

Case Study

Worcester educator climate assembly: promoting sustainability leadership through participation. A community approach to education in climate emergency

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Abstract

Our urgent state of “Climate Emergency,” as declared by the UK Government on 1st May 2019, has done little to change our secondary education system or educational leadership. As we collectively begin to move into acceptance of the irreversible nature of a portion of the environmental damage and its long-term consequences, we need to explore the purpose and practice of education and educational leadership in climate emergency. How should we prepare teachers and educators to lead and develop young people in a time of climate crisis and who should be involved in making the decisions? This article reports on the findings of a Green Impact project, an online Educator Climate Assembly that took place on World Environment Day 2021, with West Midlands education stakeholder participants. The following themes are explored: responsibility, process complexity, confidence, sense of scale and communities of practice, with an invitation to readers to adapt this process and use it in their own education settings. Suggested further research includes trialing the process in a range of settings and a longitudinal approach to measuring the impacts.

1 Introduction and literature review

Our environmental predicament has become increasingly clear, the science is unequivocal, global heating is happening. With an average surface temperature rise of 1.18 °C since the late nineteenth century, we are already experiencing direct impacts in the form of warmer oceans, melting glaciers, shrinking ice sheets, decreased snow cover, sea level rise, ocean acidification and extreme weather events [1].

This dawning realisation has led to a series of environmental proclamations, at a range of scales, from nations to individual institutions, to simultaneously recognise the situation and begin to take action. The Board of Governors at the institution for this research, the University of Worcester, made a Climate Emergency Declaration in July 2019 [2], as did the local council within which the University resides, Worcester City Council, committing itself to taking action to help the city become carbon neutral by 2030 [3]. What impact have these pronouncements had on education and educational leadership?

The role of education, in tackling our climate crisis, has long been acknowledged by the international community, from education to promote action, to increasing understanding of the impacts and developing learner agency. The UN Framework Convention on Climate Change (UNFCCC), the Paris Agreement and the Action for Climate Empowerment (ACE) agenda make it clear that education to engage and empower all stakeholders is essential. UNESCO has an Education

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for Sustainable Development (ESD) programme that works to highlight education as a crucial international response to climate change, to produce and disseminate policy guidance and technical support, and has prioritised 'Climate Action' as a key driver for their goals until 2030. In their most recent publication, *Learn for our Planet* [4], UNESCO report that education is not providing sufficient competencies for young people to adapt and act in response to the climate and ecological crisis. Their study of curricula across 50 countries identified that over half make no reference to climate change, that there is little attention to socio-economic or action-orientated skills and a third of their educator respondents indicated that environment related issues were not included in teacher education [4]. The study concludes that environmental issues are "weakly integrated in pre-service and in-service teacher education programmes. Most teachers have received either minimal preparation or no preparation in these content areas." [4].

Despite the UK being the first National Government to make a declaration of climate emergency on 1st May 2019 [5, 6], very little has been done since to adapt national education provision, to support educational leadership, or change policy and procedures in light of this acute situation. Neither the new Education Inspection Framework [7] or the ITT Core Content Framework [8] make any reference to climate emergency or ESD for pupils, educators or education leaders. Additionally, the Education Act [9] remains unchanged, despite an ongoing campaign from the Sustainability and Environmental Education (SEEd) organisation, to include an environmental focus by amending section 78 to include the following after subsection (1) (b): (c) instils an ethos and ability to care for oneself, others and the natural environment, now and in the future [10]. Education on climate change and sustainable development do not appear in the UK government 25 year Environment plan [11].

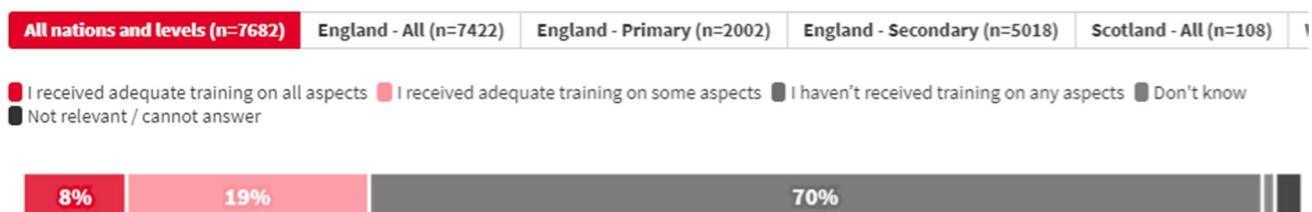
Whilst post-declaration education policy and curriculum change in England appears lax and unmoved, youth interest and voice has risen to the fore. From the development of the UK Student Climate Network (UKSCN) organising over 850 demonstrations in 2019, to the emergence of 'Teach the Future'. This is a youth-led campaign with a vision to urgently repurpose the UK education system to teach students about climate change, to include green skills in vocational courses, as well as making education infrastructure more climate-friendly. In February 2020 they presented their own Climate Education Bill to the House of Commons [12] and later that year they commissioned a research agency, Opiniom, to survey 500 teachers with a range of questions about climate change, their schools and their teaching practice. They reported that 92% of 503 responding teachers are concerned about climate change, 41% answering that climate change is rarely or never mentioned in their school and 17% confirming that climate change is mentioned in core subjects other than science and geography. A small proportion of participants, 5% of those surveyed, acknowledged positively that climate change is integral to many different aspects of the curriculum and teaching in their own schools [13].

In March 2021 Teach the Future published further findings from their research, 'Teaching the Future', with TeacherTapp (an app that undertakes daily educator surveys to inform school leaders and policy makers), reporting that 70% of the 7682 respondents confirmed that that they 'haven't received training on any aspects' in response to the question in Fig. 1:

In contrast, research by Howard-Jones et al. [15] on the views from a sample of 626 teachers in schools in England on climate change education in the curriculum (as well as their opinions on a variety of approaches and funding), identified that a similar proportion of teacher participants (73.3%) are already directly teaching, or talking to, pupils about climate change. Their research also suggested participant support of an early introduction to climate

Do you feel you've received adequate training as a teacher, during qualification or since, to educate students on climate change, its implications for the environment and societies around the world, and how these implications can be addressed?

Please select one only



Source: Teacher Tapp, February 2021, sample of 7,682 UK teachers

Fig. 1 Responses from teachers on climate change training [14]

change education in the curriculum, which the authors proposed in equal precedence with literacy and numeracy, with most responses supporting provision from primary school. This is at odds with the mandated UK curriculum in which climate change education does not appear until key stage three (pupils aged 11 to 14) and then only in science and geography and which does not include reference to resulting social justice issues. Howard-Jones et al. [15] draw attention to the finding that their participants did not consider climate change activities for social change to be too political for them to be involved in education, but also expressed that individual advocacy (active pupil participation) was favoured for older pupils, with family participation preferred for primary pupils.

Teach the Future have continued to champion political action and in June 2021 issued a joint statement, with the National Union of Students, Students Organising for Sustainability, Mock COP and the University and College Union, for the G20 Education Ministers [16] calling on them to 'step up for people and planet'. There is a clear youth appetite and a distinct willingness to respond to our dire plight.

Educator opinions about the role of teachers in our climate crisis are varied. The chief inspector of Ofsted, Amanda Spielman, reportedly fended off suggestions to make more curriculum space for climate change [17] and Enser [18] (a Head of Geography, research lead and author), argued that there is sufficient climate change education in existence in the geography and science curriculums at GCSE level and beyond, and that schools shouldn't be expected to solve societies problems. However, the Brace and Souch report for the Royal Geographical Society [19], can help develop our understanding of the actual uptake of the geography GCSE curriculum in the UK. They report that even with a considerable increase in recent exam entries for geography in maintained schools (from 169,000 in 2010 to 239,000 in 2018), that the proportion of boys taking geography in 2018 was 43% and girls 39.4%. These figures confirm that the majority of young people, in selecting their GCSE options, do not have access to key parts of the climate change curriculum in geography. Tim Jones, a religious education and philosophy teacher, rebuts Enser in the Times Educational Supplement [20], highlighting a curriculum deficit and calling attention to the interdisciplinary nature of the climate problem, implying that it cannot be reduced to one topic in one subject.

In 2019 the University of Worcester was awarded a Green Gown Award for 'Sustainability Institution of the Year' [21], in recognition of the deep commitment to a democratic culture of inclusion, to educational excellence and beneficial impacts to society, and the university also renewed, in 2020, its Responsible Futures accreditation (a unique NUS programme of whole institution supported change to embed sustainability across all aspects of student learning). The institutions School of Education is taking action to embed the United Nations Sustainable Development Goals (UN SDGs) across campus and curricula. This currently includes, as part of its existing Secondary PGCE core content, an introduction to the Global Goals. This incorporates the online Microsoft Educator course, 'Teaching Sustainable Development Goals' [22], followed by an opportunity to explore school placement and subject based sustainability experiences, global goal 4.7 specifically, as well as other ESD frameworks and organisations e.g. Eco-Schools and research on nature connectedness. Working online with a large cohort of over 200 trainees during pandemic distance teaching in 2021, enabled a Padlet capture of trainee reflections on the ESD they had seen in their first teacher training placement of their PGCE year, as well as an opportunity to share their concerns about their future role as teachers of the SDGs. Responses were predominantly about the trainees feeling unprepared, that they had experienced little more ESD in schools than the provision of pupil recycling opportunities. Some reflections showed that trainees felt isolated by their ESD concerns, whilst others conveyed fears that they won't be effective and are unsure how to deliver lessons on this complex problem. A number of geography trainee teachers communicated a sense of burden, within their school community, to take responsibility and leadership for ESD. Climate emergency is clearly not exclusively the geography educators' responsibility, it will impact us all and it is the responsibility of everyone.

This feedback stimulated further a School of Education proposal to broaden the Secondary PGCE ESD content into the development of a 12-h optional enhancement activity on 'Education in Climate Emergency' from September 2021. The School of Education is partnered with hundreds of schools across the West Midlands, collaborations that support pre-service teachers with training placements, as well as offering considerable Continuing Professional Development opportunities for in-service teachers. These existing community connections have the potential to reach, and perhaps influence, a broad array of educators and education leaders in their ESD practice.

1.1 Education in climate emergency: provocations for a democratic approach

The following section explores some of the provocations for adopting a democratic approach in the development of a teacher education curriculum for 'Education in Climate Emergency'.

Jorgen Randers, professor emeritus of climate strategy at the BI Norwegian Business School, draws attention to the need to increase participation in the foreword to Stoknes's [23] publication on climate denial. Writing that "...we must make it more attractive in the short term for a large group of citizens to take part in the creation of a new green future than to remain in the old fossil one". In his book Stoknes [23] argues that the biggest challenge to climate progress is our brains, identifying five main psychological barriers, or 'inner defenses', to climate action, as well as addressing how to make progress with five strategies for engaging with global heating through action and solutions. One of those barriers is the concept of distance, both geographic and temporal. A barrier to acceptance of our climate reality, with misconceptions that the climate crisis is not happening in our vicinity and that it is not happening now, leading to a feeling of helplessness, denial and a tendency to focus on more immediate concerns. Stoknes, in his exploration of another barrier, that of denial, suggests that this situation doesn't arise due to a lack of knowledge or intelligence, but rather exists as a state of mind that enables us to live as if we don't know the difficult truth, living a double life of knowing and not knowing, a situation that is underpinned by the denial of others in our community, a willful complicity of denial [23]. He also proposes that our cultural identity, our self-conceptions and perceptions in relation to, for example, our nationality, ethnicity, class, religion or perhaps profession, can override connection to difficult climate knowledge [23]. How might educators' sense of identity, distance and denial be approached to build climate change confirmation and engagement? What is the role of education leaders?

Willis [24], in her publication on climate challenge and political systems, reports that UK politicians have done little to involve people in climate action. She reminds readers that state level responses to climate change are dependent on social and political conceptions, that responses to climate change are inherently political. Willis identifies a 'feelgood fallacy' of focus on low carbon, individualistic, solutions but without the work to curb carbon-intensive actions and without 'honest conversation' about the vested interests or our choices to reduce emissions [24]. She argues [24] that it is possible and essential that we find democratic solutions and invite the democratic involvement of citizens & voters in our responses to decision making at our time of climate breakdown.

One of the demands of Extinction Rebellion (XR), a well-known 'politically non-partisan international movement that uses non-violent direct action to persuade governments to act justly on the Climate and Ecological Emergency' [25], is to move beyond politics, to create and take direction from resolutions derived from a Citizens' Assembly on climate and ecological justice. This process was used in the UK in early 2020, in the form of the 'Climate Assembly UK' project, to support Parliamentary scrutiny of the Government's policies and progress on climate change, as well as being an exercise to strengthen UK democracy [26]. The task was outsourced, by the House of Commons, to a triad of organisations: The Involve Foundation, Sortition Foundation and mySociety and took place in central Birmingham and latterly online (due to pandemic restrictions), across a series of six weekends between January and May 2020. The objective of the Assembly was for a representative sample, selected by civic sortition to represent the population, to consider how the UK can meet its legally binding net zero target by 2050. This was done through a process of an initial introduction to climate change, followed by a series of opportunities to hear evidence from a wide range of informants and advocates, an extensive variety of stakeholders and researchers. These inputs were then discussed in depth with groups of assembly participants and was followed by the development of conclusions and votes on the 'what' and 'how' of the UK action towards zero emissions. The final online assembly publication shows that the number one principle to underpin the work to net zero, voted in by assembly members, as: "Informing and educating everyone (the public, industry, individuals and government)" [26]. They described the process as "an unprecedented opportunity for the public to contribute to climate change debate, and to influence action taken by Government and Parliament" [26].

The final stimulus to employing a democratic approach to education in climate emergency emerges, again, from psychology. Pihkala [27] explores the eco-anxiety literature and analyses the challenges and opportunities it affords. He found that environmental educators need organisational and peer support in relation to their own climate and environmental anxieties, through self-reflection on their own eco-anxiety and supporting their learners develop emotional resilience. He includes research on the 'alarming number of environmental educators' [27] facing mental health issues as a result of the pressures they feel to do more and the continuous connection they have to environmental destruction. With environmental educators at strong risk of burnout should the ESD burden be spread across all subjects, all educators and leaders in education?

Pihkala suggests that negative ecological emotions can be transmitted between educators and students and vice versa, often as unspoken phenomena, and the paper shares a variety of practical activities (from the literature of various education fields) that might bolster them; collective action, the validation of ecological grief, the provision of safe discussion spaces, creating 'peer support and building a community with others', as well as creative opportunities to deliberate

on ecological emotions that can be harnessed to channel emotional responses and build educator resilience [27]. How might these practices be incorporated in an approach to developing education in climate emergency?

This literature, alongside the reflections from emerging secondary teacher practitioners at the University of Worcester and a broadened curriculum space to develop 12 h of climate education enhancement activity for Secondary PGCE students, inspired the development of a Green Impact project which is outlined in the method below.

2 The Green Impact project

Green Impact is a flexible environmental scheme that was developed by the National Union of Students (NUS) and is now run by Students Organising for Sustainability (the former NUS Sustainability team). It is a United Nations award winning programme which supports staff and students develop sustainable practices and change processes, it recognises the powerful example that academic institutions provide for their learners and that this example is fundamental in the creation of a sustainable future [28]. The accompanying Green Impact Project Assistant (GIPA) scheme provides training for students to become assistants, adding capacity to projects, linking staff and students and enhancing invaluable transferable skills. The Green Impact project featured in this case study benefitted enormously from the new perspectives, technological skills and drive of dedicated GIPA.

The aims of the Green Impact project were to:

1. provide an initial exploration of local educators' attitudes and feelings about the climate emergency.
2. build engagement by developing interest and raising awareness of local climate change impacts and mitigation and adaptation strategies.
3. confront educators with local examples of climate emergency with the hope that they will carry this forward into leading ESD action.
4. develop a sense of connection to this issue and to develop a network of practitioners.
5. use the findings to develop training materials for Secondary PGCE trainee teachers.

3 Methods

The project aimed to pilot a climate assembly process with educators from schools in the West Midlands that had partnered, offering secondary trainee placements, with the University of Worcester. This dynamic assembly process could be shaped to provide a safe space for reflection and peer support, to recognize and validate difficult ecological emotions, to provide a sense of collective action and collaboration, connecting educators with the local climate change realities and a sense of collective action in the opportunity to contribute to the development to a climate emergency curriculum for trainee teachers.

The Educator Climate Assembly (ECA) process, aligned with the Climate Assembly UK model, and therefore consisted of a variety of activities that were aimed at including and developing these approaches (outlined in Table 1).

The ECA process was designed to be flexible, in terms of the local expert lead content that could be included, depending on the context of the attendees, as well as being replicable across teacher education institutions.

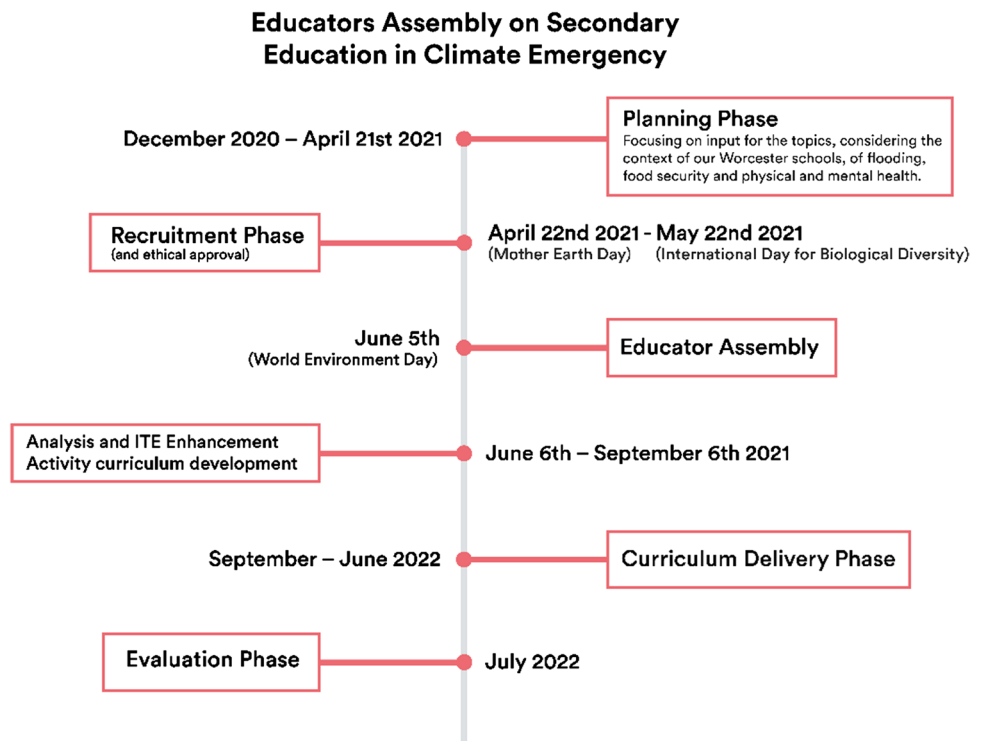
3.1 Participants and procedure

An ECA Eventbrite invitation was shared with the professional mentor links at the West Midlands partnership secondary schools. The invitation was open to all members of the school community, including senior leaders, governors and classroom practitioners, as well as active parents and pupils (members of the school-based parent and pupil associations e.g. school council). The project phases are outlined in Fig. 2.

The planning phase included a number of presentations on the planned ECA process: an internal institutional meeting (with the Director of Sustainability, Chair of the Sustainability Strategy Group and a Sustainability Lecturer), a BERA presentation [29] and an Advance HE workshop at their inaugural Sustainability Symposium [30]. Feedback from these deliberations shaped the final choice of topics for delivery and exploration at the ECA event, as well as the choice of invited participants. Feedback from attendees at the Advance HE workshop advocated the need to extend participation to elected officials as education stakeholders. The suggestion was taken on board and actioned in the recruitment phase.

Table 1 Assembly activities

Assembly activity	Approach
Pupil provocation—teach the Future pupil input	Emotional validation (hearing directly how young people are responding to the crisis)
Expert Lead input on a variety of climate change impacts	Connection with the local and broader climate realities (tackling the geographic and temporal distance)
Guided small group discussion (following each expert lead input)	Safe space for self and shared reflections (conduct rules were shared at the start of the first discussion) Emotional validation (an opportunity to reflect on the input and its impacts on attendees personally and professionally with guided questions from the facilitators) Peer support development Connection to wellbeing support (online tools were signposted by the facilitators)
Development of questions—to share on padlet	Collaboration Network development
Panel discussion	Connection with the local and broader climate realities (tackling the geographic and temporal distance)
Connection to local political action—input from the local city council	Connection with the local and broader climate realities (tackling the geographic and temporal distance) and mitigation actions that are being taken
Post-event questionnaire	Self-reflection Collective action in contributing to the development of a PGCE curriculum for an 'Education in Climate Emergency' enhancement activity

Fig. 2 Green Impact Educator Climate Assembly project timeline

This pilot ECA included input from a series of expert leads on a variety of climate and ecological topics. The leads were identified and enlisted during the recruitment phase. Each expert lead input was followed by an online breakout opportunity for reflection and discussion in small groups. The discussion spaces were facilitated by a member of the University, who shared a set of engagement rules at the start of the first discussion, along with stimulus questions

on how the expert lead content linked to attendees personal, professional and community roles. Participants were invited to share their thoughts and further questions on a digital platform (Padlet), which was subsequently used to support the panel discussion towards the close of the ECA.

The expert inputs were as follows:

- Biodiversity: Director of the Worcester Environmental Group
- Food Security: County Advisor, National Farmers Union
- Flooding: West Midlands Deep Water Project
- Physical Health: Royal Society of Medicine
- Mental Health: University of Worcester, School of Psychology

Figure 3 illustrates that the event started with a short initial provocation from two 6th form pupils from a local school that are volunteers with the Teach the Future organisation, followed by input from the city council on the local climate and ecological declarations and associated actions.

At the end of the ECA event the purpose of this research, to capture participant reflections of the ECA process and contribute to the development of a PGCE curriculum for education in climate emergency, and what participation would entail, was explained to the participants, orally and in the form of a written participant information sheet, by a third party. It was explained that participation was entirely voluntary, that responses are completely anonymous. Respondents were offered, in line with BERA [31] and institutional guidelines [32], a withdrawal opportunity for 14 days from the event. The research received approval according to a review by the University of Worcester Research Ethics Panel (application CAHE20210013).

Ethical permission did not extend to the content of the discussion groups, the Padlet board or the panel discussion. These sources are therefore excluded from the research but maintain considerable value in contributing to the design of a PGCE curriculum for the Education in Climate Emergency enhancement activity.

3.2 Instrument

Participant experiences and viewpoints were captured using a detailed questionnaire, with multiple open-ended questions that gave respondents freedom to give more richly detailed information. The tool employed scaled questions, including the use of bipolar adjectives, to explore attitudes towards climate emergency and longer form opportunities

Fig. 3 ECA event outline

Education Climate Assembly Outline

9:30am	● Start
9:35am - 9:40am	Ruth Corral (Worcester City Council)
9:40am - 9:50am	Teach the Future
9:50am - 10:10am	Flooding (Iszi Jones & Ned Evans, Deep Water Project)
10:10am - 10:35am	Focus groups
10:35am - 10:55am	Biodiversity (Paul Snookes, Worcester Environmental Group)
10:55am - 11:10am	Focus groups
11:10am - 11:30am	Food security (Emma Hamer, National Farmers' Union)
11:30am - 11:45am	Focus groups
11:45am - 12:05pm	Physical health (Prof. Linda Luxor, Royal Society of Medicine)
12:05pm - 12:20pm	Focus groups
12:20pm - 12:40pm	Mental health (Dr. Maxine Watkins, University of Worcester)
12:40pm - 12:55pm	Focus groups
12:55pm - 1:15pm	Panel
1:15pm - 1:20pm	Ruth Corral (Worcester City Council)
1:20pm	● Katy Boom (University of Worcester Director of Sustainability)

to explain the impact, if any, of the ECA process. To explore participant views on the age range for climate education a scaled question with primary and secondary pupil ages was included. Longer form answers were also used to consider the role of teachers and schools in climate emergency, alongside questions to explore their reflections on different assembly activities e.g. discussion groups.

A copy of the questionnaire is provided in Appendix 1.

An initial 29 participants signed up, via Eventbrite, to the pilot ECA event. There were 18 attendees on the day and 9 questionnaire completions. A response rate of 50%.

4 Results and discussion

Whilst the number of participants completing the questionnaire for this pilot ECA was small, the results have some value in the exploration of a number of concepts. They are deconstructed and analysed here, according to the five themes of: responsibility, process complexity, community of practice, sense of scale and confidence.

4.1 Responsibility

On a responsibility scale from 1 (not responsible) to 5 (responsible) all the teacher participants felt the strongest level of responsibility (5) for our climate emergency, as well as selecting 5 (the strongest level of responsibility) for their own sense of responsibility for teaching about the climate emergency. Figure 4 demonstrates that there was general agreement amongst respondents that responsibility for climate change education was not just something that should be left to schools in isolation or to one discipline but also recognised the central impact schools could have.

Responses suggest that the teacher participants felt a strong level of responsibility within and beyond the classroom, for place and people, with implications on teacher responsibility to model environmental behaviours. These answers align with the Pihkala [27] summary of eco-literature on strategies to minimize climate sorrow and the role of the educator in modelling vulnerability, complexity, ambiguity and also action and resilience. The responses resonate with Howard-Jones et al. [15], in their finding of teachers supporting action-based family advocacy in climate change education, although this was in association with primary pupils and advocacy in secondary pupils, a movement of action beyond the school and into the community. All but one response agreed or strongly agreed that the climate emergency should be integrated into the primary curriculum, concurring with the Howard-Jones [15] findings.

The responses acknowledge the role of pupils as future contributors to solutions, to perhaps providing new approaches and technologies to combat climate change, but there is also a sense of the teacher burden of responsibility with one contributor adding:

“Education is vitally important and so teachers should have the ability to be able to educate their pupils, however, I also understand they have a lot on their plates already and so the support needs to be there so they don’t become overwhelmed or expected to do more than possible”

Respondent 6

4.2 Process complexity

A number of complexities emerged in the ECA process that were not directly captured by the research questionnaire but were reported by the facilitators and are useful considerations for further ECA events:

- Restricted discussion times prevented some respondents getting involved.
- Discussion time was lost for participants to introduce themselves and make connections.
- Dominant group characters created tension in the discussion space.
- Limited school roles and subjects were represented by the participants
- Participants needed time to process the demanding content in relation to several facets of their lives: the personal, professional, and broader education system.
- The disclosure or exposure of participant eco-anxiety/grief.

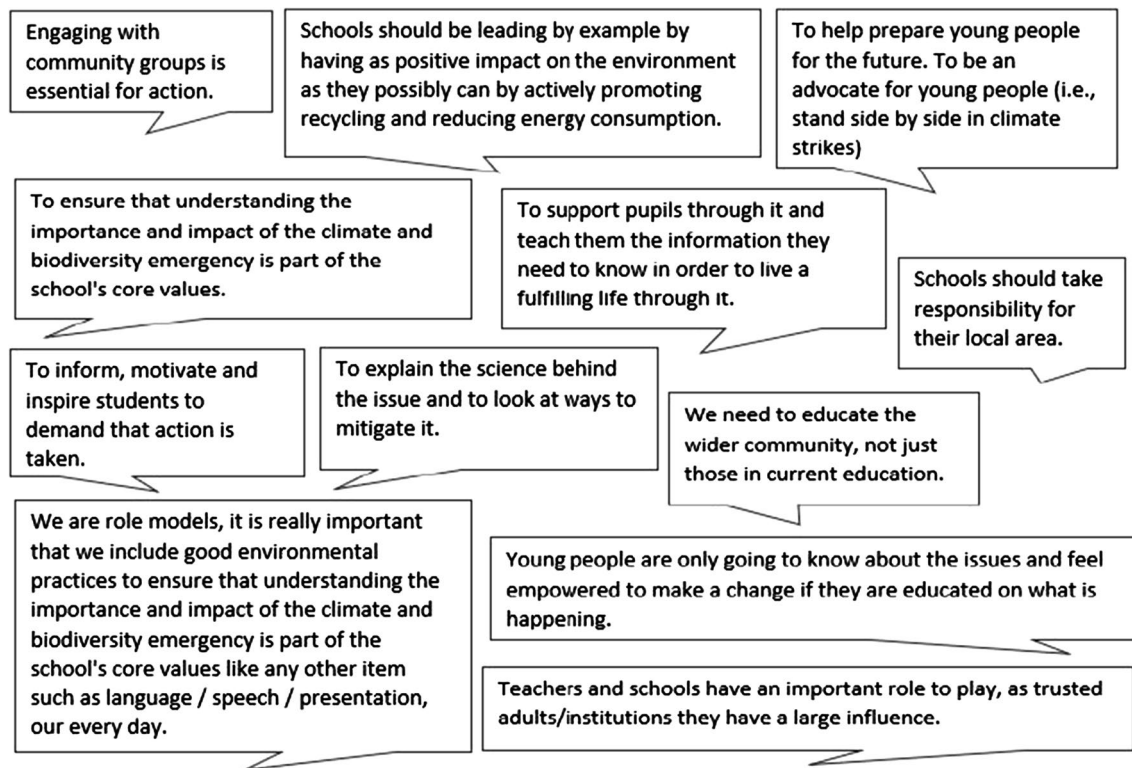


Fig. 4 Range of responses on teacher responsibility, wider responsibility, and participant vision for teacher responsibility in climate emergency

Climate Assembly UK [26] acknowledge that the issues involved in a climate assembly are complex and Howard-Jones et al. [15] discuss the political polarisation that characterizes climate change, along with its difficult connections to commercial interests. Some of these tensions and complexities might be reduced through logistical adaptations to sessions and facilitator training.

Participants reported positively on the discussion group process (see Fig. 5):

4.3 Community of practice

The project aimed, despite the delivery limitations in having to hold the ECA event on-line, to connect education stakeholders to the issues and also to each other, attempting to build engagement and potentially carry something forward into practice. The role of the facilitator was crucial in creating safe spaces that furthered these aims. Facilitators were provided with a set of engagement rules (see Table 2), instructions, question guidelines and an outline, with the intention of supporting them in the development of a safe environment that might enable peer connection, validation and network building.

The diagram below, Fig. 6, indicates embryonic COP/network developments emerging from the ECA event:

The virtual nature of the ECA event, with minimised social opportunities and physical connection, had an impact on attendees networking opportunities and, perhaps, their sense of belonging. Adaptations to the online process, to encourage further network development, could range from seeking GDPR permissions to share attendee contact details, to scheduling a follow up opportunity to re-connect and/or collectively reflect/evaluate. An in-person event would allow for the inclusion of group building practical activities.

4.4 Sense of local scale

The questionnaire explored the level of importance respondents felt about using local examples. The sample size is small but the responses, bar one (who selected neutral), showed their feelings of this sense of scale being 'very important' and are captured in the comments in Fig. 7.

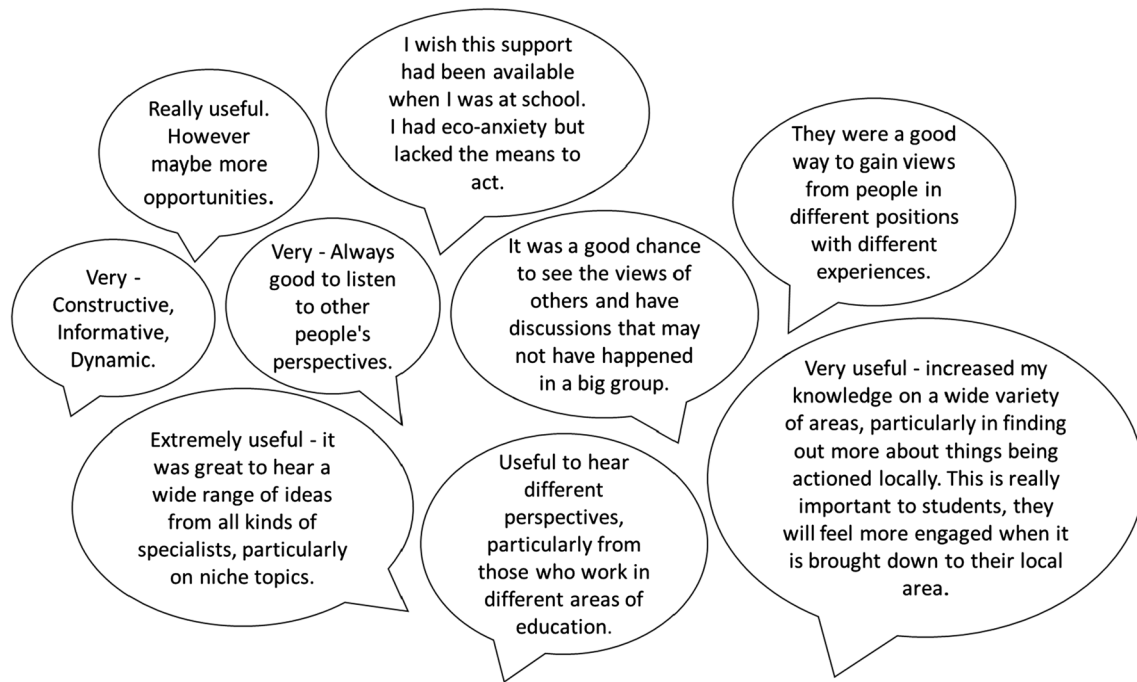


Fig. 5 Responses answering 'How useful did you find the discussion groups that took place during the Climate Assembly?'

Table 2 Focus group rules of engagement

- Participation in the focus group is voluntary
- It is acceptable to abstain from discussing specific topics if you are not comfortable
- All responses are valid—there are no right or wrong answers
- Please respect the opinions of others even if you don't agree
- Try to stay on topic; we may need to interrupt so that we can cover all the material
- Speak as openly as you feel comfortable
- Help protect others' privacy by not discussing details outside the group
- Whilst the content of the discussion is always unpredictable we aim to steer our focus throughout the process

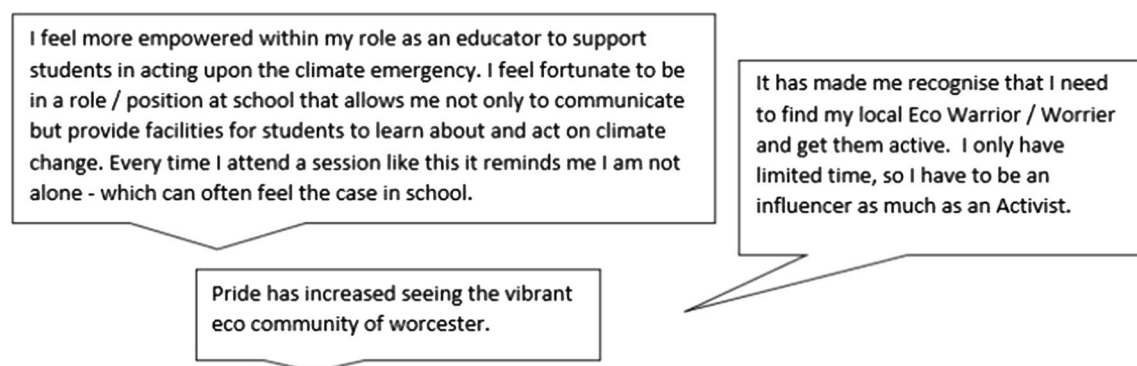


Fig. 6 Responses linked to network/community

Participants demonstrated an appreciation for the local focus in terms of its direct impact on their confidence, on their community of practice, on their increased understanding and on their ability to engage their pupils with learning about these issues.

4.5 Confidence

Participant scaled responses, in reflection of their levels of confidence in teaching about the climate emergency, were all fairly confident, confident or completely confident. It could be assumed that confidence to undertake this work and adequate training to do so might be aligned, but it contrasts with the Teach the Future 'Teaching the Future' research [14] findings of 70% of teachers feeling unprepared, potentially aligning more with the findings from Howard-Jones et al. [15] that the majority of UK teachers surveyed (73.7%) are already teaching or talking about climate change, perhaps doing so despite inadequate training.

This reported confidence may have arisen as a result of the subject specialisms of attendees, these are unknown in this anonymous questionnaire, however the Howard-Jones et al. paper recognised that a high proportion of science and geography teachers (95.1%) were currently teaching about climate change, which would likely develop their confidence, knowledge and pedagogical approaches. They also presented findings that 75.1% of the study participants feel comfortable answering pupil questions on climate change and a much smaller proportion, 10.6%, feeling uncomfortable if they had to teach about climate change [15].

The value of the ECA process was commented on (Fig. 8) in terms of how it built participant confidence and knowledge, as well as in its potential to build further engagement with the issues and action on them.

The merit of the process, for the participants of this pilot study, was also captured in response to an invitation to share any other thoughts (Fig. 9). The ECA described as 'essential' and a 'really valuable process':

4.6 Limitations

This project came at a difficult time for everyone, amid a global pandemic. Educators were affected, in particular, in terms of their missed face to face teaching opportunities with pupils. Consequently, the ECA event was scheduled outside of teaching time, at the weekend, in the knowledge that schools would be unlikely to provide cover for missed teaching during the school day. Hence a small sample size for this pilot study. Participants were unpaid, surrendering their weekend time and facing a complex and potentially upsetting issue whilst doing so. In terms of positionality, it is therefore likely that attendants had a disposition or responsibility towards ESD. Future events might be best embedded into the school day, possibly as an INSET/professional development event, with the support and participation of school leaders.

Given the sacrifice of weekend time, unpaid, by ECA participants, the event was limited to four hours and was also planned without any extensive break. This will have impacted on the opportunities for reflection and connection with other participants, as well as in the levels of concentration and commitment in completion of the survey.

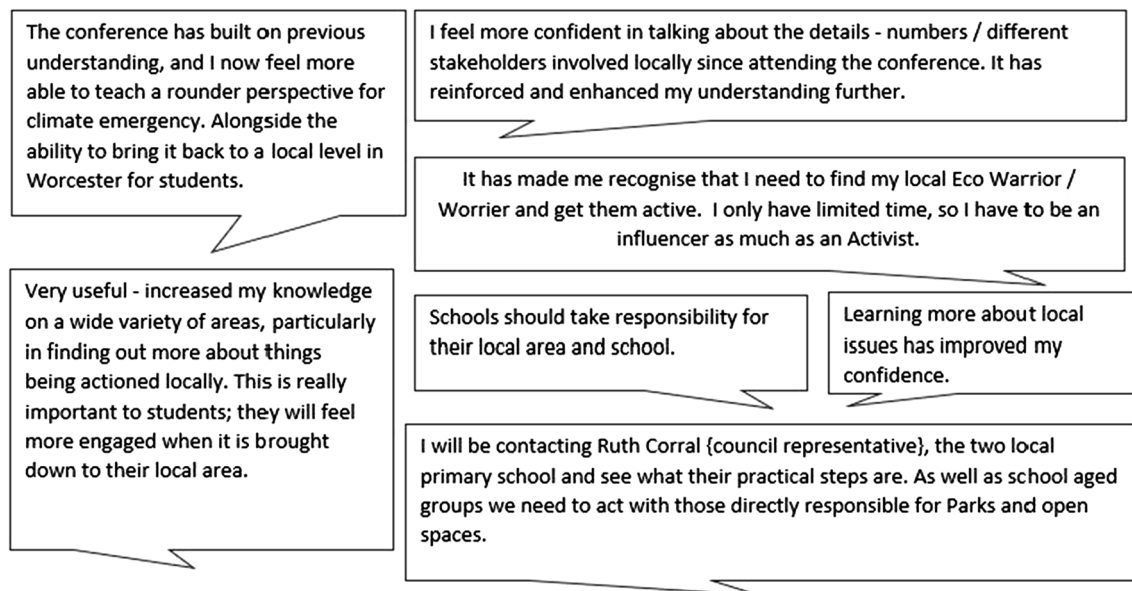


Fig. 7 Comments linked to a local focus

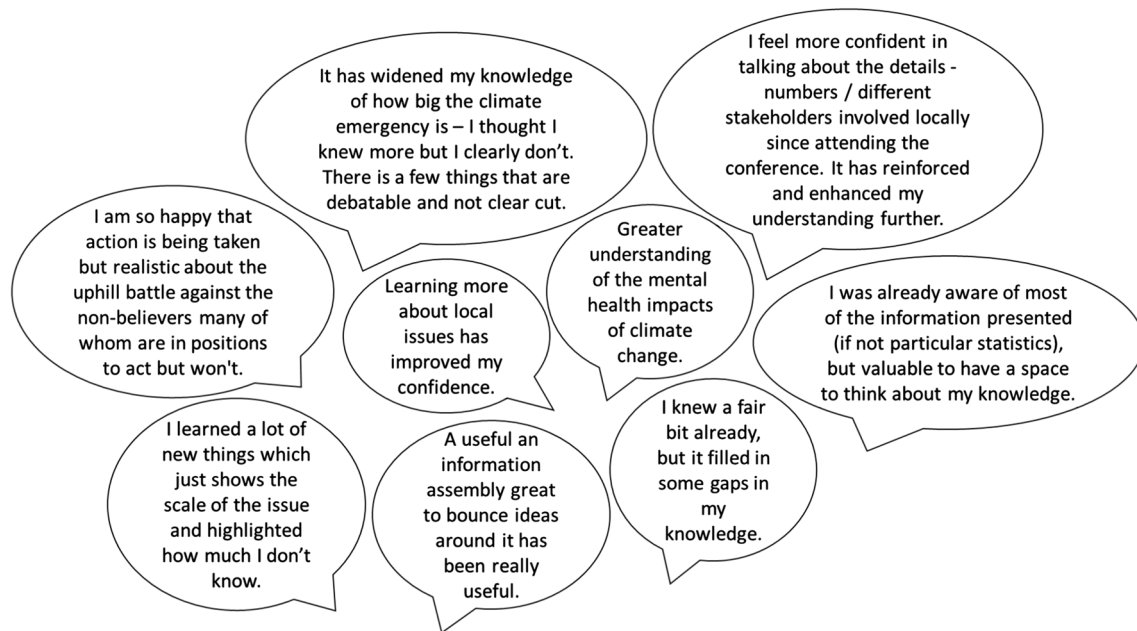


Fig. 8 In answer to 'Please can you explain how attending the educator climate assembly influenced confidence in your knowledge of our climate emergency?'

Fig. 9 Would you like to share any other thoughts about the citizens assembly approach?

Making this information more widely accessible will help all ages - including students and teachers.

A Citizens Assembly is a great way to exchange & develop ideas & change them into real policy.

Challenges also arose in the recruitment of expert contributors with some local organisations declaring that they did not have a designated, official, person/role to communicate the climate emergency situation on behalf of their organisation, despite their ongoing climate impacts and mitigation/adaptation work. For one topic a local representative could not be confirmed and a national representative was secured instead. Whilst this prevented connection with local experiences and actions it provided an opportunity to see a broader picture of the topic in the UK and globally.

There was also some discomfort expressed at the term 'Expert lead' and it might be useful to consider the terminology used when recruiting and presenting ECA presenters.

5 Conclusions

Humanity urgently needs to adapt to different ways of living and this emergency demands that we engage in a variety of approaches to involve the whole population in this huge task. The ECA process is one approach that could be widely harnessed, at a range of scales, to invite our educators to take a collective part in this complex, interdisciplinary, problem.

There are a huge number of challenges. The BERA [33] policy briefing for their Manifesto for Environmental Sustainability identified barriers to changing environmental education as power imbalances, not being heard, lack of funding and leadership from government, an individualistic discourse on taking environmental action, as well as a curriculum that has no space or value of environmental sustainability. A democratic assembly approach has the potential to provide leaders with a process by which to deconstruct some of the power imbalances and encourage a collective discourse on mitigation, adaptation and action.

The ECA process could be made use of by an individual school (inviting parents and the wider community to participate in discussions and outputs), or within higher education institutions (to engage staff and students and form sustainability strategy), or as in this research, within an Initial Teacher Education community. It would be useful to explore the short- and

long-term impacts of an ECA event and the research team are pleased to report that at least one of the participants volunteered the consequences of their attendance in the week after the event; they had used some of the resources in their pastoral role at their school, had met with one of the ECA expert lead contributors and planned a collaborative action-oriented project, as well as seeking and confirming an opportunity to lead a staff training session and confirming curriculum time to explore climate emergency issues with each year group.

Advance HE [30] emphasises an inclusive approach to sustainability education, reminding us that it is ‘for everyone’ and that ‘we all have responsibilities in progressing sustainable development. They also advocate a co-creative approach to ESD curricula [34] and call attention to using key players in the wider community that can inform ESD processes. Creating links with and hearing from local experts through their ECA input, has the potential to build a community of practice, alongside knowledge and understanding, in a method that might reduce denial, limit anxiety and move communities to action.

The project has received an SOS UK Green Impact Gold Award and this research will shape the next iteration of the scheme, with new aims to extend the reach beyond the pilot audience, to engage a broader tranche of schools across the region and potentially with primary educators. It will also inform the curriculum for the initial version of a 12 h ‘Education in Climate Emergency’ PGCE enhancement activity at the University of Worcester.

In a time that requires unparalleled global collaboration, this adaptable, flexible model is offered to you as a tool for engagement and potential action research in your own teaching & learning community.

The datasets generated during and analysed during the current study are available from the corresponding author (ELengthorn) on reasonable request.

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Authors’ contributions EL conceptualised the project. EL and MA carried out the case study activity. MA prepared Figs. 2, 3, 5 and 8, undertook data curation, supported project administration and worked out technical aspects of online facilitation and processed the raw data. EL and MA discussed the results. EL performed the analysis, wrote the paper, designed the figures and prepared Tables 1, 2, Figs. 4, 6, 7 and 9. All authors read and approved the final manuscript.

Funding Not applicable.

Data availability The datasets generated and analysed during the current study are available from the corresponding author (ELengthorn) on reasonable request.

Code availability Not applicable.

Declarations

Competing interests Not applicable.

Appendix 1

Climate Emergency Educators Assembly - Research Information & Questionnaire



Many thanks for joining us at the Climate Emergency Educators Assembly today, we very much appreciate your attendance and participation at this event.

We would now like to invite you to take part in a separate research project being undertaken by staff at the University of Worcester reflecting on the content of today's assembly and your views and concerns regarding the climate emergency more generally via an online questionnaire. Please note, that this is completely voluntary, and you are under no obligation having attended the event to take part in this research. The survey is anonymous, and you will not be requested to provide any personal identifiable information.

Before you decide whether to take part, it is important that you understand why the research is being done, what it will involve for you, what information we will ask from you, and what we will do with that information. Please take time to read the following information carefully.

*** What is the purpose of the research?**

This study aims to explore educator stakeholder attitudes and experiences in relation to education in climate & ecological emergency. The findings will help shape the development of a 12 hour enhancement activity on 'Education in Climate Change' for Secondary PGCE trainees.

*** Who is undertaking the research?**

Name: Elena Lengthorn
Position: Senior Lecturer Teacher Education
Project role: Lead Researcher

Name: Dr Sian Evans
Position: Lecturer Geography
Project role: Researcher

Name: Megan Asbury
Position: Student

Project role: Green Impact Project Assistant

* Who has oversight of the research?

The research has been approved by the Research Ethics Panel for the College of Arts, Humanities and Education (CAHE) in line with the University's Research Ethics Policy. The University of Worcester acts as the "Data Controller" for personal data collected through its research projects and is subject to the UK GDPR and the Data Protection Act 2018. We are registered with the Information Commissioner's Office and our Data Protection Officer is Helen Johnstone (infoassurance@worc.ac.uk). For more on our approach to Information Assurance and Security visit: <https://www.worcester.ac.uk/informationassurance/index.html>.

* Why have I been invited to take part?

You have received this invitation because you are a stakeholder in Secondary education in the West Midlands. We are hoping to recruit a minimum of 40 participants for this study.

* Do I have to take part?

No. It is up to you to decide whether or not you want to take part in this research. Please take your time to decide and talk to others about it if you wish. Deciding to take part or not will not impact on your ability to participate in future opportunities with the Educator Assembly or to work or study at the University of Worcester. If you do decide to take part, you will be asked to agree with the consent form prior to completing the questionnaire.

* What will happen if I agree to take part?

If you agree to take part you will complete a questionnaire . This includes questions reflecting on the content of today's assembly and your personal and professional views and concerns regarding delivering climate emergency education more generally.

The questionnaire is anonymous. However, if you wish to withdraw your contribution, the questionnaire includes the opportunity for you to incorporate a code (known only to yourself). If you decide within two weeks of completing the questionnaire that you wish to withdraw your contribution, you can share this code with the lead researcher, Elena Lengthorn, and your specific contribution will be withdrawn. Elena can be contacted on 01905 542151 or e.lengthorn@worc.ac.uk

Spreadsheets containing data from the questionnaires will be securely stored on the University cloud, linked to a staff account, and will be deleted by September 2023. There is no information held alongside the questionnaire data that could be used to identify participants.

* Required

Section 1

Consent

Prior to completing the questionnaire, please read and confirm you understand and agree to each point (If you have any questions please email e.lengthorn@worc.ac.uk)

1. If you agree to participate in the research, please provide your consent to each item below *

I agree

I have read and understood the information about the project, as provided in the Information Sheet outlined above.

I have been able to ask questions about the project and my participation and my questions have been answered to my satisfaction.

I understand that participation in this study involves the completion of a questionnaire.

I understand that taking part in the study has minimal potential risk of climate anxiety.

I understand I can withdraw my questionnaire within 14 days of the event using a code selected during the completion of the questionnaire, without giving reasons, and that I will not be penalised for withdrawing nor will I be questioned on why I have withdrawn.

I understand that the information I provide will be used for developing a PGCE Enhancement Activity entitled 'Education in Climate Emergency', and other publications on education and the climate & ecological emergency.

I understand that my real name will not be requested, and pseudonyms will be used for quotes from open ended questions.

The procedures regarding confidentiality have been clearly explained (e.g. use of names, pseudonyms, anonymisation of data, etc.) to me.

I understand that there will be no personal information collected about me that can identify me, such as my name, or where I live and that the data collected will not be shared beyond the study team.

I give permission for the data I provide to be stored on the secure UoW OneDrive, so that it can be used to explore community responses to education in our time of climate emergency.

I voluntarily agree to participate in the project.

I know who to contact if I have any concerns about this research.

I understand that I should only complete the questionnaire once and that the link provided is for my use only.

2. Sometimes participants decide after they have completed a questionnaire that they no longer want their research contributions to be included. If you decide within two weeks of completing the questionnaire that you want to withdraw your contribution, you can share this code with the lead researcher, Elena Lengthorn, and your specific contribution will be withdrawn. Elena can be contacted on 01905 542151 or e.lengthorn@worc.ac.uk. This is necessary because there are no questions that can be used to identify your individual response.

Please insert a memorable personal code word into the box below should you wish to withdraw your response. Please do not use your name.*

Section 2

Attitudes to our climate emergency

This section includes questions about your attitudes to our climate emergency.

3. How confident do you feel in your knowledge of our climate emergency? *

Not at all confident	Somewhat confident	Confident	Fairly confident	Completely confident
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Please can you explain how attending the climate emergency educators assembly has influenced your answer to this question. *

5. If you are an educator, how confident do you feel in teaching about our climate emergency? *

Not at all confident	Somewhat confident	Confident	Fairly confident	Completely confident	I am not an educator
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Please can you explain how attending the climate emergency educators assembly has influenced your answer to this question. *

7. How do you feel about our climate emergency? *

	1	2	3	4	5
Apathetic (1) or empowered (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilt (1) or innocence (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Despairing (1) or cheerful (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shame (1) or pride (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not responsible (1) or responsible (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Please can you explain how attending the climate emergency educators assembly has influenced your answers about any of these feelings. *

9. To what extent do you agree / disagree with this statement?*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The climate emergency should be integrated into the curriculum from year 7 to year 13.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The climate emergency should be integrated into the curriculum from year 1 to year 6.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. If you are an educator, how do you feel about teaching about our climate emergency?*

	1	2	3	4	5	I am not an educator
Apathetic (1) or empowered (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilt (1) or innocence (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Despairing (1) or cheerful (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shame (1) or pride (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not responsible (1) or responsible (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. If you are an educator, please can you explain how attending the climate emergency educators assembly has influenced how you feel about teaching about our climate and ecological emergency.

12. What do you feel is the role of teachers in our climate emergency?*

13. What do you feel is the role of schools in our climate emergency?*

14. How important do you think it is to provide yr7 to yr13 children with local examples of climate change impacts and solutions?

Not at all important	Low importance	Neutral	Important	Very important
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. What research would you like to be done on Education in Climate Emergency?*

16. How useful did you find the discussion groups that took place during the Climate Assembly? Please explain your answer.*

17. During the Climate Emergency Assembly, the matter of our ecological emergency was also raised.

	Not at all important	Low importance	Neutral	Important	Very important
How important is our ecological emergency?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How important do you think it is that schools teach about our ecological emergency?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. If you think it is important to teach about our ecological emergency, please summarise your views on the role of teachers and schools in this process and whether attendance at the Climate Assembly has influenced your ideas.*

19. Please use the box below to share any other thoughts about education in climate emergency or the citizens assembly process.

Section 3

About you

Please can you share with us a little bit of information about you?

20. Gender?

21. What is your role in or beyond education?

22. If you are a teacher, how long have you been in teaching (please answer in number of years)?

Section 4

Many thanks for participating in this research

If you would like to be involved in future collaborative learning events and / or research on education for our climate emergency or to be informed about research outputs from this specific study, please contact e.lengthorn@worc.ac.uk.

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