climate

SoGE DPhil student Anya Gleizer coordinates the Art, Biodiversity and Climate Network for TORCH, teaches art and ecology to primary school students, is the resident artist for UrbanBioLabs, and holds climate action and the preservation of arctic ecosystems at the heart of her artistic practice.

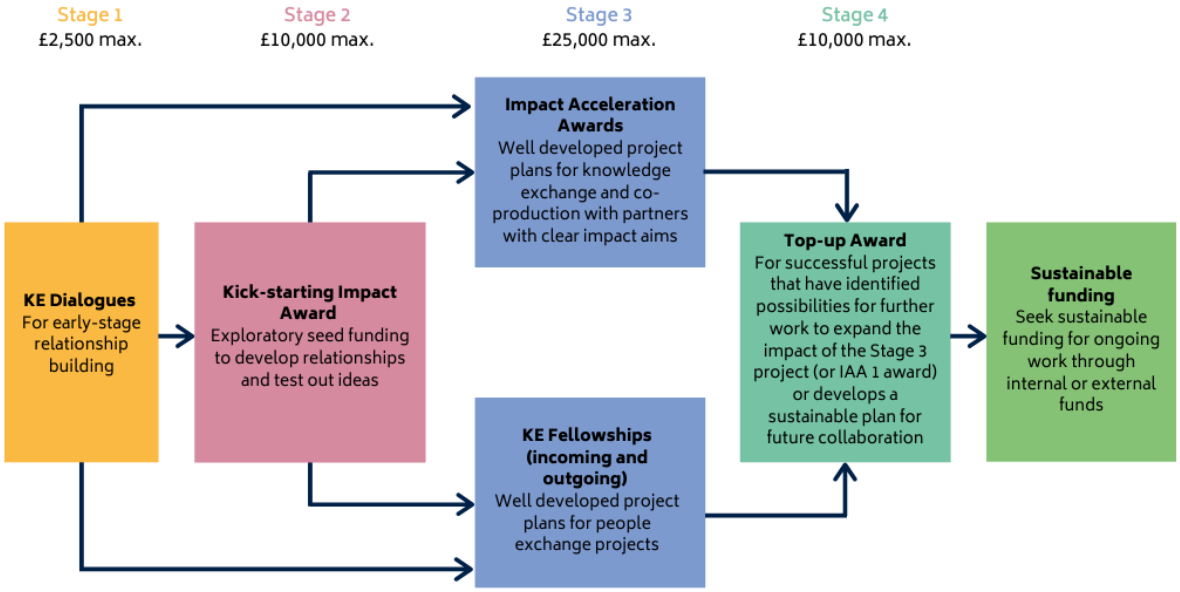
Other activities

In addition to specific projects, there are a number of ongoing groups, networks and activities within the university related to climate change education. These include the Oxford Climate Research Network (https://www.climate.ox.ac.uk/), the student-led Oxford Climate Society (https://www.oxfordclimatesociety.com/) and the curriculum subgroup of the environmental sustainability subcommittee implementing the Oxford University's Environmental Sustainability Strategy. There are also multiple links to local schools and education / environmental NGOs via individuals, colleges, departments and student activities.

Potential Funding

ESRC IAA

There are a number of different opportunities for further knowledge exchange/impact acceleration awards to follow-on from this award, although the programme ends in March 2023.



SSD Interdisciplinary Hubs

The SSD Interdisciplinary Hubs (SSDIH) offer up to £40k of funding for up to 18 months to promote activities that would establish, organise and/or catalyse interdisciplinary communities ready to apply for significant external research funding in the relevant subject area.

What else?

Additional Reading

Facer, K., Lotz-Sisitka, H., Ogbuigwe, A. Vogel, C., Barrineau, S (2020) TESF Briefing Paper: Climate Change and Education. Bristol, TESF. DOI: 10.5281/zenodo.3796143

Abstract: This is a short summary of some of the current debates and state of the research in relation to climate change and education. Its primary purpose is to support the research teams in our network seeking to develop new community-led research agendas. However, our hope is that it will also provide a useful provocation and starting point for others coming new to the field and seeking to develop research and action projects. It does not aim to be comprehensive and to reference all the existing research relating to climate change and education, but to draw out some of the main areas of knowledge and, in particular, to identify the things we know less about where research is urgently needed.

Reid, A (2019) Climate change education and research: possibilities and potentials versus problems and perils?, Environmental Education Research, 25:6, 767-790, DOI: 10.1080/13504622.2019.1664075

Abstract: This article introduces key features to the background, themes and implications of three collections available in *Environmental Education Research* that focus on climate change education and research. The problems and perils of scholarship and inquiry in this area are highlighted by contrasting these with some of the possibilities and potentials from a broad range of studies published in this and related fields of study, for example, in understanding who is doing the teaching and learning in climate change education, and in identifying the conceptual, policy and economic drivers and barriers related to its uptake. Key points for debate and action are identified, including for so-called 'pyro-pedagogies' and 'practice architectures', and the various philosophical, political and phenomenal aspects of climate change education that are likely to affect its prospects, at this moment and into the immediate future.

Reid, A (2019) Key questions about climate change education and research: 'essences' and 'fragrances', Environmental Education Research, 25:6, 972-976, DOI: 10.1080/13504622.2019.1662078

Abstract: This non-traditional article identifies a series of questions pursued and/or critiqued within inquiries about climate change education (CCE) and research. The questions and clustering format were initially crystallised from summaries and critical discussion with editors, referees, and critical friends of this journal, during the process of bringing together a series of international studies for various CCE collections in *Environmental Education Research*. First offered as a supplement to a Virtual Special Issue, launched at Education Day of COP23 in Bonn (2017), the 'key questions' were subsequently revised in light of community feedback and further analysis of the 'blind, blank, bald, and bright spots' for environmental education and CCE research that they might represent. Sources used to guide the initial compilation and revision were submissions to, reviews of, and studies published in the journal between 2010 and 2019, and those forming two additional collections of research and commentary on CCE, published in Volume 25. Other considerations were: (i) the literature base associated with these papers (drawing on citation and document analysis), and (ii) presentations and conversations on CCE topics at various international research- and education-focused events during that period, focusing on what seemed 'stale', 'fresh', and 'invigorating'. In sum, the questions: (a) suggest various 'fundamental topics' to 'niche considerations' about CCE and research in this research field, (b) reflect a diversity of question purposes and formats that may direct, underpin, and/or structure associated research projects and publications too, and (c) reveal a complex array of assumptions and ends-in-view that are not necessarily compatible with each other nor with a coherent or progressive agenda for research and practice development. Further commentary and responses to the 'essences' and 'fragrances' associated with such questions, as well as new questions and analysis from relevant sources, fields, periods and projects, are invited.

Appendices

1. Centre for Climate Change and Sustainability Education (CCCSE) at UCL

https://www.ucl.ac.uk/ioe/departments-and-centres/centres/ucl-centre-climate-change-and-sustainability-education

Leading research into climate change and sustainability education which shapes the development of outstanding, free professional development for all teachers and school leaders.

Director: Professor Nicola Walshe

The importance of teacher development in the area of climate change and sustainability education is hard to overstate. This is the defining existential challenge of our time and the world that schoolchildren will encounter as adults will look different from our world today.

We aim to provide research-informed professional development for teachers and school leaders across all phases, subjects and career stages.

Focus

Teaching young people about climate change and sustainability must include but also go beyond the science of climate change and develop knowledge and values to help them to adapt to a changing world and to embrace the opportunities that more sustainable lifestyles might offer.

Teachers also need to know how to support young people with associated health and wellbeing concerns, including increasing levels of eco-anxiety. These are issues that need to be embedded across the school curriculum, but we know that many teachers lack confidence in this area.

We will work across faculties at UCL to ensure that this professional development is not only informed by our own research into current practice in schools but also by recent academic research to ensure that all our materials are up-to-date.

Research

Initial work by the centre will see academics conduct rapid research on teachers' knowledge and preparedness to teach climate change and sustainability education across the UK.

Other upcoming work includes equipping teachers with the tools to develop the curriculum for more sustainable futures, and exploring how secondary schools' engagement with climate change and sustainability education in England varies.

2. University of Reading, Institute of Education

Climate and Sustainability Education: Dr Jo Anna Reed Johnson

https://www.reading.ac.uk/planet/climate-education

Climate and sustainability education is a key priority at the University of Reading with sustainability as a cornerstone of the Strategic Plan along with the Climate Education Action Plan which emerged from the Climate Education Summit 15 September 2021. In addition, the UoR Climate Ambassadors Scheme (in association with STEM Learning) was launched in April 2022 to support schools and colleges in the UK to develop knowledge and skills to deal with the future in a changing climate.

The government strategy on climate and sustainability education, published on the 21st of April provides a strong vision in supporting schools and teachers in implementing climate and sustainability education. The highlights include curriculum innovation through a new natural history GCSE, and a commitment to strong leadership of sustainability in school by having a sustainability lead in all schools by 2025.

The IOE are supporting this development by embedding Climate and Sustainability Education throughout all IOE programmes. Part of this vision has been the development of an ITT Framework for Climate and Sustainability Education that will be piloted across all our ITT provision in 2022-23, as well as across all our non-ITT educational programmes. It will be piloted across other ITT/ITE HEI providers. This workshop will share insights into that framework, how it was developed and the plans for review and dissemination. In addition, it will present an overview of the other work being done within the IOE along side this.

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3. GW4: Climate Change Education Research Network (CCERN)

http://ed-climate.net/

Background

In October 2018, the Intergovernmental Panel on Climate Change (IPCC, 2018) warned that we had only 12 years left to limit catastrophic climate change, demanding increased Climate Change Education (CCE) to "accelerate the wide scale behaviour changes consistent with adapting to and limiting global warming."

In this sense, the work of the network potentially impacts on all of the 3 priority areas identified by the GCRF (Equitable Access to Sustainable Development, Sustainable Economies and Societies, Human Rights, Good Governance and Social Justice). It is important, therefore, that efforts by educators to talk to and teach their pupils about climate change should be informed by, for example, up-to-date and educationally-relevant research on what is appropriate and effective in terms of pedagogy and curriculum regarding mitigation and adaptation. Such research is best co-produced by researchers across disciplines working with teachers across subject areas – and the projects aims to consolidate and support efforts to achieve this.

Project Summary

The community reached out to academics, school teachers, external agencies, charities and other stakeholders to form the Climate Change Education Research Network (CCERN). Generator funds enabled the community to hold a series of events aimed at fostering dialogue between researcher and practitioner communities, as a platform for planning and engaging in collaborative research activity. The first discussion event identified multiple themes that the community took forward in individually led focus groups. These groups contain a mix of researchers and teachers, allowing potential research projects to be developed and refined in collaboration with practitioners – with discussions continuing beyond the Generator funding period. The community also held two teacher conferences, aimed at integrating research with practice: the conferences explored current models for bringing academic research into schools, gathered evidence from teachers about their school's experience and introduced the research developing through CCERN.

In addition to their network activities, the community provided active support for a range of small-to-medium CCE grant applications led by ECRs. Work on a Policy briefing drawing from the discussions is underway and the community have one paper in publication with others in progress. The community are applying for funds to keep the network going, and have long term plans to apply for larger grants for an interdisciplinary project in this area.

GW4 community leads
University of Bath: Elisabeth Barratt Hacking, Lorraine Whitmarsh
University of Bristol: Paul Howard-Jones (PI)
Cardiff University: Christina Demski, Kat Steentjes
University of Exeter: Justin Dillon