

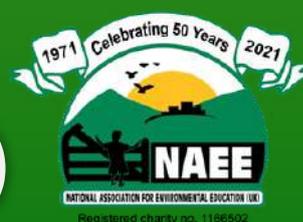
Environmental Education



Embedding sustainability and environmental education within Initial Teacher Education

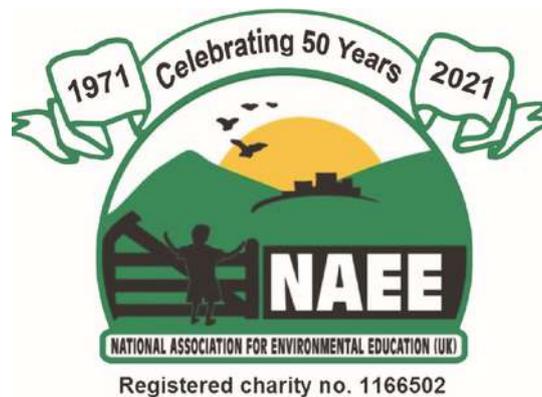


The journal of
The National Association for
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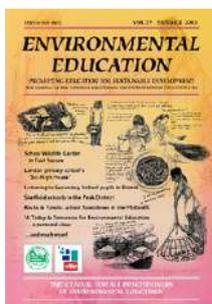
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From the UCET Editorial Team

Tremaine Baker, Phil Bamber, Lee Jowett, Alison Kitson, Elena Lengthorn, Jo Anna Reed Johnson, Adam Simcock, Paul Vare, Sophie Wilson, Jenny Wynn

This special issue of Environmental Education showcases a diverse range of approaches to implementing and embedding sustainability and environmental education within Initial Teacher Education (ITE) curricula. Case studies are included from all four nations of the UK and will be relevant to educators from early years through to higher education. The 18 contributions illuminate differing approaches to ITE including university and school-led models.

This publication was inspired by the Universities Council for the Education of Teachers (UCET) *Sustainability and Climate Change Education Forum* held at Liverpool Hope University in December 2024. This event brought together passionate and committed academics, researchers, policy makers, and practitioners from across the UK, including the Climate Education Lead from the Department for Education's Sustainability and Climate Change Unit.

The event highlighted the critical role of engaged individuals in taking Environmental Education forward within ITE, particularly in England where teacher educators have experienced diminishing degrees of autonomy in relation to the ITE curriculum. In such circumstances, organisations such as UCET and the UK Teacher Education for Equity and Sustainability Network (TEESNet) assume particular importance in bringing together interested parties, as reflected in the feedback from the UCET Forum:

"Incredible to be in this space where I previously have felt out on a limb."

"Interesting conversations, new connections, inspiration, creative ideas, solidarity - THANK YOU."

"I'm leaving filled with hope! I now recognise the importance of collaboration."

The status of sustainability and climate change education within ITE in England contrasts sharply with Scotland where Learning for Sustainability (Lfs) is embedded within the professional standards for teachers, and support available through a National Framework for Lfs within ITE (Rushton *et al*, 2025).

Many contributors to this issue refer to the 2022 Department for Education (DfE) Sustainability and Climate Change strategy, which takes the reference given below. Further, contributors use different terms to describe their work, such as Education for Sustainability, Climate Change Education, and Environmental Education, to name just a few. While some may view this variety as a source of confusion, we wanted to reflect the contested and evolving nature of ideas in this field. Our approach is to recognise and celebrate this diversity, affirming the rich and varied expertise of our contributors. 🌍

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CROSS-CURRICULAR INTEGRATION

The Green Apple project

Michelle Graffagnino

The Green Apple project is a University of Bristol wide scheme to explore the issues around sustainable development and its links with education and the education of teachers. The School of Education's Green Apple Project celebrated its 10th year in 2025. Now embedded into the Post Graduate Certificate of Education (PGCE), where we work in subject and interdisciplinary groups on several initiatives to promote awareness of sustainability and climate change in the curriculum and in how we work with schools and students. The PGCE partnership also acknowledges the need to recognise the role that coloniality (colonial structures and mindsets) plays within our education

systems. The Green Apple project, therefore, is intended as a space where we can explore the intersection that exists between our decarbonising and decolonising work.

There are meetings over the PGCE year of a Green Apple "core group" and we ask that representatives from every subject attend and feed back into their subject sessions the plans and activities taking place. There is whole course input and interdisciplinary workshops about the Green Apple project during the training year. This cumulates into the Green Apple conference, where a range of speakers share research

and practical ideas to take into schools. The aim is that every PGCE student explores how their subject can come into dialogue with these global themes during the PGCE course.

In 2024-25, we decided to focus on embedding the Climate Fresk in the Green Apple project to ensure every PGCE student starts their career in teaching with the fundamental carbon literacy needed to support teaching beyond the facts and figures of climate change. The Climate Fresk workshops, held by trained facilitators, included unravelling the fundamental causes and effects of climate science. Using scientifically proven facts from the Intergovernmental Panel on Climate Change (IPCC) reports, participants gained an in-depth understanding of climate change through hands-on activities. All student attendees were Green Apple (GA) representatives in their subject areas, including science, English, maths, geography, history, modern foreign languages, and religious education.

During the Climate Fresk workshop, attendees organised 42 cards, which outlined climate change facts from the IPCC reports, in order of cause and effect. This was followed by a creativity session, where attendees linked and titled the Fresk to find and discuss connections, aiding understanding of the complex phenomena related to climate change. The third part of the workshop encouraged all attendees to reflect on their learning, including how they feel about climate change, using the emotion tree to acknowledge the feelings that have come up during the workshop. The final part of the workshop included a discussion on how they could use this training to encourage climate action going forward. Ideas were captured on post-it notes and ranged in scale from local to global and from easy to difficult action. We encouraged the PGCE students to engage with the 2022 Department for Education's Climate Change and Sustainability Strategy by promoting their school's Climate Action Plan, utilising STEM Climate Ambassadors, and engaging with activities of the National Education Nature Park that they will take forward into their teaching career.

Now trained Climate Fresk facilitators, the School's PGCE students can bring their in-depth knowledge of climate change into classrooms not just within Bristol as part of their placements but also into schools across the UK as their teaching careers progress.



University of Bristol PhD Civil Engineering student, Ritah Pavin Nakanjako, facilitating the final stage of the Climate Fresk to support action at a local to global scale.
Image by Michelle Graffagnino

The Climate Fresk is an engaging and collaborative workshop that enables participants to learn more about climate causes and effects, inspiring actions and solutions at all levels. It provides an opportunity to facilitate an activity that asks "how does this make us feel?" whilst lending hope that we can still make a difference. By embedding the Climate Fresk workshops into our PGCE, I feel our students are better prepped and equipped with the carbon literacy to engage young people in Climate Change Education (CCE) that goes beyond facts and figures.

The workshop was also attended by University of Bristol alumni, including James Swallow, a former PGCE student at the School of Education. Now working at a local secondary school, James said: "The Climate Fresk facilitator training was really useful – both for my own professional development and to indirectly improve my pupils' knowledge of the climate science. I am now looking forward to running a Fresk for students and staff in school". He further remarked: "I completed my PGCE with the University of Bristol last year and loved how climate change was included in our training. I am really glad that the University is keeping former students who are teaching involved in new initiatives such as this."

In June 2025, the Green Apple reps facilitated a Climate Fresk with their interdisciplinary PGCE groups as part of the Green Apple conference. On reflection of its success the Green Apple conference will be an Intensive Training and Practice (ITap) day on our PGCE at Bristol. The Green Apple conference ensures PGCE students engage in the 5 stages of the ITaP which include introduce, analyse, prepare, enact and assess. Ensuring our curriculum at Bristol remains ambitious as students consider how issues such as sustainability, climate change and diversity can be incorporated into their subject teaching. 🌍



Michelle Graffagnino is Senior Lecturer of Secondary Geography Education at the School of Education, University of Bristol.



The Green Apple reps during their first Climate Fresk workshop in the autumn term. Image by Michelle Graffagnino

Transforming and empowering future educators: Perspectives on climate action through a wider perspectives project

Lucy Dunne, Nichola Preston, Céline Williams, Zofia Wolniakowska-Majewska,
Philip Bamber, Robert Booth, Lavinia Brennan, Andrea Bullivant

Wider Perspectives at Liverpool Hope University takes place in the second year of the 3-year Primary Undergraduate Initial Teacher Education (ITE) programme. ITE tutors work in partnership with colleagues from Liverpool World Centre to deliver a five-week programme of lectures and seminars, which leads to a project that ITE students deliver in local and European primary schools. In 2024, the focus of the projects was UN Sustainable Development Goal (SDG) 13, Climate action.



Students introducing the project in school. Image by Ayah Adwan

The primary goal of Wider Perspectives is to provide students with a broader educational experience beyond traditional teaching practices, enhancing their understanding of Education for Sustainable Development and Global Citizenship (ESD/GC) as future educators. Students explore ESD/GC policies and practices in the UK and globally, encouraging the adoption of relevant methodologies. Ultimately, it aims to reshape students' perspectives on education, influence their teaching philosophies, and foster a positive approach to ESD/GC (Bamber, 2020).

ESD is not clearly outlined in the National Curriculum in England, yet it plays a role in recent educational policy and frameworks. Examples include the introduction of a Natural History GCSE and the publication of the Department for Education (DfE) 'Sustainability and Climate Change: A Strategy for the Education and Children's Services Systems'. Tutors took the introduction of this particular policy as an opportunity to develop an evaluative research study in this area, working in collaboration with local primary schools and the Liverpool World Centre.

The ITE tutors, local school teachers, members of the Teacher Education for Equity and Sustainability Network (TEESNet), and critics of the new 2022 DfE strategy from the perspective of critical environmental philosophy (Booth, 2024) have informed different viewpoints towards Climate Change and Sustainability Education (CCSE).

A final bank of 40 statements was constructed to trace shifts in the perspectives of ITE students, teachers and school leaders using Q-sort methodology (Watts *et al.* 2012), which is essentially a sophisticated 'diamond ranking' tool.



Students completing a Q-sort. Image by Céline Williams

The team secured £3,000 from Liverpool Hope University's Routes to Impact and Seedcorn funding to support the project. The Oxfam Global Citizenship Guide also provided valuable resource support for tutors and students in their preparations for the projects, in particular by deepening understanding of education about the SDGs and in learning how ESD/GC approaches and methodologies can underpin good teaching practice.

The analysis of the Q-sorts completed before and after the project showed strong evidence of the impact of the Wider Perspectives project. ITE students reported improved knowledge and understanding of teaching about climate change and sustainability, and increased awareness of the suggested actions for schools in the DfE strategy.

The team running the projects and research were most proud of the personal impact this had on many of the ITE students who took part. One student commented:

"Integrating climate change and sustainability education across the curriculum can help foster comprehensive understanding in children, which can inspire positive actions toward caring for our world."

Another significant impact was the high priority students placed on CCSE and their focus on the importance of providing children access to outdoor spaces; students stated that CCSE should develop children's connection with nature and provide opportunities to learn in the natural environment:

"We have begun to analyse and assess occasions where climate change and sustainability are being addressed in schools. This is particularly significant for us, as we are training on the years 3-7 course: it is really important to introduce children to the idea of sustainability and taking care of our planet from a young age, but to do this in an age-appropriate way."

Our research was shared at key conferences on CCSE held at Liverpool Hope University, including Global Education Network Africa and the UK Teacher Education for Equity and Sustainability Network (TESSNet) annual conference. The tutors and students presented at Liverpool Hope's Pedagogy and Practice Research group in July 2024, with a focus on 'Contemporary Issues in Learning and Teaching: Pessimism, Pragmatism and Possibilities'. Student presentations had a powerful impact on those present. It has also influenced CPD for teachers and teacher educators at Liverpool World Centre and Leeds Development Education Centre.

Moving forward, priorities include involving new schools (local and international) to expand the project's reach, disseminating project outcomes, and continuing to refine the Q-sort instrument with interested parties. 🌍

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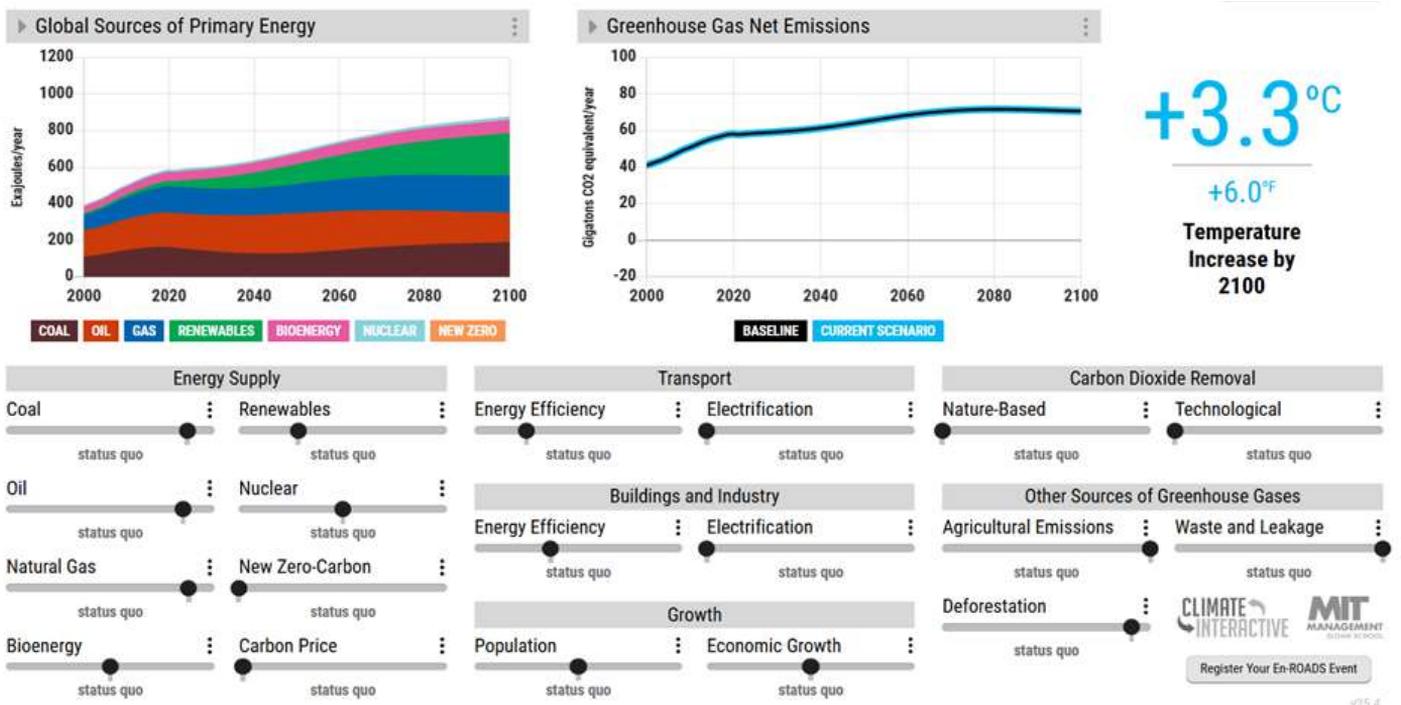
Developing teacher capabilities for 21st century challenges: Findings from a pilot workshop on learning, teaching and action developed through climate simulations

Diana Pritchard and Ross Purves

Background

In June 2024, we collaborated on a climate modelling workshop for around 200 of UCL's pre-service (PGCE) secondary school teachers. This focused on the use

of the En-ROADS climate simulator which was developed by MIT-Sloan, primarily for policy decision-makers. The initiative was part of broader efforts at UCL to integrate sustainability and climate education into teacher education.



The En-ROADS climate simulator. Image taken from Version 25.4 of En-ROADS. Image taken from Climate Interactive, Creative Commons Attribution 4.0 International License. tinyurl.com/mwefx2f

What we did

We conducted a two-hour workshop using En-ROADS, engaging student teachers in interactive climate modelling to explore the impacts of various policies and actions that could reduce greenhouse gas emissions. This built on a series of previous, successful workshops using both En-ROADS and Climate Interactive's C-ROADS policy simulator which have been run by Diana with different participants, including university students and school children. Our June 2024 session began with a presentation on climate change fundamentals, followed by small group activities where student teachers from intentionally diverse subject specialisms tested different measures to restrict global warming to below 1.5°C.



Academics, students, civic, and community members participate in one of Diana's previous C-Roads-based events at the University of Bedfordshire. *Image by Diana Pritchard*

Why we did this?

Recognising the critical role educators play in shaping future generations, we aimed to equip pre-service teachers with tools and knowledge necessary to integrate climate change education into their curricula and inspire proactive environmental action. Our goal was to foster a sense of agency and responsibility amongst those present. In England, the Department for Education's Sustainability and Climate Change Strategy (DfE, 2023) calls for young people to develop knowledge into positive action for climate change. Additionally, the activity aligned with UNESCO's call for holistic education that envisions change and prepares learners to tackle complex global problems (UNESCO, 2021).

The support we had

We had institutional support from UCL and the University of Bedfordshire, along with resources from Climate Interactive, which provides free access to En-ROADS. We were also greatly supported by UCL's Secondary PGCE Sustainability Development Group, along with a Sustainability Lead from a partner secondary school.

A source of pride

We are proud of the high level of engagement and enthusiasm from the student teachers. The workshop successfully fostered interdisciplinary

collaboration and deepened participants' understanding of climate change and its relevance to their teaching subjects. Positive feedback from student teachers suggested increasing motivation to integrate climate education into future teaching practices.

What surprised us

We were surprised by evidence of the positive impacts given the short duration of the workshop. The extent to which participants appreciated the interdisciplinary nature of the activity also exceeded our expectations. Conversely, we were not expecting such varying levels of confidence in using En-ROADS. While many found it valuable, some struggled with its perceived complexity and applicability to their specific teaching contexts.

Evidence of impact

Overall quantitative feedback showed that 70.6% of those student teachers who completed a follow-up online questionnaire were positive about the activity's impact on their knowledge, 63.2% on their practical skills, 70.6% on their ability to collaborate, and 52.9% on their personal development. Qualitative feedback further highlighted increased awareness and motivation to integrate climate education into their teaching. Participants expressed greater feelings of responsibility and motivation to incorporate climate education into their future roles, with some noting the value of working in multi-disciplinary teams. Comments also included appreciation for the complexity of climate issues and the importance of proactive policies.

Implications for implementing this in teacher education

The workshop demonstrated the potential for this climate simulator within teacher education. It suggested that integrating such tools can foster interdisciplinary learning and equip future teachers with skills to embed climate education within their practice. It also highlighted the relevance of climate to different school subjects. However, additional resources and support are needed to ensure broader applicability and confidence among educators.

Next steps

Since this approach offers teacher education a tool for incorporating sustainability across various subjects, thereby potentially engendering a holistic understanding of climate change, we plan to continue to refine the workshop and explore opportunities for wider implementation. Future steps include creating more detailed guidance materials and offering follow-up sessions. We will collaborate with other institutions to develop the use of En-ROADS to advance climate literacy among educators and share best practices. Our long-term goal will be to secure alliances to gain recognition of the value of this approach within both school and teacher education curricula. 🌍

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Embedding climate change and sustainability education across subjects at the UCL Institute of Education

Alison Kitson

Context

UCL's Institute of Education provides initial teacher education for over 900 trainees each year, ranging from early years to further education. The Institute of Education is also home to UCL's Centre for Climate Change and Sustainability Education, which is creating a suite of online professional development modules for all teachers called 'Teaching for Sustainable Futures'. These short online modules help teachers to embed issues of climate change, nature, and sustainability in subject-specific ways and are available to everyone.

Teaching for Sustainable Futures modules

Available since September 2025:

- **Primary:** English, mathematics, science, history, geography, music, PSHE.
- **Secondary:** English, mathematics, geography, history, citizenship, PSHE, and an interdisciplinary module for history and geography teachers called 'Living Cities'.

Available from September 2026:

- **Primary:** RE, art, and additional interdisciplinary modules focusing on oceans, food, and oracy.
- **Secondary:** Design and technology, music, MFL, computing, PE, business, RE, science, art, food technology.

Many of these modules have been embedded into our ITE programmes. There have been challenges along the way, including lack of time (no surprise), and some subjects have been earlier adopters than others. Nevertheless, there are some promising signs that issues of climate change and sustainability are being explored in subject sessions much more routinely than previously. Modules are embedded in different ways: some trainees engage with them as a directed task in their own time while some colleagues draw on module content in taught sessions. This case study provides a flavour of some approaches.

Primary PGCE

Our annual Sustainability Across the Curriculum Day provides the ideal opportunity to introduce 'Teaching

for Sustainable Futures' to our primary PGCE students. This year we offered a choice of practical workshops based on the history, music, English and science modules. The science workshop, for example, featured a practical session where students were able to learn about the challenging conditions faced by people living in Bangladesh and their incredibly creative solution: floating gardens and fields. The task for trainees was to solve the twin problems of rising sea levels and plastic waste by making floating gardens/fields using non-recyclable plastic.

The English and geography modules also provide inspiration and material for two specialist options. Our children's literature specialism draws on the second primary English module to focus on teaching about sustainability through children's books. This culminates in a visit to a school garden with the Royal Horticultural Society to investigate lost words in nature and to create new names for common plants in the local area. One trainee said of the visit: *"I feel really inspired and am glad to see things like this in action in a school."* Meanwhile, our geography and sustainability specialism uses many of the materials and resources from the primary geography modules to explore knowledge and understanding of climate and climate change and how to approach teaching these issues with children. Trainees conduct an action research project in school and many of them choose projects encouraging children's engagement with the outdoors, connecting to their local environment and building on the work that they do with the RHS.

Secondary PGCE

In history, trainees engage with the first history module in the autumn term and are supported and encouraged to incorporate an environmental focus in their teaching on their second placement. Some focus on environmental history in their second assignment (previous assignments have explored when the Anthropocene began, the impact of the Little Ice Age, and the historical significance of the nutmeg). A session towards the end of the course introduces two further modules: one focusing on industrialisation and the other focusing on the past, present, and future of sustainable cities in collaboration with geography.

The mathematics PGCE dedicates a day to climate change and sustainability based on the introductory secondary mathematics module. Trainees try out some of the activities from the module, including one



A trainee develops pupils' understanding of sustainability through literature. Image by Helen Jones

about the optimum design for drinks cans as a way of raising pupils' sustainability consciousness, and are encouraged to engage with climate change and sustainability as central topics for their second assignment about responsive teaching.

In geography, trainees explore the modules to develop their approaches to teaching for sustainable futures in practice. Many choose climate change and sustainability for their second assignment. Some of this work is published in *Teaching Geography*. Two examples from this year are: using a local urban farm visit to help children explore their relationship with food and animals; and using Maasai filmmaker Laissa Malih Ewaso's work on the importance of the river Ng'iro from an indigenous knowledge perspective.

All the modules are free to use and can be accessed at climateeducation.org.uk. 

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Adapting the National Climate Education Action Plan Framework at St Mary's University School of Education

Sophie Wilson

As one of three universities invited to pilot the National Climate Education Action Plan materials developed by the University of Reading, the School of Education at St Mary's University, Twickenham, undertook a strategic approach, embedding sustainability education across its Initial Teacher Education (ITE) programmes. This work was led by Sophie Wilson, PGCE Geography Course Lead and Lead Link Tutor, who integrated the framework into the Secondary course as well as the wider School of Education.

The initiative began by adapting the Climate Education and Sustainability ITT Framework to create three sustainability-focused lectures within the Professional Studies programme. These sessions were carefully scheduled to coincide with school placement briefings, ensuring immediate relevance to trainees' classroom practice.

The first session focused on teacher positionality and sustainability values, launching the message #TeachLikeThePlanetMatters. Its aim was to encourage trainee teachers to reflect on their own values and responsibilities as educators. This was achieved using resources such as a video clip from David Attenborough's Witness Statement and images of the iconic 'Blue Marble' photograph taken from space, illustrating the fragility of the planet. These were presented alongside the concept of planetary boundaries and the need for stewardship of nature and systems thinking. Together, they supported an understanding of the three pillars of sustainability, as

well as Ed Hawkins's climate stripes to encourage a new way of thinking.

The second session focused on the theme of climate justice, highlighting the interconnectedness of environmental and social inequalities. Using visual resources such as *Hungry Planet*, data from *Our World in Data*, and a TED Talk by David Lammy on climate and racial justice, trainees explored how global disparities shape lived experiences and how these issues might be addressed in schools. The session also promoted critical thinking and independent inquiry by reinforcing the relevance of climate education across social contexts – whether air pollution in London, sea level rise in the Pacific, or the impact of recent forest fires in Los Angeles.

The third session focused on personal and collective climate action. Trainees were introduced to the UN Sustainable Development Goals and asked to reflect on sustainability education observed in their placement schools. They considered actions they had already taken as well as possible future targets for their ECT years. The session encouraged curriculum evaluation through a sustainability lens on their subject, supporting the development of agency and resilience among pupils.

It is important to stress that these sessions were embedded as core content, not add-ons. Sustainability was framed as a central educational value. Trainees were expected to apply sustainability principles within their subject specialism, and, over time, this initiative has expanded to include sessions

for the primary BA and work-based ITT routes. A lecture on transformative education was also introduced to the international Qualified Teacher Status (iQTS) course, focusing on systems thinking and drawing on resources such as UNESCO's *Futures of Education* (UNESCO, 2026) and Mezirow's concept of 'meaning perspectives' (Mezirow, 1991).

The aim of this initiative was to underpin education with sustainability instead of treating it as an optional theme. Despite curriculum constraints, this has demonstrated that it was possible to promote reflective practice, raise awareness, and inspire action among trainee teachers. The sessions clearly helped these future educators to understand their role in enabling pupils to take meaningful climate action and become resilient changemakers.

The work was underpinned by the University of Reading's framework and aligned with the 2022 Department for Education's Sustainability and Climate Change Strategy, which provided the legitimacy for embedding this into the programme. It was further supported by collaboration with colleagues across the School of Education and by high-quality resources, including *Our World in Data* (Ritchie et. al, 2023), *The World's Largest Lesson* (American Leadership on the SDGs, 2024), and content from trusted public figures.

What began as a series of subject-specific sessions in Secondary Geography grew into a wider institutional movement. Colleagues from other subjects began embedding sustainability into their own subjects which was shared at team meetings. This cross-curricular collaboration was presented at the university's Learning and Teaching Festival and led to hosting a local Climate Ambassador training session for partnership schools this year.

Although no formal impact evaluation was conducted, positive feedback, raised levels of trainee engagement, and visible shifts in teaching practice evidenced the success of the initiative. Trainees expressed a growing sense of confidence in linking sustainability to their subject teaching and demon-

strated a willingness to prepare to take both personal and professional action.

This case study illustrates that embedding sustainability within teacher education is both achievable and impactful when framed as a shared institutional value. The momentum created through the Professional Studies programme highlighted the importance of national frameworks and collaborative partnerships. Adopting a systems-based approach, which was captured in the message #TeachLikeThePlanetMatters, has helped St Mary's to move towards a more transformative educational model focused on solutions and empowerment.

Looking ahead, the aim is to continue to develop this work by building on the success of the iQTS lecture and strengthening networks across the School of Education. We further intend to embed sustainability education across all training routes to ensure that future teachers are fully prepared to lead positive change in their schools and communities. 🌍

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Engaging with the 'Generational Bowl': Connecting to those inheriting a world in crisis

Elena Lengthorn

The 14th annual Teacher Education for Equity and Sustainability Network (TEESNet) conference was held at Liverpool Hope University in December 2024. Entitled *Education for Repair and Realising Alternative Futures Together*, the conference invited an exploration of the need for a new social contract for education "that can repair injustices while transforming the future" (UNESCO, 2021).

This event included a round table exercise considering "So what? The implications for influencing policy", which opened with a stimulus 'generational bowl' exercise to first connect participants deeply

and meaningfully with those who would be affected by the policy decisions: our children.

Our process mirrored that used by the Faculty of Education at the University of Victoria, Canada, which followed advice from indigenous mentors to "create a living symbol that would serve as an ethical compass" for their decision-making (UVIC, 2024).

Attendees were invited to undertake a reflective, collaborative, and creative process that aimed to move us beyond our individualistic, personal interests and recognise our collective responsibility.

There were three successive circle captures of reflection (written notes on coloured paper, all gathered in a basket) on the following themes:

1. **The names of the children, under 17, to whom we are intimately connected:** the names were read aloud, evoking connection, before being placed in the basket by each person. Our basket gathering included the contribution of categories such as children, grandchildren, godchildren, nieces and nephews, as well as the names of many young people, including Olivia, Theo, Penny, Dominic, and Bonny.
2. **Broader groups of children we felt connected to or whom we recognised as at-risk (e.g., children caught in conflict zones):** our second layer included traveller children, children with special educational needs, children in poverty, children in Gaza and the West Bank, and unaccompanied asylum-seeking young people.
3. **Children coming after the children in the bowl and non-human children:** this widened our awareness of whom our policy decisions would impact. This final gathering of contributions included threatened local wildlife, diversity, water quality, the young people who are passionate activists, and children who are yet to be born.

Next, the bowl of gathered contributions was covered delicately with dried petals from red and white roses, symbolising a blanket of protection, compassion, and healing, capturing our responsibility toward the future – a reminder to hold these beings in our minds and hearts as we make decisions for their futures.

At UVIC, the bowl remained in the Faculty of Education to unify the team with a collective vision that was further used at a 'Faculty Futures' session with an invitation for colleagues to mentally contribute and extend its symbolic intention.

At TEESNet, the 'Generational bowl' process enabled us to forethink what we might seek in terms of educational policy for repair and alternatives within the system and to do so whilst holding our deeper responsibilities, those that we hold in our professional roles, our personal lives, and wider communities, in greater perspective.

We are deeply grateful to all the participants who took the time to join us and reflect on our need for urgent, transformative approaches. The process cultivated a shared understanding and commitment to work together as a community. We hope that they, and you, dear readers, might take this heartfelt practice into their/your own teams and communities. 🌍

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Newly developed activities in BA primary education, using a focus on practice from in-service education leaders in sustainability

Lee Jowett and Catherine Hathaway

Sheffield Hallam University (SHU) trains teachers through both undergraduate and PGCE routes. Working in collaboration, Catherine and Lee developed and delivered a suite of climate change and sustainability education (CCSE) sessions for trainees across the range of primary and early years initial teacher training (ITT) courses.

The aims of the sessions were to:

- Develop trainees' own understanding of CCSE;
- Share examples of good practice from schools;
- Engage in hands-on activities to explore different ways in which CCSE could be taught;
- Develop trainees' confidence in making cross-curricular links in planning, so that they could feel confident in applying theory to practice;

- Explore the concept of eco-anxiety and develop trainees' understanding of strategies for support and how to plan to mitigate eco-anxiety within taught sessions.

Structure of the BA (hons) Primary and Early Years Education with QTS:

During the first year (level 4), trainees develop an understanding of citizenship education within seminars (e.g., through the SDGs). During the second year (level 5), trainees develop CCSE subject knowledge through an interactive lecture.

They further develop understanding of how local schools are approaching this, considering how they may plan and teach CCSE through hands-on and planning activities. This is delivered as part of an eco-anxiety seminar. Additionally, trainees explore Research Informed Climate Education (RICE) and how it can be applied across educational settings.

Case example

Climate change and sustainability are mentioned only briefly in the current national curriculum and not explicitly mentioned in the ITE framework. However, there are lots of positive examples showing that education settings are undertaking a wide range of activities (Sustainable Schools network, 2024). Many practitioners talked about the need for CPD from ITT onwards and for local networks providing opportunities to share best practice. SHU has led a Sustainable Schools network since September 2023, which includes trainee teachers, in-service teachers, researchers, and organisations.

Alongside the case studies, a framework has been initiated which uses the Primary Science Teaching Approach (Primary Science Capital, 2022) as a starting point to RICE. This framework identifies activities which enable teachers and children to develop their own thinking and approaches to climate change and sustainability in a local context (for example flooding) or considering where children access knowledge around climate change. It also focuses on greenwashing, misinformation, and creating agency, so where climate anxiety exists, it is acknowledged and strategies put in place. This framework has enabled trainee teachers to develop their own thinking and pedagogies based on research-informed teaching.

Evidence of impact showed most strongly through trainee responses to the sessions. There were high levels of engagement in practical work and discussions. Trainees' self-reporting of confidence levels in understanding climate change and knowing how to plan for lessons about environmental issues was high. One of the most surprising parts of this work was tutors' responses to delivering the content – often coming back from seminars and describing how emotive the session was for themselves. There was a tangible realisation amongst staff and students that the profession of teaching allows an impact “beyond ourselves”, and that this opportunity, and responsibility, should be harnessed.



Students ordering elements of a school carbon footprint.
Image by Catherine Hathaway

There are plans in place to continue to evaluate, learn from experiences, and develop the iterations of this aspect of the curriculum for trainees. The lessons learnt so far are:

- Implementing sustainability and environmental education can start small. Plans at SHU started with a link between us, and sessions were delivered within “science time”. The next phase involved including the wider Primary & Early Years ITT team so that threads could be linked across curriculum areas, allowing trainees to explore a more realistic CCSE approach;
- Starting with the trainees' own subject knowledge gave trainees a solid foundation for discussing how to implement it within the classroom. It is something that will continue within SHU's practice. Carbon literacy training for staff across the institution (since late 2023) will provide opportunities to embed carbon literacy training within level 4.



Students investigate the carbon footprint of different proteins.
Image by Catherine Hathaway

Overwhelmingly, the responses from trainees show that this is an important and desired area of learning. As trainees' own understanding of the current climate crisis developed, the ability to build their practice to address this within their placements and throughout their careers, impacting on children's science capital and engagement with this important topic, can be transformational. 🌱

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Implementing and embedding sustainability and environmental education in ITE curricula at the University of Manchester

Andy Howes, Rosa Archer, Hannah Strickland, Siân Morgan, Rai Lock, Joanne Tippett, Narinder Mann

Secondary initial teacher education at the University of Manchester has a long history and focus on education for social justice. Developing our curriculum to address climate and environmental justice has been a co-constructive endeavour involving trainees, lecturers, and local environmental education NGOs. The catalyst was a trainee teacher and climate activist who first raised the lack of such a focus with ITE staff in 2019.

In order to support teacher educators to implement and embed sustainability and environmental education in their ITE curricula, we have been organising a one-day PGCE GREEN conference every year from 2020 onwards, entitled 'Climate and Environmental Justice in Education: What's at Stake?'. We felt that a one-day event would feel manageable for ITE staff in the context of time constraints within existing curriculum frameworks. Our theory of change was to bring trainees together from different subjects in a high-profile series of activities to develop awareness and agency and to provide an opportunity to then embed follow-up activities on their second placement (the conference happens in January). Co-construction of the conference with different partners ensured that the conference has developed in scope and activity from year to year. Trainee teachers volunteering as PGCE climate ambassadors have played a critical part in imagining and taking responsibility for activities.

Collaboration with external organisations has also provided strong support for this work. Two members of Teach the Future contributed to our first conference, outlining how they had influenced their schools, and a small NGO called Manchester Environmental Education Network (MEEN) has been a constant ally and facilitator in brokering, planning, and implementing activities.

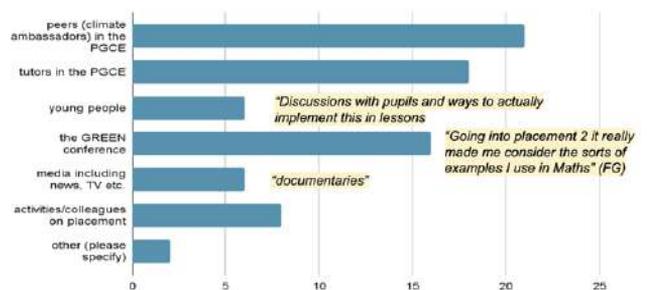
As a result, the GREEN Conference continues to be a powerful exercise in collaborative reflective practice. University staff, MEEN and alumni have provided continuity, experience, and a framework into which trainee teachers have injected new ideas and possibilities while new partners continue to enrich our thinking. For the 2025 conference, we partnered with the University of Manchester's 'RoundView' project, a powerful theoretical framework summarised in the move towards the right-hand circle. One trainee commented remembering being taught sustainability in school, and that it was the 'most boring lesson', but that working with the RoundView activities had given them real hope that it could be made stimulating and enjoyable instead. Others said that seeing how a sustainable world might in fact be possible generated optimism.



The 'RoundView' framework. Image by Rai Lock

Perhaps one of the biggest surprises for us was in seeing the significance of practical action as part of the conference. In 2022, a maths trainee teacher was quietly impatient with the focus on 'talk'. He set up a joint activity which involved cleaning up a part of Hulme which had been subject to fly-tipping. A group of trainees, staff, and a local NGO removed many tonnes of waste for disposal and recycling. This powerful example led us to committing the afternoon of subsequent conferences to activities, including caring for local parks, using rental bikes, measuring air pollution and developing tools to influence policymakers. In 2025, we developed a session on cooking with leftovers. The afternoon activities have become a hallmark of the conference, generating memorable experiences with direct application to practice in schools and colleges.

Findings: What has encouraged or enabled you to engage more deeply with this issue as a teacher?



Impact of the conference and peer learning on trainees' engagement with sustainability and environmental education.

Taken from Howes et al. (2023)

The graphic shows the impact of the conference and peer learning in helping trainees to engage with sustainability and environmental education. In a focus group, the student climate ambassadors also spoke about the impact of the activities on their intentions as teachers:

"What really stood out to me, you're with these kids for hours and hours... you are just as much a role model for them as their parents, etc... I hadn't really thought about relaying that to the new generation."

"What I will be doing in my new school, in September... It will not just be teaching these kids this is environment... No, it's creating those activities, where they can get to

see the impact at their own level. I want to look at the very basic, not just at the mega level.”

This case study yields clear implications for implementing and embedding sustainability and environmental education in teacher education. In our experience, the impact of events such as a day conference is greatly amplified through a process of co-construction, which leads to growth and development from year to year. 🌱

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More information

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The GREEN conference: tinyurl.com/r43kr5wy

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Teaching with a rounder sense of purpose at the University of Gloucestershire Alyson Meredith and Paul Vare

Despite the University of Gloucestershire winning accolades for its green credentials, calls to embrace learning for sustainability did not penetrate all courses, not least, teacher education. This was partly down to meeting Government requirements, such as the Core Content Framework (CCF), none of which mention sustainability, while adherence to these is subject to alarmingly significant Ofsted inspections.

From project to programme

Things changed when we initiated an Erasmus+ project (remember them?), which sought to define the competences of educators who take sustainability seriously. The project ‘A Rounder Sense of Purpose’ covered different contexts among our eight European partners, but at Gloucestershire this involved a consultative session with staff across the Bachelor of Education primary programme followed by one-to-one conversations. This gradual approach had the dual purpose of learning from the team while building trust and confidence as the emerging competences (A Rounder Sense of Purpose, n.d.) were mapped against curriculum content.

What began as exploratory discussions evolved into new practices such as keynote lectures for all first year BEd students and, in 2022/23, we began our compulsory module for final year students. Over ten weeks, the module combines academic theory with practical exploration so that student teachers engage critically with education for sustainable development (ESD) through the lenses of outdoor learning, sustainability, and Philosophy for Children (P4C), introducing pedagogical methods to empower children as active, reflective, and responsible citizens.

Some theory

This approach reflects a combination of ‘ESD 1’, that is, essential knowledge and recommended actions, and ‘ESD 2’, which involves building capacity to think critically about and beyond ESD 1, such as exploring inherent contradictions in sustainable living (Vare &



Students create a woodland food web to encourage systems thinking. Image by Paul Vare

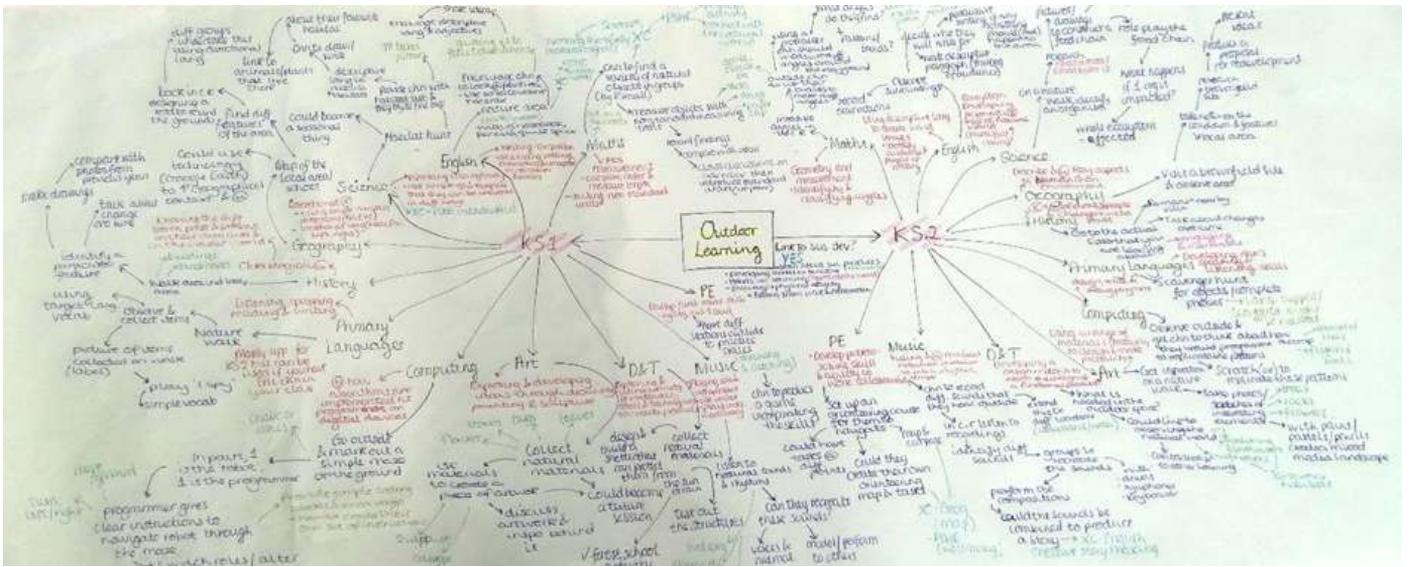
Scott, 2008). While the combination of ESD 1 and 2 builds effective learning for sustainability, the module also aligns with the CCF, particularly in relation to fostering subject knowledge, using effective pedagogical approaches and developing reflective, values-driven professional practice.

Early sessions introduce the Sustainable Development Goals (SDGs) and the concept of global citizenship, linking to a broader rationale for teaching about sustainability. This ESD 1 focus includes introducing systems thinking through a webbing game appropriate for primary-aged children.

We explore ways to embed sustainability in curriculum areas such as literacy, enabling student teachers to make meaningful cross-curricular connections and plan coherent sequences of lessons.



The ‘feel a tree’ activity develops trust while also encouraging students to explore their environment through a range of senses. Image by Paul Vare



A student teacher's mind-map of curriculum links on sustainability; part of their final assessment. Image by Paul Vare

Outdoor learning is introduced through experiential sessions, enabling students to explore the role of nature connection, sensory engagement, and place-based learning in developing pupils' environmental understanding and emotional regulation. We use a well-developed Forest School area plus less promising environments such as the car park, which may more accurately reflect the spaces available to some schools. The latter setting makes the point that nature is resilient and makes its presence felt in surprising places.

The module also embeds Philosophy for Children (SAPERE, 2022) to deepen students' ability to facilitate meaningful dialogue. Through mini-enquiries, students practise creating collaborative classrooms and prompting critical thinking around sustainability-related concepts such as fairness, rights, and justice. This part of the module exemplifies ESD 2, and students value the way that this can be applied directly to their practice.

Each strand of the module – sustainability, outdoor learning, and P4C – contributes to the overarching goal of preparing teachers who can connect knowledge, values, and action under the ESD umbrella. Through weekly reflective logs, students examine how their own values relate to sustainability principles and identify strategies for overcoming common barriers from curriculum pressures to self-confidence and climate anxiety. These reflections support the final assessment, an essay that requires students to engage critically with two of the module's three strands in relation to their professional development.

Feedback and adjustments

Initially, students expressed concern that not everything they learned could be applied in their teaching, we therefore reduced theoretical content in favour of developing practical ideas while not losing essential background. Another challenge was students saying sustainability felt “depressing”, which reminded us to emphasise connection, futures thinking, agency,

collaboration, and action. After the latest iteration, students reported how the module gave them confidence in recognising the value of embedding ESD within the primary curriculum. One student reflected on how the module outlined a responsive, meaningful pedagogy – one that connects children to real-world environmental challenges while also fostering curiosity, agency, and wellbeing.

And beyond...

Elsewhere, we are also integrating aspects of sustainability earlier in the BEd course and with our PGCE students. For example, in design and technology, all sessions in year 1 and the PGCE course focus on researching, designing, and building sustainable homes. Meanwhile, we integrate a great deal of teaching on sustainability within geography sessions.

Finally, when the much-anticipated Ofsted call did come, the inspection report highlighted our embedded sustainability work as a unique strength of the university's approach to teacher education. This is more than a nice-to-have; perhaps more than anything, it ensures that sustainability and environmental education is here to stay. 🌍

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Weaving Environmental History into the ITE Curriculum

Daniel Procter

As a subject mentor on the Teach First programme with a teaching background in secondary history and politics, I have long been concerned by the absence of environmental perspectives in Initial Teacher Education (ITE). While the climate crisis dominates contemporary discourse, it has remained largely invisible in many subject curricula, especially in secondary history. I therefore developed a masterclass inspired by Riley and Kitson (2024) to give trainee history teachers the tools and confidence to integrate environmental thinking into their curriculum planning.

The masterclass begins by exploring how environmental history can enhance rather than replace traditional narratives. Arguing that the climate crisis calls for a disciplinary response, not just a moral one, the session highlights how key historical events are shaped by environmental conditions and human interaction with nature. It then introduces teachable real-world examples of how we can do this, aligning with disciplinary concepts such as causation, significance, and change over time, while also encouraging ecological awareness.

The rationale behind this work is twofold. First, history education must engage meaningfully with the defining issues of our age. The climate crisis is not only a scientific or political problem – it is a historical one, too. Secondly, by weaving a ‘green thread’ into ITE, we empower early career teachers to experiment, reflect, and lead change from within their schools. Embedding environmental thinking early helps prevent it from becoming an optional extra.

Support for this initiative has come from multiple places. The masterclass is delivered as part of Teach First’s broader commitment to social justice and curriculum innovation. I also have drawn academic inspiration from Peter Frankopan’s *The Earth Transformed* (Frankopan, 2023), which offers a rich resource for exploring the deep history of human-environment interaction. Within schools, this work

has been warmly received by mentors, with some subject leads adopting the lessons into their departments’ scheme of learning. This partnership has been particularly encouraging, as students have responded positively to lessons that connect familiar historical content with environmental perspectives.

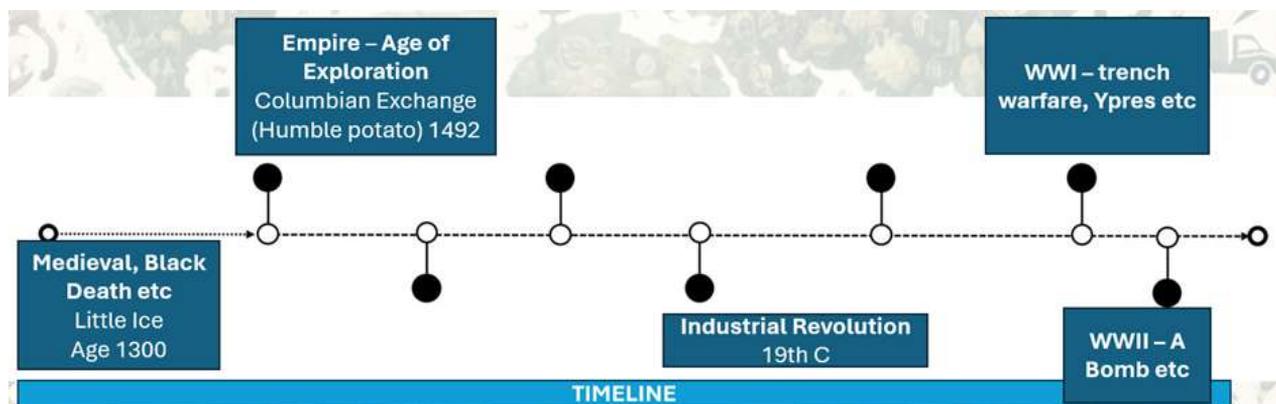
Lessons address questions such as:

- Did the Industrial Revolution help people more than it harmed the environment?
- How did war on the Western Front impact the environment?
- How did technological breakthroughs of WWII leave a lasting environmental mark?

Each lesson is rooted in historical scholarship and inquiry, helping pupils think critically about human choices and their ecological consequences. For instance, in studying the causes of the French Revolution, students considered not only social and economic grievances, but also how harvest failures and little-ice age conditions exacerbated political unrest, adding a new layer to their analysis.

ITE students report that the masterclass has opened their eyes to new possibilities in curriculum planning and encouraged them to move beyond tokenistic references to sustainability. Several have gone on to adapt the lessons in their classrooms and use them as models for deeper inquiry into environmental themes. Mentors have expressed appreciation for the practical nature of the resources and the way they align with historical disciplinary aims.

Reflecting on this, I am most proud of the way it has sparked conversations among trainees and mentors about the kind of curriculum we want for the future. Embedding sustainability in ITE is not about creating a separate strand of learning, but about rethinking our approach to traditional content and helping teachers see the ecological dimensions of the past.



Chronological overview of key events highlighted to weave into history curricula. Image by Daniel Procter

One surprise was how eager trainees have been to explore this work. Far from being intimidated by the challenge, they are excited by the opportunity to lead on an issue that resonates with their values and those of their students. The experience has reinforced my belief that change in education often begins at the margins, with individuals willing to innovate within the existing structures.

The implications of this work are significant. We must ensure that the next generation of teachers sees sustainability not as an add-on, but as a core aspect of their subject's identity and purpose. For Teach First and others, this means supporting trainees and staff to experiment, share and reflect on their practice. It also means resourcing this work, not just with time and space, but also with professional learning communities and access to research.

Looking ahead, I hope to expand this work by developing a wider network of environmental history

educators who can co-create resources and share good practice. I am also keen to get involved in more formal research into the impact of this approach on pupil outcomes and trainee confidence. 🌍

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More information

Environmental History teaching resources:
tinyurl.com/yc4vjsez

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Learning and Teaching for Sustainability in Teacher Education at the University of Dundee

Joanna Duff and Richard Holme

What we did to support teacher educators to implement and embed sustainability in their ITE curricula

Currently our students have the chance to learn about sustainability at different points during the course. Optional modules in year 1 include Sustainable Development and the Environment and Planning for Sustainable Places. In year 2, there is a specialist STEM module and the dedicated module 'Learning and Teaching for Sustainability' (Lfs).



Students investigating water quality during a practical session at University of Dundee. Image by Joanna Duff and Richard Holme

Why we did this

The recently introduced Lfs module introduces the theory of sustainability, focussing on systems thinking on a macro scale and drawing on issues such as social and ecological justice. The module covers practical application of pedagogy with inputs on outdoor education and ecology. Students participate in outdoor learning workshops, situated

in two distinct environments: an urban on-campus area and the University Botanical Gardens. A key aim of these workshops is to engage students in exploring the ecological impacts of changing land use. By learning about these environments and considering how to use them to support teaching experiences, our student teachers can better deliver learning on sustainability concepts such as biodiversity.

Following on from this, an opportunity arose to develop a partnership with a local primary school that was carrying out project-based learning on water quality (SDG 6 – Clean water and sanitation). Together with the class teachers, teacher educators then planned a practical science lesson, which was delivered by two lecturers and a number of ITE students on the university campus.

Beforehand, a knowledge checker was completed by the teachers which informed the lesson planning. During the practical session, the primary school children investigated samples of dirty water and observed the process of settlement. The ITE students and school children then carried out a variable controlled experiment to explore the effectiveness of different materials for filtering the water samples. The session finished with a demonstration of chemical flocculation and solar desalination.

The support we had

Scottish ITE providers design and deliver the curriculum based on the Standards for Provisional Registration (General Teaching Council for Scotland, 2021). This includes the section 'Being a Teacher in Scotland', which makes direct reference to sustainability, linking with global citizenship, equity, and social justice. This is situated within the wider policy context

and informed by Scottish Government's recent report on Scotland's Learning for Sustainability Action Plan 2023-2030 (The Scottish Government, 2023).

Achievements and impact

Throughout the LfS module, students developed an understanding of sustainability and the role education plays in the creation of changemakers. They discovered how LfS has been embedded into Curriculum for Excellence, assessed what progress has been made, and considered how to overcome challenges. In the practical teaching session with the primary school, the most positive and most surprising finding was how quickly the children's knowledge expanded. ITE students also quickly learnt to guide the children and build relationships.



Children and ITE students investigating water quality during the practical session at University of Dundee. Image by Joanna Duff and Richard Holme

For the taught module, students reported that the opportunities for discussion deepened their thinking and understanding of the concepts. Many reported on the benefits of practical experience, especially within the outdoor learning contexts. The biggest impact from the module was the way students re-evaluated their perspective and perception on sustainability.



Exit tickets. Image by Joanna Duff and Richard Holme

For the practical session, we collected 'exit tickets' from school children – notes on which they summarised what they had learnt. The notes reflect conceptual understanding of scientific processes applied in water purification. Moreover, there was clear development of practical, scientific skills which presents opportunities for future development.

The potential of embedding sustainability and environmental education in teacher education

The development of activities has demonstrated the potential for sustainability and environmental education to be taught through outdoor education and STEM activities, applied directly to school teaching and ITE. The theoretical underpinning of the LfS module teaching, taking a global systems perspective, helped students understand the impact of quality education.

What we aim to do next

We would like to expand the project next academic year, further embedding teaching opportunities for school pupils and student teachers in the sustainability and STEM modules. These could focus on STEM conceptual knowledge and skills, applied to relevant sustainable or environmental curricula context areas, supporting, for example, SDG 14 (Life below water) and SDG 15 (Life on land), and on investigation into human impact on ecosystems.

So far, there was no funding or existing support; in future, there may be an option to collaborate with organisations such as Scottish Schools Education Research Centre (SSERC), a charity that supports STEM education in Scotland. 🌍

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More information

Education MA (Hons), University of Dundee: [dundee.ac.uk/undergraduate/education](https://www.dundee.ac.uk/undergraduate/education)

LfS module: [dundee.ac.uk/module/ed22033](https://www.dundee.ac.uk/module/ed22033)

Sustainable Development and the Environment module: [dundee.ac.uk/module/up11003](https://www.dundee.ac.uk/module/up11003)

Planning for Sustainable Places module: [dundee.ac.uk/module/up11004](https://www.dundee.ac.uk/module/up11004)

SSERC: [sserc.org.uk](https://www.sserc.org.uk)

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Science teaching in Belfast – through an environmental lens

Katrina Mulholland, John Prenter, Gerard McCann

Established as a women's teacher training college on the Falls Road in 1900, St Mary's has grown from an initial enrolment of one hundred to over a thousand students today; a link with Queen's University Belfast was established in 1948. Most students follow the Primary BEd Programme that covers all aspects of the Northern Ireland Curriculum, which is overseen by the Council for Curriculum, Examinations and Assessment (CCEA).

Environmental Science: Systems and solutions

This module occurs in the programme's third year, enabling students to develop their understanding of pedagogy through an environmental lens. This builds on a year-two specialism in biological, physical, and chemical interactions in the environment and develops understanding of science from a wider biological and ecological perspective. The influence of material properties such as density, heat capacity, chemical composition, and magnetism on ecosystems of all sizes is explored. This includes the effects of pollution, both natural and anthropogenic, on environments from a local and global perspective. Delivery in the classroom builds professional competence in this field.

The module's aim is to ensure students can explore major concepts in ecotoxicology and anthropogenic influences on the environment and develop pedagogical links between these concepts and the environmental components of *The World Around Us* (WAU) in the Northern Ireland Curriculum. This builds a sound appreciation of scientific principles underpinning sustainability. This advances subject knowledge while developing students' understanding of the curriculum to support the highest quality science teaching in the primary classroom. Students are immersed in a range of teaching experiences including lectures, practical sessions, seminars, group work, peer-tutoring, computer simulations, virtual laboratories, and field and project work.

Beyond experienced academics, students benefit from a dedicated technician who works with them on various assignments and workshops. There is also a Resource Centre for preparing work schemes and classes for School Practice, i.e. in-class experience representing up to one third of each academic year on the Primary degree. Beyond that, there are external organisations such as Eco-Schools, Friends of the Earth, and the Institute of Northern Ireland Beekeepers (INIB), which provide bespoke specialist workshops throughout the year. Many other environmental non-governmental organisations in Northern Ireland have strong connections to the College.

Impact and outcomes

The students are highly engaged and understand the importance of sustainability which brings with it an ethical imperative that can be seen in the learning

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Environmental Science field work. Image by Anthony Clearn



Environmental Science field work. Image by Anthony Clearn

experiences and through to the primary classrooms of their teaching practice and career. Students' grasp of issues pertinent to environmental sustainability is a distinct output of the module. Their enthusiasm for the subject and the principles of environmental sustainability can be recognised at every point of professional development, from engagement in lectures through to assignments.

Students also develop important transferable skills including qualitative and quantitative research methods, report writing, data handling, theoretical analysis, and investigating and applying scientific methods. For the programme, this has meant ongoing adaptation in terms of technology and innovation, with Artificial Intelligence being the latest challenge. For the institution, ongoing attempts to embed the United Nations Sustainable Development Goals into teaching and learning can be seen

throughout the module design. This means that, as students go into the community to work or on placement, the concept of sustainability, environmental protection and awareness of climate change becomes multiplied across partnered schools and organisations.

Next steps

Of greatest interest to our science team is the ongoing longitudinal study involving trainee teachers to establish their understanding of and interest in climate change and the science underpinning it. We have already constructed a research instrument in the form of a concept inventory, covering issues such as the composition of solar radiation, the role of the oceans and the atmosphere in regulating the earth's climate and build-up of greenhouse gases. The data gathered thus far, also from cohorts in Curriculum Studies and main subject science, not only exposes common misconceptions but also measures attitudinal shifts and levels of ethical awareness.

The incentive for our work is ultimately to better understand the needs of our students with respect to

environmental issues and to further enhance our provision in an even more targeted approach. Once data collection has been completed, both quantitative and qualitative analyses will be undertaken to inform course development and the design of appropriate and hopefully impactful strategies, specifically addressing less tractable misconceptions. 🌍

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The scale of the problem: Our approach to embedding SCCE into ITE

Jenny Wynn and Lauren Hammond

The University of Oxford has had a teacher education programme for more than 30 years and today we have approximately 150 interns undertaking PGCEs in English, mathematics, science, geography, history, and modern languages. The Oxford Internship Scheme was a pioneering university-school collaboration that sought to create a jointly planned Initial Teacher Education (ITE) course that integrated theory and practice. This concept of 'practical theorising' is still at the heart of ITE at the University of Oxford today and places a:

"high degree of value on teachers' agency, intellectual freedom and potential to thoughtfully and critically engage with, recontextualise and experiment with an expansive range of evidence" (Puttick, 2024, p. 7).

This philosophy underpins our work on climate change and sustainability education. What we want to emphasise here is that this work is not all about big ideas; rather, we have embedded sustainability into the programme at a range of scales and in a variety of ways; from a weekend residential field visit to a few minutes in the department garden.



Department of Education, Norham Gardens, Oxford. Image by John Cairns

Education happens in, and is shaped, by place(s). Our department is located in the beautiful Norham Gardens in Oxford, butted up against University Parks, which means we are surrounded by nature. We seek to make the most of our positioning and the wider resources of the university, including its gardens, libraries, and museums, throughout the PGCE. One fabulous resource that links these places is the 'Museum of Climate Hope', (GLAM, n.d.). This is an innovative trail across the city that allows people to explore artefacts through the lens of climate change.

On a larger scale, we enable a weekend residential field visit to Somerset for all of our geography and science interns where they engage with a range of coastal, river, and rural landscapes. During the field visit, interns critically reflect on the value of fieldwork and outdoor learning, and develop their knowledge of, and pedagogies for, teaching ecology, geography in, and through, place. Many of the skills and ideas that are shared here are translatable back to the school grounds, as, for example, the use of quadrats and pooters.

Our assignments allow for a focus on climate change and sustainability as an option. Interns may choose to focus on this as a wider issue of teaching and learning and conduct an inquiry into how it is engaged within their placement school before planning, teaching, and evaluating a lesson on an element of sustainability and reflecting on how this process has informed their professional learning.

Whilst not compulsory, making this focus available as part of our assessment is an important step to ensure that climate change and sustainability is present, and even prominent, within the curriculum.



Interns (pre-service teachers) undertaking a range of environmental exploration activities on our field trip to Somerset.
Image by Jenny Wynn

On a smaller scale, science interns spend time using nature apps and more basic identification keys in the department garden as they enquire about local ecology. The so called 'bucket game' provides them with basic equipment and challenges them to collect data to help tell a local environment story. This has resulted in some striking, and even fascinating outcomes from the mapping of foot-fall erosion of a football pitch to identifying a richer species diversity nearer ponds and trees. Mathematics interns, working with the geographers in a cross-subject workshop, are given the opportunity to find and explore data to help teach an aspect of climate change. The English PGCE has for the past two academic years incorporated a session focused upon environmental issues in English education. The aim of the session is to gauge interns' understandings of the issues, whilst exploring approaches interns can

employ when addressing these within the school English curriculum. We stress incorporating the issues with subtlety and nuance, as this is more likely to be successful in a restricted curriculum environment. In PGCE history we explore climate-related themes through a multi-perspective approach, helping interns and pupils understand how histories – local and global – are constructed and used. In one session on environmental history, we introduce how interns can adapt conventionally taught topics at KS3 to include a focus on the reciprocal relationship between humans and nature in the past.

One specific small-scale idea helps to tackle the notion of plant blindness, first described by Wandersee and Schussler (1999) and from our experience still very much a "thing". Providing a 'pet plant' to each intern towards the end of the PGCE is a gesture that we are hoping will instil an affection for plants and introduce a plant into many more classrooms in September. A small-step maybe, but a bigger impact we hope. 🌱

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Embedding Climate and Sustainability Education: PGCE Secondary cross-disciplinary approach for science, art and design technology at the University of Reading

Jo Anna Reed Johnson, Mel Jay, Sarah Marston

In 2022, the University of Reading led a consortium of organisations to develop a 9-point National Climate Education Action Plan at COP 26. This was released around the same time as the 2022 Draft Department for Education (DfE) strategy for Sustainability and Climate Education. Action 2 of this 9-point action plan required the Institute of Education, University of Reading to design a framework to embed Climate and Sustainability Education across all initial teacher education (ITE) (pre-service) programmes.

An important part of this work was to consider ways to not only develop the knowledge related to climate change, but the value and understanding of ways to take action. This led to a three-pronged approach through the development of metacognitive

competencies, building learners' self-efficacy to take action through strategies such as problem-solving, critical thinking, and design thinking. The ITE Framework is structured around three aspects: knowledge; attitudes, values, and behaviours; and competences (Reed Johnson et al., 2025).

One approach taken was designed to enable all age ranges (early years, primary, and secondary) and all subjects to have embedded aspects of climate education into their programmes. This could come under any of the three aspects of climate education, climate justices, and climate action. The example highlighted here is a cross-disciplinary project with science (biology, physics, and chemistry) and art and design technology. This project focused on the

re-purposing of waste from around the university campus and collaborated with the Bee Meadow project, for which the Institute of Education designed and developed an outdoor classroom. The resulting creation was an art installation around this theme. The teacher educators utilised a design thinking approach, and both teacher educators and training teachers worked in cross-disciplinary ways to share expertise.



Collaborative Cross-Disciplinary Plastic Bee Project.
Image by University of Reading



Collaborative Cross-Disciplinary Plastic Bee Project.
Image by University of Reading

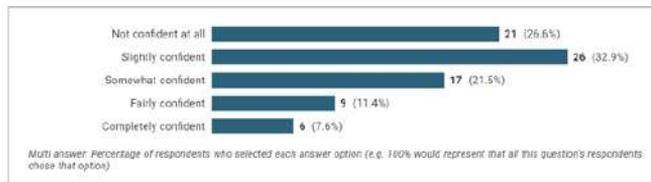
The impact of embedding climate and sustainability education for the PGCE Secondary in science, art, and design technology has been threefold:

1. Improved training teacher confidence:

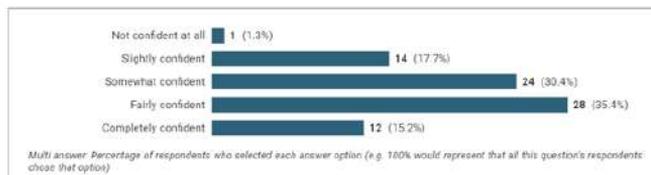
The pre and post survey of training teachers' confidence to teach climate and sustainability education had improved by the end of their training programmes. The training teachers said how much they had enjoyed working in this cross-disciplinary way to bring different skills and knowledges together.

Indicate below your confidence to teach climate and sustainability education

7.1 At the start of this academic year



7.2 At this point in the academic year (end)



Training teacher confidence survey. Image by University of Reading

2. Teacher educator professional development:

Through shared understanding the teacher educators were able to develop and exchange innovative approaches to teaching and learning. They drew on each other's unique skill sets.

3. Collaboration: This was a key impact as well as input to this approach. Drawing on expertise from across the university and local community organisations as well as on each of the specialist skills sets led to a more innovative approach and training teachers who had a deeper understanding of this work from a systems-thinking perspective.

Looking ahead, the PGCE secondary team as a whole are looking to share their stories more widely, particularly as this showcases ways in which climate and sustainability education can be embedded within subjects not traditionally associated with environmentalism, such as music, art, drama, and English as well as in the cross-disciplinary ways highlighted here. Recently, the team have engaged in carbon literacy training, thinking about how that knowledge might work with non-science subjects. The next professional development project will be engaging in a collaboration with Compass Education, utilising their Systems Thinking Toolkit that is employed internationally to educate teachers. We will then engage the team in a rigorous research project to explore the impact of this deeper understanding of systems thinking on competency development. 🌍

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The Open University ITE partnership in Wales

Alison Glover and Mathew Jones

Since 2020, The Open University in Wales has delivered part-time and employment-based routes into teaching via a Post Graduate Certificate in Education (PGCE). There is a commitment for all Open University programmes to be inclusive, innovative and responsive, promoting social justice. By its very nature, sustainability is embedded within the PGCE, delivered in English and Welsh, across Wales using a blended distance pedagogy. For instance, content is delivered via online seminars and materials are accessed via a virtual learning environment while student teachers complete learning placements in schools in their locality. As all materials are provided digitally, there is no requirement to print lesson plans and resources.

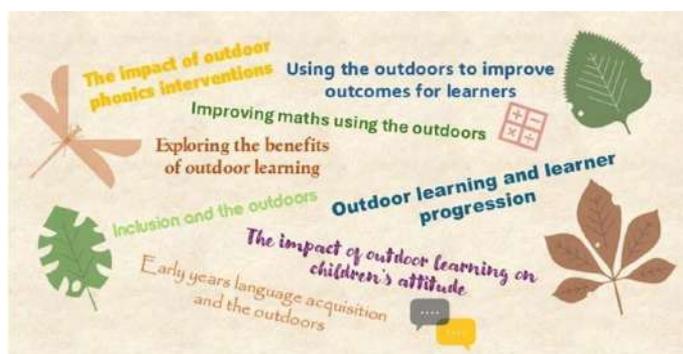
This PGCE is part of extensive education reform in Wales that also includes the implementation of the Curriculum for Wales. One of the four purposes of this curriculum is for children and young people to become “ethical, informed citizens of Wales and the world” (Donaldson, 2015, p. 29). Emphasis on economic, environmental, and social sustainability is found within the Humanities Area of Learning and Experience of this curriculum.

There has been a drive to embed Education for Sustainable Development and Global Citizenship in education, including teacher education since the early 2000s. Specific guidance has supported teacher educators to implement and embed sustainability and environmental education in the curriculum via focused course content (e.g. Welsh Assembly Government, 2009). PGCE content offers opportunities to develop student teachers’ professionalism, climate literacy, and skills in teaching controversial issues. The Well-being of Future Generations Act (2015) is central to Wales’s drive to be a prosperous nation. Along with previously mentioned initiatives, this act provides context and rationale for the focus elements of the Welsh curriculum.

Since the launch of The Open University’s PGCE, there has been strong evidence for the impacts of the sustainability/environmental education course. For instance, many student teachers focus their professional enquiries on topics such as outdoor learning and the use of the environment to develop children’s understanding of the world. Student teachers also contribute to environmental issues during their placements, becoming involved in Eco-school activities and incorporating themes such as recycling and distance travelled activities in lessons.

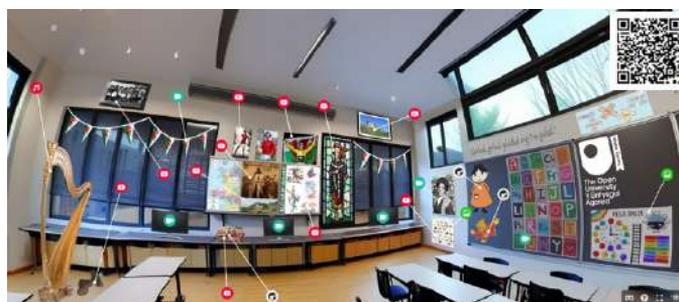
Cynefin is another theme popular for student teachers’ enquiries. ‘Cynefin’ is a Welsh term

referring to sense of belonging. This is particularly prominent in Welsh education, with student teachers focusing on the importance of their local communities, heritage, and culture. To support this, teacher educators are actively engaged in research and collaborative projects in this field.



A sample of the outdoor learning themed professional enquiries undertaken by student teachers. *Image by Alison Glover*

Another initiative influencing the delivery of the PGCE and approaches adopted by student teachers is the application of 360° immersive technology. Now, different classroom environments can be experienced without having to travel to schools. Resources are also available to support knowledge and understanding on a range of themes, using this technology. For example, QR codes provide access to classroom environments and learning activities.



An example of the immersive technology applied by the PGCE. *Image by Mathew Jones: tinyurl.com/52sa922f*

However, it appears that ‘greenwashing’ has become a common issue. Hence, we must build critical understanding of sustainability initiatives. For example, recycling is the norm, but do we truly understand why? Is there a disconnect between the need to recycle and understanding why? Teacher education has to ensure that teachers continue to develop their own knowledge and understanding. The Open University has a drive to support educators to develop their professional practice, with training and materials freely available (e.g. the OpenLearn Create course on Sustainable Pedagogies, tinyurl.com/Sustainable-Pedagogies).

All teachers in Wales are responsible for their own professional learning; As part of this, there needs to be an advanced understanding of sustainability initiatives (e.g. the circular economy). This is very much supported by the current curriculum in Wales, which includes creativity and problem-solving (Donaldson, 2015, p. 29). Thus, there is an expectation that future citizens of Wales possess such skills to tackle many yet unknown problems that will require creative solutions. The impact of a well-informed teacher workforce teaching the future generations cannot be underestimated. 🌍

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Developing networks and dialogue with industry, schools and Higher Education Institutions

Tremaine Baker

It is clear to me that despite the establishment of the DfE Sustainability and Climate Change strategy and the rising demand for climate change and sustainability education (CCSE), as shown by the fantastic work of SOS-UK, schools and Higher Education Institutions (HEIs) still have a long way to go in responding to the global climate emergency. In my experience leading Initial Teacher Education (ITE) at Middlesex University, motivated individuals tend to be key enablers of developing CCSE in their contexts – an observation which has been borne out by wider research (Rushton & Walshe, 2025). As identified by the Centre for Climate Change and Sustainability Education, a crucial component of enhancing their capability and capacity to develop CCSE is the provision of quality professional development related to climate change and sustainability.

With this in mind, and in light of Middlesex University's commitment to sharing knowledge for a fairer, more sustainable society and its proud history of working in collaboration with external partners to prepare trainees for a successful career in teaching, I looked to develop a forum to disseminate expertise and facilitate coordinated action across our partnership.

Utilising funding for knowledge exchange from the Higher Education Innovation Fund, I organised an #EcoEdLondon2024 conference targeting educators seeking to implement and embed sustainability and environmental education into their education settings. The conference was part of Middlesex University's broader principle of 'Knowledge into Action', aiming to disseminate expertise and facilitate coordinated action on environmental education across our ITE partnership.

The intention was to work closely with various stakeholders to provide a rich and varied programme, drawing on expertise from different sectors to provide a comprehensive overview of sustainability

and environmental education. This included aligning the conference with the BarNet Zero Festival and working with a diverse range of external agencies, including:

- Environmental organisations, charities and businesses (e.g., Students Organising for Sustainability; Lets go Zero; SUEZ Recycling & Recovery UK);
- Educational Institutions (e.g., University of York; UCL Centre for Climate Change and Sustainability Education; Association for Citizenship Teaching);
- Governmental organisations (e.g. Barnet Council; Climate Ambassador scheme)

While the conference was targeted at educators, its content and networking opportunities held significant value for teacher educators seeking to implement and embed sustainability and environmental education into their curricula. This included workshops exploring pedagogical approaches that teacher educators could incorporate into their own ITE curricula, such as those relating to experiential environmental education, interdisciplinary eco-pedagogies, and teaching education for sustainable development. Furthermore, the conference included a panel discussion from a range of perspectives on 'The Future of Climate Change and Sustainability Education' and an exhibition space in which educators could engage with external agencies looking to support the development of CCSE.



Key note delivered by Professor Leigh Hoath of Climate Adapted Pathways for Education. Image by Tremaine Baker

I have to say, it was not an easy journey. Certainly, there were challenges along the way (not least the lack of full funding, meaning we were reliant on personal networks for marketing and the goodwill of participants to deliver the sessions). However, in the end, it was well worth the effort. Feedback from the event was overwhelmingly positive, with 100% of survey respondents rating the overall experience as 'excellent' or 'very good'. Attendees highly valued the keynote addresses, workshops, and panel discussions, reporting that the content was relevant to their needs and interests in sustainability and environmental education. Notably, a number of delegates reported immediate implementation of ideas gained from the conference, suggesting a direct translation of knowledge into practice. The networking opportunities were also appreciated, with many expressing an interest in establishing networks to maintain momentum and share resources. Indeed, this has been a springboard for future collaborations, with a number of attendees subsequently becoming involved in the Clean Air Barnet citizen science project. This has seen a collaboration between academics at Middlesex University, Barnet Council, Friends of the Earth, and local schools to explore ways in which schools can collect and utilise air quality data in their own school curricula.

Ultimately, the #EcoEdLondon2024 conference represented a significant and timely initiative to support the integration of sustainability and environmental education in schools and ITE programmes.

Its strong rationale, diverse support, and comprehensive programme offered a valuable CPD opportunity for a wide range of motivated individuals, at a time when this is sadly lacking. Similarly, the opportunities to network and develop communities of practice among likeminded individuals provides a model which can inform and inspire educators. It has shown that by providing access to current trends, practical strategies, expert knowledge, and collaborative networks, HEIs can contribute meaningfully to the development of partnerships for a more environmentally conscious and sustainable education system, equipping future generations with the necessary skills and understanding to address the complex challenges of the 21st century. 🌍

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Wildlife on Wednesday: Nurturing nature connectedness in ITE at the University of Worcester

Elena Lengthorn

My involvement in the University of Derby Nature Connections Education steering group introduced me to their valuable research on nature connectedness (Richardson and Butler, 2022). The group recognises that deeper nature connection leads to increases in happiness, eudemonic wellbeing and pro-environmental behaviour, which are all increasingly important in our time of climate and ecological emergency and our work with children. Nature connection is about more than spending time outside; it is psychological, it's about our relationship with nature, our value of that relationship, and our recognition of being part of it. It's good for humans and for the rest of nature. The handbook promotes five pathways to nature connectedness that can be used to design activities and initiatives to enhance nature connectedness: senses, beauty, emotion, meaning, and compassion.

The University of Worcester Institute of Education created a project for our secondary PGCE cohort that aimed to build nature connection through engagement, in encouraging nature noticing and sharing by promoting exchange through normalising nature conversations.

This turned into a gold award-winning Green Impact project entitled 'Wildlife on Wednesday' (WoW). This involved a weekly dose of nature education delivered directly to PGCE secondary trainee email inboxes with a species photo, distribution map, video, links to the curriculum, fun facts, and a nudge to share these nuggets of nature knowledge by opening a nature conversation in their placement classrooms and staff rooms.

The weekly WoW posts, initially developed by an undergraduate Green Impact Project Assistant, evolved into contributions from trainees and staff who delighted in sharing their own photos and nature connection experiences: from swans in Stratford-on-Avon to bluebells in nearby woodlands.

Rationale

All of the children that our trainee teachers will ever have the privilege to work with will live in an era of climate and ecological emergency. Hence, pro-environmental behaviours, along with joy and sense of purpose are essential as we navigate this crisis. Akin to donning our oxygen mask first on a plane,

our educators need to be nature connected, as opposed to in nature deficit (Louv, 2005), as something of an antidote to climate despair and overwhelm, equipping them to develop nature connection in their learners.

As a Green Impact project, the activity was supported in the first year by SOS UK, which funded a student Green Impact Project Assistant (GIPA) to develop the weekly wildlife postings, identifying local species to engage with at the appropriate time of year.

A survey of PGCE students shared staff and student feedback on normalising nature conversations in the classrooms and corridors; 87.5% found the posts enjoyable or very enjoyable, with 89% reporting that the most enjoyable element was in “learning something new”. I have been surprised and absolutely delighted by the outpouring of nature conversation from staff, students and in-school mentors alike. It was wonderful that people felt motivated to open-up and speak about their nature experiences with each other, from sharing sightings to childhood recollections.

This project could be considered a partial antidote to nature deficit disorder and perhaps the first step in nature connecting our educators. More deeply nature-connected adults may raise more nature-

connected children and all the benefits that this will bring them in terms of normalising nature in our lives, our eudemonic well-being, and the ensuing pro-environmental behaviours that we so urgently need in our time of climate and ecological crisis.

The ambitious next step for the WoW project is to build on the weekly dose of wildlife to an embedding into subject sessions: how can we find ways to take nature into each strand of the curriculum and further disseminate it into our partnership schools? It would be excellent to develop and share WoW with our wonderful in-service colleagues. 

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Embedding sustainability and environmental education in ITE curricula at the University of York

Georgia Ramsay

Over the past four years, geography Initial Teacher Education (ITE) at the University of York has been through something of an evolution. Working in close collaboration with my colleague, Adrian Gonzalez, Senior Lecturer in Sustainability, we have managed to truly embed sustainability within the PGCE programme of the Department of Geography and Environment.

It began as a focused project aimed at equipping trainee geography teachers to deliver a curriculum enrichment day in a local secondary school. It has since evolved into a large-scale event in which schools from across the city and the PGCE partnership are invited to bring year 9 and 10 students to the university to participate in an inter-school challenge. Led by the geography PGCE trainees, school students are tasked with re-imagining York's Guildhall ward as a more sustainable community.

An important part of the ITE geography curriculum is a dedicated day of professional development, designed to deepen subject knowledge on sustainability, critically challenge limited (three pillar) models still commonly used in schools, and instead introduce frameworks which integrate the concept of environmental ceilings (Rockström et al., 2009) with social foundations (Raworth, 2017). Trainees are

encouraged to consider how key sustainability themes can be applied and embedded within the curricula of their placement schools.

Following this focused professional development, geography trainees collaborate to plan and deliver a series of interactive workshops for year 9 and 10 students, hosted on campus during the enrichment phase of the PGCE in June. This experience not only enables trainees to apply their learning but also builds confidence in communicating complex environmental and social issues to younger learners.

The rationale for embedding this work within the geography ITE curriculum initially stemmed from the lack of emphasis in the Core Content Framework – and, later, the Initial Teacher Training and Early Career Framework – on supporting future teachers to engage with the triple planetary crises. Over time, the initiative grew from supporting individual trainees to contributing to a wider regional effort aligned with the 2022 Department for Education's Sustainability and Climate Change Strategy, which aspires for every school to have a sustainability lead and climate action plan.

There are always financial challenges with running outreach and curriculum events, with the need to

offer such experiences for free to ensure accessibility for all schools. Following a successful bid to the University of York Students' Union Sustainable Development Fund in early 2025, the geography PGCE has been lucky enough to receive some financial sponsorship for this event, which has been viewed as a valuable opportunity to demonstrate the institution's values as a university for the public good, whilst deepening both students' and teachers' understanding of sustainability, with a particular focus on how solutions to the triple planetary crisis must be contextualised in place.

The impact of embedding sustainability into the geography PGCE curriculum has been significant. Three key outcomes have emerged:

1. **Improved student understanding:** year 9 and 10 participants have reported enhanced comprehension of sustainability's complexity. In 2024, students rated the development of their knowledge and understanding on average at 4.3 out of 5 (where 1 = limited development and 5 = significant improvement).
2. **Trainee teacher leadership development:** through planning, delivering, and evaluating a city-wide event, trainees developed valuable leadership and organisational skills. Several have subsequently assumed leadership roles early in their teaching careers.

3. **A growing network of sustainability advocates:** alumni now teaching across and beyond the university partnership remain engaged, bringing students back to future events and integrating deeper sustainability content into school curricula.

Looking ahead, the PGCE team aim to embed sustainability more systematically across all ITE subject areas. Further, the PGCE team recently participated in a *Climate Fresk* – an interactive workshop based on IPCC science – which deepened the team's understanding of the climate crisis and prompted collective reflection on where we can influence change. Outcomes from the workshop are now informing wider strategic developments, with the co-creation of a Climate Action Planning Day for partnership schools, aimed at supporting those in the early stages of developing their own climate action plans. 🌍

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Raworth, K., (2017) *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. Random House Business.

Rockström, J., et al. (2009) Planetary Boundaries: Exploring the Safe Operating Space for Humanity. *Ecology and Society*, 14(2). [tinyurl.com/4997kd7c](https://www.tinyurl.com/4997kd7c)

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RESOURCES & SUPPORTERS

Useful resources

- A rounder sense of purpose: [tinyurl.com/4cuyp55h](https://www.tinyurl.com/4cuyp55h)
- Climate Education and Sustainability ITT Framework (University of Reading): [tinyurl.com/46a57dva](https://www.tinyurl.com/46a57dva)
- Compass Education Toolkit: [tinyurl.com/3kkpp5pf](https://www.tinyurl.com/3kkpp5pf)
- En-ROADS climate simulator: [tinyurl.com/mwenfx2f](https://www.tinyurl.com/mwenfx2f)
- Nature Connection Handbook: [tinyurl.com/5n8khsmk](https://www.tinyurl.com/5n8khsmk)
- Oxfam Global Citizenship guides: [tinyurl.com/OXFAM-GC-GUIDE](https://www.tinyurl.com/OXFAM-GC-GUIDE)
- Roundview framework and resources: [roundview.org](https://www.roundview.org)
- Society for the Advancement of Philosophical Enquiry and Reflection in Education (SAPERE): [sapere.org.uk](https://www.sapere.org.uk)
- Sustainable Pedagogies (OpenLearn Create): [tinyurl.com/Sustainable-Pedagogies](https://www.tinyurl.com/Sustainable-Pedagogies)
- Scotland's Learning for Sustainability Action Plan 2023-2030: [tinyurl.com/y47dvnw6](https://www.tinyurl.com/y47dvnw6)
- Teaching for sustainable futures (UCL): [climateeducation.org.uk](https://www.climateeducation.org.uk)
- Weaving in Environmental History [tinyurl.com/environmentalhistoryresources](https://www.tinyurl.com/environmentalhistoryresources)



Don't hesitate to contact us via info@naee.org.uk if you want to **send us a letter to the editor**, sharing your opinion on the articles in this Journal; **pitch an article** for a future NAEE journal; **write a blog post for our website** where we platform diverse voices on environmental education topics.

Expression of thanks

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Cover photo credits

Front (clockwise from top left):

University of Bristol PGCE Green Apple reps facilitating the Climate Fresk Workshop as part of the Green Apple conference, *by Michelle Graffagnino*;

Children exploring activities during the University of Hope 'Wider Perspectives' project, *by Ayah Adwan*;

Trainee teachers at St Mary's University College, Belfast, *by Anthony Clearn*.

Back (from top to bottom):

Impact of the University of Hope 'Wider Perspectives' project in school, *by Luke Britton, Faye Edgar, and Ffion Murray*;

A sample of the outdoor learning themed professional enquiries undertaken by student teachers, *by Alison Glover*.

INTRINSIC MOTIVATION IS THE MOTIVATION THAT COMES FROM INSIDE



Impact

6 CLEAN WATER AND SANITATION



How has our project made a difference?

"Each one of us can make a difference. We can all be part of the solution... We can help save our climate while creating a better world for all living creatures." - Jane Goodall



- Addressing pupils fears and misconceptions about global issues is important in order to construct well rounded learners
- A valued focus on justice-oriented pedagogical approach mentioned by Kavanagh et al (2021).
- To emphasis, promote and appreciate all the things pupils talk and care about.

What about the future?



Department for Education



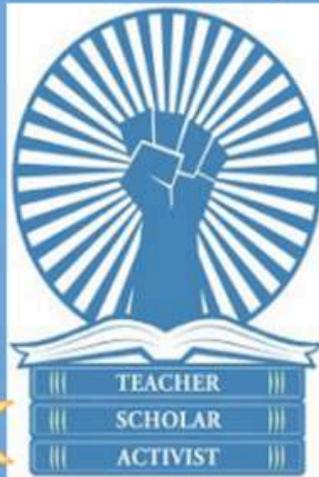
I PLEDGE TO COLLECT RAINWATER TO WATER THE PLANTS.

Personal and professional development.

Pedagogical skills

Practical/engaging activities

Better Communication



Vision: the United Kingdom is the world-leading education sector in sustainability and climate change by 2030.

As trainee teachers, we need to work towards this vision.

The impact of outdoor phonics interventions

Using the outdoors to improve outcomes for learners

Improving maths using the outdoors

Exploring the benefits of outdoor learning

Inclusion and the outdoors

Outdoor learning and learner progression

The impact of outdoor learning on children's attitude

Early years language acquisition and the outdoors

