Sustainability and Climate Change Education in Teacher Education: a survey report

Prepared by the Sustainability and Climate Change Working Group of the Universities Council for the Education of Teachers (UCET)

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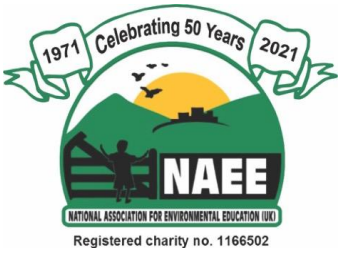
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Abbreviations

DfE: Department for Education
CCF: Core Content Framework
CAR: Curriculum and Assessment Review
CPD: Continuing professional development
EAUC: The Environmental Association for Universities and Colleges
ECT: Early Career Framework
ESD: Education for sustainable development
GCED: Global citizenship education
GDPR: General Data Protection Regulation
ITE: Initial Teacher Education
ITaP: Intensive Training and Practice
ITTECF: Initial Teacher Training and Early Career Framework
LfS: Learning for Sustainability
NAEE: National Association for Environmental Education
NC: National Curriculum
NPQ: National Professional Qualification
PGCE: Postgraduate Certificate of Education
SCCE: Sustainability and Climate Change Education
SOS-UK: Students Organising for Sustainability
TEESNet: Teacher Education for Equity and Sustainability Network
UCET: Universities' Council for the Education of Teachers
UCL: University College London
UNESCO: United Nations Educational, Scientific and Cultural Organisation

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Executive summary

This research set out to provide a picture of current sustainability and climate change education (SCCE) provision within teacher education in the UK against which future priorities could be determined.

Our principal research instrument was an online survey, which attracted 79 Responses from 47 institutions. We also gathered 19 case studies from specific institutions; these are presented in a special issue of the NAEE-UK Journal, *Environmental Education* (published January 2026).

Key findings of the survey are:

- Knowledge of the Department for Education's SCCE Strategy is widespread but by no means comprehensive
- The vast majority of responding institutions implement some form of SCCE
- This provision is driven, above all, by committed staff and in many cases by institutional commitment
- SCCE is taught mostly through the Science and Geography curriculum although there are many cases of inter-disciplinary approaches
- The key challenge faced by many is a lack of time which can be translated as a lack of priority assigned to SCCE
- There is also a perceived lack of confidence or know-how in relation to SCCE within some institutions
- Professionals draw on a wide range of resources and frameworks with DfE SCCE Strategy being the most widely cited
- The lack of any clear direction on SCCE either in the ITEECF or the National Curriculum obstructs progress in this area at local, institutional and national level.

Given these findings, we make the following recommendations:

For policy makers:

- Clear policy frameworks that ensure cross-curricular links; specifically, SCCE should be mandatory within:
    - The Initial Teacher Training/Early Career Framework
    - National Professional Qualifications, especially those linked to leadership
    - The National Curriculum.
- Schools, colleges, universities and private education providers should be required to adopt a whole institutional approach to SCCE, underpinned by a commitment to environmental connection, equity and justice.

- Actively recognise and promote collaboration among organisations and institutions in the development of resources including CPD opportunities.

- Commission further research into the impacts and co-benefits of effective SCCE.

For institutions and organisations:

- Support and commitment to provision of an embedded, whole-institution approach to issues around the environment, equity and justice.

- Ensure compulsory provision of SCCE across ITE programmes.

- Provide CPD opportunities for staff as well as professionals throughout education.

- Partner with external organisations, locally as well as nationally, that can offer support.

- Periodically audit their content and approach to SCCE.

- Develop high quality, research-informed resources to support SCCE across the curriculum in specific phases of education and for specific subjects as well as those that encourage inter-, multi- and trans-disciplinary approaches.

- Facilitate professional networking among providers on SCCE.

For professionals in teacher education:

- Enable students to offer SCCE across their own syllabus and to work collaboratively with colleagues in other subjects.

- Work collaboratively with colleagues, students and professionals in the wider community to offer learning about local, national and global environmental issues both inside and outside the classroom.

- Ensure learning is up to date, research-informed, supportive and action focused where possible.

In short, the key message from this survey is to take sustainability and climate change education seriously, build on the great work that is already going on and thereby support a wide range of other priorities that ensure the well-being of learners and teachers across education.

1 Introduction

1.1 Survey Rationale

This survey has been prepared by UCET (Universities' Council for the Education of Teachers) to establish a baseline on current practice in initial teacher education and continuing professional development of teachers linked to sustainability and climate change education.

While climate change and sustainability may not be the chief concern of educational institutions, a recent UCL survey of nearly 2,500 secondary school students found that 87% expressed concern about the future because of climate change. Addressing this issue is as urgent as the implications of not doing so are dire (IPCC 2023). While the Department for Education already has a sustainability and climate change strategy, it has no specific goals linked to teacher education. We are aware, however, that many institutions are taking climate change education seriously while others would welcome support in doing more.

With so many pressures on student teachers and their tutors, the theme of sustainability and climate change education (SCCE) may be perceived as yet another issue jostling for attention. Numerous professionals in teacher education and beyond would challenge this view for the following reasons:

- Unlike concerns such as the growth of artificial intelligence or economic priorities, many of the impacts of the climate and ecological crises are known, well-documented and demonstrably existential in nature (IPCC 2023; UNEP 2020)

- Given the seriousness and scale of these crises, they represent the broader context in which *all* learning takes place

- Sustainability and climate change education therefore pervades the entire curriculum; it is not an additional subject, neither does it fall within the syllabus of two or three subject areas, rather it is an approach to education

- By addressing the multifaceted impacts of our profoundly unsustainable pattern of development and making values explicit, SCCE contributes to and strengthens many existing initiatives within schools from inclusion to energy efficiency to concern for pupils' mental and physical well-being.

This research therefore set out to provide a snapshot of the current landscape of Sustainability and Climate Change and Education (SCCE) in both initial teacher education (ITE) and continuing professional development (CPD), in the UK.

1.2 Aims of the research

The research set out with the following aim:

To provide a picture of current SCCE provision within teacher education in the UK against which future priorities could be determined.

More specifically, we sought to discover ITE provider's awareness of the SCCE strategy published by the Department for Education (DfE); whether they offer SCCE education; the nature of any provision; the sources of support used; the barriers are faced in implementing SCCE; how those barriers are addressed and finally, what additional support would be valued.

In seeking answers to these questions, we aim to enable the sharing of good practice and strengthen the provision of support across the ITE sector.

Our principal research instrument was an online survey (see Chapter 3), which attracted 79 Responses from 47 institutions (44 universities; two colleges; one other provider). This was followed up with a collection of 19 case studies as discussed below.

1.3 About this report

Following this introduction, the report provides a review of some of the literature that has informed our work (Chapter 2). In Chapter 3 we offer a brief account of our methodology before presenting the key findings of the survey in Chapter 4. We close with a discussion on the implications of the survey findings.

As noted above, the survey findings are augmented by a collection of case studies prepared by 19 institutions. These are available via a special issue of *Environmental Education*, the journal of the National Association for Environmental Education (NAEE-UK).

2 A brief review of literature

2.1 Sustainability and Climate Change Education

The role of Sustainability and Climate Change Education (SCCE) in teaching and learning is receiving increasing attention internationally (Bourn *et al*. 2017; Bamber 2020; Evans *et al*. 2023), particularly with the UN focus on Education for Sustainable Development (ESD) in Goal 4.7 of its Sustainable Development Goals (Rieckmann 2017). SCCE approaches are broad but related, often involving a focus on knowledge, skills, attitudes and or competences, relating to understanding and acting on climate change and sustainability (Wiek *et al* 2011; Glackin and King 2023; Okada and Gray 2023; Reed Johnson *et al.* 2025). Internationally, there has been a particular focus on the competences of educators (Sleurs 2008; UNECE 2012; Vare *et al* 2019); competence, by definition, look beyond skills and knowledge to consider attitudes and motivations.

Alongside the knowledge and understanding of climate change and sustainability, there is often a focus on transformative pedagogies using active learning and problem solving (Bourn *et al.* 2017; Rushton *et al.* 2025b; Scoffham and Rawlinson 2022; Sterling 2011; Vare and Burch 2024). Given the existential nature of the related climate and biodiversity crises, it is unsurprising that research has also focused on the emotional dimension (Grund *et al.* 2023; Ojala *et al.* 2021); something that underscores the need to consider SCCE across the curriculum and at the institutional level. Given the developing and complex nature of this field there is a need to assess the current state of initial teacher education (ITE) here in the UK to ensure effective teaching and learning.

2.2 SCCE in the UK Context

Implementation of SCCE in Teacher Education and CPD varies across the devolved nations (Morgan and Warwick 2024). In Scotland, Learning for Sustainability (LfS) is promoted as a whole school approach in its Learning for Sustainability action plan (Education Scotland 2023; Anderson 2025) and built into the Professional Standards for Teachers and framework for sustainability learning in ITE (GTCS 2021; 2023 Rushton *et al*. 2025c). In Northern Ireland the teaching council promotes Education for Sustainable Development, through Global Citizenship Education, as a core element of ITE programs (Teaching Council NI 2020). The Department of Education in Northern Ireland is currently considering how best to develop sustainability in the school curriculum (Department of Education NI 2025). In Wales, sustainability is advocated through purpose 3 of the curriculum (Jones 2022), underpinned by the future generations act 2015 (Welsh Government 2015), with qualifying teachers expected to be able to deliver this core element of the curriculum. Finally, In England, The DfE's strategy on Sustainability and Climate Change is seeking to promote climate change and sustainability in education and sets out that from 2022 the government will work with higher education to develop best practice in teacher training (DfE 2023). An ITE framework for embedding SCCE in higher education was developed in 2022 (Majid *et al.* 2023); a review of its implementation (Reed Johnson *et al*. 2025) demonstrates the capabilities of HEIs in promoting climate change and sustainability in education across all age settings.

2.3 Teacher Surveys on SCCE

In recent years, there have been several surveys of teachers in the UK relating to SCCE (Howard-Jones *et al* 2021; SOS UK 2021; Finnegan 2022; Greer *et al*. 2023). Some of their key findings point towards the need to examine the role of ITE, including CPD, in developing teachers' capabilities in SCCE.

Following their study of teacher attitudes towards SCCE, Howard-Jones *et al.* (2021) indicate that a key barrier to the implementation of SCCE in schools was access to resources. They suggest that part of what may constitute these resources would be access to professional development. Surveys of pre-service teachers by Majid *et al.* (2023) are consistent with this view, their findings suggesting that the pre-service teachers sampled felt that they lacked the subject and pedagogical knowledge to teach SCCE effectively. In examining sixth form teachers in the Southeast of England's practices in relation to SCCE, Finnegan contends that teachers of SCCE "need to know how best to create meaningful educational experiences" (Finnegan 2022:1).

The national teacher survey by Greer *et al.* (2023) suggests that those who had undertaken some form of structured SCCE CPD were much more likely to incorporate SCCE into their teaching (Greer *et al.* 2023). According to the survey, however, less than 13 % of respondents reported having received any SCCE during their training. Subsequent studies have expanded on this research. Focusing on secondary teachers, Sheldrake *et al.* (2025) found that significant differences in levels of understanding of SCCE between subject teachers entailed the need for wider contextualized subject support and resourcing to enhance its delivery. In analysing the state of SCCE curriculum design and implementation in schools, Rushton and Walshe (2025) note that one of the key barriers reported by teachers was a lack of professional knowledge or confidence in how to embed climate research into their practice or deal with pupil's climate anxiety. Teachers' preferences were for in-person, subject specific CPD.

2.4 SCCE and ITE

There is then both an appetite for SCCE in teacher education amongst teachers (Teach the Future 2021, Hammond *et al.* 2024) and a continued demand for training and CPD to support effective practice (Greer *et al*. 2023; Howard Jones *et al.* 2021; Majid *et al*. 2023; Rushton and Walshe 2025). At the same time research into ITE and SCCE is emergent and suggestive of a diversity of approaches being taken (Fischer 2022; Monroe *et al*. 2019). There is evidence of effective practice in ITE both internationally (Monroe *et al.* 2019; Evans *et al*. 2023; Reed Johnson *et al*. 2025) and in the UK (Walshe and Tait 2019). Based on their review of teacher agency in relation to SCCE, Rushton *et al.* (2025a) call for researchers and policy makers to consider how we can foster this effective practice and develop teacher agency. Given that most of the work cited has focused on teachers themselves, this research seeks to explore current practice specifically within ITE as a contribution to the development of effective Sustainability and Climate Change Education in the UK for all of our students and pupils.

3 The Survey process

3.1 Methodology

The survey was underpinned by a mixed methods approach as we were seeking a combination of quantitative and qualitative data. Following a review of existing research and discussions with the UCET working group on SCCE, an online questionnaire was developed to build a picture of the current state of SCCE provision within teacher education (Appendix I). A combination of closed and open questions facilitated quick responses to a range of options as well as allowing respondents to provide details on their provision and any challenges faced. The questionnaire was made available using the Qualtrics platform. Ethical approval was obtained from the University of Gloucestershire, School of Education and Science Research Ethics Committee (EDS.EDU.181024); data were managed in accordance with UK GDPR 2022. The survey was open between October and December 2024.

3.2 The sample

Invitations were sent via email using the UCET mailing list as well as the UCET weekly newsletter sent to ITE providers across the UK. This meant that most respondents would be from higher education institutions although recipients were invited to pass the survey link on to other providers. The link to the survey was also shared during a keynote address at the UCET conference in November 2024, which encouraged uptake but also led to cases of multiple responses being received from certain institutions.

In total, 79 responses were provided by academics across 47 institutions: 44 Universities; 2 colleges and 1 other provider. This represents a self-selecting sample of UCET members plus some others. In analysing the results, we should bear in mind that most respondents are likely to be based in institutions that are already engaged in some form of SCCE.

3.3 Analysis

As all researchers involved in the survey were academics working in ITE and SCCE, we were able to distribute analysis tasks equally among the team. Pairs of researchers were allocated different survey questions to analyse with closed question responses being counted and examined for any trends or patterns. Open questions were analysed using thematic analysis (Braun and Clarke, 2022) with researchers working independently at first to familiarise themselves with the data before developing initial codes. Researchers then worked collectively to refine these codes and form summaries of themes from the data (Appendix II). The results of the analysis from the open and closed question sets were then combined to underpin our discussion. Each sub-section of the following chapter addresses one of the survey questions in turn.

4 Findings

4.1 Provision of SCCE in teacher education

The first survey question asked was: *Do you provide specific sustainability and/or climate change education for students/teachers within ITE and/or CPD? (If so, please give details).*

Overall, the picture is positive, with 92.5% (74) describing at least some provision. Of the 7.5% (6) that answered that there was no relevant provision, reasons given were either that it was not within their remit or that the curriculum was too crowded and that the Core Content Framework (CCF) takes priority. Even among these few respondents, two acknowledged that provision should be provided with one stating that, 'There is too much other content which needs delivering as part of the course. However, after this morning's presentation at UCET Conference I am interested in making this a part of our upcoming revalidation.' However, another respondent stated, "Something would have to give and we have already been forced to remove so many key learning objectives for other reasons. I am not sure how we would find a way to include climate change and sustainability in the curriculum - no matter how much we may want to.'

To analyse the data in more detail, we divided the respondents according to what programmes they were describing: undergraduate programmes only; Postgraduate Certificate of Education (PGCE) only; all teacher education programmes within the institution. We then asked (i) what type of provision was being described and (ii) how this provision occurs. We were then able to code the responses to identify common approaches. Figure 1 shows the percentage responses for each of the three categories of provision.

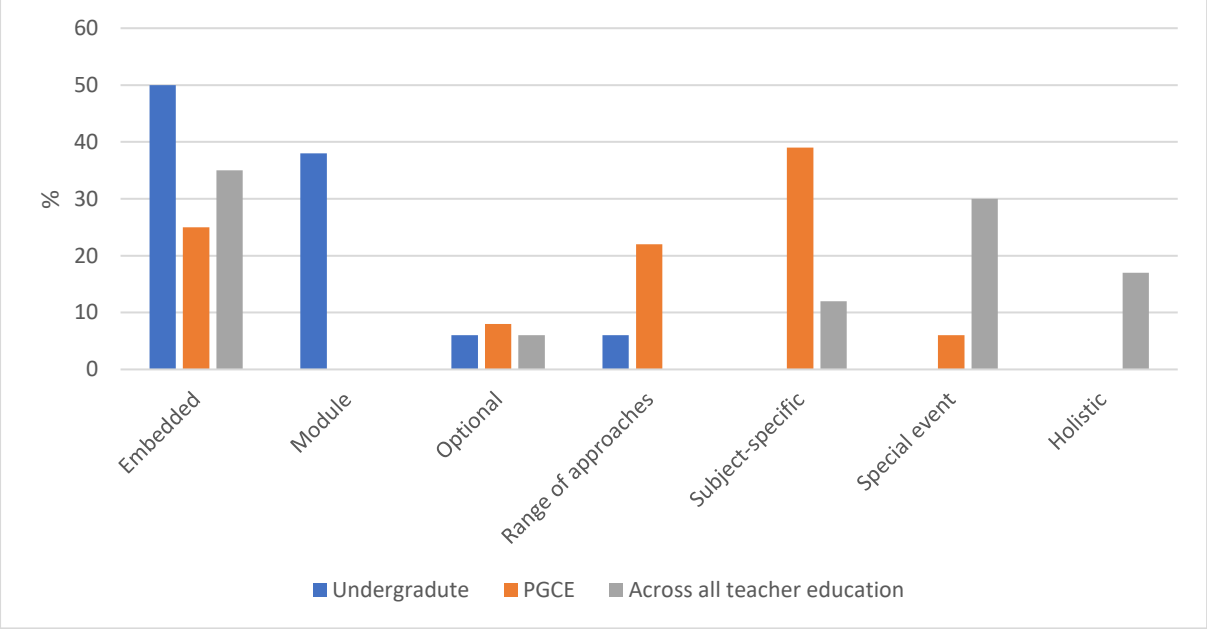


Fig. 1: Responses to the question: 'What provision is described?' Grouped by type of programme

The term ‘embedded’ was used by many, including 50% of undergraduate programmes; this term was mostly used when describing a wide range of approaches from subject-specific input to university-wide initiatives, including both compulsory and voluntary sessions.

Only undergraduate providers seemed to be able to dedicate entire modules of teaching to SCCE and there was no mention of subject-specific approaches within any of these programmes. Those providers who mentioned all of their teacher education programmes were the only ones who used the term ‘holistic’. Many of these dedicated at least one day towards a special event, usually in the form of a conference (see Figure2).

Figure 2 shows the percentage of respondents that mentioned a range of different approaches in answer to the question about how and/or when SCCE provision happens. Again, these are shown according to three categories of programme being described (undergraduate; PGCE; all teacher education).

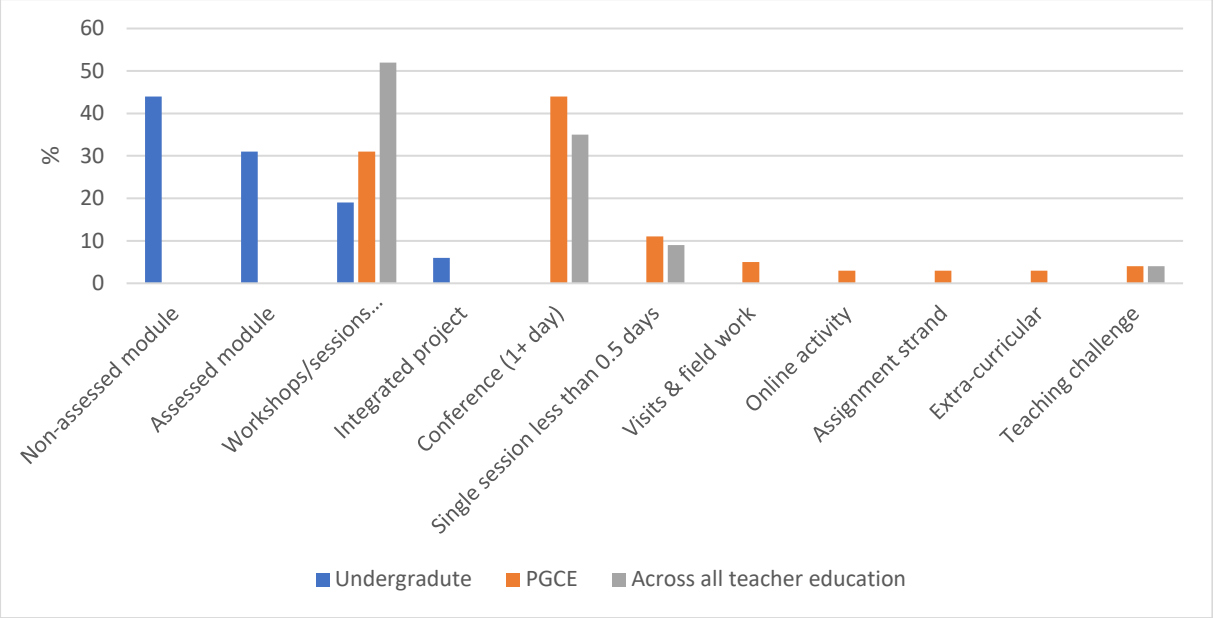


Fig. 2: Coded responses to the question: ‘How and/or when does this provision happen?’ Grouped by type of programme

As mentioned, only undergraduate programmes were able to dedicate whole modules to SCCE. Of these 31% were assessed while 44% stated that it was a non-assessed module.

Field trips and visits were only mentioned by a few PGCE programmes (5% of respondents) and not by any other teaching programmes. Surprisingly, no undergraduate programmes featured field trips or visits.

One-day conferences featured in both in PGCE programmes and when contributors were talking about their whole teacher education provision. These were usually considered as high-profile with outside speakers. One named example was the Green Space conference held at the University of Warwick.

SCCE input was provided mostly through workshops and other sessions spaced throughout the year. There were some interesting alternative approaches mentioned:

- An integrated 'real-world' outreach project
- Pre-service teachers encouraged to have SCCE as an assignment focus
- An online learning module accessible throughout the course
- Pre-service teachers set the task of teaching at least one lesson linked to SCCE.

Collaborators that were mentioned include Teach the Teacher, Climate Fresk and ThoughtBox as well as local amenities such as botanical gardens.

A notable holistic approach mentioned the availability of a climate café and repair workshop that was aimed at improving student well-being. Some negativity was reported with one provider stating that their student support event was 'poorly received'. This was unusual as the majority described positive initiatives with some stating that 'more is needed.'

Summary

The vast majority of providers describe at least some provision, although we should acknowledge that those most likely to have completed the questionnaire will be those already engaged with and/or concerned about SCCE. Reasons stated for not engaging with SCCE were either that it was not within the respondent's remit or that the curriculum was too crowded and Initial Teacher Training and Early Career Framework takes priority. The provision that was described was widely varied. We had a sense that much of the variety may have depended upon who was answering the survey and the extent to which they had oversight of different programmes. The provision described ranged from assessed modules with an SCCE focus throughout (undergraduate programmes only) and whole-day, high-profile conferences all the way to small-scale approaches that encouraged pre-service teachers to plan a lesson with an SCCE focus or gave them access to an online resource.

4.2 Why providers offer SCCE

This survey question asked, *What is your rationale for offering SCCE and for the specific content that you offer?* Responses to this question indicate that 'committed staff' are the key reasons behind the implementation of SCCE among those who completed the survey. Nearly 80% of respondents mentioned this as a rationale for offering SCCE, with just 16 respondents failing to identify this as a factor (Appendix II.ii). The centrality of committed individuals was further reinforced in some of the written comments, with one respondent stating that this 'has been initiated mainly by individual staff members.' The results also seem to suggest that, although external pressures from institutions (48%) or from student demand (21%) were important factors, they were less significant for many of those completing the survey.

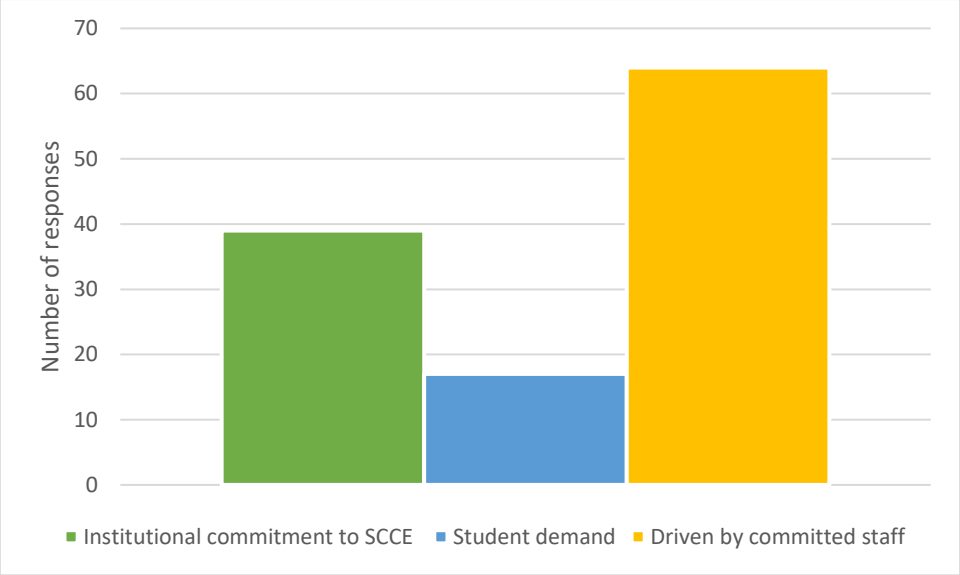


Fig. 3: Response rates regarding providers' rationale for offering SCCE

Among the responses to this question, a number of respondents also identified 'other' rationales for the implementation of SCCE. Analysis of this led to the identification of several additional rationales (see appendix 2), which were then grouped into four main themes.

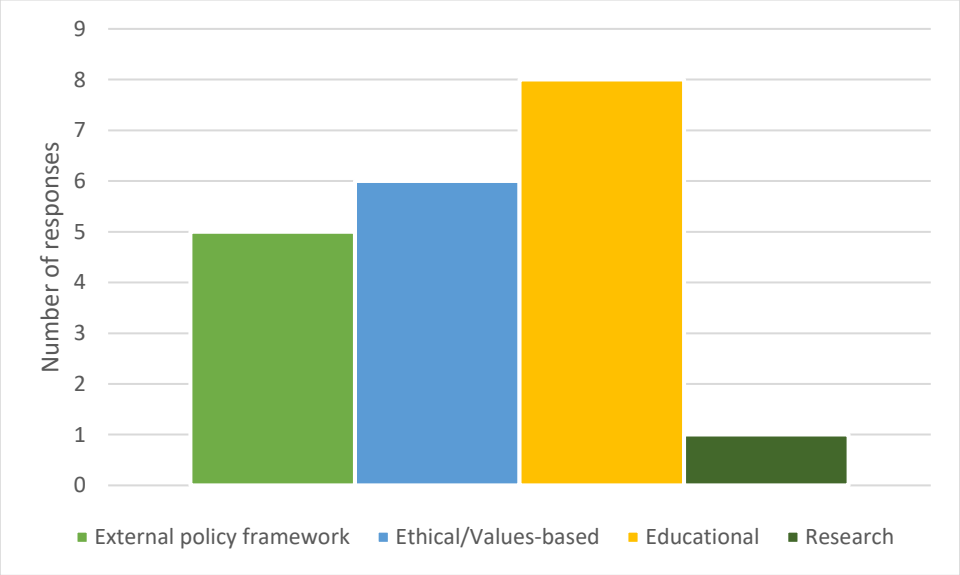


Fig. 4: Other rationales for offering SCCE

Theme 1: External policy frameworks: Rationales under this theme related to external requirements, strategies, or professional standards. In particular, a number mentioned the DfE's SCCE Strategy directly or they referred to this indirectly by mentioning roles such as 'sustainability leads in school.' More broadly, other respondents mentioned that SCCE was a response to the 'DfE strategy to equip teachers with skills and knowledge in this area' or was driven 'by professional and occupational standards.'

Theme 2: Ethics/Values: Six respondents provided rationales grounded in moral considerations or ethical beliefs. Comments highlighted a sense of obligation, such as believing 'it's the right thing to do' and that SCCE is a response to the 'climate emergency!'

In some ways, this theme seems to highlight that the underlying rationales for committed individuals was grounded in their personal beliefs and values. In this way, some mentioned it was a 'moral imperative' or 'personal decision' indicating this ethical drive.

Theme 3: Educational: This theme related to the perceived educational value or necessity of SCCE within teacher training and the broader curriculum. Although some mentioned the broad rationale that SCCE was just 'good education' a number of others alluded to its importance from a subject perspective such as comments that it was 'central to Geography' or a way of 'improving engagement in mathematics'. Relatedly, some implied its educational importance for trainee awareness or as a 'contemporary factor.'

Theme 4: Research: This theme captured rationales linked to research activities, although it should be recognised that this was mentioned by just one respondent who linked it to the 'Research agenda around SCCE.'

Summary

Responses to this question revealed that the most frequent driver of SCCE is the presence of committed staff. Institutional commitment also plays a significant role, while student demand appears to be a less dominant factor. Beyond these core drivers providers who completed the survey also notably identified that they were motivated by external policy requirements, a sense of ethical or moral imperative related to the climate emergency and the belief that SCCE is essential for good or necessary education. More broadly, the responses indicated that some teacher educators were being proactive in developing SCCE, while others were being reactive, driven by internal or external pressures. Given the voluntary nature of the survey, it is likely that the majority of tutors are in the latter category highlighting the need for clear a policy framework to support change.

4.3 Challenges faced in providing SCCE

The question asked here was: *Have you encountered challenges in implementing your plans for sustainability or climate change education? If YES, please provide details and explain how you have tackled these.* A clear majority of respondents (58%) answered that they had encountered challenges in implementing their plans for sustainability or climate change education. 36% responded that they had not encountered any barriers, with 6% not responding.

The nature of the challenges

From the 48 responses to the two-part question stated above, 17 contained more than one answer with each of these being assigned a code. In this way we identified 63 different codes which were clustered under seven themes (see Appendix II.iii). The dominant theme was that of curriculum time and space (see Figure 5).

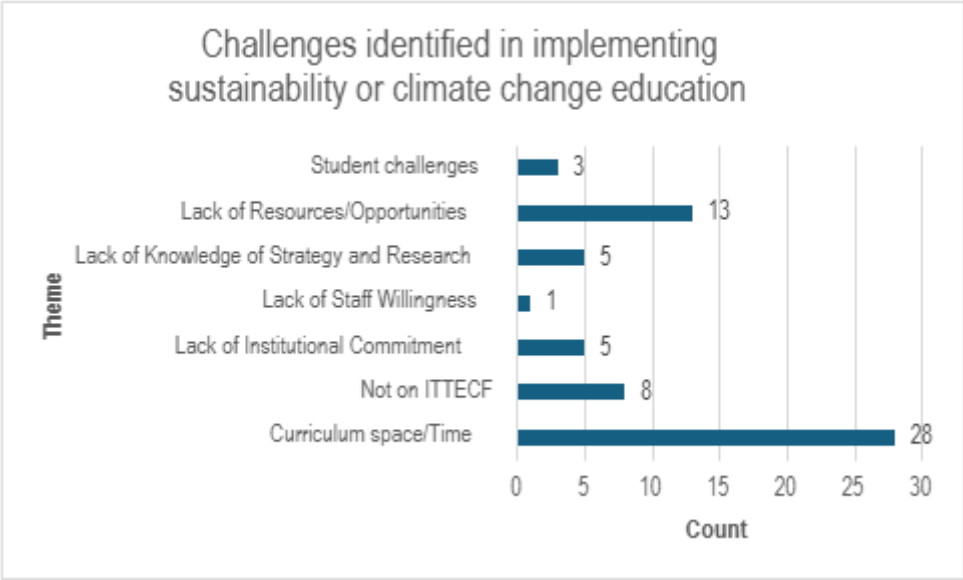


Fig. 5: Challenges in implementing SCCE, by theme (total 63 code counts)

Theme 1: Curriculum time/space

This theme accounts for 44.4% of occurrences (28 of the 63 codes). Responses under this theme referred to the curriculum as squeezed, packed, full, or busy. The response, '…struggled to find the time to fit this into our already very packed curriculum,' reflects the theme well. Specific issues mentioned include the DfE accreditation process and the demands of Intensive Training and Practice (ITaP) as well as staff availability.

Many responses were linked to lack of resources, limited staff availability and the lack of mention of sustainability and climate change education in the curriculum. This dominant theme appears to suggest that the current curricula of institutions providing ITE does not permit ITE providers to readily embed ESD teaching within their initial teacher education timetables. The impact appears to be a de-prioritisation of sustainability and climate change education in ITE; an issue closely linked to the next theme.

Theme 2: Not on Initial Teacher Training-Early Career Framework (ITTECF)

This accounts for 12.7% of responses under the curriculum time/space issue with the difference being that respondents explicitly reference the ITTECF. An illustrative quote from one respondent being, 'The requirements of the ITT and ECT CCF have ensured the focus of course tutors have been increasingly directed away from provision [of SCCE].'

Within this sample, respondents suggest a link between the current ITTECF curriculum content and an institution's ability to prioritise ESD with comments such as, 'Initially, the lack of ESD on the ITECCF or Ofsted focus has meant it has not been a priority.'

Theme 3: Lack of resources/opportunities

As mentioned above, a lack of resources and opportunities to teach was a recurring theme, coupled with the packed curriculum. This accounts for 20.6% of codes. Comments under this theme were broader than the previous themes. For instance, one response reports, 'lack of

resources' with another simply stating 'resources.' There were others highlighting a 'lack of opportunities in placement.' as well as two statements referencing the lack of provision to plan as a team and a further comment of 'reduced teaching hours, due to budget cuts.' Resource shortage often relates to time, specifically, time to plan, to teach or to manage competing demands, all of which suggests that SCCE is often seen as a low priority within institutions; something that is more explicit in the following theme.

Theme 4: Lack of Institutional Commitment

Though less prevalent (7.9%) than the first three themes, this reflects respondents reporting that SCCE is not effectively committed to by their respective institution. The one comment under this theme states that… 'these goals do seem to compete with the actions of the organisation as a whole.' This suggests a misalignment between the aims of SCCE and how institutional goals are understood. Other comments reference university-wide training as being 'quite generic' and mentioning competition with other research priorities. Whilst less prevalent, this theme does demonstrate the potential role an institution can play in supporting the delivery of sustainability and climate change education.

Theme 5: Lack of knowledge of strategy and research

With the same response rate as Theme 4 above, comments here refer to staff being unsure of how to deliver SCCE in teacher education or uncertainty around how to implement this on school placements. One comment refers to a perceived lack of familiarity of the concept on the part of placement schools and in different subjects while another relates to confusion around which policy to follow in the institution's national context. Here again, the barrier appears to be that of a lack of time to upskill staff as well as a perceived deficit in knowledge, either in placement schools or among staff with the respondent reporting a 'lack of awareness amongst staff about the broad cross curricular focus.'

Theme 6: Lack of willingness among staff and students

One comment suggested a lack of staff willingness illustrated by the quote… 'Other lecturers not keen - carried out EE sessions with other supportive lecturers.' Three respondents reported student challenges, for example, 'Not all student teachers are keen to be involved.' Although much less prevalent than other themes, this is a warning to be attentive to supporting staff and students in understanding the importance of climate change and sustainability education in teacher training.

Suggested responses to these barriers

While commenting on the barriers that they faced, respondents also referred to ways in which they sought to mitigate these challenges. Although often referenced elsewhere in the survey, specific strategies mentioned here include committed leadership, climate ambassadors and drawing on wider expertise within the university. Providing additional materials to enrich the learning environment was also seen as a means of mitigation.

Summary

The data suggest that time, resources, knowledge and commitment are required but all these issues stem from a lack of priority, which in turn can be linked to the absence of SCCE from teacher education or school curricula. Specific mentions in these frameworks would permit tutors to engage more fully in SCCE within their institutions.

4.4 Sources of guidance for SCCE

The initial question asked in this section was whether respondents are aware of the DfE Sustainability and Climate Change Education Strategy. The vast majority (65 or 82%) answered 'Yes' with 12 saying 'No' and two not answering.

In answer to which sources of guidance people use (Figure 6), results indicate that the DfE SCCE Strategy is the most widely used (43 respondents or 54%). The National Education Action Plan is also commonly used, being mentioned by 32 respondents (40%). While expert organisations and individuals contribute significantly (28 institutions reported drawing on their guidance), there is variability in the uptake of external expertise. The Met Office (20 respondents) and NAEE (19 respondents) are key sources for climate data and environmental education resources.

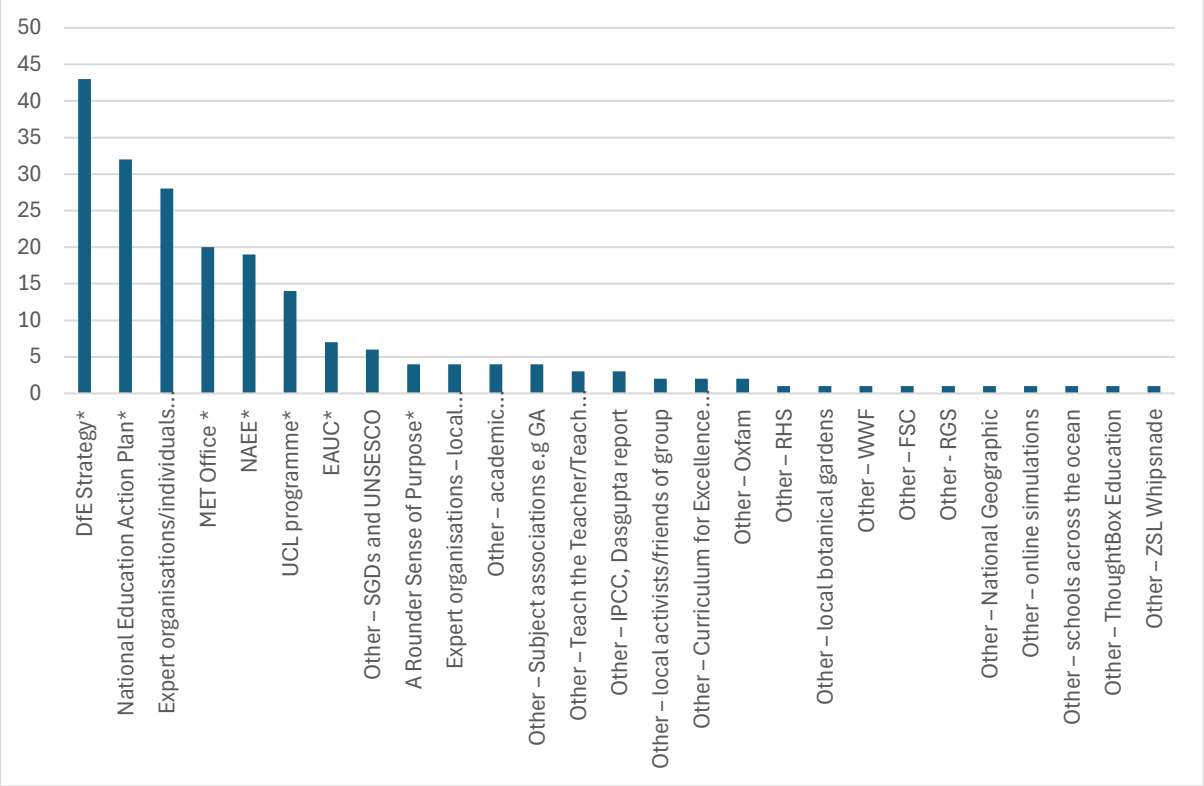


Fig 6: Sources of SCCE guidance used by the 79 respondents
(More than one box or field completed per respondent)
[* Programme and organisation named in list of options]

Engagement with local experts, campaign groups, and other external frameworks is inconsistent, with references ranging between five and nine institutions. Although some institutions actively incorporate UCL Programmes, EAUC resources, and climate competency frameworks, these are mentioned less frequently, with at most 4 mentions each. Notably, a small group of institutions reported no engagement with external support, suggesting gaps in how sustainability education is integrated across ITE providers. These findings reinforce a strong reliance on national strategies whilst highlighting opportunities to expand the use of local expertise so it can be tailored to enhance sustainability education in teacher training.

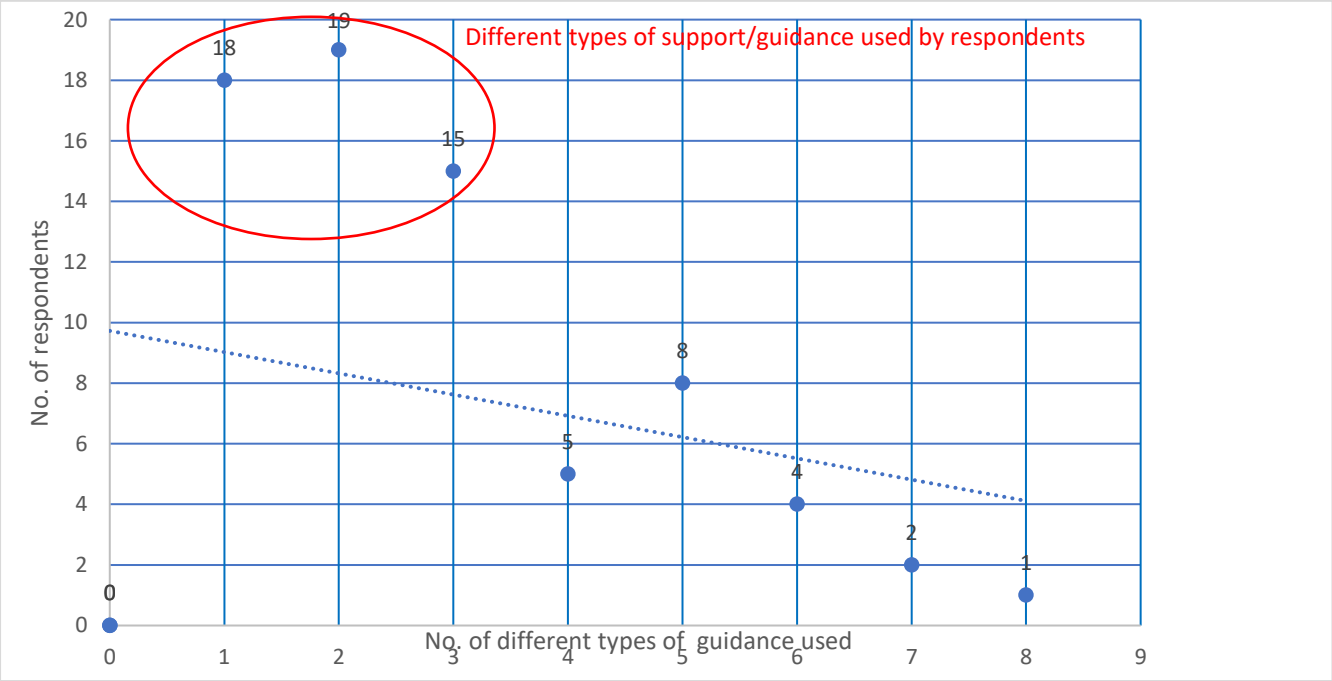


Fig 7: Number of different sources of guidance used by respondents

Sixty-five per cent of respondents used between one and three different sources of guidance (Figure 7). Above all, the survey clearly highlights the variability of resources used, with no single approach to provision found in PGCE courses. This is probably due to the CCF curriculum not covering this topic so the providers therefore need to work together within their own institution to ensure this gap is filled. Of note was the link with local experts with over half of respondents drawing on expertise from their own university, as well as a range of other organisations. There was also a wide range of other sources of guidance mentioned, further demonstrating the lack of consistency in provision and training in this important curriculum area. These include Oxfam, Teach the Future as well as the Subject Associations, and organisations such as Whipsnade Zoo and Thoughtbox Education.

A key limitation of these results to consider is the potential bias introduced by the survey's use of a prescribed list of tick boxes for different sources of guidance. Teachers were asked to first select from these options before suggesting their own examples.

4.5 Suggested additional support

The question asked in this case was: *What additional support or resources would you like to see to support your provision in this area?*

Responses largely mirrored those for the question that asked about challenges encountered when implementing SCCE. For example, those highlighting a lack of knowledge as a barrier were likely to call for more training and other resources. Similarly, the frequently cited challenge of a lack of time in Question Four, because SCCE is outcompeted by more pressing priorities, translated here into calls for sustainability and climate change education to be more visible in statutory frameworks such as the ITTECF.

Among the responses to this question, we identified 18 codes initially (see Appendix II.v), which we eventually clustered around four main themes as set out in Figure 8.

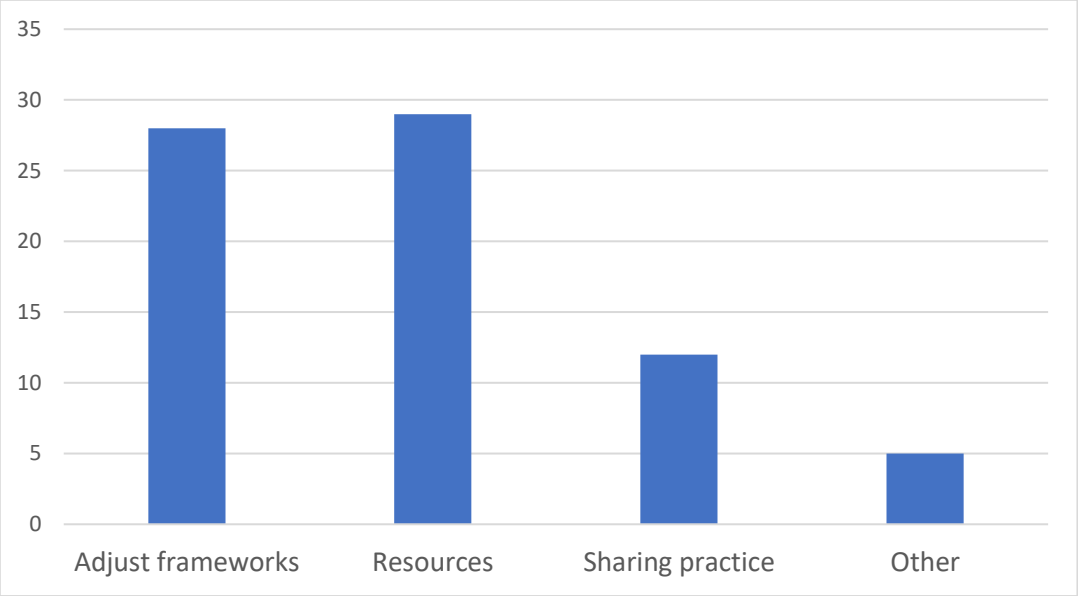


Fig.8: Additional support; response rates for each key theme

Theme 1: Adjusting key frameworks (Government action)

One of the most significant types of support that respondents wish to see is for SCCE to be reflected in statutory frameworks, including the ITTECF, National Professional Qualifications (NPQs) and the National Curriculum (NC). This would raise the status of SCCE and guarantee that more time is allotted to it. This response is typical:

> '*Mandatory coverage within frameworks so that we can justify the time needed to address some of the basic issues with students, in both the NC and CCF.'*

As mentioned above, this is a logical response to identifying a lack of time as a key barrier. The term 'mandatory' appeared in a number of responses. While some simply ask for 'time and clear guidance' others list specific content such as the environmental challenges of 'climate change, biodiversity, pollution' that they would like to see featured in the

curriculum at all levels. For many respondents, featuring SCCE in these frameworks would provide the necessary impetus for widespread change at an institutional level:

> *I think there needs to be a commitment and requirement for this to be covered in all ITE curriculums and into the ECF. This will support departments to ensure curriculum time is given to this issue and stimulate ITE providers to develop innovative approaches to delivering embedded SCCE into ITE curriculums.*

This response raises the issue of providers developing their approaches. While there is a clear demand for incorporating SCCE into Government frameworks, the call is explicitly *not* for Government to prescribe approaches or even provide specific materials.

Theme 2: Resources, CPD and local support

Within this theme we included responses that mentioned teaching resources, further (or any) training and other types of more localised provision. Suggestions include examples of good practice specifically for use by PGCE students, '…innovative activities they can take into schools, and inspire pupils,' while others call for resources to support practice across all phases, subjects and topics:

> *'Guidance on best practice for incorporating in non-subject specific sessions and/or examples of good practice from across different subjects.'*

Some responses note an over-abundance of broad guidelines, hence the call among many for subject- and phase-specific material including lesson plans and schemes of work.

Requests for examples of good practice go beyond curriculum content to include pedagogical advice, such as *'*Ideas for incorporating ESD outdoors - practical fieldwork - use of the local area.' Mentions of local resources include people with local expertise and institutions such as museums. Innovative and context-specific approaches such as this identification of local resources may best be conveyed through continuing professional development, something which is also mentioned specifically among the responses.

Theme 3: Sharing of practice

A clear distinction can be made between resources that are provided externally of remotely and ideas or practices that are best shared among professionals, hence 'sharing of practice' is a key theme in its own right. As one respondent wrote, 'Knowing more about what other providers offer and sharing good practice is always beneficial.' Another response discussed how this sharing would support SCCE as being aware of what others are doing would allow them to 'embed it into our programmes.'

Sharing practice with others that share in one's role also brings benefits; one respondent mentioned that they want 'to learn from what other providers are doing that is ITE-specific.'

The sharing of good practice calls for networking across the sector. Organisations, such as the EAUC or NAEE, exist to do this but lack a reliable sustained programme of support on which they can rely.

Theme 4: Other

A small number of responses stood apart from the rest as they featured more general pleas. At one end of the spectrum were two statements from those who feel unqualified to comment at all, while on the other hand there were three respondents who expressed wariness at the prospect of there being too-detailed prescription which could inhibit professional autonomy.

Summary

The main sources of support called for by respondents are changes in professional frameworks to make SCCE a statutory theme, these range from ITE through to school leadership. This sits alongside a broad range of suggestions including training, specific teaching resources and local support. Responsibility for the adjustment of professional frameworks lies clearly with Government while responsibility for the broad range of different resources indicated by respondents is perhaps best served by a combination of Government and non-governmental or private providers, not forgetting the third area of support cited by respondents which is the sharing of practice amongst professionals. The latter can be met by the teacher education sector itself although this could be facilitated by a range of networks and associations. These three areas of support, brought together, could achieve a transformational change across the sector.

5 Discussion

5.1 Permission to teach

Embedding sustainability and climate change education (SCCE) in the initial education and continuing professional development of teachers is a complex matter. While there is much to celebrate in terms of the innovation taking place in our sector and the growing availability of resources to support this, this research reveals the inter-connected nature of the steps that are required to ensure that all teachers can play their part in offering effective SCCE. No single action is sufficient; an enabling curriculum, clear leadership, well-targeted resource and opportunities for sharing good practice across different disciplines are all required to form part of a mutually reinforcing strategy for SCCE.

Most survey respondents who express frustration at the lack of time and space in their own teaching, a feature highlighted by Greer *et al* (2023), also mention how SCCE is not on the Initial Teacher Training and Early Career Framework (ITTECF). Unsurprisingly, teacher educators consistently identify a clear link between the content of the current ITTECF and their institutions' ability to prioritise sustainability and climate change education. Making direct reference to SCCE within the ITTECF would grant teacher educators explicit permission to embed this in their practice.

As teacher educators in England experience diminishing degrees of autonomy in relation to the ITTECF, the window has been narrowing for introducing SCCE within teacher education. Respondents note how colleagues' focus is '…increasingly directed away…' from the areas of provision through which SCCE would previously have been delivered. This is attributed by many to the lack of SCCE in the ITECCF, NPQs, the Ofsted inspection framework and the national curriculum (the latter has been under review during the preparation of this report, see Conclusion below). Indeed, international evidence in the related fields of global citizenship education (GCED) and education for sustainable development (ESD) indicates that, 'unless there is a national drive or external input for GCED and ESD in teacher education then provision by teacher educators tends to be *ad hoc* and limited' (Bourn *et al.* 2017: 13). As a result of this lack of formal recognition in policy frameworks, SCCE is dependent currently on committed and motivated individuals, a situation that, although long-standing (Scoffham 2013), is not sustainable within any given institution.

Statutory but not prescriptive

While there is a strong demand for SCCE to feature in the ITTECF, there are only limited calls for detailed guidance. Respondents more typically want SCCE to become a statutory element of ITE while leaving the detailed planning to ITE providers. Such an approach is likely to be most successful where resources and professional development are widely available and where they enhance the agency of those working in the sector. It is to these other essential components of a broad strategic approach that we now turn.

5.2 Embedding change

The low priority accorded SCCE reported by our survey respondents has meant that there are fewer opportunities for tutors to develop their own practice in this area, this in turn can lead to a lack of confidence to deliver climate change education (Rushton and Walshe 2025). Beyond changes to professional frameworks, the other principal areas of support that are highlighted by respondents as being most likely to help them embed SCCE effectively into their programmes are: access to resources, training (in the form of CPD) and more collaboration to facilitate the sharing of good practice.

Resources

Many responses highlighted the lack of resources, which is a common refrain as recognised by Howard-Jones *et al.* (2021). As noted above, the DfE's SCCE Strategy is the most widely used (by 54% of respondents) with the University of Reading's National Education Action Plan being the second most cited. This demonstrates the importance of such material in shaping sustainability education, which in turn points to the need for multiple stakeholders to be involved in developing resources and/or being encouraged to develop their own so that the field can evolve as a vibrant and diverse community. This research shows that tutors draw on a wider range of resources including expertise from within their institutions or surrounding community and local site visits. This is to be encouraged as context-specific examples can inspire ITE providers to find their own versions in their locality. The case studies published in the NAEE-UK journal *Environmental Education* as a companion to this report provide a rich source of examples.

CPD

While ITE providers can always do more to offer SCCE, the survey reminds us that there may be unfamiliarity of the concept among teachers in placement schools, something that can also occur across different subjects, a finding supported by Sheldrake *et al* (2025). A widespread lack of understanding of the importance of SCCE in teacher training was also reported by SOS-UK (2021) while Rushton and Walshe (2025) note that teachers' lack of confidence in how to embed SCCE in schools, stems in large part from a lack of professional development, something that is likely to apply equally to ITE providers themselves.

While changes to frameworks will give vital 'permission' to educators to include SCCE as an educational priority (Higham *et al*. 2025) and thus leverage institutional commitment, the provision of professional learning opportunities in the form of training, sector-wide communities of practice and phase- and subject-specific resources will be essential.

Professional collaboration – building communities of practice

Survey responses reveal a wide range of provision at a variety of scales from integrating SCCE into written assignments or lesson planning to whole modules and day-long conferences involving all teacher education programmes within an institution, similar to that described by Walshe and Tait (2019). Such a diversity of approaches is also identified by Munroe *et al.* (2017), whose work also reveals how provision at different scales mostly

focusses on knowledge and attitudes. In order for teacher educators to take steps towards more transformational, action-oriented learning, their call is for opportunities to share, discuss and develop ideas with other professionals.

The variety of practice identified in the survey tends to occur in isolation within different institutions. Fischer *et al*. (2022) describe teacher education for sustainable development as 'niche' but when brought together as a body of shared practice it can become much more than the sum of its parts. Just as respondents are keen to describe their own practice, so they are curious about what others are doing and keen to learn more as evidenced by the calls for more sharing of effective practice. Whether this is done face to face or through online gatherings, such sharing will foster professional collaborations and help the sector to develop rapidly. This is something that can be facilitated by various institutions, professional networks and organisations if enabled by supportive Government frameworks.

5.3 Developing a virtuous cycle

By including SCCE in key policy frameworks, which in turn would drive demand for CPD, it is easy to envisage how the teacher education workforce might embrace this agenda, especially when the co-benefits for students become better understood. The commitment of those already offering SCCE and their reasons for doing so, offer an indication of how this might work.

The data re-affirms a background paper for the UNESCO Global Education Monitoring Report which found, across a range of countries, that coverage of sustainability within initial teacher education tends to result from the individual interests of teacher educators or as an institutional response to include this subject area within the curriculum (Bourn *et al.* 2017: 12). This renews attention on understanding better the factors underpinning the motivations and values of teacher educators. For instance, Carano (2013) found that a range of factors generate global mindedness including relevant professional development and mentoring. All of which underpins the value of initial training and reinforcing CPD in terms of supporting professional engagement in SCCE.

The number of respondents who indicate 'student demand' as their rationale for including SCCE is not insignificant at 17. This is reiterated by 'other' responses which include demand from student voice or from within partnership schools. The values and ethics of ITE practitioners is cited as key a source of a motivation in our research including one respondent who refers to SCCE as 'a moral imperative.' The survey therefore highlights the necessity to better understand the role of teacher educators themselves as agents of change (Bamber 2020; Hammond *et al.* 2024). One respondent sums this up by arguing that SCCE is simply 'good education'. Given the role that holistic, action-oriented SCCE has to play in students' emotional wellbeing (Grund *et al.* 2023; Ojala *et al.* 2021), it is critical that the wider benefit, indeed, necessity of SCCE is better understood. In short, harnessing SCCE as a core component of ITE and CPD could be characterised as simply doing the right thing.

Given SCCE is not currently included within the ITTECF, the current DfE strategy (DfE 2022) assumes particular importance in taking this agenda forward. This is exemplified by one respondent who claims their inclusion of SCCE is a 'response to the DfE strategy to equip teachers with skills and knowledge in this area.' This includes some of the Strategy's associated goals such as the introduction of sustainability leads in all schools. Interestingly, the DfE-commissioned National Education Nature Park has published guidelines on climate education and mental health (NENP n.d.) that have not been mentioned by respondents; all of which suggests that web-based resources alone are insufficient.

The DfE Strategy is not, however, a statutory requirement, hence the patchiness of current practice. While fields associated with SCCE such as education for sustainable development and global citizenship education now have much greater prominence in global policy discourse (Bamber 2020), global policy drivers and organisations such as UNESCO have not been raised by any respondents as directly influencing their rationale for including SCCE. It is evident that simply promoting SCCE externally will not bring about meaningful change; the evidence suggests that it needs to be internalised, to be owned. A genuine strategy for change should therefore include statutory requirements, resources, professional development, supportive networks and crucially a positive story around teachers' professionalism and their role in helping young people to respond to the climate and biodiversity crises.

6 Conclusion

6.1 Reflection

We have come a long way since a former Chief Inspector of Schools warned against the efforts of environmentalists "to commandeer schools and the curriculum in support of worthy social issues and campaigns" (Spielman 2020). It is now widely recognised that climate change is not a 'worthy issue' but the context in which all education and wider social practices are enacted.

An indication of this growing recognition came in the form of the final report of England's Curriculum and Assessment Review (CAR) which was published as this research report was being finalised. The CAR recommendations feature enhanced content on climate change in Geography, Science and Citizenship including sustainable practices within the Citizenship primary curriculum. At secondary level, the Citizenship curriculum highlights critical thinking and active citizenship and sustainability now features in the Design and Technology programme of study. The Government response suggests that in future, schools will be expected to offer enrichment activities including time spent outdoors, climate education and sustainability projects. Until now, England has been an outlier among UK jurisdictions in not having statutory provision for SCCE; the CAR report suggests a course correction rather than radical change. Even so, if these changes are to be implemented, they will demand significant adjustments in teacher education.

This survey adds another layer of evidence in support of the upskilling of teacher educators that the curriculum review suggests is necessary. By highlighting the range of good practice that is already taking place, the challenges faced in taking SCCE further and pointing out the steps that can bring these necessary changes about, we trust that this report will contribute to the development of a virtuous circle of practice and professional learning in teacher education in relation to sustainability and climate change.

6.2 Recommendations

In light of the findings of this research, we would make a number of recommendations. These are directed at the lead agencies involved, that is policy makers, institutions and other organisations involved in providing or supporting teacher education and practitioners themselves.

For policy makers

- Clear policy frameworks are required to ensure that SCCE is identified as a core component of mandatory curricular frameworks and cross-curricular links are highlighted in this. The survey respondents make an unambiguous call for the mandatory implementation of SCCE specifically within:
    - The Initial Teacher Training/Early Career Framework
    - National Professional Qualifications, especially those linked to leadership
    - The national curriculum.

- As well as curriculum development, schools, colleges, universities and private education providers should be required to adopt a whole institutional approach to sustainability, underpinned by a commitment to environmental connection, equity and justice. Approaches such as those set out in the NAEE Manifesto (NAEE-UK 2022) offer a way forward. Rather than focusing on 'champions', which can lead to burnout among enthusiasts, this strategic approach embeds SCCE in the fabric of the institution and secures senior leadership support to whoever has the role of coordinating action in this area.

- Actively recognise and promote collaboration among organisations and institutions in the development of resources including CPD opportunities. This could include promotion, if not sponsorship, of existing networks such as the TEESNet (n.d.) community of practice in ESD and global citizenship in teacher education.

- Commission further research into the impacts and co-benefits of effective SCCE. Despite a lack of funding in this area, there have been numerous small-scale studies and theses that have investigated the impacts of sustainability and environmental education. Given the importance of this area for society as a whole, it is critical that larger scale and longitudinal studies are conducted to demonstrate the impacts and co-benefits of effective SCCE.

For institutions and organisations

- Support and commitment to provision of an embedded, whole-institution approach to issues around the environment, equity and justice.

- Ensure compulsory provision of SCCE across ITE programmes.

- Provide CPD opportunities, including professional collaborations, for staff as well as professionals throughout education.

- Partner with external organisations, locally as well as nationally, that can offer support.

- Periodically audit their content and approach to SCCE.

- Develop high quality, research-informed resources to support SCCE across the curriculum in specific phases of education and for specific subjects as well as those that encourage multi- and trans-disciplinary approaches.

- Facilitate professional networking among providers on SCCE.

For professionals in teacher education

- Enable students to offer SCCE across their own syllabus and to work collaboratively with colleagues in other subjects.

- Work collaboratively with colleagues, students and professionals in the wider community to offer learning about local, national and global environmental issues both inside and outside the classroom.

- Ensure learning is up to date, research-informed, supportive and action focused where possible.

The key message from this survey is to take sustainability and climate change education seriously, build on the great work that is already going on and thereby support a wide range of other priorities that ensure the well-being of learners and teachers across education.

6.3 Limitations of the study

As we have acknowledged earlier, although we sent this survey to all UCET members and beyond, the respondents to this survey were self-selecting. A more purposive sample targeted at a random cross-section of teacher educators would doubtless have produced less rich results but a more representative picture of the gaps and challenges faced across the sector.

In a survey of this nature it was not possible to gather a detailed picture of exactly what different providers were doing as part of their SCCE provision. We hope that this has been offset by a sister publication, a special teacher education of the NAEE Journal, *Environmental Education*.

Any research of this kind is necessarily a snapshot of one moment. Since closing the survey, more resources and training opportunities would have come online. This includes the new website of UCL's Centre for Climate Change and Sustainability Education (2025), which hosts a wide range of subject-specific materials. As highlighted above, the final report of England's Curriculum and Assessment Review has been published. Both of these developments may well feature in subsequent surveys.

6.4 Further research

This research was conducted by a group of academics largely working in their own time, as such, it is limited in scope. We would agree with the observation of Fischer *et al.* (2022) that more research is needed to explore how to identify *quality* in SCCE education and, given the variety of contexts in which teacher education takes place, we believe there is more scope to explore potential strategies that can be implemented in teacher education programmes and policies, shifting towards a more mainstreamed approach in more places.

The perennial request of policy makers is for evidence of impact. It is hoped that as SCCE achieves greater recognition that funding will become available for larger scale and longitudinal studies that can explore the impacts and crucially the co-benefits in terms of learning and well-being associated with SCCE.

Beyond the education research community, we would do well to investigate the risks of *not* training teachers in sustainability and climate change education. This would require expertise outside of education but such a multidisciplinary study would help to demonstrate the impact of deciding to maintain the current situation where we rely largely on voluntary inputs working against unhelpful statutory frameworks.

6.5 A last word

Beyond education, experts in fields such as climate, health, biodiversity, food security and defence are under no illusion as to the seriousness of our predicament. At the time of publishing this report the National Emergency Briefing on Climate and Nature has just taken place (available here). We all have decisions to make around how we respond to this situation but educators have a particular duty in this regard. Rather than reiterate the points from this report, we close with the words of Kagawa and Selby (2010: 4) who challenge us to consider whether 'the learning moment can be seized to think about what really and profoundly matters, to collectively envision a better future, and then to become practical visionaries in realising that future.'

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Appendix I: The online survey

Teacher Preparation for a Changing Climate

Dear Colleague

This survey has been prepared by members of UCET (Universities' Council for the Education of Teachers) in order to build a picture of current practice in teacher education (both ITE and CPD) linked to sustainability and climate change education.

Background:
A recent UCL survey of nearly 2,500 secondary school students found that 87% expressed concern about the future because of climate change. More widely, addressing this issue is as urgent as the implications of not doing so are dire (IPCC 2023).

While the Department for Education already has a sustainability and climate change strategy, this has yet to establish specific goals linked to teacher education. Meanwhile, we are aware that many institutions are tackling climate change education and others would welcome support in doing more.

This survey will enable us to share good practice and offer further support to colleagues in the sector via publication of a report and possibly an academic article. We may use quotations from the data in the report where applicable. We will be happy to share the results with you directly if you wish.

What next?
Please help us by completing this very brief survey (5 and 15 minutes to complete depending on responses) **before 25th November 2024**.

Feel free to pass this on to a relevant member of staff for completion; this could be a course leader, specialist teacher or a group of colleagues. We would also encourage you to share the survey link with others in your wider network who provide initial teacher education or CPD.

Important to know:
Your participation in this study is entirely voluntary. If you wish, you may withdraw your data at any time before initial results are shared (scheduled for early December 2024) provided you identify yourself in the survey.

The survey makes use of the University College London (UCL) Qualtrics online system although once downloaded, the data will kept securely using University of Gloucestershire password protected systems. All data will be anonymous and will be handled and stored in line with GDPR regulations. We would only name your institution (and only as examples of good practice) after seeking your permission to do so. In this way we aim to avoid any risk of reputational harm.

If you have any questions, require further information or wish to discuss your contribution to the study, please email the survey coordinator, Dr Paul Vare: pvare@glos.ac.uk

You can access the University of Gloucestershire Privacy notice here:
https://www.glos.ac.uk/information/knowledge-base/research-participants-privacy-notice/

Your consent:
I confirm that I have been read the information above, that I have the opportunity to ask questions about the project, that my participation in this survey is voluntary and I can withdraw at any point whilst the data is being collected.

Yes/No

I understand that the information I provide will be anonymised to protect my identity, that my data will be kept securely in accordance with current data protection legislation, that any personal details will not be shared outside the project and I will not be identifiable in the survey report unless I chose to be so.

Yes/No

I confirm I have been able to access the University of Gloucestershire Research Privacy Notice.

Yes/No

Your Responses:

Your institution/organisation
(NB This is for survey management purposes and will not be disclosed other than for publicity purposes and only with your further permission):

_____

Your name and email if you would like a summary of the results:

Name: _____

Email: _____

Q.1 Are you aware of the DfE Sustainability and Climate Change Education (SCCE) Strategy?
(*yes/no*)

Q.2 Do you provide specific sustainability or/or climate change education for students/teachers within ITE and/or CPD?

(*yes/no)*

If 'NO':

2.a Please tell us why you do not provide sustainability or climate change education:

(*open comment box*) THEN GO TO Q.6

2.b If YES, please give details of your provision [*Please include information on whether this is optional, extra-curricular or embedded in your programmes (initial teacher education, early career or CPD) as a compulsory element and whether it is assessed*].

(*open comment box*)

3. What is your rationale for offering SCCE and for the specific content that you offer?

(*drop down box of suggestions)*

- Institutional commitment to SCCE
- Student demand
- Driven by committed staff
- Other (*please give details*)

4. Have you encountered challenges in implementing your plans for sustainability or climate change education?
(*yes/no*)

If YES, please provide details and explain how you have tackled these
(*open comment box*)

5. Do you draw on any external agendas, frameworks or other guidance? (*Please tick all that apply*)
(*drop down box of these suggestions)*

- The DfE SCCE Strategy
- National Climate Education Action Plan
- EAUC resources
- A Rounder Sense of Purpose educator competences
- Met Office resources
- UCL programmes
- NAEE (National Association for Environmental Education) resources
- Local experts or organisations such as wildlife trusts or campaign groups (please specify)

(*open comment box*)

- Other

(*open comment box*)

6. What additional support or resources would you like to see to support your provision in this area?

(*open comment box*)

Appendix II: Initial data analysis

II.i Responses to question on SCCE provision

a. Undergraduate programmes

What?	**%**
Embedded	50
Module	38
Optional	6
Range of approaches	6

How/when?	**%**
Non-assessed module	44
Assessed module	31
Workshops throughout year	19
Integrated project	6

b. PGCE

What?	**%**
Subject-specific	39
Embedded	25
Range of approaches	22
Optional	8
Special event	6

How/when?	**%**
Sessions throughout the year	31
Conference (1+ day)	44
Single session less than 0.5 days	11
Visits and field work	5
Online activity	3
Assignment strand	3
Extra-curricular	3

c. Across all teacher education

What?	**%**
Embedded	35
Special event	30
Holistic	17
Subject-specific	12
Optional	6

How/when?	%
Sessions throughout the year	52
Conference (1+ day)	35
Single session less than 0.5 days	9
Teaching challenge	4

II.ii Responses to question on rationale for providing SCCE

a. Numbers of responses

	Number of individual responses	% selected (n=80)
Institutional commitment to SCCE	39	48%
Student demand	17	21%
Driven by committed staff	64	79%

b. Initial coding of responses to question on rationale

Code	Number of responses	
1	4	External policy framework
2	1	School Leadership
3	4	Ethics/Values
4	2	Environmental
5	2	Educational
6	4	Curricular
7	2	Awareness
8	1	Research

c. Clustering codes on rationale into themes

Theme				Total
External policy framework	4	1		**5**
Ethics/Values	4	2		**6**
Educational	2	4	2	**8**
Research	1			**1**

II.iii Responses to question on challenges to SCCE

a. Clustering and theming of codes from responses to question on challenges

Themes after 3rd round of analysis	Codes in Themes	Code count	Percentages of codes
Curriculum time/space	1,22,23,24	28	44.4%
Lack of resources/opportunities	18,17,25,2,3,19	13	20.6%
Not on ITTECF	5	8	12.7%
Lack of institutional commitment	6,11,14,15	5	7.9%
Lack of knowledge of Strategy and research	10,12,13,7	5	7.9%
Student challenges	8,21	3	4.8%
Lack of staff willingness	8	1	1.6%
Totals		63	

II.iv Responses to question on sources of guidance for SCCE

Source	Count
Department for Education (DfE) Climate Change and Sustainability Strategy*	43
National Education Action Plan*	32
Expert organisations/individuals within – universities	28
MET Office *	20
NAEE*	19
UCL programme*	14
EAUC*	7
Other – SGDs and UNESCO	6
A Rounder Sense of Purpose*	4
Expert organisations – local development education centre (DEC)	4
Other – academic materials/journals/networks	4
Other – Subject associations e.g. GA	4
Other – teach the teacher/teach the future	3
Other – IPCC, Dasgupta report	3
Other – local activists/friends of group	2
Other – Curriculum for Excellence (Scotland)	2
Other – Oxfam	2
Other – RHS	1
Other – local botanical gardens	1
Other – WWF	1
Other – FSC	1
Other - RGS	1
Other – National Geographic	1
Other – online simulations	1
Other – schools across the ocean	1
Other – ThoughtBox Education	1
Other – ZSL Whipsnade	1

* Tick box named programmes and organisations (total of 80 respondents, more than one box or field completed per respondent)

II.v Responses to question on additional support for SCCE

a. Initial coding of responses to question on support

Code	Number of responses	
1	10	Sharing
2	1	Activities for schools
3	16	Materials/guidance/frameworks/lesson plans
4	9	Changes to NC
5	2	CPD for teachers
6	3	CPD for ITE staff
7	3	Experts
8	2	Linkages to NC
9	8	Changes to ITE/ECF (also NPQs)
10	3	Not needed
11	1	Cross-subject guidance (3?)
12	2	Institutional commitment
13	3	Support for schools
14	3	Funding
15	1	Local collaboration
16	3	Raise status of sustainability
17	2	Curation of resources
18	2	Don't know

b. Clustering codes on support into themes

Theme			Total			
Role of Govt (esp. curricula)			28			**28**
Resources			20	5	4	**29**
Sharing practice within the sector			12			**12**
Training			5		**Other**	**5**
Other local provision			4			
Allow agency of staff			3			
Open to learn/don't know			2			