

2024



Sustainability in college learning and teaching

Research report

Executive summary

Colleges play a crucial role in equipping people and communities with the knowledge and skills we need. In a world of accelerating social and environmental crises, this includes learning for sustainability, so we can reach our ambitious targets for people and the planet. However, little is known about sustainability in college learning and teaching in Scotland.

This research explored the current status of sustainability in college learning and teaching, as well as barriers, opportunities, and the most impactful actions to advance sustainability. Using a mixed-method approach, key findings from our engagement with 15 Scottish colleges include:

- **Measuring sustainability in learning and teaching** requires holistic approaches that include collaboration, training and qualitative methods.
- **Current status:** While there are strong examples of teaching staff integrating sustainability into their practice, these are often pockets and require more support for sustainability to be embedded in learning and teaching in colleges. Which sustainability aspects are integrated more or less strongly depends on the subject area, but data suggests that especially environmental and economic sustainability aspects such as biodiversity, global supply chains and net zero require more support. Findings also indicate that sustainability aspects are more likely to be addressed in learning and teaching activities than in assessment.
- **Barriers:** Competing priorities and a lack of explicit sustainability content in qualifications present some systems wide barriers. Within institutions, lack of supportive structures, lack of capacity of teaching staff, and knowledge gaps on sustainability in learning and teaching are major obstacles. This is further exacerbated by an often limited understanding of sustainability as well as a lack of quality training and resources.
- **Opportunities and drivers:** Staff, students and leaders can be powerful drivers of sustainability, especially when supported by supportive institutional structures. There is evidence that student and staff develop positive attitudes towards sustainability where relevant and engaging learning opportunities on sustainability and LfS/ESD are provided. Changes to qualifications and government priorities have the potential to be significant enablers of sustainability in learning and teaching increasing in breadth and depth.
- **Impactful actions and recommendations:** To advance sustainability, impactful actions include empowering students and providing resources and professional development for staff that build on existing internal approaches. Importantly, top-down institutional structures must support this, for example through explicit recognition and prioritisation of sustainability, both in strategy and in practice. Quality assurance processes also have the potential to play a significant role in supporting sustainability in learning and teaching, highlighting the role of sector bodies and qualification authorities. Collaboration between institutions, organisations and industry, adequate funding and further mixed-method research are key to enable progress.

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About the EAUC

The Environmental Association for Universities and Colleges (EAUC) is the leading body for sustainability in the post-16 education sector in the UK and Republic of Ireland.

We have been promoting sustainability, which we see as a holistic concept encompassing social justice, environmental integrity, and economic viability, in further and higher education for over 20 years. Primarily a membership body, we serve 300 organisations whilst also working to change systems that enable sustainability action.

We promote whole organisation approaches where leadership and governance, estates and operations, teaching and learning and collaborations are all actively driving sustainability so that we are equipping learners for their lives, being responsible organisations and shaping society for the better.

Since 2012, our Scotland branch consists of a dedicated team, funded by the Scottish Funding Council (SFC). Since 2021, the Scotland team has included a sustainability learning and teaching specialist, which has allowed us to provide more targeted support for teaching staff and conduct this research.

Find out more on our [website](#), and get in touch with info@eauc.org.uk if you have any questions.



1 Introduction

In a world of accelerating environmental crises and widening social inequalities, education is one of the most powerful ways to create a better, more socially and environmentally just and sustainable world (e.g. [UNESCO, 2024](#)). This includes both informal learning settings like community organisations and local libraries, as well as formal education settings, such as schools, universities and colleges.

Colleges hold significant influence; they shape lives and communities, and foster essential knowledge, skills and behaviours in both young people and adults. They educate a quarter million learners in Scotland per year, and nearly three million across the UK ([UK Government, 2024](#)). In our years of working with Scotland's colleges, we at the EAUC have witnessed the immense dedication and excellence of college staff. We have heard many stories of successes, yet also of challenges to embed teaching content and methods that enable learners to address the interconnected environmental and social sustainability issues of our time.

Serving both colleges and universities, we have noticed that there is significantly more research on sustainability in university and school education, while little is known about this in colleges ([see section 3.3](#)).

This report, funded by the SFC as part of the [2024/25 EAUC Scotland Outcome agreement](#), is addressing this knowledge gap. The research centres on sustainability in college learning and teaching, focussing mostly on the curriculum and teaching practice, but also, where appropriate, highlighting connection to the campus, culture, and community of a college. Exploring the current status of sustainability in college education will help us track changes over time, while better understanding the issues colleges are facing will help us and others direct support to the right places.

1.1 Objectives and key audiences

Existing research, albeit limited, indicates that more support and progress for LfS/ESD is needed. However, the existing reports only provide a high-level overview of LfS/ESD in colleges. Many questions remain: What are the causes and consequences of the 'lack of time' barrier? How do teaching staff understand sustainability and LfS/ESD in Scotland? What do effective resources, training and support look like?

This report is a step towards answering these questions, aiming to provide a starting point for assessing change over time. Better understanding the current challenges and drivers will also help to direct support to the right places.

Objectives of this report include:

- **Address the knowledge gap** that exists around sustainability in learning and teaching in colleges.
- **Acknowledge and embrace the complexity and context sensitivity** of sustainability and college education through a mixed-method approach
- **Produce actionable knowledge and provide recommendations** that may be the most impactful in better supporting sustainability in college learning and teaching.

This report is intended for stakeholders involved in college learning and teaching provision. Within institutions, this includes teaching as well as operational staff, students, managers, and senior leaders. Furthermore, considering the recent educational developments in Scotland ([see section 3.2](#)), we are confident that this report will provide valuable insights for sector bodies, funding and quality agencies, and support organisations.

1.2 Structure of this report

This document first sets out the theoretical background and definitions of LfS/ESD. Next, it provides an overview of the Scottish college context and the limited existing research, followed by the project methodology. We then present and discuss our findings on the following aspects:

- **Baseline estimate:** Whether and how a cross-institutional baseline for sustainability in learning and teaching could be estimated, and a snapshot of progress and gaps.
- **Barriers:** The barriers to integrating sustainability into learning and teaching faced by teaching staff and institutions.
- **Opportunities and drivers:** The factors that have driven and are enabling sustainability in learning and teaching.
- **Impactful actions:** The actions that we have identified as most likely and impactful in supporting colleges to increase the expansion of quality sustainability in learning and teaching.

2 Sustainability in learning and teaching: frameworks and concepts

There is vigorous debate on the various educational approaches for a more just and sustainable world. Among the most prevalent approaches are Learning for Sustainability (LfS), Education for Sustainable Development (ESD), Environmental Education, Global Citizenship Education and Education for Sustainability.

We recognise the importance of differentiating between various concepts and their implications for practice. However, we see a risk in focussing on nuances of definitions, rather than taking action. We synthesise from the definition of various educational concepts that, in essence, these approaches centre around a key question:

How can education enable learners to act in ways that ensure people and nature can thrive long-term and in symbiosis, while considering the role economy and culture play in achieving this?

In this report, we see this as the central goal, regardless of which concept is chosen. In Scotland, Learning for Sustainability and Education for Sustainable Development are the most commonly referenced concepts in further and higher education. We will therefore focus on these two frameworks, using them as a foundation for evaluating our research findings.

2.1 Learning for Sustainability and Education for Sustainable Development

Learning for Sustainability (LfS), as [Christie & Higgins \(2020\)](#) summarise in a report to Scottish Government, was adopted and developed in Scotland to counter the anthropocentric (human-centred) worldview of concepts like sustainable development. This worldview is cited as a driver of environmental issues, where nature is seen as a commodity rather than having worth in its own rights.

Since 2012, the term LfS has been used in 3-18 years formal education (thus being mostly focussed early years and school provision) in Scotland. The original definition of LfS describes it as “a whole school approach that enables the school and its wider community to build the values, attitudes, knowledge, skills and confidence needed to develop practices and take decisions which are compatible with a sustainable and equitable society” ([Scottish Government, 2012](#)). Due to the Scottish Qualifications Authority (SQA, soon to be renamed to Qualifications Scotland) adopting the concept into their strategies and language for schools and college contexts, LfS is increasingly introduced in colleges.

Education for Sustainable Development (ESD) is another concept similar to LfS utilised in colleges in Scotland and the UK, as well as internationally. Furthermore, ESD as a concept is widely used in research, literature, and practice across the world. It is also a key concept in universities and higher education (HE) settings.

To account for the use of ESD in colleges as well as to be able to draw on research and practice from other UK nations and beyond, we will also draw on the definition of ESD in addition to LfS. ESD is defined as empowering “individuals to make informed decisions and take action, both individually and collectively, to change society and protect the planet. It equips people of all ages with the knowledge, skills, values, and ability to tackle issues such as climate change, biodiversity loss, overuse of resources, and inequality that impact the well-being of people and the planet.” ([UNESCO, 2024](#)).

In this report, we will refer to LfS/ESD to align with Scottish government drivers for 3-18 education and the work of SQA, as well as drivers and developments in higher education and international settings.

A critical lens: Radical LfS/ESD?

Academics such as [Stein \(2024\)](#) and [Bogström et al \(2018\)](#) state that our economic and political systems, which strongly influence our culture, norms and values, need to change to truly bring about the transformation we need for a socially and environmentally just world. They call for forms of education that are highly critical of the current state of these systems, and Stein (2024) suggests that ESD does not go far enough to achieve this.

We agree that many barriers for a more sustainable future generally, and particularly for sustainability in college learning and teaching, are consequences of our political and economic systems. Our experience suggests, however, that campaigning for deep, all-encompassing changes when delivering training or communicating about sustainability has the risk to alienate the respective audience, rather than bringing people in. Therefore, we aim to adapt our approaches to LfS/ESD depending on our audience to be as inclusive as possible, while giving space to develop a systems view and a deeper understanding of the changes needed at different points of people’s journeys.

This report is written with a diverse audience in mind. Thus, some of our recommendations in this report may not go far enough for those who are critical of ESD as an approach to achieve systems change. If this is the case for you, please do get in touch with the EAUC and engage with our current and future networks and training offers. You will find a community of people with shared goals, yet a diversity of perspectives, and we would be more than happy to work with you to achieve your goals.

2.2 Indicators of quality: How we operationalised LfS/ESD in this report

LfS and ESD, and the many related concepts, are complex and need to be flexible and adaptable to fit into the vastly differing contexts of education. From early years to postgraduate studies, there is no ‘one-size fits all’ way of integrating LfS/ESD. What is found to be effective practice in one setting, may not be in another. This is evident in the diverse body of literature and studies that continues to emerge, as a review of the literature for HE highlights ([Vogel et al, 2023](#)).

However, the review also captures a key challenge that we see reflected in our experiences as an organisation: While the diversity of approaches can be beneficial, the existing lack of coherence can be problematic when assessing and developing LfS/ESD.

To be able to draw coherent conclusions from our data in this report, we synthesised common themes from widely used reports, reviews, and guidance documents on ESD and LfS ([QAA and Advance HE ESD Guidance, 2021](#); [QAA Collaborative Enhancement Projects, 2023](#); [Christie and Higgins, 2020](#); [Vogel et al, 2023](#)) as well as more specific research to generate a functional set of indicators for quality LfS/ESD.

Based on existing guidance and literature, we understand quality LfS/ESD as...

- **Overarching indicator: Striving for a whole institution approach** that includes the 'four Cs': curriculum, campus, community and culture (see [Scottish Government LfS Action Plan, 2023](#), and [Holst, 2023](#)). (Learning for) Sustainability should be a golden thread weaving through an institution's operations and culture that allows students and staff to engage with sustainability not just in the classroom, but also through non-formal and informal learning, as well as establishing partnerships with employers and other communities.
- **Curriculum indicator 1: Addressing sustainability holistically.** Sustainability is addressed in ways that emphasise the interconnectedness of social, environmental, and economic sustainability aspects, and how these vary with time (past, present, future) and place (global to local) (see e.g. [Boeve-de Pauw et al, 2015](#); [University of Gloucestershire, 2023](#)).
- **Curriculum indicator 2: Engaging head, hands and heart through teaching and assessment methods.** Sustainability is addressed in curriculum content to develop learners' knowledge, but importantly, teaching and assessment methods are also supporting development of sustainability skills, values, attitudes and behaviours (agency) - often summarised as sustainability competencies (see e.g. [QAA and Advance HE guidance](#)). Innovative teaching and assessment methods are key to develop these competencies. As [Sosse et al \(2021\)](#) state in their review, a consensus is emerging across education levels and settings: "rather than a simple incremental innovation, ESD must be part of an epistemological and pedagogical break with the past" (p. 3). This emphasises the need to move away from traditional teacher-centred, knowledge transmission focussed methods, and move towards inclusive, real-world relevant and reflexive teaching methods that are co-shaped by learners. Project-based and problem-based teaching and assessment methods have been highlighted as especially effective ([Lozano et al, 2019](#)). Across all methods, reflection is key: students do not learn from experience alone, but from reflection on experience ([Burden & Sprei, 2021](#)).
- **Curriculum indicator 3: Positioning sustainability as an integrated part of learning and teaching, not an add on.** LfS/ESD is embedded within the curriculum and teaching methods. This means LfS/ESD goes beyond a classroom discussion on one or two sustainability topics or undertaking a general online sustainability module. Instead, sustainability knowledge and skills form an integral part of content, teaching methods and assessment, highlighting the relevance of sustainability to the respective subject area ([Burden & Sprei, 2021](#)).

- **Curriculum indicator 4: Including connections to learners' personal and professional lives.** Learners and staff are able to take action to contribute to sustainability in their personal as well as professional lives (see e.g. [EAUC Fusion Skills and ESD Toolkit, 2023](#)). The 'professional' sphere is especially relevant for colleges considering that further education settings are closely aligned with equipping learners with the skills needed for specific jobs and industries.

These indicators guide the evaluation of our data and provide a foundation for actionable recommendations aimed at improving sustainability integration in teaching and learning in this report. In the next section, we will outline the Scottish college context and the existing drivers and research around LfS/ESD.

3 Scottish Colleges and LfS/ESD

This section will outline the general context of Scottish colleges, the existing policies driving LfS/ESD, and the existing research on LfS/ESD in Scottish (and English) colleges.

3.1 The general context

Understanding the current context of Scottish colleges is vital if we want to better understand the current status of, as well as barriers and drivers for, LfS/ESD.

Colleges in Scotland: key facts. The [key facts publication from Colleges Scotland \(2024\)](#) reports that there are 24 colleges in 13 regions across Scotland, delivering around 68 million hours of learning to almost 250,000 learners every year. Colleges are significant employers in their regions, employing over 14,000 staff, about 3,500 of which are full-time teaching. They are the biggest delivery agent of Modern Apprenticeships, supporting close to 15,000 students, while also delivering around 13% of all higher education in Scotland, and enabling over 8,500 students to progress into university each year.

Colleges' contribution to the Scottish economy: Investment in colleges pays off. Looking at colleges' value through an economic lens, a [report by the Fraser Allander Institute \(2023\)](#) reports how, for the 2016-17 to 2021-22 college graduate cohorts, every college graduate in Scotland creates an additional £72,000 boost to productivity for the Scottish economy as a result of going to college. For just the class of 2021-22, the Scottish Government invested £740 million into colleges, which is projected to lead to a £8 billion boost to the Scottish economy.

Colleges for a fairer, greener Scotland. Colleges also play a vital role for meeting environmental targets such as net zero. As the [UK Climate Change Committee \(2023\)](#) states: "The importance of Further Education colleges is difficult to overstate". Colleges are also at the forefront of tackling social challenges such as poverty and accessibility of education. For example, the [Colleges Scotland Keyfacts publication \(2024\)](#) reports that college "is the most popular destination for those from the lowest socio-economic backgrounds" (p. 14). A report by [CDN \(2022\)](#) also highlights the significant role colleges have played before, during and after the pandemic in reducing poverty and various inequalities. Considering this, LfS/ESD seems like a natural fit for colleges to equip learners with the knowledge, skills, values and behaviours needed for a fairer, greener Scotland and a just transition. Yet, as this report will highlight, colleges are facing significant challenges to achieving this.

Extremely challenging times for colleges: financial challenges endangering viability of the sector. Despite the clear value of colleges, the financial challenges facing colleges have continued to increase in recent years: As outlined in an [Audit Scotland report \(2024\)](#), colleges increasingly report financial deficits, mirroring how Scottish Government funding for colleges has reduced both in cash as well as by 17% in real terms since 2021/22.

Staffing costs make up around 70% of colleges' expenditure and are a key focus for cost reduction. This resulted in around 500 staff leaving colleges through voluntary severance in 2022/23, with colleges predicting further reductions in staff numbers in the coming years. These financial pressures and reductions in staff are already impacting the activities colleges are able to provide. This currently does, and will continue to, affect learning provision generally and in terms of integrating LfS/ESD, as we will highlight in the [Barriers section](#).

Other challenges as reported in the [Audit Scotland report \(2024\)](#) include inflation, investment required to achieve public sector net zero targets, increasing competition with universities, as well as challenges with staff recruitment and retention, often due to competition with the private sector and differences in wages between FE providers and other education sector employers.

3.2 LfS/ESD policies and drivers for Scottish colleges

Existing policy drivers for Scottish colleges to integrate sustainability into learning and teaching include:

- **[GTCS Professional Standards for College Lecturers \(2021\)](#)**: two standards include sustainability in learning and teaching.
- **[Scottish Funding Council's Outcomes Framework and Assurance Model \(2024\)](#)**: Net Zero and Equality, Diversity, and Inclusion are cross-cutting themes to be used in monitoring and evaluating colleges' outcomes and performance.
- **[Scotland's Tertiary Quality Enhancement Framework \(2024\)](#)**: Sustainability and sustainable development are key aspects in the renewed UK Quality Code for Higher Education and sparqs' [Student Learning Experience model](#), which colleges are starting to incorporate into their quality assurance processes as they adapt to the new framework.
- **[NextGen HN by SQA/Qualifications Scotland \(ongoing\)](#)**: LfS is a key aspect and mandatory part of SQA's renewed Next Generation Higher National qualifications.
- **[Green Industrial Strategy \(2024\)](#)** and **[Environment Strategy for Scotland \(2020\)](#)** set out ambitions and targets for the advancement of green technologies and skills.

Many of these developments have taken place in the last five years, highlighting an increased understanding and movement towards LfS/ESD being an integral part of college education. However, the effects of these drivers on college teaching practice are not yet well known, as we discuss below.

3.2.1 LfS/ESD and green skills

There is strong governmental priority and support for colleges to deliver 'green skills', as we will discuss in the [Opportunities section](#). However, many events on green skills that we have attended over previous years have highlighted issues with the inconsistency of the term 'green skills' or 'green jobs', often critiquing the lack of a common framework. We argue that, when green skills are defined inclusively, LfS/ESD play a critical role to develop these.

On policy levels and in education strategies and working groups, green skills are mostly referred to as technical skills for net zero (see e.g. [Skills Development Scotland, 2023](#); [Climate Emergency Skills Action Plan, 2021](#)). While these skills are vital, a variety of frameworks and recent research and reports have highlighted the importance of and need for green skills to go beyond technical skills. Businesses and young people understand green skills as interdisciplinary and including technical and transferrable skills ([Oxford Brookes University & Climate Coaches, 2024](#); [SOS-UK international, 2024](#)), researchers have

developed holistic green skills frameworks ([Kwauk & Casey, 2022](#)), and the EU set out a comprehensive set of skills in [their Green Comp framework](#).

Examples: Non-technical green skills that education needs to develop alongside technical skills include:

- **Communication and behaviour change skills:** An important aspect of green skills is communication and supporting behaviour change, as is acknowledged by [UK government \(2021\)](#): “The government has agreed that net zero can only be achieved through engagement with the public and changing behaviours”. Communication and creating public awareness, for example of the availability and benefits of green technologies, is an important skill that students in net zero jobs will likely need to be most effective in their future careers. The development of social skills such as listening, communicating with empathy, and supporting behaviour change aligns strongly with LfS/ESD’s head, hands and heart approach.
- **Championing diversity:** An often-discussed issue for net zero is the lack of equality and diversity in classic green jobs. One example is gender diversity: women are significantly underrepresented in net zero jobs ([Green Jobs, 2023](#)). Approaches to address this often are to encourage women and girls to enter STEM subjects and careers, but structures must also address how men can support gender equality, especially in fields where men are overrepresented ([Insights into Diversity, 2019](#); [Time, 2023](#)). Education providers can contribute significantly by educating their (male) students on gender equality and diversity and developing the skills to support underrepresented groups, including but not limited to women.

Yet, despite the need for these non-technical skills that encompass social sustainability, LfS and ESD are very rarely connected to green skills in policy. For example, they are not mentioned in the [UK Parliament briefing on green skills](#), or in Scotland’s [Climate Emergency Action Plan Pathfinder](#). As our organisational experiences indicate, this disconnect is also common in practice.

This is leaving a major source of potential untapped. LfS/ESD is an established framework with existing momentum to support learners to build these wider transferrable skills, ways of thinking, and attitudes alongside technical skills. We hope this report can further highlight why LfS/ESD and green skills need to be more closely connected and more equally prioritised, e.g. in funding for institutions, lecturer training, and strategy.

3.3 Existing research on LfS/ESD in colleges

Academic papers and formal research on LfS/ESD are frequently centred on schools and universities. For colleges in Scotland and the UK, research and reports that explicitly address LfS/ESD (beyond technical green skills, on which there is a growing body of reports driven by net zero targets) are sparse, presenting a major knowledge gap when considering that colleges and other further education contexts educate nearly 3 million learners annually in the UK.

Recent reports that explore LfS/ESD in colleges include the [College Development Network Workforce report \(CDN, 2024\)](#) in Scotland, as well as a report from the [Education and Training Foundation \(ETF, 2021\)](#) in England. We have synthesised the most relevant findings from these reports below.

- **Relevance of ESD/LfS:** Generally, staff believe ESD/LfS is relevant to their learners and their future careers. The CDN report cites that 73% of Scottish respondents believe LfS is relevant to their practice, while 95% of English respondents shared that they believe all UK learners should be taught about sustainability issues in the ETF report.
- **Lack of training:** In both Scotland and England, there is a lack of training on LfS/ESD – only 24% of Scottish respondents (CDN report) and 21% of English respondents (ETF report) said they had received (adequate) training on LfS.
- **Barriers:** The highest reported barriers are time (CDN, 80%), and lack of (explicit) sustainability content in the curriculum or study programme (ETF, 54%).

4 Methodology

This section outlines the research design, recruitment strategy, sample characteristics, methods and analysis of the study.

4.1 Research design

This study employed a mixed-methods design, combining qualitative insights from interviews, focus groups, and workshops, as well as quantitative surveys, to create a comprehensive understanding of LfS/ESD in colleges.

Qualitative research was a necessary starting point. Qualitative methods are particularly suited when there is little existing research and information a topic ([Pyo et al, 2023](#)) and allow for more critical thinking about the sustainability of our economic, political, and educational systems ([Royston and Foulds, 2021](#)). These methods also enhance the reliability of findings in sustainability research, a conclusion supported by prior studies. For example, keyword-based and text-count methods alone, as used in a study at the University of Bristol, proved limited in evaluating ESD but became more effective when paired with interpretive approaches ([Tierney et al, 2015](#)).

Quantitative methods, while valuable, face challenges as there are varying understandings of sustainability among staff, learners, and leaders. For example, as this research project will reveal when we piloted a quantitative survey, we found 66% percent reported they would change their response if the same questionnaire had been administered after a two-hour training on LfS/ESD (see [section 5.1](#)). Thus, this research adopted an exploratory, qualitative approach to shed light on the complexity of sustainability in learning and teaching in colleges.

Our research questions were:

1. **Baseline - the current status of ESD/LfS:** (How) could a cross-institutional baseline for sustainability in learning and teaching be estimated, and what insights does this provide on the progress and gaps of LfS/ESD in colleges?
2. **Barriers, Opportunities and Drivers:** What are the barriers to integrating LfS/ESD in college learning and teaching, and what are opportunities and drivers that currently support practice?
3. **Breakthrough:** What are the most impactful interventions to further advance LfS/ESD in college learning and teaching?

4.2 Sample, data collection and analysis

In total, we engaged 123 participants from 15 colleges across Scotland. This means that 63% of Scottish colleges made some contribution to the findings (see Table 1 and 2).

This research took a purposeful sampling approach (typical case and emergent sampling, [Palinkas et al, 2016](#)). This allowed for the recruitment of interviewees who have rich and varied background regarding college teaching, as well as experience with sustainability matters. The strategy was to engage academic, professional, and management staff in

Scottish colleges from a diversity of locations and sizes around Scotland. We used our newsletter, presentations at two events, as well as our sustainability in teaching networks and contacts. We also joined a student-led event at a college which allowed us to engage with a small group of students.

As a result of this recruitment, almost all interviewees and most workshop participants had a responsibility for, or interest in, sustainability, which may bias the data towards higher metrics of LfS/ESD. Yet participants often spoke of shared experiences with their colleagues, sharing their perception of not only their own but of collective teaching staff realities. We therefore argue that this research provides strong insight into the barriers, opportunities, drivers as well as support needs for LfS/ESD in Scottish colleges. Future research may want to explore how to engage more staff that are not already interested in LfS/ESD; however, this was outside of the scope of this project.

There were two phases of qualitative and two strands of quantitative data collection.

Qualitative data phase 1 – interviews and focus groups: Between May and July 2024, with one additional interview in October, 13 semi-structured interviews and four small focus groups, with a total of 16 staff members as well as six students, were conducted. Interviewees included lecturers (4), professional development staff (2), curriculum managers and heads (7) and college senior leaders (3).

Qualitative data phase 2 - workshops: In August 2024, 10 in-person workshops were delivered with 101 teaching staff across seven colleges. These workshops were designed specifically to address one barrier that continued to emerge throughout the research process from the start: a lack of knowledge on sustainability, and therefore limited understanding of the relevance and breadth of the concept as well as of the LfS approach. Observations as well as feedback was collected and included in data analysis.

Quantitative data strands 1 and 2 – baseline pilot and feedback surveys:

Quantitative data was collected as part of workshop delivery. In seven of the workshops, a baseline survey was piloted, with the refined version being tested in one further workshop, receiving a total of 69 responses. 41 responses came from delivery teaching staff (e.g. lecturers, instructors) and 28 responses from managerial teaching staff (e.g. education leads, curriculum heads and managers). An online survey and handwritten feedback for the workshops was obtained from 71 participants.

Baseline pilot survey development: The aim of this survey was to explore the effectiveness of quantitative approaches, as well as indications of integration of sustainability topics. Through a series of multiple-choice questions, participants indicated whether they integrated 14 sustainability topics¹ in learning, teaching and assessment. This list of topics was developed by drawing on the Sustainable Development Goals (SDGs), while also considering sustainability issues of the Scottish context, based on government policy e.g. net zero, adaptation to climate change, responsible consumption). A full list of the topics can be found in Box 1.

¹ Originally, we had set up five sustainability topics across the three dimensions. Due to a technical error, one of five social sustainability topics, 'Justice, democracy and power dynamics (incl. colonialism)' was not displayed in this first version of the survey. It was added again into the second survey, but due to the low sample size this data was excluded.

Box 1: Sustainability aspects of the baseline pilot survey

Environmental sustainability:

- Climate change
- Adaptation to the effects of climate change
- Net Zero, decarbonisation and green gechnologies
- Biodiversity (the variety of living things like plants and animals)
- Pollution and waste

Social sustainability:

- Poverty and income inequality / wealth inequality
- Diversity, cultural sensitivity, and anti-racism
- Equality and equity (gender, disability, age, and other protected characteristics)
- Justice, democracy & power dynamics (including colonialism)
- Physical health, mental health and wellbeing

Economic sustainability:

- Financial viability & entrepreneurship
- Ethics, transparency & accountability (e.g. in reporting)
- Fair work
- Responsible consumption (e.g. reduce and reuse, fair trade, etc)
- Globalisation, including global supply chains and impacts

The survey was revised and improved after being piloted in five colleges based on participant feedback. As we will discuss in [section 5.6](#), the second survey allowed for further distinction: participants now reported the extent to which they addressed the respective sustainability topic in learning and teaching or assessment - slightly or thoroughly. The second version of the survey was tested in the last iteration of the two-hour workshops, receiving another 16 responses, with the outlook to share the survey with the wider sector. However, based on the advice of some of our contacts around timing and staff, as well as a clash of surveys being administered by other organisations, this was postponed.

To make sense of participants' understanding of LfS/ESD in their context, interviews were recorded and transcribed. Thematic analysis began with in-depth, line-by-line coding by hand and was complemented by coding the results of the open questions of our Baseline Pilot and feedback surveys (see further details in the textbox below). To protect confidentiality, all participants are identified by job title and general geographical location.

Table 1 – Staff interview and focus group participants

Role and responsibility	College descriptor	Month of interview
Professional development staff member with responsibility for LFS	College 1, East Scotland	May 2024
Head of Applied Arts	College 2, Central Belt	May 2024
Head of Engineering	College 3, West Scotland	May 2024
College Senior Leader 1	College 4, South Scotland	May 2024
Lecturer in Supported Learning with responsibility for professional development	College 5, Central Belt	May 2024
Business Lecturer	College 6, Central Belt	May 2024
Accounting Lecturer	College 6, Central Belt	May 2024
Head of Computing and Humanities Head of Hair and Beauty	College 7, West Scotland	June 2024
Fashion Lecturer Fashion Curriculum Manager 1 Fashion Curriculum Manager 2	College 8, Central Belt	June 2024
Head of Care, Education and Maths	College 9, West Scotland	June 2024
Professional Development staff member	College 10, North Scotland	June 2024
College Senior Leader with responsibility for LFS	College 4, South Scotland	July 2024
College Senior Leader 2*	College 11, Central Belt	October 2024
Six Business students – one focus group with two female students and one focus group with three male and one female student	College 6, Central Belt	May 2024

*This conversation arose after a meeting about the preliminary research findings that took place in October 2024 that was open to the sector. This interview was not recorded, but captured in detailed notes. We obtained consent to include these notes as quotes in our research.

Table 2: Workshops and survey data collection

College (region)	Number of workshops	Number of participants	Details
College 1, North Scotland	3	30	One workshop with teaching managers, two workshops with lecturers
College 12, North Scotland	1	4	Lecturers
College 13, East Scotland	1	13	Lecturers
College 14, Central Belt	1	5	Teaching managers & lecturers
College 2, Central Belt	1	10	Teaching managers & lecturers
College 4, South Scotland	1	16	Teaching managers & lecturers
College 15, Central Belt*	2	23	Teaching managers & lecturers
TOTAL	10	101	

*Workshops at this institution were shorter and delivered as part of a staff conference. We did not collect survey data here due to the shorter time frames. Feedback was through handwritten notes.

What does qualitative data analysis look like?

With quantitative research –research that generally involves numbers and often statistical modelling - dominating many disciplines, we are aware not all readers of this report will be familiar with qualitative research methods, specifically data analysis. Here’s a glimpse into what it looked like for us when we used thematic analysis, a common qualitative analysis method ([Braun and Clarke, 2006](#)):

We went through over 350 pages of interview transcripts, looking for content that fit our research questions. We also analysed responses to the open questions in our surveys. This meant extracting over 900 quotes. Every quote was ‘coded’, i.e. given a short description summarising the key point the participant expressed. Similar codes were then grouped together into themes to summarise shared experiences and perspectives that multiple participants addressed or that emerged as particularly important. These themes inform the answers to our research questions in this report.

5 Baseline: Indications and initial insights on the status of LfS/ESD in colleges

From the start of this project, we were conscious of the fact that a quantitative baseline is unlikely to be suitable to reflect LfS/ESD (and sustainability generally) in its complexity/ Quantitative measurements are limited in their ability to capture complex phenomena ([Royston and Foulds, 2021](#), [Queirós et al, 2017](#); [Tierney et al, 2015](#)). This is also reflected in the experiences that many sector staff members have shared with us in conference rooms, network meetings, and conversations over the last 20 years. However, to date, there is no formal research that evidences the limitations of quantitative approaches to assessing LfS/ESD.

We therefore decided to test a quantitative approach to assess sustainability topics - and found clear evidence of the limitations of quantitative approaches, as we will address below. While caution is warranted in the interpretation of our survey results, this is still the first cross-institutional, cross-subject indication in Scottish colleges that may provide an indication where college learning and teaching has its strengths and gaps when it comes to LfS/ESD. We therefore complement our quantitative findings with qualitative data to provide a cautious indication of a baseline in this section – intentionally not in the shape of numbers.

5.1 The limitations of quantitative approaches: Why a baseline is difficult to measure

There are multiple issues when employing purely quantitative methods to explore the current status of LfS/ESD. We found these issues to centre around unreliable measurement if assessment is not accompanied by training, as well as the potential for (accidental) greenwashing.

5.1.1 Low reliability when measurement does not include training

Reliably measuring how much LfS/ESD is delivered in colleges through quantitative approaches is extremely difficult, if not impossible. As the quality indicators in the [section 2.2](#) highlight, LfS/ESD is comprised of complex learning experiences and outcomes. Reliably assessing these is only possible through building on multiple perspectives through strong staff and student engagement.

Some institutions are making progress on this through staff-driven mapping of the curriculum (see e.g. a [presentation from Dundee and Angus College](#) or the work by the [University of the West of England](#)), developing a framework for student assessment ([University of Gloucestershire, 2023](#)), and combining qualitative and quantitative approaches ([Tierney et al, 2015](#)). These approaches rely heavily on collaborative and qualitative approaches – and for good reason, as our findings show.

As described in the [Methodology section](#), we ran a baseline pilot survey to assess integration of sustainability topics in the curriculum with a total of 69 teaching staff in our workshops. Staff then received training on sustainability and LfS/ESD. In an online post-workshop survey (n=49), 66% of participants reported that their answers to the baseline questions would change now that they had received training.

This strongly suggests that there is not currently a commonly used lexicon or shared understanding of what sustainability and LfS/ESD means, and therefore a quantitative survey, without training and engagement, is unreliable at best and misleading at worst, for example if this was used to compare colleges with each other.

This is a clear indication that, without a sound understanding of sustainability, a quick quantitative assessment of sustainability content in lecturers' teaching practice - which in itself is not sufficient ([see quality indicators](#)) – will be unreliable.

5.1.2 Risk of accidental greenwashing

In addition to low reliability, assessing LfS/ESD through quantitative, one-size-fits-all, tick box measurement may also risk an inflated representation of integrating LfS/ESD when integration is claimed without considering quality aspects.

Measuring siloed issues leading to overestimating LfS/ESD progress: There is a risk of addressing sustainability superficially and overselling progress on LfS/ESD when assessing the curriculum against the Sustainable Development Goals (SDGs) or other frameworks that list separate sustainability issues. Claiming to have embedded sustainability in the curriculum when a number of siloed issues are addressed, but these don't span social, environmental and economic aspects and their interconnectedness, may be classed as 'greenwashing' of education. This was established by a QAA-funded project led by [University of Gloucestershire \(2023\)](#), where researchers and students collaborated to produce an anti-greenwash education toolkit. The toolkit highlights the importance of holistic sustainability (three interconnected pillars and culture as a lens) as well as a consistent integration across the curriculum and within assessment.

Only focussing on curriculum content, and not including development of skills, values and behaviours in relation to sustainability: As discussed in [section 2.2](#), a focus on sustainability content is not sufficient to evidence delivery of quality LfS/ESD. For example, when a class discussion lightly addresses one sustainability issue one time, this is unlikely to have an impact on students' knowledge, and even less likely to support students to develop skills, values and behaviours for sustainability. These domains of learning, however, are a key indicator for quality LfS/ESD, and require meaningful engagement with sustainability issues. Teaching methods that support the development of knowledge, skills, values and behaviours are an essential aspect of LfS/ESD.

Thus, a qualitative approach involving staff training, dialogue and observations is more appropriate to make sense of how LfS/ESD is embedded. Qualitative methods must at least complement quantitative approaches in order to avoid (accidental) greenwashing.

We have collated the results that stood out the most from the surveys, interviews, and workshop interactions to offer initial insights into the current status of LfS/ESD in colleges in the following.

5.2. Limited understanding of sustainability affecting visibility and quality of LfS/ESD

Our qualitative data highlighted how a narrow understanding of sustainability that focuses solely on a limited range of environmental issues can result in achievements being overlooked when college staff are asked about their engagement with sustainability. At the

same time, emphasizing only one pillar or aspect of sustainability can lead to an inflated perception of a college's progress in implementing LfS/ESD. This highlights how there is a need to provide starting points to enhance the understanding of sustainability – but also the importance of advancing beyond siloed approaches to create a more holistic, integrated perspective of sustainability.

Limited understandings of sustainability as environmental may omit progress on LfS/ESD

Research participants across interviews, focus groups and workshops indicated that understandings of sustainability among staff are often limited to a small set of environmental issues, such as “recycling and turning the lights off” or “not to print stuff” (quotes from workshop participants).

Some participants discussed how this can be limiting the visibility of colleges' contributions to sustainability, as aspects may be integrated into curricula or wider college activities, but may not be labelled as sustainability:

"For some areas it's embedded, it's just flagging up. (...) I think for social sustainability, a lot of people are doing stuff around it, but they don't even realise that this is part of sustainability." – Head of Computing and Humanities.

The benefits and risks of using the Sustainable Development Goals to broaden sustainability understanding

As an approach to increase staff understanding of sustainability, a few interviewees shared how, when sustainability frameworks such as the United Nations Sustainable Development Goals (SDGs) are used, a wider understanding of or interest in sustainability often evolved.

"What people have fed back is that they didn't realise there was 17 sustainable development goals, and they didn't know what they were. So when I was asking them to go and look at them, watch a short video, feedback how they could bring it in, you were getting some interested comments from some of the people" – College Senior Leader with responsibility for LfS

While the SDGs can provide a useful starting point for practitioners to understand the breadth of sustainability, this is not without caveats: Building on the SDGs without addressing their interconnectedness may lead to siloed understandings, and may even halt progress towards LfS/ESD when only addressing one pillar of sustainability is deemed as sufficient. For example, for social science subjects, the social pillar was cited as being strongly developed and therefore, subjects were essentially seen as not needing to add anything else to be sustainable:

"If you want somebody to talk about green crime, all for it. But actually, I said, [addressing environmental sustainability] is a wee bit of nonsense, because the economic and the social, by the very nature of the subject we teach, are being covered on a regular basis. And, you know, I said, you can sit and go through those UN sustainability goals. And there's tonnes of them that just by teaching politics and teaching psychology, sociology, history, philosophy, whatever it is, you're hitting those anyway" – Head of Computing and Humanities

While social subjects have their strengths in addressing social issues, in the light of the interconnected crises we are facing, environmental and economic issues must be addressed as well.

Siloed understandings of sustainability may result in overestimation of progress on LfS/ESD

Another interviewee told us about a situation where they spoke to a colleague and highlighted to them that they were “being sustainable” as they hit several of the SDGs:

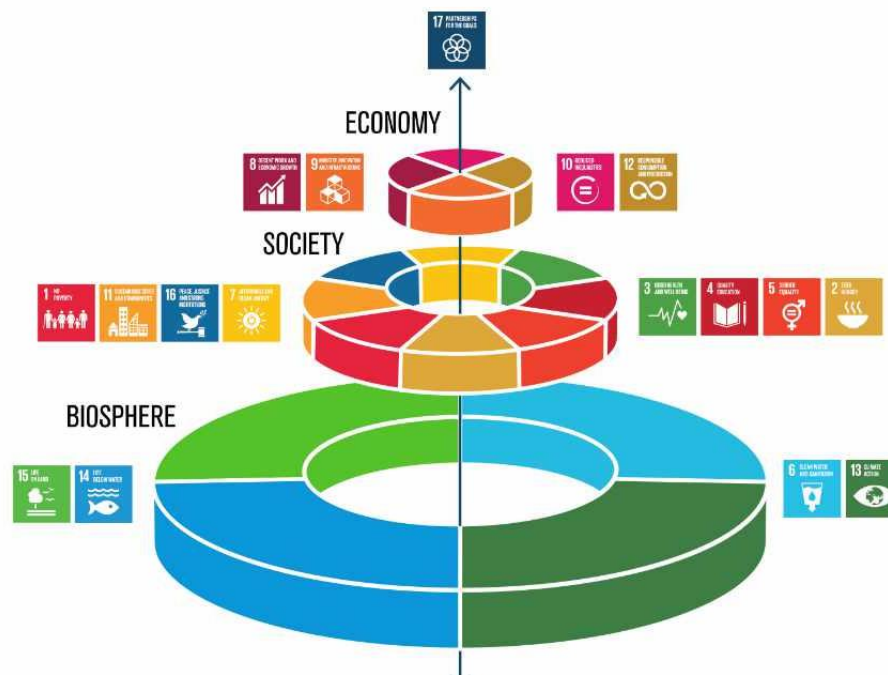
“Something they do is, their students always go and have a breakfast in the morning, reducing inequality, reducing poverty. (...) We're hitting the lots of different [sustainable development] goals there just by doing one act. But again, it's the language, it wouldn't necessarily just pop in your head: Oh, I'm being sustainable by doing that.” – Lecturer in Supported Learning with responsibility for professional development.

Of course, the provision of free breakfasts is a great way of reducing inequality and alleviating poverty. As we will address in [section 5.8](#), such initiatives that address the social pillar of sustainability are a clear strength of colleges.

However, only addressing this part of the social pillar does not equate to “being sustainable”. Furthermore, if issues such as poverty are not explicitly addressed with students, offering free breakfasts is unlikely to develop their knowledge, skills and values on sustainability, social or otherwise.

Thus, this case presents an example of the risk of accidental greenwashing (as discussed in [section 5.1.2](#)), and further illustrates how frameworks like the SDGs need to be approached with caution. Introducing the [SDG 'wedding cake model'](#) (Figure 1) when addressing the SDGs can help to build awareness of the interconnectedness of the SDGs into awareness and plant the seed for such joined-up thinking.

Figure 1: The SDG Wedding Cake model. Credit: Azote for Stockholm Resilience Centre, Stockholm University CC BY-ND 3.0.



In the case above, the provision of breakfast could be paired with a class discussion on poverty, both in Scotland and globally. Why is providing such meals necessary? What are the causes and impacts of poverty on students and staff? This would bring the issue of poverty into focus, making it an explicit part of student learning and extending beyond the act of food provision. It would also support the development of sustainability skills such as critical thinking, empathy, and systems thinking, while connecting the curriculum to campus life. Furthermore, holistic sustainability (Curriculum indicator 1 in Introduction) could be addressed by highlighting how the environmental issue of climate change is connected with the socio-economic issue of food poverty. This could be followed up by giving learners the opportunity to join initiatives that redistribute leftover food or engage with projects that aim to mitigate or adapt to climate change (and therefore improve food security).

Of course, sustainability should not be “shoehorned” into a subject area or initiative, as one of our interviewees phrased it. Yet there often are more connections to all sustainability pillars than practitioners are aware. When these are made explicit in student learning, subjects are taking an important step towards quality LfS/ESD – however, more support for this is needed, as we will discuss in the Breakthrough section.

Conclusion: An understanding of sustainability that limits the concept to a small set of environmental issues can lead to progress on LfS/ESD being overlooked when asking college staff about their involvement with sustainability. Simultaneously, an overemphasis on a single pillar or issue can lead to an overestimation of a college’s progress on LfS/ESD.

5.3 Pockets of LfS/ESD practice and the need for more support

Stories shared by all staff interviewees, as well as our experience as an organisation, show that there are often pockets of LfS/ESD practice across colleges, highlighting the brilliant work of skilled and passionate practitioners.

Award schemes such as the [CDN awards](#) or the [Green Gown Awards](#) also annually highlight excellent sustainability projects at colleges, in operations or curricula. Responses to the open questions in our survey also provided some examples of such pockets of strong sustainability in learning and teaching approaches:

- *"Looking at the impact of pollution and waste on own health and biodiversity through our outdoor learning pedagogical approach in early learning and childcare"* - Depute Curriculum Lead in Childcare and Social Care
- *"Teaching about importance of long-term use and maintenance of buildings being part of the overall sustainability picture; prioritisation of reuse, refurbishment and retrofit of existing buildings rather than new build where possible"* – Lecturer in Construction Technology
- *"Addressing Social Movements and Social Justice issues related to climate change."* – Social Science Lecturer

However, participants also acknowledged that there is not often a wider awareness and consistency:

"I think there's lots of pockets of really good practice going on that has possibly come from individuals who want to embed that, but I think there's still a cohort of people for who it's just not on the radar" – Lecturer in Supported Learning with responsibility for professional development.

As we addressed in the [previous section](#), how exactly these pockets of LfS/ESD practice are perceived and defined is dependent on the level of understanding of sustainability and LfS or ESD. Some examples of LfS/ESD practice may be overlooked when lecturers or managers do not have at least a basic understanding of sustainability and LfS/ESD.

At the same time, many examples may need further development to become quality LfS/ESD and integrate holistic sustainability within teaching methods. To achieve this, support for staff to develop their practice is crucial (see [Breakthrough section](#)).

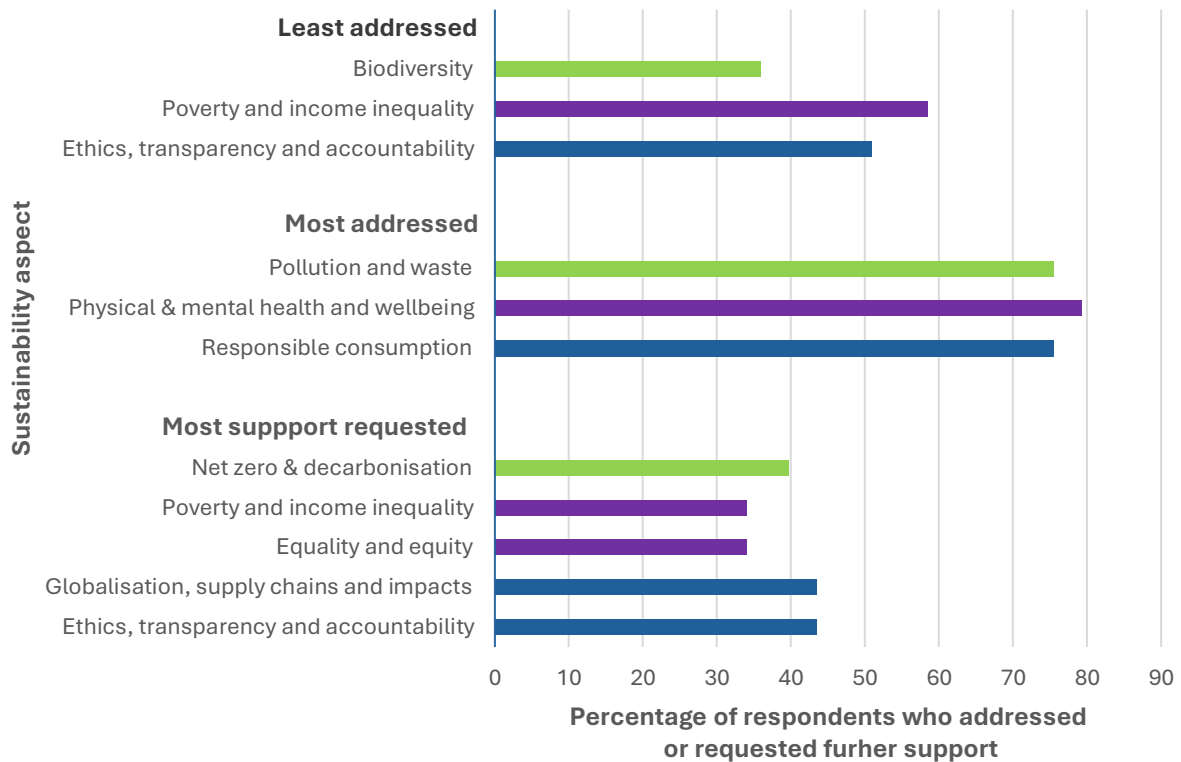
Conclusion: There are great examples of emerging or established LfS/ESD approaches to be found scattered across likely all colleges and most subject areas. However, disjointed examples also highlight how LfS/ESD is rarely consistently integrated and prioritised. As addressed above, the visibility and quality of these pockets depend on the depth of understanding of sustainability and LfS/ESD.

5.4 The three pillars: Indications for the most and least addressed sustainability aspects

In this section, we highlight the most and least integrated aspects of each of the three pillars in current teaching, learning and assessment practices, and where most support is needed. These results stem from our baseline pilot survey 1 (n=53).

As discussed [earlier in this section](#), results below should be seen as indications and potential trends, rather than generalisable results for the entire sector. Graph 1 shows an overview of the topics that survey respondents reported as least integrated, most integrated, and where most respondents asked for more support.

Graph 1: The sustainability aspects participants reported as least addressed and most addressed in learning and teaching activities, and the aspects for which most participants requested further support. **Green** = environmental aspects, **purple** = social aspects, **blue** = economic aspects.



Environmental sustainability aspects

- **Least integrated: Biodiversity.** Only 36% address it in learning and teaching activities, out of which 15% also address it in assessment.
- **Most integrated: Pollution and waste.** 76% report addressing it in learning and teaching activities, and 26% report also addressing it in assessment.
- **Most support requested: Net zero, decarbonisation and green technologies.** 40% say they need more support, even though this aspect is reported as being addressed in learning and teaching activities at 57%, and in assessment at 19% (both higher than biodiversity, for which slightly fewer (36%) asked for support).
- **Key topic: Climate change.** As one of the biggest challenges humanity is currently facing, climate change is a key environmental sustainability aspect that underlies the net zero and adaptation aspects. 62% of respondents reported climate change was addressed in learning and teaching activities, but only 17% reported it being a part of assessment. 30% asked for more support.

Social sustainability aspects

- **Least integrated: Poverty and income inequality.** 59% indicate that they address it in learning and teaching activities, out of which 17% also address it in assessment

Note: Despite being the least integrated aspect, this is at a similar level as net zero and adaptation to climate change (both at 57% and 19% respectively) and four of the economics aspect (all 51-57%, and 9-15%, except responsible consumption which was higher) indicating there may generally be a stronger integration of social than environmental and economic sustainability aspects

- **Most integrated:** Physical health, mental health and wellbeing. 79% report addressing it in learning and teaching activities, and 21% report also addressing it in assessment.
- **Most support requested: Poverty and income inequality; equality and equity (protected characteristics).** 34% say they need more support for both aspects.

Economic sustainability aspects

- **Least integrated: Ethics, transparency, accountability (e.g. in reporting).** 51% report addressing it in learning and teaching activities, out of which 13% integrate it in assessment.
- **Most integrated: Responsible consumption (e.g. reduce & reuse, fair trade, etc).** 75.5% report addressing it in learning and teaching activities, and 21% report addressing it in assessment.
- **Most support requested: Ethics, transparency, and accountability; Globalisation, including global supply chains and impacts.** 43% say they need more support for both aspects.

Conclusion: Quantitative survey results from 53 survey participants indicate that across all subject areas, social, environmental, and economic sustainability aspects are addressed to varying degrees. Across subject areas, social sustainability aspects are likely to be more prevalent in learning and teaching than environmental or economic sustainability aspects. Overall, biodiversity was the sustainability aspect that was reported as least frequently addressed, while the aspect of physical health, mental health and wellbeing was reported as addressed most often. Respondents asked for more support most often on the economic sustainability aspects of ethics and accountability as well as on globalisation and supply chains, followed closely by the environmental aspect of net zero and decarbonisation.

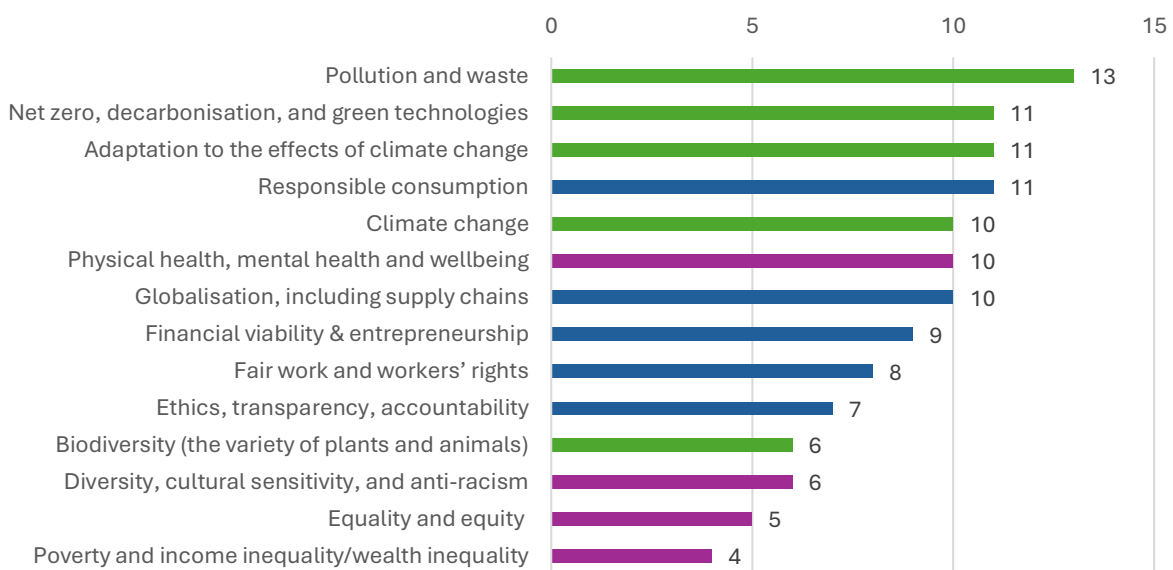
5.5 Integration of sustainability aspects in different subject areas

Comparing different subject areas address sustainability, which sustainability aspects are addressed more or less strongly varies as our quantitative and qualitative findings indicate.

Net zero sectors (including construction, engineering, transport and land-based)

We received 14 responses in our survey for subjects that overlap with net zero sectors (e.g. construction, engineering, and land-based subjects), Graph 2 shows that these subjects are generally strong on addressing environmental sustainability aspects. This was also reflected in our research conversations and may be mainly driven by government-level strategies and higher availability of funding ([see Opportunities and Drivers section](#)).

Graph 2: Responses from teaching staff in net zero related subject areas. N=14, including construction (9), engineering (3), automotive (1), land-based industries (1). **Green** = environmental aspects, **blue** = economic aspects, **purple** = social aspects.



However, it is unclear how much students understand about the interconnected nature of sustainability. As Graph 1 shows, social aspects are the least likely to be addressed. A conversation with a group of construction lecturers at one of the workshops highlighted that practitioners in net zero related subjects struggle to see the relevance of social sustainability aspects to their subject area. However, as we discuss in [section 3.2](#), these social aspects are important to consider and address to support the development of skills beyond technical knowledge and abilities.

These findings are reflected in research on higher education curricula on engineering. For example, [Rampassano et al \(2018\)](#) provide a review of a variety of challenges and barriers for holistic sustainability in engineering, which include "Difficulty in debating economic and social aspects in engineering disciplines, with a focus on environmental sustainability".

Indications for other subject areas

Except for the group of subjects overlapping strongly with net zero, no subject area received a large enough number of responses to identify trends, highlighting the diversity of our participants. Thus, for these subjects, we will more heavily draw on qualitative findings from our interviews and observations in workshops to provide indications. Naturally, these indications will require future research.

In interviews as well as workshops, participants provided the insights on how they perceived sustainability to be integrated in different subject areas. We have also included public projects that were shared with us during the research period to complement these perspectives where appropriate.

Accounting and Business were not subject areas addressed by heads of curricula or college senior leaders who participated in the research, but the two lecturers in these subject areas we interviewed both highlighted that there was little sustainability, specifically environmental and social, in the curriculum unless lecturers made an explicit effort to include it. Accounting was highlighted as a subject where LfS was integrated particularly strongly as part of the SQA NextGen Higher National qualifications pilot programme.

Applied arts, including for example jewellery, design and fashion, were frequently highlighted to have a strong focus on waste reduction and at times on responsible consumption. Some institutions addressed sustainability holistically by further exploring the links with ethical/social aspects of mineral extraction and clothes production.

Computing was highlighted as an area where sustainability aspects were integrated rarely, although areas like the energy required to cool servers and reuse and repair of equipment were highlighted as environmental sustainability aspects that could be addressed.

Early education and childcare programmes were mentioned to integrate environmental sustainability via outdoor learning and connection to nature.

Hair and Beauty were highlighted to be addressing environmental aspects such as plastic waste and harmful chemicals in products. Additionally, a published story that was shared with us is UHI Moray's [Under the Scissors](#) project took another step towards quality LfS/ESD: future hairdressers were trained to have conversations about climate change and climate anxiety (thus also addressing a social aspect, mental health) with their clients. The cross-disciplinary collaboration of this project is an additional strength.

Health and social care were seen as inherently addressing social sustainability aspects, but with room for improvement on inclusion of environmental aspects. It was acknowledged that waste reduction in health care can be more difficult than in other subject areas. Yet, other environmental aspects like air pollution or the health benefits of time in nature could be addressed.

Hospitality, specifically catering, was cited as having strong links to environmental aspects by addressing food waste and promoting the use of local and seasonal ingredients.

Maths, sport, TV and media were perceived as areas where more work is needed. However, contrary to participants' perspectives, stories of LfS in these subjects were shared with us through our networks, for example an [Adventure Sports class running a river litter pick](#) at Glasgow Kelvin College and [sound production students recording a song on climate change](#) with a local primary school at New College Lanarkshire.

Conclusion: Comparing how different subject areas address sustainability, our data suggests that subject areas that overlap with net zero sectors appear to integrate environmental sustainability aspects more consistently than social and economic aspects. Other subject areas vary, with pockets of progress mostly driven by passionate individuals. Many initiatives focus on siloed sustainability aspects and will benefit from more support to connect various issues and evolve further into quality LfS/ESD.

5.6 Sustainability aspects in learning and teaching activities versus in assessment

Of a possible 742 times that the 53 baseline pilot survey participants could report they may address 14 sustainability topics in their teaching practice, 457 times (61%) participants reported a topic was “addressed in learning and teaching activities”. For addressing assessment, participants only reported doing so 126 out of a possible 742 times (17%).

Similarly, for only 6% of respondents shared that they did not address any sustainability aspects in learning in teaching – but 51% reported not addressing any sustainability topics in assessment. This indicates how, across all topics and respondents, sustainability is less likely to be integrated into assessment than into learning and teaching activities.

Although a smaller subset of participants, data from our Baseline Pilot Survey 2 provided interesting further insights: Out of the 96 times participants reported a topic being addressed in learning and teaching, 80 times this was ‘slightly addressed’ and 16 times ‘thoroughly addressed’. For the 14 times they reported addressing sustainability topics in assessment, this was essentially flipped: only 3 times this was reported as ‘slightly’, while 11 times it was reported as ‘thoroughly’.

This suggests that, once a sustainability topic becomes a part of assessment, it is addressed more thoroughly. Of course, not all topics can, or should, be addressed in assessment, yet these findings point towards one of the barriers we have identified – if sustainability is not part of qualifications (and therefore of the assessment), it is less likely to be explicitly integrated into students’ learning (see [Barriers section](#)).

The importance of ESD/LfS being woven into assessment has been highlighted across UK-wide guidance documents and in various reports ([Hughes, 2023](#); [QAA and Advance HE ESD Guidance, 2021](#); [QAA Collaborative Enhancement Projects, 2023](#)). However, for assessment to be effective in both evaluating and supporting learning, new approaches to assessment are required. This is important, yet difficult, as the literature review by [Vogel et al \(2023\)](#) summarises concisely:

“The kind of critical, transgressive and outward-facing work that transformative ESD demands often prompts a rethink of established forms of assessment (...). There has been much discussion in recent years about more authentic forms of assessment, but also how current assessment approaches are often fixed, longstanding and hard to change.”

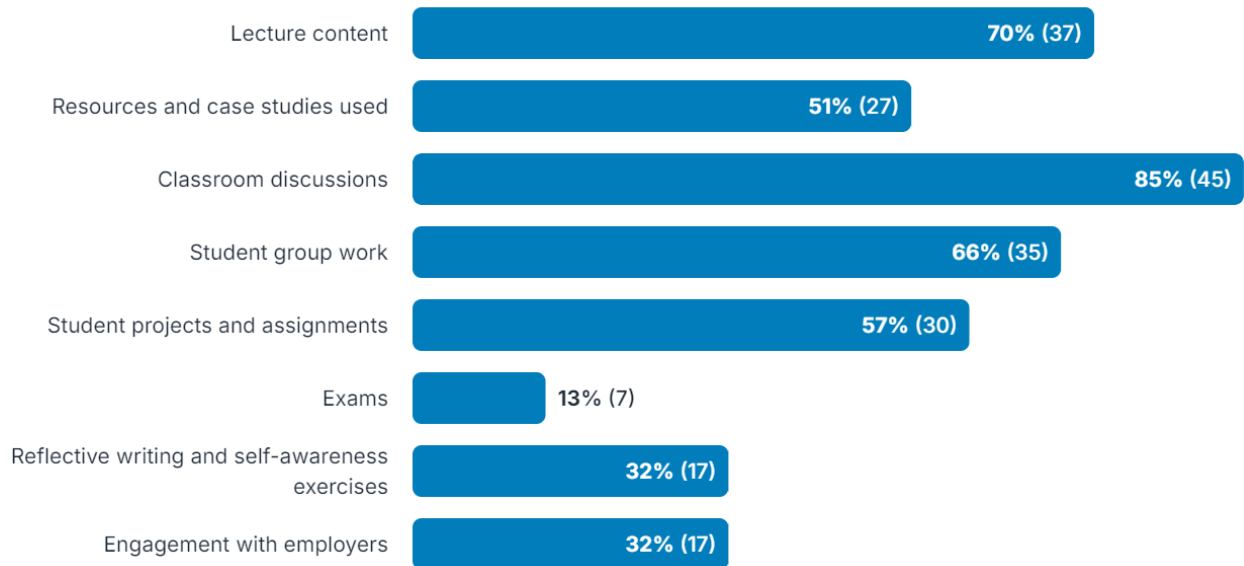
Conclusion: Our survey indicates that the integration of sustainability aspects is often stronger in learning and teaching activities than in assessment. However, integrating LfS/ESD into both is important to increase the impact on student learning, as LfS/ESD guidance and literature highlight. Data also suggests that sustainability is addressed more thoroughly when it becomes part of assessment.

5.7 More support needed to develop innovative teaching methods

As highlighted in the introduction, quality LfS/ESD requires the engagement of the learner’s head, hands and heart through teaching and assessment methods. To achieve this, teaching

methods that focus on the transmission of knowledge, and therefore only sustainability content, are not sufficient.

Our quantitative data suggests that innovative teaching methods ([see section 2.2](#)) that support the development of sustainability are not yet mainstream across college learning and teaching.



Graph 3: Responses to the question: “How are your students engaging with sustainability topics and skills? Please select below which elements of your teaching practice integrate sustainability topics or provide opportunities to develop sustainability attributes and skills”. N = 53.

The high emphasis on sustainability topics in classroom activities and lecture content shown by Graph 3 suggests that current college learning and teaching may not yet be advanced in developing students’ sustainability skills, values, and behaviours/agency. As [Lozano et al \(2019\)](#) highlight, lectures have very little effect on the development of sustainability competencies.

Introducing new teaching methods – aside from the extra time and capacity this takes that lecturers rarely have, as we will discuss in the barriers section – may also be something lecturers don’t feel equipped to do. This is commonly found among primary and secondary teachers: A global survey of 58,000 teachers shows that teachers feel more comfortable with teaching cognitive skills through teaching content, than with facilitating the social, emotional and behavioural learning needed for collaborative problem solving and taking action ([UNESCO & Education International, 2021](#)). This was reflected in our interview with an Accounting Lecturer when discussing the project-based teaching methods NextGen HN qualifications require:

“How do we change, because in accounting, a lot of the lecturers are still paper and pen, you know, sit down and write it all out, even reports. (...) [NextGen HN] is all sort of project based, rather than old fashioned teaching kind of ways. This is scaring a lot of people.” – Accounting lecturer

However, this is likely to vary between lecturers and subject areas, and it is promising that over half of respondents shared they were integrating sustainability topics and skills into student group work and projects. We also heard some great stories from lecturers finding ways to integrate such innovative approaches in the open question responses to our survey:

- *"We're looking at the impact of pollution and waste on our health and biodiversity through our outdoor learning pedagogical approach in early learning and childcare"*
- *"I work with groups through adult learning - forest school and outdoor learning. I am also supporting groups to create a forest garden"*
- *"My students develop these skills through self-reflexive portfolios and link these to the meta skills."*

Conclusion: While there are examples of effective practice, our data suggests that teaching methods that engage heads, hand and heart are not yet widely embedded in college learning and teaching. Interviews and previous research indicate there may be a lack of familiarity and confidence around innovative pedagogies that move away from methods that centre the teacher and cognitive aspects. New qualification models such as NextGen HN with a strong focus on project-based learning could be a further step towards mainstreaming innovative pedagogies. However, educators need to be adequately supported and trained to achieve this and connect these methods with sustainability.

5.8 Social sustainability in colleges' operations versus in curricula

Colleges contribute significantly to improving social sustainability aspects in Scotland. Interview participants highlighted various ways in which colleges play a vital role in addressing poverty and various inequalities in Scotland, for example through the provision of free breakfasts as well as student surveys showing how the college can become a safe place for students from deprived backgrounds.

One interviewee summarised:

"Social sustainability is historical in colleges. They've got projects and what not to help students through cost of living, etcetera. A large demographic of the students is from deprived areas and genuinely need support from the college." – Professional Development staff member with responsibility for LfS

This is reflected in various other reports, as discussed in [section 3.1](#).

... But is social sustainability addressed explicitly in learning and teaching? With such a big focus and tangible action on alleviating poverty, it was somewhat surprising that poverty and income inequality emerged as the least addressed social sustainability topic in our survey findings (about 13-20% less likely to be addressed in learning and teaching activities than diversity, equality, and health related topics).

This raises the question: Are the issues that colleges are clearly working hard to alleviate also addressed and connected to students' formal learning and curricula? Integrating social sustainability issues explicitly into formal learning may have multiple benefits, such as engaging the learner through their lived experiences, as well as developing an understanding of how they can contribute to addressing these issues in their current and

future personal, professional and political sphere. More research may be required to better understand how, and why, colleges do or do not currently address this.

Untapped potential. This unclear link also indicates that there may be untapped potential in colleges for explicitly connecting campus initiatives with addressing poverty and income/wealth inequality in the curriculum. Learning and research activities, student-led class projects, and assessments that link with campus operations may be an excellent way to students' development on knowledge, skills, attitudes and behaviours. For example, a business lecturer who expressed strong motivation for integrating LfS/ESD into their practice told us:

"The unit I was teaching with them was research skills. Usually you just leave it open, but for the past two years, I've made them pick a UN sustainability goal and research one of them, and it has to be linked to [this college]. So they surveyed and interviewed students and lecturers at the college, and based their research around that, while it had to link with a UN sustainability goals. A lot of them did poverty. What are the college doing to minimize poverty?" – Business Lecturer

One participant also highlighted that students often are the ones experiencing poverty themselves, while most college teaching staff may be more removed from the lived experience:

"I know some lecturers come from deprived backgrounds, or they see [poverty] in their family life, whether it be cousins, others, whatever. But students are the ones that are struggling currently. (...) I do not think people realise how dire a situation we're actually in on our own doorsteps" – College Senior Leader with responsibility for LfS

Poverty and income inequality may therefore be a sustainability topic that is suitable for lecturers to let students lead on their learning. Student-led learning is highly beneficial for the development of the ability and motivation to take action for sustainability ([Olsson, 2022](#)).

Conclusion: While social sustainability is strong in colleges, there is still much potential to connect this to the curriculum as well as other sustainability aspects. This could enhance both student learning as well as institutional performance.

5.9 Conclusion

Estimating a baseline of practices that are inherently complex and context dependent is difficult. Our findings show that one thing we can say with certainty is that colleges are working incredibly hard. Purely by reducing inequalities through education provision of many learners from disadvantaged backgrounds, colleges are already contributing to a fairer society. They also play an important role in providing training on key skill gaps for net zero. However, quality LfS/ESD that aims to equip learners to contribute to a fairer, greener society for all in their personal and professional lives – and therefore address disadvantage at the source – appears to be not yet widely practised and requires more support.

Additionally, there is little to no data on the actual impact of any LfS/ESD provision on college students. This is a critical gap. Universities are facing similar challenges yet, anecdotally, there has been more progress through tracking graduate employment or higher participation in surveys such as the [Sustainability Skills Survey from SOS-UK](#). More research

and focus on student impacts and outcomes is required to better understand and improve LfS/ESD provision at colleges.

To paint a more holistic picture on how colleges can be supported to integrate quality LfS/ESD into their practice, we must understand what barriers staff are facing, and what opportunities and drivers exist for LfS/ESD. This will be explored in the next sections of the report.

6 Barriers: What stands in the way of LfS/ESD

As we highlighted in the introduction, reports suggest that institutions, leaders, and teaching staff at colleges face a variety of barriers to embedding LfS/ESD meaningfully into learning and teaching. It is important to keep in mind that the presence and impact of barriers will vary between different colleges, different subject areas, and different qualification types and levels. In this section, we summarise the barriers that emerged most consistently throughout our analyses. Where possible, we also share findings that explore potential causes and effects of barriers.

Barriers to integrating LfS/ESD into learning and teaching can be observed through different lenses and on different levels. For example, the [CDN Workforce Survey](#) differentiates between respondents from operational, teaching, and leadership roles. Similarly, various levels of barriers emerged from our qualitative data analysis:

- **Systems level:** barriers posed by economic and educational systems in Scotland that affect the entire college sector (and beyond)
- **Institutional level:** barriers on a college structure level
- **Practitioner level:** barriers mainly impacting the practice of teaching staff directly
- **Cross-cutting barrier:** barriers that stretch across different levels.

We will explore these barriers below.

6.1 Systems level: Competing priorities for colleges

Especially in discussions with interviewees who were heads of various subject areas, a theme emerged around how our economic system is driving priorities of our society in general, and how economic and financial viability often comes before environmental and social sustainability:

"That's our culture and our country, you know, we're not a wellbeing economy. It's about the economic, the financial. That's what makes the world go round" – Head of Hair and Beauty

"It would be nice to focus on the well-being of staff and students and put that as your key priority. We'll do that as much as we can. But you get so far and then that leash of the money and time brings you back." - Head of Computing and Humanities

"[the education system] is geared towards funding and money and the economy. And sometimes sustainability can get a little bit lost in that. It's just a sort of a quick add on, which is a shame" – Head of Applied Arts

Participants also spoke about the multiple priorities and demands colleges must meet, some of which were experienced as conflicting. Sustainability – mainly referring to the environmental and social aspects – was perceived by multiple interviewees as something that would be deprioritised as soon as money or time got tight, or other mandatory requirements had to be met.

"There's so many priorities and agendas the college landscape has. There's some, some of the drivers are conflicting" – Curriculum Manager in Fashion 1

"I think sustainability is a topic, unfortunately, that's probably the one near the bottom of the list when things get tight, whether it's time, whether it's resources." – Head of Computing and Humanities

"There were a lot of new mandatory training modules that we had to get staff to do, because I think our health and safety side was not great. We decided to kind of shelve the sustainability [training]" – Professional Development staff member

One example from a college highlights well how financial aspects trump sustainability aspects, and the role of funding. This college had made progress on training their staff on environmental sustainability. However, as a Head of Computing and Humanities shares, there were changes in funding structures which meant that sustainability initiatives were dropped when there was no possibility to connect it to funding.

"As soon as the Funding Council, though, changed its credit model² and we couldn't claim for additional credits, that [initiative on providing environmental sustainability training to most staff and students] stopped (...). By putting them through an online course, we could claim [credit]. You know, there was a kind of a vested interest from the college (...) But as soon as the ability to claim the credits went, it all kind of petered out" – Head of Computing and Humanities

In addition to competing priorities at college level, lecturers we interviewed also reported that sustainability would be outmatched by other priorities:

"I think, when you're strapped for time, what's the first thing that's going to go? If you're really having to strip things back, and you're in a series of strikes, like now, if things need to go back to the bare bones, yeah, I think [sustainability] is the thing that would go." – Fashion lecturer

As we discuss further below, lack of time among lecturers has increased due to funding and staff cuts in colleges, resulting in a decreased capacity for sustainability in learning and teaching. If colleges are not supported and funded adequately, sustainability is unlikely to be integrated in training and addressed in learning and teaching.

Conclusion: Sustainability is frequently pushed down the list of priorities in the face of competing demands, unless it is actively supported through explicit and systemic prioritisation, which includes adequate funding, and/or is part of qualifications and therefore mandatory to address.

² Note: To our knowledge, there were no formal changes to the credit model, but subtle changes in how many credits could be claimed in addition to the standard credits of a course.

6.2 Systems level: Lack of sustainability in qualifications

Multiple interviewees highlighted the lack of sustainability in qualifications, often referring to SQA qualifications. Throughout this report, this will depend on which aspects of sustainability and which subject areas are looked at, yet lack of sustainability in qualifications and the set curriculum generally aligns with findings in England where this was seen as a key barrier ([Education and Training Foundation, 2021](#)).

One senior leader summarised the issue from their perspective concisely:

"Let's say you have a student undertaking a qualification that is fit for purpose. To get them a job in the workforce, well they have to follow the performance criteria of that qualification. And if sustainability isn't in there, you know, that's not great. So things need to change in the curriculum" – College Senior Leader 1

Other interviewees had subject-specific perspectives:

"I think one of the biggest barriers has been the SQA not having enough options for units. For courses that need SQA credits to make up the whole course, there are no SQA units for sustainability in business. So that's an issue for us." – Business Lecturer

"I think most of what we do probably comes through SQA. (...) Right now I can't think of a lot of courses where sustainability would be embedded." – Head of Computing and Humanities

Another factor playing into this is that qualifications were perceived as too restrictive, inflexible, or slow to respond, therefore not allowing the integration of sustainability even where industry demand would make it paramount:

Fashion lecturer: *"We need to be responsive to what's happening in industry."*
Fashion Curriculum Manager: *"...and make, you know, make qualifications quite open ended, so that you can adapt and amend a qualification according to your course. Things have been too prescriptive in the past."*

"Qualification providers, e.g. SQA, do not develop updates to qualifications fast enough to support learners and staff" – Curriculum leader (via survey)

While curriculum changes at SQA tend to be driven by industry demand, there have also been situations where despite demand, newly developed qualifications were not accredited. One college had developed a unit on construction with sustainability embedded in collaboration with employers, to find that despite this collaboration as well as positive reactions from government and the community, SQA did not see demand:

"So we've combined that as an award, but we wanted the SQA to approve it. (...) They came back and said there wasn't demand for it. However, Scottish Government heard about what we're doing. They really liked it and they think it should be rolled out across Scotland. [The local school] are wanting us to deliver it now as well" – College Senior Leader with responsibility for LfS

Conclusively, more flexible qualifications that allow for responsiveness to new developments, and sustainability being formally integrated in qualifications, could help to prioritise and

integrate LfS/ESD. We discuss in the [section 7.5](#) how the NextGen HN programme by SQA is taking steps in the right direction to achieve this.

Importantly, however, formally integrating LfS/ESD in qualifications requires strong supportive structures, as a [QAA-funded project on Academic Quality and ESD](#) led by De Montford University (2023) highlights: "Although addressing ESD in [Academic Quality] and [Student Voice] processes is an important component of its mainstreaming across an institution, it is likely to be ineffective without a wider enabling environment, that motivates and empowers students and staff to understand the agenda and put it into practice." We further discuss this need for supportive structures below.

Conclusion: When qualifications do not include sustainability or the flexibility to incorporate sustainability, this can present a major barrier for the integration of LfS/ESD. However, requirements for sustainability or LfS/ESD must be paired with adequate support for staff.

6.3 Institutional level: Need for more coherent institutional support structures and culture for LfS/ESD

Interviewees shared that they perceived top-down support as crucial for LfS/ESD:

"There's no point in us doing [training on sustainability] if it doesn't have that top-down approach" - Professional Development staff member with responsibility for LfS.

"These issues need to be championed from the top down. Senior management need to make clear their commitment and backing to initiatives in sustainability." – Response to post-workshop online feedback survey.

When this support is lacking, it is harder to integrate sustainability into existing processes. For example, a focus group with a fashion lecturer and two fashion curriculum managers discussed linking professional development plans of teaching staff with sustainability. These plans centre around the college values – but sustainability was not an explicit value of the college.

Curriculum Manager in Fashion 2: *[in the professional development plan meetings], you ask the staff lots of goals, so their goals may be to learn more...*

Curriculum Manager in Fashion 1: *It's got to fit in with the values [of the college]*

Fashion lecturer: *So maybe we'd need a sustainable value and then you'd be on the money.*

Curriculum Manager in Fashion 1: *We don't have a sustainable value [in our strategy] (...) maybe sustainability should be added into that.*

A lack of top-down support can also slow down and frustrate practitioners who want to drive sustainability in their practice and institution.

"we [participated in a large sustainability initiative], and I was really involved in that. And then there was literally no praise for it at all. (...) I said to the vice principal, like, I am passionate about sustainability. I want to be involved. Can you involve me? And she was just like, yeah, we'll let you know. So then I'm like, you know, what's the point? (...) It's never been like, here's what we're working on as a college. (...) It's

just not a priority. And then there's no praise for actually doing well, either." -
Business Lecturer

Top-down strategies and institutional values are important, yet it is equally vital that they translate into action so bottom-up initiatives are incentivised, recognised, and supported. A senior leader recognised this:

"I think we've tried a lot from the top down. And it's not really worked. We need to try and drive it from the bottom up as well. To get a wee bit momentum there." -
College Senior Leader with responsibility for LfS

While some institutions are making progress on this, interviews, observations and our experience with the sector suggests that many colleges do not yet have adequate, accessible, and explicit support systems in place. However, such structures are crucial to marry requirements and encouragements for integrating LfS/ESD, and empowering staff to put this into practice:

"So, you know, what is going to help get it into psyches? If you're planning the lesson and it's there where we're asking the question, what are you doing about sustainability? But then that comes back to us signposting people to resources, because, if you don't know what sustainability is, you're not going to be able to say that" – Lecturer in Supported Learning with responsibility for LfS

While we heard often that pockets of good practice are happening, such pockets also point towards a disjointed approach to sustainability. Support should be a joined up, whole institution approach that enables sustainability action among all staff members through providing the needed structures and support mechanisms, and communicating this clearly ([Holst, 2023](#)).

The lack of such structures is likely to be driven by the many pressures colleges have faced in recent years, including funding and staff cuts, competition for lecturer positions with industry, competition with universities, and more ([Audit Scotland, 2024](#)). As highlighted earlier, such competing priorities and pressures require much of an institution's bandwidth and resources, sustainability often moving to the bottom of the priority list.

Funding and staff cuts also may explain the low number of positions in colleges that explicitly address sustainability or LfS/ESD. Universities generally are more likely to have sustainability staff, and particularly staff that has formal responsibility for LfS/ESD, while for colleges, sustainability is often added to already busy roles, if at all ([SOS-UK, 2019](#)). As a result, few members of staff have the time and expertise to build such supportive structures and ensure they are effective.

Conclusion: Incoherent, inadequate, or inaccessible support from institutions can present a major barrier for the integration of LfS/ESD. To enable a more consistent integration of quality LfS/ESD, staff must be supported through LfS/ESD being a part of institutional values and strategies. Importantly, these must translate into corresponding institutional structures that enable recognition, incentivisation, best practice sharing, access to resources, and time for training. We will discuss the positive effects that top-down institutional support can have in the [Opportunities section](#), as well as summarising possibilities for what this support can look like and what next steps may be ([Breakthrough section](#)).

6.4 Practitioner level: Lack of time, lack of capacity, and overwhelm

The main barrier to integrating LfS that practitioners report in the [CDN Workforce Survey \(2024\)](#) is also one of the most often addressed barriers by interviews and workshop participants alike: A lack of time, often stemming from overwhelm with various demands, and leading to a lack of capacity and space to make meaningful changes.

Overwhelm with demands and challenges taking up people's time...

All three interviewees with professional development responsibilities, who due to their role have strong insight of the challenges lecturers across subject areas face, all highlighted the important task of lecturers to get students "over the line" and ensure they get them through their qualification.

"[For lecturers, it's essentially about] I've got to get my students through this curriculum. I've got to deliver this. I've got to prepare that. I've got to mark this, you know, and so on. And then anything outside of those absolute essentials tends to be viewed as white noise." – Professional Development staff member

This had been increasingly challenging over the last years due to multiple circumstances such as increased needs for student support on basic skills and managing classroom behaviour.

"Their IT is horrendous, they come out the phone, they can work Snapchat but they can't work Microsoft Word or Excel, you name it. It's just the oddest world." – Professional Development staff member with responsibility for LfS

"If I'm speaking personally, classroom management has become the overarching issue, and there has been weeks and months gone by where myself and my colleagues are saying: we're not even teaching. We're just getting by. We're just stopping arguments and [address] the basic things about how to speak to each other properly." - Lecturer in Supported Learning with responsibility for professional development

The effects of the pandemic are still noticeable and drive some of these additional challenges:

"You just go, what's going on? These post COVID behaviours now, it's like, you've got people coming to college and they don't know what to do. They're waiting to be told. They've never sat exams. They've had somebody bring all their work together for them to put them through for a pass." - Professional Development staff member with responsibility for LfS

This is on top of an already full schedule for lecturers to fit all the required content into the curriculum, deliver their content hours, and prepare and mark student work, as participants across management levels highlighted:

"People think like, I've already got all this content to deliver, and the student calibre is maybe changing, and that's making delivery hard enough. And then if I embed sustainability, I think for a lot of people, it's just, how do we fit it in? Like, how does it fit into the timescale?" – Fashion lecturer

"Almost all lectures want to be future focused. They want to have the skills to teach our students the skills. But if you continue with 23 hours contact time and then the rest of your time is done in prep and marking, where's the opportunity and where is the time to upskill yourself in on sustainability matters?" – College senior leader 1

Participants also reported how class sizes have increased due to staff cuts, and more pastoral support is required with funding for counsellors not being renewed. At the same time, lecturers are having to manage multiple other demands, such as integrating meta skills, managing the use of AI in student work, and multiple reporting requirements.

To summarise, the challenges many lecturers report to face around meeting multiple demands are increased by higher student needs, and then further magnified by higher numbers of students per lecturer, and less support available to both staff and students.

... leading to stress and a lack of capacity to undertake sustainability training, be creative, and introduce different teaching methods.

When the day-to-day challenges and requirements are taking up most lecturers' capacity, interviewees highlighted how anything additional can be felt like another stressor and can become "white noise":

"Lectures are so stressed and overwhelmed, overworked at the moment. When I look at my team and you know, you're asking them to do just one, one more thing. Just one more thing, one more thing. And they really don't have any time to do anything and it's really difficult at the moment in this landscape" – Head of Applied Arts

"Anything outside of those absolute essentials tends to be viewed as white noise." – Professional Development staff member

Interviewees also spoke about how this overwhelm and these various challenges also led to lecturers prioritising training that supported them in these challenges. Lecturers need to have time to undertake training on sustainability.

"If people want to do CPD, anything they do is truly down to their top priority. And more often than not, right now it's student mental health, students' readiness to actually work and take part in class." - Professional Development staff member with responsibility for LfS

"Probably between the training and the time, they influence each other. You need time to do the training." – Accounting lecturer

One of our participants discussed another mechanism between lack of time and lack of LfS/ESD that we heard repeated in workshops: The need for space to make changes and be creative. When this interviewee addressed a lack of knowledge around sustainability (which we will discuss further below), they also explained how the lack of capacity influences lecturers' ability to be creative. This is in line with research in other contexts also showing that work overload can negatively affect creativity ([De Clercq & Belausteguigoitia, 2018](#)).

"[one barrier is] probably just the knowledge and understanding of what's been done and then versus what could be done, so, coming up with ideas, being creative. There's not a lot of space to be creative, particularly the last couple of years." - Lecturer in Supported Learning with responsibility for professional development

They also addressed the effect of uncertainty and instability in the college sector, specifically around job security, had on mental health, capacity and, thus, space for creativity.

"There's been a heaviness on the staff. So that then also leads to your creativity, is maybe not just quite where it would normally be (...). We were told way back in November that there was going to be additional cuts, and there was already cuts last year. That's been hanging over people's heads." – Lecturer in Supported Learning with responsibility for professional development

Conclusion: Many teaching practitioners are overwhelmed with a highly complex workload, which is mostly driven by factors such as staff cuts, student support needs, and multiple requirements. The resulting lack of capacity and time, as well as impacts on mental health and creativity, emerged as a key barrier for many lecturers to integrate LfS/ESD. While we also see that lecturers who are passionate about sustainability still find ways to integrate it in their curriculum (see [section 7.1](#)), the high levels of overwhelm many lecturers face must be acknowledged to tailor support and enable more teaching staff to integrate sustainability into their teaching.

6.5 Practitioner level: Lack of knowledge on sustainability and LfS/ESD

Note: Lack of knowledge is closely intertwined with a limited understanding of sustainability, which we will discuss more specifically in [section 6.6](#). In the following, we will focus specifically on knowledge regarding sustainability issues and the concept of LfS/ESD.

Despite not being addressed explicitly in existing reports on sustainability in college learning and teaching (see Introduction), lack of knowledge on sustainability emerged as one of the most commonly addressed barriers by all lecturers and professional development staff we interviewed, as well as by all heads of curriculum and some senior leaders and curriculum managers.

"I still think probably the biggest barrier just now would be lack of knowledge." – Head of Care, Education and Maths

"[We are] worried, how will we get this new knowledge? How are we going to learn how to embed it into everything?" – Accounting Lecturer, speaking about new NextGen requirements on embedding sustainability/LfS.

This was also evident in our workshop feedback: When asked an open question on what was most useful about the workshops, the improved knowledge and understanding of sustainability and LfS/ESD was the most often highlighted theme (20 responses). For example, participants shared as most useful the "run through of the data" and "explaining sustainability and how the aspects are interlinked".

Interviews also highlighted that the concepts of LfS or ESD are rarely known.

"I think if you took, you know, our [over 100] lecturers and asked them the question, what does learning for sustainability mean for you? I think you probably would get a lot of blank faces, and maybe some with some ideas" – Professional Development staff member

[when asked the question whether people know about ESD or LfS] *"I don't think so much. (...) I think that that's part of the knowledge gap that probably needs to be addressed."* – Lecturer in Supported Learning with responsibility for professional development

Interestingly, two of our participants who were highly active in supporting staff to embed sustainability highlighted an additional barrier: Staff may be reluctant to admit or are unaware of their lack of knowledge, generally and specifically for climate-related issues.

"I would probably say that [lack of knowledge]'s one of the top barriers, but the other barrier is that staff won't necessarily admit that it's a barrier" – College Senior Leader with responsibility for LfS.

"Lack of knowledge is a barrier, absolutely. There'll be a lot of folk, but they won't say that. There's a bit of Dunning-Kruger syndrome goes on, I think, with everything to do with climate." – Professional Development staff member with responsibility for LfS

This Dunning-Kruger effect on ESD has been found in previous research on teachers in training. Hansen and Silasen (2020) found that, where student science teachers reported a higher self-efficacy for ESD, this correlated negatively with their actual knowledge of ESD. This highlights how self-reported measures of confidence around ESD/LfS need to be interpreted with caution, including for example in the annual [CDN workforce report](#) (see [section 3.3](#)).

The same interviewees also shared how this lack of knowledge was accompanied by people "hiding" from certain topics or avoiding looking at statistics, including poverty and climate change.

[referring to student poverty] "I do not think people realise how dire a situation we're actually in on our own doorsteps. (...) Unless people want to look at the stats identifying this, they don't really know. (...) Until you change that mindset on some people, I honestly don't know what you do." – College Senior Leader with responsibility for LfS.

"Because the climate element, people are still hiding from, they just are. They don't understand fully what's happening." – Professional Development staff member with responsibility for LfS.

This element of hiding and not wanting to know hints at the element of fear. Such fear of change and the unknown was reflected in other interviews as well regarding both integrating sustainability knowledge and new teaching methods.

"I think it's education and I also think it's fear. It's unknown. (...) It's fear because they're used to having a set process and a set sequence of events" – Head of Engineering

[when addressing NextGen HN teaching methods and sustainability]: *"A lot of people are worried about this new thing they are gonna have to learn. How can they teach something that they don't know about themselves?"* – Accounting Lecturer

Another participant similarly also spoke about staff “slipping into that comfort zone” on teaching only around their subject-related expertise when integrating sustainability appears “a little bit daunting or seems too much hard work” (Head of Care, Education and Maths).

Going back to the barrier lack of time and capacity addressed previously, the two barriers appear to reinforce each other. On the one hand, not having time due to overwhelm with other tasks means training is unlikely to be undertaken. This makes it difficult to build the knowledge and skills on LfS/ESD, and this lack of knowledge may induce further stress and fear of the unknown that increases feelings of overwhelm.

Conclusion: A lack of knowledge on sustainability aspects is a significant barrier for staff. It likely stems from not having received training or resources that support an enhanced understanding. A lack of knowledge can stem from - as well as further reinforce - a lack of capacity and low prioritisation, as addressed previously Low knowledge on sustainability and LfS/ESD (including its relevance and benefits, and how some aspects may already be addressed) may lead to fear of the unknown and of change. This fear is further heightened by lack of capacity to imagine things differently. There are multiple approaches to interventions that may help to break this vicious cycle that we will further explore in the [Breakthrough section](#).

6.6 Cross-cutting: Understanding of sustainability as environmental-only

In interviews and workshops, by both practitioners and leaders, a limited understanding of sustainability was highlighted to be common across the college sector. This is closely intertwined with a lack of knowledge, yet also has wider effects in how sustainability in learning and teaching is addressed and supported on a systems level.

Among leaders, there are indications that sustainability is mainly understood as environmental or financial sustainability, or even more limited to green skills:

“Executive leadership, they might tell you that they would measure sustainability differently. They’d measure it based on the energy that they use within their campuses and what they’ve been doing to then minimise impact on the finances by utilising energy effectively” – Head of Engineering

“Sustainability, in my opinion, although I can’t speak on behalf of the sector, really does mean green skills. (...) Meta skills and the pastoral support and teaching our students to be global citizens, (...) they don’t come under the umbrella at all of sustainability. I hear what you’re saying because 15 years ago, they did. (...) So, soft skills were known as sustainable skills, but now, sustainability is more seen as green skills” – College Senior Leader 1

Other participants also saw this reflected in the sector and beyond, sharing how they saw that “not just in education, in general with the world, sustainability gets tied into environmental” (Head of Computing and Humanities) and “people would look at sustainability and think, what does economic inequality have to do with sustainability” (Head of Engineering).

Looking at teaching staff specifically, participants in interviews expressed that sustainability was often understood as environmental-only, which has also previously been found for

teachers in training ([Birdsall, 2014](#)). Specifically, some participants highlighted even more limited understandings centring on behavioural aspects such as recycling or saving paper.

"If you asked a selection of staff, I think most of them would just talk about environmental things. So, I think just increasing their awareness would be the first thing to do" – Head of Care, Education and Maths

"I think there's a long way to go before people have any further understanding other than, but they told me not to print stuff on the photocopier, you know." – Lecturer in Supported Learning with responsibility for professional development.

"When I'm speaking about sustainability, I'm talking about all the sustainable development goals. I'm not just focusing on recycling, reuse and what everybody thinks sustainability is." – College Senior Leader with responsibility for LfS.

It was also highlighted how such limited understandings can pose barriers for engagement with sustainability.

"I think some of them are getting bogged down in seeing it as a purely environmental, ecological aspect and then I think they're getting themselves tied in knots." – Head of Computing and Humanities when speaking about social science programmes approaching LfS requirements of the new qualification development programme NextGen HN.

"An ESOL lecturer for example may struggle to articulate or feel that there's anything much about sustainability of relevance to their teaching. (...) Well, I suppose it could be an essay topic (...). They probably need inspiration to think about sustainability in a wider way rather than, you know, environmental sustainability or recycling or something like that. I think they need help to see that there are other types of sustainability" – Professional Development staff member

As the last quote highlights specifically, sustainability is not as difficult to be integrated as it may appear on the first glance. As the interviewee describes, first steps towards LfS/ESD can be taken by making sustainability an essay topic or integrated in project briefs in subjects where there may be less obvious relevance. Sustainability topics that arise in essays could then be further explored with students, developing communication skills. For some practitioners, it might just take some inspiration, knowledge, or even just a conversation about sustainability, including its connected three pillars, to see links to the curriculum.

Such conversations and reflections, however, need to be enabled through institutional support and/or increased guidance towards sustainability/LfS as part of qualifications. Currently, as [sections 6.3](#) and [6.7](#) highlight, neither of these enablers are in place. Possibly, if there was a broader understanding of the breadth of sustainability, and thus the relevance and benefits of LfS/ESD, supportive structures and systems would more likely be established.

Conclusion: Staff and leadership alike often have a limited understanding of sustainability as only encompassing a few specific environmental aspects. This presents a barrier to practitioners as they may struggle to see how sustainability issues are interlinked and relevant to their practice. Limited understanding also may be a factor in explaining the lack

of coherent institutional structures that enable quality LfS/ESD, as those who influence these structures may not see the relevance and benefits of LfS/ESD ([see section 6.3](#)).

6.7 Cross-cutting: Quality and offer of resources and training

Across surveys, interviews, and workshops, participants often addressed the need for highly practical and relevant resources. For example, workshop feedback highlighted the demand for more “resources for assisting with implementation”, or “more ideas/examples how to embed into my classes using the least time”. Existing resources that may fit these criteria appear to be hard to find:

"[I'd like to] find a central resource where there can be sharing of ideas. (...) Could there be a kind of central space where people can go and access resources?" – Fashion lecturer

"And I suppose from our perspective, if [CDN had] resources, training resources for staff that are ready to go, off the shelf, online, (...) we can build that into our development programme" – Professional Development staff member

This need for “off the shelf” resources highlights how resources need to be highly relevant so they add value, rather than becoming another thing to add to the to do list, and allow the lecturer to engage with these resources easily. This points to the importance of subject specific support and resources, which was also highlighted by other participants:

"One of the most prevalent barriers [for the creative disciplines] is the lack of accessible, high-quality resources that contextualise sustainability. There's a pressing need for training that resonates with arts educators, offering practical applications and examples that are immediately relevant to their fields. (...). Without these tailored resources, the general sustainability knowledge gaps are likely to persist" – Head of Applied Arts

Furthermore, in line with the [CDN Workforce Survey report](#) finding that only 24% of lecturers had received any training on LfS, participants reported a lack of training opportunities. One participant specifically addressed a lack of adequate training that is manageable in lengths but not too superficial when they spoke about an activity on the SDGs that had been an add-on to a meeting:

"10, 15 minutes, that's how long we got [for an activity on the SDGs]. And it really was just two minutes, five tables, job done. [In sarcastic tone:] Wasn't that fun? Let's go on with the meeting about something else entirely. You know, it was that kind of snap, but it was too short a snap." – Accounting lecturer

This lecturer, who is part of SQA's NextGen HN Accounting pilot programme, also reported that they and their colleagues did not feel sufficiently supported to embed the new LfS criteria and teaching methods, again highlighting the need for subject-specific support

Whether subject specific or general, the quality of training is also important: good training can enthuse, while low-quality training can demotivate if staff can't see a clear benefit, as another participant highlighted.

"I always find when people go into a course, if it's a good course, if they get something out of it, then they're so enthused, you know, it really does change the way they teach (...) And the opposite side of that is if they go and do something

that's boring and that they don't see any benefit in it, then you know that's going to have a negative effect" – Head of Care, Education and Maths

Additionally, training should be longitudinal and sequenced with clear follow up, rather than one-off. Multiple participants told us about how one-off trainings had little to no longer term effect when momentum wasn't kept up, for example with Carbon Literacy Training:

"You need to do something even if something small and even if things slow down, I think you still need to keep chipping away to keep that ball rolling.. (...) People will go to the thing that's moving. If it's sitting and if it's not moving at all, what happens is people just walk away from it." – Head of Computing and Humanities

The need for quality resources and training goes beyond an offer just for teaching practitioners. As discussed above, a limited understanding of sustainability and LfS/ESD is a barrier across all levels. To enable a better understanding of the benefits of LfS/ESD and support the creation of supportive structures, training and guidance on LfS/ESD needs to be made available to various stakeholders of the college sector, including resources for professional development staff, managers, leaders and boards.

However, similar to research on LfS/ESD, such resources and training are more likely to be available in universities (e.g. [QAA and Advance HE ESD Guidance, 2021](#)) and schools (e.g. [Education Scotland LfS resources](#) and [GTCS Hub](#)). To our knowledge, there is little to no tailored support available to colleges. At the EAUC, we have started to make progress on this, for example by supporting CDN to add sustainability into their [leadership training](#), but much more work is needed.

Conclusion: There is a lack of quality training and resources on sustainability and LfS/ESD for teaching practitioners as well as managers and leaders, which is an obstacle hindering progress across all levels of an institution. Addressing this lack would simultaneously address multiple other barriers and may unlock support for LfS/ESD. We will further explore what high quality training and resources could look like in the [Breakthrough section](#).

7 Opportunities and Drivers: What enables LfS/ESD

As our findings in the baseline section highlight, there are pockets of good practice across institutions and subject areas, and some colleges driving brilliant progress and initiatives on sustainability and LfS/ESD. This section explores opportunities and drivers that may have supported such progress.

7.1 Staff and leaders as drivers of sustainability action – especially where institutional culture supports this

We heard inspiring stories of people with a passion for sustainability driving progress and making meaningful change to curricula and institutional practices from most interviewees.

"I certainly feel a sense of, I'm training more designers to go out into the world, and I want to make sure that those designers are as ethical as they can be, and have an awareness of people and responsibility" - Fashion Lecturer

"If somebody has a sort of sustainability mindset, they are going to find those connections [of sustainability to their curriculum]." – Professional development staff member

"I think there's a lot of people who have a personal interest, and if they've got a personal interest and understanding, then they're obviously happy to embed that and comfortable to embed that in their practice" – Lecturer in Supported Learning with responsibility for staff development

From this and our general experience with the sector, we infer that generally, individual interest in sustainability is not uncommon and can be a key driver for embedding LfS/ESD. That we were able to engage 101 staff members from different roles and subject areas in workshops on sustainability in learning and teaching, none of which were forced to attend, also indicates that there is significant interest.

While barriers around overwhelm, lack of capacity and lack of knowledge on sustainability need to be acknowledged, we also heard lecturers talk about finding avenues to integrate sustainability, for example by introducing the SDGs into projects as part of research methods units, integrating current sustainability news into classroom discussions, building in outdoor learning and more (see [section 5.3](#)).

The role of senior leaders advocating for and supporting sustainability in the curriculum and the college as a whole was also highlighted:

"[Our principal] is wonderful. He just, he's like, open door. What do you need me to do? Right. I'll do it. That's fine. And off he goes. (...) He knows it's the right thing to do" – Professional Development staff member with responsibility for LfS

"And I would still like sustainability to be part of [my job title], because I think if you lose that, then where is anybody overseeing it from a curriculum perspective?" – College Senior Leader with responsibility for LfS, reflecting on potential changes to remit and job title

The two institutions of these interviewees are among the colleges with higher explicit ambitions and stronger progress on sustainability in learning and teaching. This is another indication of the role that leaders who explicitly support sustainability in their practice can play. From our work with these colleges to date, we know that these leaders have previously influenced strategies and pushed for increased institutional support for LfS/ESD.

Institutional strategies that include targets on sustainability in the curriculum can also be a strong (potential) support mechanism by making LfS/ESD part of institutional processes:

"We have asked curriculum quality leaders and the teams to deliver sustainability and education based on the [sustainable] development goals (...) we've embedded that within our sustainability strategy, and we run over these development goals with our learners or staff, all-encompassing. And it's hugely encouraging. It's part of our processes." – Head of Engineering

"We have a very good quality enhancement planning sort of set up here through our quality department (...) So we will have themes (...) and some of those are coming out of our overarching strategy and our sub strategies. (...) We have a sub strategy around sustainability, so if we were to say, right, this is going to be a focus for next academic year, that would be another good way of bringing it forward." – Professional support staff member

This points to the importance of institutional culture that is supportive on top-down level and enables bottom-up initiatives from lecturers. A discussion on the issues caused by a lack of supportive culture and joined up approaches can be found [in section 6.3](#).

Conclusion: Individual interest and personal commitment often drive innovative integration of sustainability into curricula, while supportive senior leaders can amplify these efforts through advocacy and strategic prioritisation. This is happening across the sector despite the presence of many barriers. Both the interest in sustainability, as well as the impact passionate individuals have, is not to be underestimated. This is further enabled through a supportive institutional culture.

7.2 Evidence of increasing awareness for sustainability among the public and college students and staff

Interviewees addressed that they perceived awareness of sustainability to be rising generally, citing, for example, how aspects such as buying from a second-hand platform like Vinted are becoming "cool".

"[Sustainability] is coming at us from all different angles, and it's coming at us from personal responsibility as well. And I think there are more and more people fully aware. I'm sure of that." – Lecturer in Supported Learning with responsibility for professional development.

"You get more and more companies bringing in sustainability as well." – Accounting lecturer

"Vinted for example – very, very popular. People are more socially aware, I would say, where it maybe was a taboo subject, like wearing something that someone else's purchased before, that seems to be a lot more common now. It's cool, you know." – Head of Engineering

Interviewees also shared that they felt young people entering college increasingly are aware of sustainability, and also increasingly brought this into their course work in their own initiatives.

"So I think that's our kind of clientele, that kind of young group that is likely to come to college, they are more aware of [sustainability] and looking out for things like that in businesses, or within the college." – Head of Care, Education and Maths

"Speaking with second years about their own project, I would say that at least half of them mentioned the word sustainability (...) They're starting to be more innovative and thinking about things being modular and things being transformable, and use of fabrics." – Fashion Lecturer

This will of course not be the case for all students, and perspectives among our interviewees might be biased due to their existing interest in sustainability. However, data from higher education students across the UK ([SOS-UK, 2024](#)) as well as Scottish school pupils ([Ward et al for Scottish Government, 2023](#)) also indicates an increased awareness of sustainability as well as demand for more LfS/ESD in education.

Furthermore, we found that staff were more interested and positively positioned towards sustainability and LfS/ESD after having received training. For example, feedback respondents shared that the workshop made "what I thought had a risk of being a bit boring genuinely really interesting" and that they were "glad I chose this workshop. It has opened my mind and I look forward to learning more". Similar tendencies were found for students, as we will highlight in the next section.

Conclusion: Our data suggests that interest in sustainability and awareness of its importance are generally increasing across staff and students, as well as among businesses and in employer demand. While more awareness is needed, an important finding from this research is that positive attitudes towards sustainability increased where relevant and engaging information on sustainability and LfS/ESD was provided.

7.3 Students as current and future drivers

While not all students will have an interest or an explicitly positive attitude towards sustainability, experiences of lecturers and our student focus groups show that student attitudes towards sustainability are likely to change if they are guided to engage with holistic sustainability:

"Units that I've taught in the past, where you go into a level six class and you say, who's interested in sustainability? And everyone's like uuugh [mimics groan], and then you put the UN sustainability goals up, and you say, so. Are you not interested in equality? Are you not interested in having access to clean water, poverty, zero hunger? You're not interested in any of these things? And they're like, oh, actually, I am interested" – Business Lecturer

The students that took part in our focus groups had just completed a sustainable development unit featuring enquiry-based learning. As part of this unit, they researched a sustainability topic and then shared their viewpoints in a panel discussion in front of the class. When asked about their attitudes on a scale from 1 (don't care) to 10 (care a lot) before and after the course, all six students shared that their attitude (in the sense of seeing sustainability as important or caring about it) had become more positive, for example:

"I would say maybe I was five before the course, like just touching on stuff that's [widely known]. But because of this, we've went into other stuff, like soil that's not as publicised as deforestation, air pollution. So now 8, 9" – Susie, business student

Another student felt a stronger sense of responsibility for her actions driven by the learning she had engaged in, and shared that she would have liked for sustainability to have been integrated into her education much sooner:

"It was an eye opener, to be honest with you. I mean, all these issues, what's happening, and basically I'm to blame for as well. I'm part of it. (...) I mean, [a unit like this] should be basically done every single year, since NC five or NC six" – Anna, business student

Even a student who branded himself as 'not caring' about sustainability developed an understanding of the importance of sustainability after he took part in this unit. When asked how his attitude towards sustainability had changed, Finn said he was a one or two before the course, and now would be at a four or a five. He explains:

"I mean, it sounds very selfish, but I was very like, that's the next generation's problem, it's not going to affect me my lifespan, and I'm not caring. (...) There are bigger fish to fry in my personal life than sustainability (...). I'm not somebody who's a green campaigner and somebody who's particularly environmentally friendly, but I can understand the case for it. (...) you're going to have people like myself who are quite stubborn to say, actually, why should we bother, but I can understand why you should." – Finn, business student

It is important to keep in mind that the aim of LfS/ESD is not turn all students into sustainability enthusiasts, yet exposure to quality LfS/ESD will allow them to develop their knowledge, skills, attitudes and values. However, in addition to LfS/ESD as part of their formal learning, they must also be given the opportunity to take action. This is highlighted in Jack's reflection on a unit on sustainable development:

"I think it was an eye opener, hearing statistics, hearing facts, it opens your eyes to how much we're actually damaged on the earth. But there was also a big question of, we can see all the stuff, see all of these statistics, but are we doing anything with these statistics to lower them, to make them better? Not really, no?" – Jack, business student

Yet, we found that opportunities to engage in sustainability projects and take action tend to be rare in colleges. The college senior leader with responsibility for LfS we interviewed explicitly acknowledged this and shared that there were no opportunities for students to engage in sustainability action at their college. There had been attempts initiated by students to start a second-hand shop in the past, but this lost momentum when it was difficult to find a location, despite collaboration with the estates team.

The same leader shared how their college had attempted to drive sustainability mainly through top-down approaches, but that more bottom-up initiatives should be supported, seeing a significant opportunity in having students as drivers:

"[Students] can drive so much change, rather than me sitting here talking the talk to you and talking the talk at Sustainability Committee. (...) If the students are driving it and they're talking about it when they go to their classes, then it's easier for the

lecturer to pick up on these things naturally, rather than thinking it has to be an extra.” – College Senior Leader with responsibility for LfS

Of course, responsibility for LfS/ESD should not be put exclusively on students. Staff, leadership and institutional structures have an equally important role to play. Still, supporting students to drive sustainability issues in ways that benefit their learning and development is a strong potential driver and opportunity for the integration of LfS/ESD.

Conclusion: Our data provides insights on how students’ attitudes towards sustainability become more positive when they are engaged in quality LfS/ESD that allows them to connect to sustainability in a meaningful way. While more research is needed on the effect of LfS/ESD on college students, first insights suggest LfS/ESD in the classroom can also lead to an increased motivation for sustainability action if opportunities for this are available. Staff interviewees also shared how there would be much opportunity for students to be drivers of sustainability and LfS/ESD if supportive structures for this are put into place, as we will discuss in [section 8.2.3](#).

7.4 Collaboration among various stakeholders as a powerful driver and enabler

In our data, we found various excellent examples of collaborative efforts that have driven LfS/ESD. These are complemented by stories of success we come across in our day-to-day work as an organisation. As one of our interviewees phrased it:

“We’ll meet our targets if we work collectively.” – Head of Engineering

Broadly, data we collected suggests that the following opportunities have been drivers and should be further enabled in colleges:

Collaboration with estates: When a new renewable energy source was installed in one college, students and staff were involved in the development. Other colleges use the Hedgehog Friendly Campus initiative to highlight biodiversity efforts on their campus together with students. In another college, sports students did a river litter pick near the campus as part of learning kayaking skills. These examples highlight how, when campus and curriculum work together, this can both benefit operations as well as student learning on sustainability through real-world projects and actions.

Collaboration with other colleges: A group of colleges is looking to set up a collaboration for collaboratively mapping SQA units against the SDGs, albeit progress has stalled during the summer break. Lecturers and curriculum heads reported that they are seeking out opportunities for collaboration on improving knowledge and skills on LfS with others from the same subject areas across colleges, and some have set up their own initiatives.

“I remember feeling quite overwhelmed when we first went into COVID and just thinking, I just need to reach out to other colleges and see how they’re managing this. So, we set up a heads of hair and beauty (...) There were lots of things, COVID things, that we were trying to support each other with and make sense of. And sustainability was one of them” – Head of Hair and Beauty

Collaboration with universities: While some collaborations are in place – for example, around exhibitions of sustainable fashion and on green skills delivery – interviewees also highlighted that there is much more potential for working with universities:

“So, you look at the research that goes on at the universities, but even some of the things that they introduce, you know, it's quite staggering. And I think that'd be great to be involved in.” – Head of Computing and Humanities

Collaboration with other organisations: Specifically regarding net zero skills, interviewees reported successful collaborations with organisations, such as the Energy Skills Partnership, Powering Futures and Energy Savings Trust to develop and deliver sustainability learning projects. Participants from other subject areas also shared stories of working successfully with organisations such as Bridge2Business and Rags to Riches.

Collaboration with employers and industry: Colleges historically have a track record of being close to the world of work and industry. Interviews and general sector trends suggest that this continues to be a focus. While industry and employer partnerships in colleges do not always explicitly relate to sustainability, government priorities continue to drive environmental and social sustainability in industry (e.g. through net zero targets and emission reporting, inclusivity and the fair work agenda). Thus, collaboration with industry around the sustainability skills that are needed has vast potential. Even though industry still needs to undergo many changes to meet sustainability goals, some subject areas are seeing increasing demand for sustainable approaches from employers:

“You get more and more companies bringing in sustainability as well.” – Accounting lecturer

“I think there's more growth in [the textiles] area, because we really need to be more sustainable [...] There's been lots over the last 20, 25, years about how we can approach it in different ways, but we're reaching that crisis point now that we have to move things forward.” – Curriculum Manager in Fashion

Collaboration with communities: Some colleges are making great progress, especially on working with local schools. For example, we heard about collaborations for raising awareness on fast fashion through creative projects with school children in our interviews. Another example includes New College Lanarkshire, where sound production students worked with children from a local primary school to record a song about climate action on World Environment Day ([New College Lanarkshire, 2024](#)).

Conclusion: Various examples show that there are great collaborative efforts and projects underway at colleges. Sustainability increasingly plays a role in these collaborations. Institutional priorities as well as availability of support and resources are crucial to further enable this.

7.5 Changes to qualifications and quality processes as (potential) powerful drivers

Despite the overall lack of explicit sustainability in qualifications as addressed in [section 6.2](#), there are some existing and developing drivers for LfS/ESD. For example, SQA's Next Generation Higher Nationals, in short NextGen HN, programme was highlighted by interviewees and workshop participants as an effective driver due to its existing LfS

requirements. Participants further shared the importance of connecting LfS/ESD with existing drivers such as the GTCS standards, which lecturers at many colleges regularly have to connect with their professional development:

"If you can link this with and make big that this is all about engagement with the GTCS professional standards and [you can meet these] by participating in the workshop, certainly that's how I would promote it. (...) Unless something comes in (...) through a channel that's already there then the chances of it being actually happening, something taking place, is probably fairly slim" – Professional Development staff member

Other recent developments include that the new Tertiary Quality Enhancement Framework (TQEF), which sets out the quality assurance and enhancement processes for Scottish universities and colleges. An important principle of the TQEF is externality, which points institutions to refer to external benchmarks of quality. Central to this is the [UK Quality Code for Higher Education](#), which, although historically setting quality standards for universities, in its new iteration spans both further and higher education. Environmental sustainability and Equality, Diversity and Inclusion – both central elements of LfS/ESD, especially when connected - are included in several quality principles set out in the code. The TQEF positions students at the heart of its principles and encourages institutions to utilise the sparqs' Student Learning Experience Model in their quality assurance and enhancement activities. Equality, Diversity and Inclusion as well as Sustainable Development furthermore are essential elements of this model.

Therefore, quality processes such as the TQEF can be seen as an enabler of LfS/ESD on a more formal, joined up level than current individual-driven pockets of practice. One of the senior leaders we interviewed reflected on this when asked what changes the TQEF may bring, and they saw the QAA Quality Code as an opportunity for driving LfS/ESD:

"I think they'll want to see the same attributes happening in the colleges. I would like to think there'll be more [sustainability]. I was involved in another meeting with EAUC about [the QAA Quality Code]. We helped pull together a paper that EAUC submitted to ensure that sustainability was kept on the agenda (...) If anything, we've got an opportunity to drive it better I think now." – College Senior Leader with responsibility for LfS

Existing channels and (emerging) quality processes are excellent opportunities for institutions to highlight the good work that is already being done and evidence quality. Furthermore, and possibly more importantly, these developments have great potential to drive the creation of supportive institutional structures and joined up approaches for LfS/ESD. These structures are essential for practitioners, as highlighted in the Barriers section. Crucially, such structures will also benefit colleges as they can simultaneously support quality enhancement and assurance. Specifically, quality processes are well suited to drive the formal creation of institutional structures that allow for better recognition, incentivisation, and peer support for LfS/ESD.

However, to avoid tokenism and prevent accidental 'greenwashing' (see section [6.1.2](#)), clear communication and standards of LfS/ESD as well as the provision of training and resources on quality LfS/ESD are vital. Simply addressing a few SDGs or siloed sustainability aspects that do not acknowledge the interconnectedness that is at the heart of sustainability are not sufficient.

Conclusion: LfS/ESD in emerging SQA qualifications, the GTCS standards as well as recent developments on tertiary quality enhancement processes are important current and potential future drivers of LfS/ESD. They can enable explicit integration of LfS/ESD into practice, as well as support the creation of supportive institutional structures and a more formal and joined up approach to progressing and enhancing practice. However, caution must be taken to avoid tokenism - clear communication and standards as well as the provision of training and resources on quality LfS/ESD are crucial.

7.6 Government priorities driving (environmental) sustainability: net zero skills

As mentioned in the Introduction, colleges have a vital role to play in upskilling the workforce with the skills we need for net zero. Reports shows that 27% of Scottish college enrolments align with Climate Emergency Skills sectors, which encompass key net zero sectors such as construction, transport, energy and waste treatment, agriculture, and manufacturing ([Skills Development Scotland, 2023](#)). Interviews with participants such as College Senior Leader 1 and the Head of Engineering specifically highlighted the progress that had been made on delivering skills for net zero at colleges.

This progress is often driven by the availability of funding. In the context of a net zero energy skills initiative, the Head of Engineering shared how “colleges above the central belt are involved in this now as well because funding became available”, highlighting how financial means can unlock progress and increased collaboration. They also addressed other projects where funding had enabled progress, for example for the Energy Transition Zone near Aberdeen as well as a “mobile training and assessment facility that can go to remote locations(...) [for example] to go and assess candidates up in Shetland”.

A College Senior Leader shared how such funding was provided because of government priorities, for example for construction and retrofit:

"The government wants our homes to be energy efficient. (...) So we got funding from the shared prosperity fund to upskill a lot of the workforce in retrofits. So, there's strong emphasis in in areas like that, and there's strong governmental support in that. The funding is there, although it's not huge amounts of funding." – College Senior Leader 1

They also shared how this meant that environmental sustainability, mainly in the sense of net zero skills, was more prevalent in curriculum areas that aligned with government priorities.

"Some areas within the curriculum are more forward in sustainable practises, but that's because of government initiatives, like sustainable housing is a huge thing that the government want to push for, and quite rightly so" – College Senior Leader 1

This highlights just how much government priorities, and the corresponding availability of funding, can enable progress on the integration of environmental sustainability and green technologies. While this does not necessarily mean that these subjects embed quality LfS/ESD, it is still striking to see how government priorities normalised environmental sustainability as a central aspect of education provision in subjects aligning with net zero sectors.

However, even in areas strongly driven by government priorities, there may not always be sufficient opportunity for the upskilling that is needed. A conversation with automotive lecturer who took part in one of our workshops highlighted how lecturers do not always receive sufficient support. This lecturer, for example, shared how he had started in his teaching role recently, and that there was not enough training or supportive managerial staff to facilitate the transition to becoming an educator, as well as teaching about new green technologies such as electric vehicles. He expressed feeling left alone and overwhelmed, which also seemed to decrease his capacity to explore holistic LfS/ESD approaches that included social and economic sustainability. While the conditions of initial training for lecturers differ between colleges, this case suggests that support for college lecturers varies and is inconsistent, even in subject areas where there is more funding available.

Conclusion: Government priorities can unlock funding which can significantly drive normalisation and progress of the integration of (environmental) sustainability, as seen in subjects aligning with net zero sectors. However, while more funding often results in more training being provided and prioritised for lecturers, support appears to still not be equally available to all lecturers teaching in subject areas that are closely connected to net zero targets.

8 Breakthrough: Impactful actions to advance LfS/ESD

This research has been conducted with the aim to produce actionable knowledge that can be used to support further progressing of LfS/ESD in colleges. This originally stemmed from the ambition to increase the impact of our work as an organisation. However, the interest we have received in the research from other organisations and the sector highlights that there is a general need, and desire, for more guidance on how LfS/ESD can be progressed. For example, an interview participant shared:

“That's one of my reasons for getting involved because I want to see if there's something that can come from this, that actually helps us to think of the college landscape and all of those three pillars. Some kind of framework, you know, that helps us to, to really drive that even better.” – Head of Hair and Beauty

In the following, we will share what we have identified as the most impactful actions which people across and beyond the sector can take to create a 'breakthrough' for LfS/ESD. This includes teaching staff, students, leaders, policy makers, FHE sector bodies and supporting organisations, and funders.

8.1 General principles of impactful action for LfS/ESD

Before addressing specific actions that different stakeholders can implement, a variety of general principles for impactful action to progress LfS/ESD emerged from the experiences research participants shared with us. Considering these principles may help to increase impact.

- **Consider different audiences and impact:** There are multiple ways to advance quality LfS/ESD. Interventions need to have a clear idea of what audience they are targeting and with what objective. For example, how we enable pioneers and enthusiasts to further develop their practice towards quality LfS/ESD and find support is different to how we educate and motivate those who are undecided or might not know about (the value of) LfS/ESD. This again is different to how to develop leaders to drive LfS/ESD action. Generally, there likely is little value in focussing on audiences who are overtly opposed to sustainability, as this will require the most effort while likely having the smallest impact. Instead, creating institutional and social norms through those who see the importance of sustainability may be more impactful.
- **Be clear on goals and quality LfS/ESD.** What are the goals and quality benchmarks of LfS/ESD? How are these communicated and perceived by leadership and staff? While sustainability and LfS/ESD can be progressed step-by-step and require a certain degree of flexibility to fit into highly variable contexts, being too vague about central principles and quality indicators risks unintended greenwashing.
- **Provide an accessible starting point to sustainability,** so people can connect with sustainability and understand its breadth and relevance, e.g. through local examples and using frameworks such as the SDGs. However, it is essential to follow

on from this and ensure people understand the interconnectedness and do not 'silo' sustainability or accidentally greenwash. Equally important is to highlight the difference between learning about sustainability (content only) and learning for sustainability (a holistic approach).

- **Build on existing drivers and agendas.** Our data highlighted importance of linking to existing 'channels' for LfS/ESD - for example within the [GTCS standards](#), [NextGen HN](#), institutional strategies, just transition plans, employability, community collaborations, and more. Frameworks lecturers are required to address, such as [meta skills](#), can also drive LfS/ESD when the benefits and connections of LfS/ESD with the respective framework are clearly articulated.
- **Celebrate what people are already doing** – even the small things. But we should not stop there – it's important to use recognition and celebration as a nudge to build motivation and keep up the momentum. "This is great!" should be followed (at the right time) by "What have you learned? How can we build on this? What are your next steps to keep up the great work?"
- **Provide long-term opportunities** for engagement and support – one-off trainings often lose momentum quickly and, as research participants shared, have little to no impact in the long run.
- **Collaborate across various stakeholders:** Include students, campus operations, community engagement, trade unions, other colleges, external organisations, as well as employer and industry relationships in plans and actions for LfS/ESD.
- **Enable both bottom-up and top-down action:** Students, people in teaching and operations and people in leadership need to work together towards shared goals.

The last principle emerged as a theme across both barriers and opportunities. It became clear across our engagement with participants that top-down support from leadership, institutional structure and strategy was just as important as bottom-up support for teaching practitioners, professional development staff, and students to take action. We therefore summarise actions, interventions and approaches that can be taken on these two levels, grounded in our data as well as wider organisational experience. We also address system wide approaches that will have an impact across these levels.

8.2 Supporting bottom-up and middle out action

8.2.1 Increasing availability and quality of resources and training

Participants in interviews and workshops highlighted the need for more resources and training on LfS/ESD – but also of the need for those to be of good quality and add value.

Requirements for **quality resources** that participants shared included:

- **Relevant:** Resources should clearly connect to subject and show how sustainability connects to content and skills lecturers are teaching as part of their discipline. Subject specific resources therefore a likely to be more impactful than

general guidance on LfS/ESD. Such guidance should be integrated into subject specific resources instead.

- **Practical:** Resources should be practical, rather than theoretical. They should provide clear guidance on how LfS/ESD could be implemented and include “off the shelf”. “readily available” examples of how this can be done in teaching content as well as teaching and assessment methods. Case studies and stories about existing initiatives are especially helpful and inspiring.
- **Engaging and easy to understand:** Resources should break down complicated concepts into simple language to allow the reader to engage with the content. This can be further aided by the use multimedia elements, such as videos, visuals, etc
- **Central access:** Resources should be easy to find and access. Resources should be openly accessible online and in one place.

For **training and professional development**, the following elements of quality emerged, with many of these coming through in the workshop feedback:

- **Synchronous:** Training with a live facilitator was highlighted as more enjoyable and therefore effective. In-person training was seen as ideal where possible, but for some colleges, their location makes this difficult.
- **Non-judgemental:** Training should meet people where they are and not judge them for their level of knowledge or attitude.
- **Providing essential knowledge:** Training should provide some reliable facts and statistics that help participants understand sustainability issues better, so that they are informed enough to find connections between sustainability issues and their subject area.
- **Support understanding of interconnectedness:** Training should enable participants to understand the interconnectedness of sustainability issues in the context of their subject area. Providing examples of how different aspects interconnect is key for this.
- **Solutions-oriented:** Training should allow practitioners to explore solutions and actions, and ideally even help them build on LfS/ESD to overcome other challenges (e.g. connecting LfS/ESD and meta skills, teaching methods around LfS/ESD that improve classroom behaviour and learning experience, such as outdoor learning and real-world relevance of materials).
- **Interactive and facilitating peer-learning:** Training should engage participants and include collaborative learning activities and space and for practitioners to learn from each other and share their own experiences.

- **Providing enough time:** Time needs to be sufficient for participants to familiarise themselves with the topic, participate in (group) activities, and then reflect and plan how to take their learning into practice.³
- **Including follow up and long-term engagement:** Training should come with possibility for long term support, engagement and follow up. One-off trainings were highlighted as not being impactful in the long run.

8.2.2 Integrating LfS/ESD in professional development processes and existing networks

In addition to generally increasing the availability and quality of resources and training, contextualised approaches to supporting LfS/ESD may help to enhance awareness and uptake of resources and training in an integrated way, rather than positioning LfS/ESD as an add on.

Provide train-the-trainer approaches to professional development staff, such as learning and quality champions, to enable them to deliver support and training to lecturers as part of their existing support provision. This could range from making professional development staff aware of the premise, benefits, and support available for LfS/ESD, to setting up a model similar to [Carbon Literacy Training](#). For this, professional development staff would be trained to deliver LfS/ESD training themselves. The benefits of this are promising, as such internal approaches to training would allow for more consistency and longer-term follow-up, which is vital as one-off training can quickly lose momentum (see [section 6.7](#)).

Train curriculum managers to integrate sustainability into professional development structures. Interviewees shared insights into structures such as Professional Development Plans (PDPs) or more generally regular meetings occurring between curriculum managers and lecturers on their professional development. These practices differ between institutions – for example, in some institutions the PDPs are linked to the institution’s values, while in others the GTCS Lecturer Standards form the main framework. Training curriculum managers to be able to nudge and support their teams to develop their LfS/ESD practice emerged as a way to increase support for and encouragement of LfS/ESD.

Embed sustainability elements in other existing (mandatory) training. Interviews made links to training on EDI or health and safety, arguing that the mandatory nature of these trainings was powerful in ensuring staff was given time to undertake these. Sustainability generally or LfS/ESD could be integrated into these trainings to support increased staff knowledge of sustainability matters, the relevance of sustainability to their practice, and further training and resources that are available.

Integrate LfS/ESD more explicitly into teacher training, including the Professional Development Award (PDA) and the Teacher Qualification for Further Education (TQFE). While we heard from some institutions that they were taking steps to integrate sustainability elements into their delivery of the PDA, EAUC Scotland and Learning for Sustainability Scotland engaged with college and university staff in spring 2024 to explore to what extent LfS/ESD was integrated into the TQFE. Findings indicated that this was rather rare, although

³ When asked what they would need from workshops in the future, nearly a third of participants in our 1.5h-2h workshops asked for more time; however, interviewees also shared that training needed to be relatively “short and snappy”. Ideally, training is flexible and can be easily adapted to the context and institutional and individual needs.

there was variation between TQFE providers, and informed our [consultation response](#) at the time.

Share available support at network meetings, including those by CDN and SQA. A couple of interviewees highlighted the support and networking opportunities these organisations provide to enhance peer learning and support. Short inputs on LfS/ESD generally or the sharing of LfS/ESD case studies and stories at these meetings could help put sustainability in learning and teaching on practitioners' radar. They could then be further signposted to existing and emerging support on LfS/ESD.

8.2.3 Empowering and engaging with students

Students were highlighted as a potential driver for sustainability into college's curricula and operations. We will explore how participants saw empowering and engaging college students for this as a 'breakthrough' action.

Students were perceived as being closer to some sustainability issues, especially poverty:

"Again, I think using students can help drive that, if you know what I mean, because they're the ones that are actually facing all these issues [of poverty]." – Senior College Leader with responsibility for LfS

While at UK universities, there often is a culture of students engaging in clubs and societies and being active in social and environmental campaigns, this appears to be different in colleges. Structural differences between FE and HE may be an underlying cause for this, highlighting how students in colleges may have less flexibility and unstructured learning time than university students:

"[at colleges], you've got 36 weeks in the academic year, and higher education is 24 weeks, and it's a very different way of learning. (...) You've got to be with students and do the projects" – Fashion Curriculum Manager 1

Another participant addressed students often having to travel far to the college as a difference to universities which are often based in urban areas, but also recognised that this can become too generalised, blocking attempts for solutions:

"You've always got that argument that you might have students coming from [a remote place]. So if they missed the last bus at 5:30, there's not another bus for them. (...) . So how can you do these things? But we always put that as a blocker (...) We always put the problem there rather than the solution, whereas I think we need to try these things." - College Senior Leader with responsibility for LfS

These differences between colleges and universities do not determine that student engagement and action for sustainability in colleges is not possible. Rather, these differences highlight that student engagement needs different support structures in colleges.

As we discussed in [section 7.3](#), giving students the possibility to connect to sustainability issues that matter to them, and then helping them to further their learning and development of skills and attitudes around these issues, can be powerful. But students might not get to these ideas completely on their own if there is no offer of opportunity or starting point of connection that is accessible to them. One interviewee phrased this as the need for students

to be “led” towards sustainability within the curriculum, as they might not think about it by themselves:

“For an open project, like a graded unit, (...) when its student led, only a few students think to [integrate sustainability], but if it's lecturer nudged, it can be quite impactful. This is where I think we're missing opportunities sometimes.” – College Senior Leader 2

As the student focus groups, conducted after a sustainable development unit in their business course, showed, students’ attitudes towards and interest in sustainability may become more positive if they are engaged in LfS/ESD using engaging methods such as enquiry or project-based learning ([see section 7.3](#)). Once points of interest have been identified, there must be opportunities for action, and the value of this must be made clear for students, as one of the lecturers we interviewed highlighted:

“There's no consequences for their actions, this is why students aren't interested. Like, we need to be rewarding good behaviour. (...) At the start of the year, here's how you get your sustainability certificate as a student, and we'll have a big award ceremony at the end. Here's some of the things that you need to do, not buying plastic water bottles the whole year, organize a sustainability event in the college, complete this short module on this, you know, tick, tick, tick, done it. There's your certificate at the end.” – Business Lecturer

Other alternatives include integrating sustainability action and activities within the curriculum. For example, the same lecturer shared the example of how, as part of a research methods unit, students had conducted research on their college’s contribution to the SDGs. Such research could be fed back to estates and leadership teams, providing further insight into the college as well as creating real-world relevance for the students

Further initiatives to empower students may include

- Students form part of sustainability working groups and committees at the college. To increase accessibility of students from low-income backgrounds, compensation should be offered for their time.
- Collaborate with Student Associations to identify opportunities for engaging students around sustainability, e.g. through talking to course reps, organising events, adding questions to student surveys, etc.
- Celebrate students who engage in sustainability activities as part of student awards (see for example the [Edinburgh Award](#) at University of Edinburgh, which has a Climate and Sustainability Leadership option).
- Provide small funding pots or resources such as mentoring and/or space, for students to realise ideas for initiatives they may have (such as the sustainability shop discussed in [section 7.3](#)).
- Promote opportunities for students to further engage with sustainability-related programmes (e.g. via [2050 Climate Group](#), or the [Becoming a Force of Nature Programme](#)) and highlight the positive impact these programmes can have on skill development and employability.
- .

Colleges may also want to gather more data on their students' sustainability views and skills, either through their own or external surveys (see below).

Annual opportunity: To further explore student attitudes towards sustainability, colleges can make use of the SOS-UK Sustainability Skills survey that runs annually in autumn. Any institution that gets over 100 responses can request the results of the survey for their students from SOS-UK so they have their own data – this can also be useful for benchmarking. Historically, this survey has not consistently been promoted in colleges – potentially because of a lack of sustainability focussed staff. Students also can be over-surveyed – yet universities have the same issue, and some receive thousands of responses. The survey could be included and discussed as part of lectures.

8.3 Enabling top-down support

8.3.1 Within institutions: Creating supportive culture and structures at institutions

As we have highlighted previously, there are great initiatives that are driven by passionate individuals. But we cannot put the responsibility to progress sustainability on these individuals if we want colleges to be an enabler for Scotland to meet its social and environmental goals. Joined up, structural institutional support is vital.

Looking at our data, institutional structures that are likely to be conducive to LfS/ESD and sustainability generally include:

- **Structures that alleviate pressures on staff time.** For example, one of the senior leaders we interviewed shared their plans for reintroducing course tutors for the coming academic year. These tutors would take over a class for an hour a week, freeing up an extra hour for lecturers. Plans included to set up professional development opportunities for staff during this time, including on LfS/ESD.
- **Structures that put in place staff with explicit responsibility and capacity for (sustainability and) LfS.** This could include having leaders and professional staff with a dedicated responsibility for (sustainability and/or) LfS/ESD. A shared services model may also be an opportunity – multiple colleges could share a LfS/ESD coordinator. Structural support for this is key so that LfS/ESD is not merely an extra, unremunerated responsibility on top of an existing full-time role that may add to overwhelm.
- **Structures that incentivise and recognise progress on LfS/ESD,** including for example internal awards or sharing staff achievements on LfS/ESD in newsletters and on social media.
- **Structures that allow for peer learning and sharing practice,** such as having sustainability groups or teams, or meaningfully integrating LfS/ESD themes into existing team activities. Some interviewees also highlighted to increasingly implement peer class visits among their lecturers, which could be combined with

peer support for LfS/ESD. This can be in-house or across institutions. EAUC's [Topic Support Network on ESD](#) is an example of this.

- **Structures that enable collaboration** between a college's estates and curriculum, as well as between a college and external organisations, employers and other education institutions. In England, the [Climate Ambassador](#) programme is a great example of cross-institutional collaboration, while in Scottish schools, the [Education Scotland LfS peer mentor network](#) is developing into a promising programme.
- **Structures that allow for the inclusion of student voice.** Students should be included in conversations and decisions around LfS/ESD and sustainability generally, for both campus and the curriculum. Empowerment and encouragement for students to take action on issues that matter to them is key.

Which of these structures are more effective will vary between colleges, and may also vary over time.

A strong strategy on LfS/ESD may be an enabler for the creation of many of these structures. However, to create such strategies structures, college boards and leadership need to have sufficient knowledge of LfS/ESD. Providing training and guidance for leaders and board members on the relevance, benefits, and required support for LfS/ESD therefore is crucial. The [Further Education Climate Action Roadmap](#) can help to get started.

Many of these structures requires prioritisation, which in some cases will include adequate allocation of funding.

8.3.2 Across institutions: Unlocking sustainability in quality processes

Our findings on barriers and drivers indicate that LfS/ESD is more adequately prioritised and driven when it is part of quality enhancement and assurance processes and/or qualifications. Some qualification frameworks such as NextGen HN and emerging quality enhancement processes and guidance already refer to LfS/ESD.

However, the lack of knowledge on and understanding of quality LfS/ESD that we find across the sector indicates that quality assurance bodies or qualification providers would likely require training and/or guidance to embed LfS/ESD – whether already in progress or planned for the future. Such guidance could be similar to the QAA and Advance HE ESD guidance, or [QAA Collaborative Enhancement Projects](#) on Academic Quality and Monitoring ESD. Staff working in quality assurance and enhancement at colleges likely require similar training.

Thus, key actions to support quality processes and qualification design to integrate quality LfS/ESD could include:

- **Provide clear guidance on quality LfS/ESD in colleges.** This should be co-created with practitioners, students, and relevant sector bodies.
- **Support internal quality processes:** Supporting institutions to better understand and evaluate their progress on LfS/ESD as part of their internal quality assurance processes through training, advice, and resources.
- **Support cross-institutional quality processes:** Offering LfS/ESD training and guidance to individuals and groups that are involved in cross-institutional quality assurance and enhancement processes, such as the Tertiary Quality Enhancement

Review (TQER) peer reviewers or steering group, or participants of the Scottish Tertiary Enhancement Programme (STEP), so they can be critical friends around LfS/ESD.

- **Collaborate with SQA** to provide guidance and support to institutions embedding LfS as part of the NextGen HN pilot programme.

8.4 System-wide approaches

8.4.1 Providing adequate funding

As highlighted previously, adequate funding for colleges is key to enable prioritisation of and support for sustainability. Funding cuts have hit colleges hard – and seem at odd with the widely acknowledged important role of colleges, and education generally, for net zero and a more socially just Scotland (see section 3).

Funding is needed to

- Increase teaching staff capacity and job stability
- Enable institutions to hire staff with responsibility for LfS/ESD. This could be shared between institutions: [EAUC's Shared Services Model](#) on a shared sustainability manager between three colleges has been highly successful. A similar shared role could be put in place with an LfS/ESD focus, supported for example by EAUC.
- Incentivisation of sustainability initiatives through specific funding, or flexible funding. While a lack of funding can mean sustainability initiatives are put to a halt, when funding is available, this can spark the creation of brilliant projects, for example [Dundee and Angus College's new initiative](#) which is supported by the Climate Engagement Fund. Importantly, funding needs to be sustained to allow for long term engagement.

Colleges may also benefit from further guidance on how existing funding could be used differently to leverage sustainability in learning and teaching.

8.4.2 Increase cross-sector and multi-stakeholder collaboration

We already see strong collective efforts that support sustainability in college education. However, increased collaboration and partnerships, both on a strategic and a practical level is essential to further advancing LfS/ESD in colleges. By fostering a "collective consciousness," as one interviewee described, multi-stakeholder collaboration can drive unified progress towards sustainability objectives, ensuring education equips learners with the knowledge, skills, values and behaviours needed for a sustainable future.

"Collective consciousness, that's one of the terms that I use where I think educators, awarding bodies, people like that need to come together and look at frameworks and look at how we can integrate sustainability because it's part of a government objective, a national, a global objective" – Head of Engineering

Strategic collaboration: Aligning strategic approaches among key sector organisations (qualification providers, quality assurance organisations, funding bodies, support organisations), colleges, universities, and industry in coordination with government objectives and global sustainability goals has the potential to create cohesive and impactful

education frameworks. An existing example of is the [Energy Skills Partnership](#). More initiatives with a sustainability and partnership focus are needed for other subject areas. Such partnerships are particularly urgent given limited funding, requiring industry contributions to complement public investments and meet workforce needs.

Practical collaboration: Collaboration between colleges and sector organisations is equally critical to share best practices, co-develop CPD opportunities (including embedding ESD/LfS in initial lecturer training, for example through the Professional Development Award and the Teaching Qualification for Further Education programmes), and leverage collective resources. Student voice and employer perspectives are crucial and must be included meaningfully in such collaborations and developments.

Building on the strengths of existing organisations and institutions is vital here. For example, to improve quality and accessibility of LfS/ESD training and resources, the reach of the [College Development Network](#) could be combined with sustainability expertise at EAUC Scotland, student partnership expertise at [sparqs](#), qualification expertise at [Scottish Qualifications Authority](#), the expertise of building industry partnerships at ESP, and the expertise of existing LfS/ESD pioneers among college teaching staff and students.

8.4.3 Conducting and enabling further research

This report is only a first dive into the complexity of sustainability in college learning and teaching. More research that further explores this is vital to ensure the sector can be better supported. Quantitative research has a place in increasing our knowledge as well as monitoring and evaluation, yet, as this report highlights, qualitative methods are key to contextualise approaches and understand causalities. Unfortunately, the role of qualitative research is often overlooked and underfunded ([see e.g. Royston and Foulds, 2021](#)). More funding for mixed-method, collaborative, and qualitative research – for institutions themselves or external bodies – is crucial to achieve our sustainability goals, in education and beyond. We discuss potential directions for further research below.

9 Limitations and future research

Given the complexity, context-sensitivity, and lack of existing research on this topic, mixed method design with a strong focus on qualitative methods was chosen. However, explorative and qualitative research also has limitations, and further research is required to address these limitations and improve our understanding of LfS/ESD in colleges.

Sample. While our sample is diverse in subject areas, job roles, and geographic location, it is still a relatively small sample. Our recruitment strategy meant that, inevitably, participants of this research were most likely already interested in sustainability, which does not represent the entire sector and may bias the data towards higher sustainability metrics, specifically in findings exploring a baseline estimate. We do not claim our results are generalisable across every individual and institution. Indeed, we question whether results of such representativity could be obtained in an environment as complex as sustainability in college education. However, we are confident that our results provide important initial insights into an under-researched phenomenon. Future research may want to build on our findings and expand the sample to include individuals with no prior knowledge of or interest in sustainability.

Impact on learners. In this study, we focussed on engaging with staff and provision of LfS/ESD, rather than the impact and effect this has on learners. Our two small student focus groups contributed to important insights in this study, yet we did not systematically research the impact of LfS/ESD on students. Whether the provision of LfS/ESD is effective is a crucial question, and assessing the integration of sustainability from a staff and curriculum perspective is only one side of the coin. In line with literature such as the review by [Vogel et al \(2023\)](#), we suggest that future research explores in more detail the impact of LfS/ESD on student learning, attitudes and action. As the review highlights, it is important to approach this without relying exclusively on student self-reporting, and distinguishing between the results from classroom assessment and evaluation on wider outcomes, e.g. by assessing employment after graduation, volunteering, behaviours on campus, etc.

Subject-specific research. While we included some exploration of sustainability in different subjects, this study further focussed on the concept of LfS/ESD from a broad perspective, across subject areas. There is a lot of variation in how relevant different sustainability aspects are to different subject areas. Exploring this in depth was out of the scope of this project, but there is great potential for future research to explore this further for colleges, possibly similar to research in universities (e.g. [Rampassano et al, 2018](#)).

Impact of suggested actions. The actions we suggest as having a high potential impact in this study would benefit from further investigation. What are the effects when these actions are implemented? Undoubtedly, which actions are more feasible and impactful than others will depend on a college's context. Which factors influence this? And how can colleges be supported to find the right actions to implement?

Effective funding for sustainability. While the report acknowledges funding constraints, further research could delve deeper into exploring specific funding mechanisms and strategies to support LfS/ESD initiatives. Could existing funding be used differently to support this? Where might extra funding be needed and how should it be administered? A focus on these questions could provide valuable further guidance to both colleges and funding bodies.

Acknowledgements

This research was conducted by Kathrin Möbius, EAUC Scotland Sustainability in Learning and Teaching Project Officer.

Many thanks go to the research participants, reviewers from various colleges, universities, and other organisations, and to the EAUC team, specifically Matt Woodthorpe, Charlotte Bonner, Colleen Tait, and Lara Fahey for their invaluable inputs. Also thank you to Katherine Ellsworth-Krebs for the empowering support and glowing advocacy for qualitative research methods!



The Sustainability in College Learning and Teaching Research Report Summary is delivered by EAUC. EAUC – the Environmental Association of Universities and Colleges is a charity, no: 1106172, and company limited by guarantee in England & Wales, no: 5183502.

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