



GREEN SKILLS FOR GREEN JOBS

GUIDANCE FOR UK HIGHER EDUCATION

A QAA-Funded Collaborative Enhancement Project
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Report Summary

This report provides guidance for HE in the UK arising from a QAA funded Collaborative Enhancement Project on **Green Skills for Green Jobs**. The overall aim has been to develop an understanding of employer, student and HE staff perceptions of green skills acquisition within UK HE curriculum practice and of opportunities for sharing and developing good practice.

Four specific objectives have been to:

1. Distinguish green skills from broader existing Education for Sustainable Development (ESD) HE curriculum frameworks
2. Demonstrate the applicability and utility of selected green skills frameworks
3. Gather empirical evidence across stakeholder groups (students, HE professionals, employers) of the extent to which current curricula (formal, co-curricular, extracurricular) support green skills acquisition
4. Develop co-created recommendations for sharing good practice and addressing developmental areas

Project partners were: Aston University, De Montfort University, University of Exeter, Manchester Metropolitan University, Oxford Brookes University (project leads) and Students Organising for Sustainability (SOS) UK.

Setting the scene - green skills in the context of Education for Sustainable Development

The growth of interest in how Higher education can contribute to a more sustainable future, often framed relative to the UN Sustainable Development Goals (SDGs), has already generated a body of guidance. Notable is the Education for Sustainable Development (ESD) Guidance of QAA/Advance HE (2021), for its attempt to direct attention to eight sustainability competencies as a framework for curriculum design, themed as ways of thinking, ways of practising, and ways of being.

The most recent UK Quality Code for Higher Education (QAA, 2024) encourages the delivery of ESD to ‘ensure that all learners acquire the knowledge and skills needed to promote sustainable development’ (SDG target 4.7). The Subject Benchmark Statements (SBS), designed to guide Higher Education providers on curriculum content and the nature of the student learning experience, are nested within the Quality Code and serve to provide further impetus for ESD (QAA, 2026). The most recent SBS review cycle intentionally places greater emphasis on wider ‘social goals’, including ESD.

Across many ESD-related publications and frameworks, the connections to green skills can be recognised or at least inferred. UNESCO’s (2024) ‘Greening curriculum guidance’ states that, regardless of subject specialisation, students should be able to understand key climate concepts, including a critique of wider economic and social structures. The Environmental Association for Universities and Colleges (EAUC) Scotland (2025: 7) green careers guide states “every job is a green job” and refers to green enabling jobs and behavioural change jobs that contribute to societal transformation. The emphasis on transformation is a central tenet of ESD; it is a critical pedagogy, envisaging a different future, and seeing learners as agents for influential change. Just as within ESD as a whole, so within green skills teaching and learning this transformative potential remains a central focus.

ESD frameworks typically provide a breakdown of knowledge, skills and behaviours associated with each element of a framework. However, these sustainability frameworks often do not explicitly outline the importance of technical and, moreover, transferable skills to deliver transformative green outcomes. This report thus also aims to address this gap in the guidance literature and support the greater embedding of **all** the skills needed for green transition within the curriculum.

Defining Terms

The literature review section of this report explores the continually evolving conceptualisations of green jobs and green skills. In brief the project sees:

Green jobs in a way consistent with the ‘Green Jobs Taskforce Report’ (gov.uk, 2021, p. 6) which emphasises

“The opportunity for green jobs and skills should not be considered as niche or restricted to certain sectors of the economy. Every job has the potential to become ‘green’ as the world moves to combat climate change, and there are a huge range of skills which will support the transition to a net zero economy”.

Green skills as

“The skills needed by the workforce, in all sectors and at all levels, in order to help the adaptation of products, services and processes to the transformations due to climate change and to environmental requirements and regulations”

(OECD/Cedefop, 2014, p. 16).

Supported by The International Labour Organization (2024: no page) view of green skills as:

“Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind”.

While recognising critiques in some quarters of the term ‘green skills’ as insufficiently holistic, this report follows the mainstream narrative of governmental, academic and industry/market sources in using the term to focus explicitly on the skills needed to address climate and wider environmental challenges.

Methodology

The project methodology included recruitment to and delivery of at least one workshop at each university partner; and subsequent analysis of both quantitative and qualitative data. Central to the methodology was consistent engagement with three stakeholder groups: students, university staff, and employer representatives. Quantitative data were generated during the workshops using Slido polls and qualitative data were captured on Padlet discussion boards and in workshop transcripts.

Seven workshops were delivered between November 2025 and April 2026. There were 125 participants in total - 54 students, 44 HE staff and 27 employer representatives.

The workshops were built around UNICEF’s (2024) framework of technical, transferable and transformative green capabilities/skills as this was highlighted within the literature review and provided a sufficiently comprehensive yet manageable set of skills to facilitate meaningful discussion. The workshops also used Project Drawdown’s (2021/2025) ‘Drawdown-aligned business framework’ to provide a distinctive, organisationally oriented structure for discussion.

Workshop Findings

- **Technical skills** - a broad consensus was noted that technical skills are generally taught well and Carbon Literacy Training was frequently cited as a vehicle for green skills acquisition
- **Transferable skills** - were widely seen as essential but less tangible than technical skills, more difficult to know when learnt, often taught at a surface level and affected by a confidence gap in students
- **Transformative skills** - the least discussed of the three skill categories, which some ascribed to the challenges involved; there was agreement that the 'ability to analyse unequal systems of power' is a foundational skill in the transformative category, backed up by systems and anticipatory thinking

In addition, five transversal themes were identified

1. The need for an interdisciplinary, integrated and scaffolded approach to green skills development
2. The centrality of experiential and work-based learning for green skills acquisition
3. The need to explicitly identify, recognise and value green skills
4. Promoting hope and agency rather than anxiety and overwhelm
5. Working and learning with AI in the context of green skills

Conclusions and Recommendations

Drawing on the literature review and workshop findings, the report provides specific guidance

1. For policy makers and HE institutional leaders
2. For curriculum designers and teachers
3. For careers and employability specialists
4. For student unions and student advocacy bodies

Case Studies

The 15 case studies featured offer an opportunity to demonstrate current practice in green skills acquisition in and outside the curriculum. Many of the cases involve inter or cross disciplinary methodologies in work-integrated settings.

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Glossary of Terms

Green/Environmental: This captures climate, nature, water, air, biodiversity, animals, organisms, landscapes, ecosystems, and other related terms

Green Jobs: “The opportunity for green jobs and skills should not be considered as niche or restricted to certain sectors of the economy. Every job has the potential to become ‘green’ as the world moves to combat climate change” ([gov.uk](https://www.gov.uk), 2021 p.6)

Specialist green/sustainability role: With particular technical expertise related to the role/sector

Non-specialist/generalist green/sustainability role: Wider ‘business acumen’ and softer skills applicable to generalist sustainability roles and ideally, the wider workforce

Green and Just Transition: “Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind” (ILO 2024)

Social justice and equity: Human rights at the core of decision-making on climate change and social-environmental problems to address structural inequalities and intra/intergenerational equity

Green skills: “The skills needed by the workforce, in all sectors and at all levels, in order to help the adaptation of products, services and processes to the transformations due to climate change and to environmental requirements and regulations” (OECD/Cedefop, 2014, p. 16).)

Technical green skills: Specialist skills for particular occupational sectors, tasks and roles

Transferable green skills: Applicable across roles/sectors (sometimes referred to as soft, generic, cross-cutting, transversal) - relevant to both sustainability roles (technical and general) and the wider workforce

Transformative green skills: Encompassing transferable skills, along with skills aligned to deeper systemic change/disruptive thinking - relevant to both sustainability roles (technical and general) and the wider workforce

Transversal themes: themes of a crosscutting nature drawn from the data generated by this project, not specific to any specific skill category

Project Management and Timeline

The project team and how it worked

The project team was convened by Oxford Brookes University, working in collaboration with SOS UK and four other universities: Aston University; De Montfort University; University of Exeter; and Manchester Metropolitan University. The bid was originally prepared by Oxford Brookes University (OBU) and SOS UK. Representatives of all the collaborating parties made up the project team, which was further expanded with the appointment of a Student Research Assistant funded by the successful bid.

The full team met on six occasions at key points in the project's design and delivery. Project documentation was held in a shared Google Drive managed by Oxford Brookes. QAA liaison and reporting, as well as financial management, was carried out by Oxford Brookes. In addition to the main QAA-OBU contract, OBU separately agreed formal collaboration agreements with the other parties outlining obligations, financial arrangements and, in particular, data management protocols.

A timeline showing the different phases of the project

December 2024	Bid submitted
February 2025 April 2025	Award announced
May 2025	Oxford Brookes Ethics Committee approval received
May- October 2025	Formal project commencement date
September 2025	Literature Review, design of workshop, ethics approvals by collaborating universities, contracts agreed
November 2025 - April 2026	Student Research Assistant (part-time) took up post
April - June 2026	7 workshops across 5 universities (6 of them online)
July - August 2026	Data analysis, draft report writing, case studies generated, consultations on draft document
July - August 2026	Response to consultations, final report writing and submission
October 2026 and beyond	Launch, dissemination events, academic publications

Setting the Scene: Education for Sustainable Development (ESD)

The growth of interest in how Higher Education can contribute to a more sustainable future, often framed relative to the UN Sustainable Development Goals, has occurred in parallel with an increase in the guidance available to UK university leaders, educators and professional service colleagues. This guidance typically advocates for whole-institution approaches (e.g., Advance HE, 2024) and addresses some combination of four core university functions: education, research, operations, and outreach. It is the first of these that is most pertinent to this project, and an early example exploring the parameters of Education for Sustainable Development (ESD) was jointly published by the Quality Assurance Agency (QAA) and Higher Education Academy (HEA) in 2014. Since then, various regulatory, policy and advisory bodies have remained a key source of direction. Prominent amongst these publications is the ESD Guidance of QAA/Advance HE (2021), which is noteworthy for its attempt to direct attention to eight sustainability competencies as a framework for curriculum design, themed as ways of thinking, ways of practising, and ways of being. Its guidance is informed by UNESCO's (2019) definition of ESD:

“ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning, and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment. It achieves its purpose by transforming society” (UNESCO 2019: 8)

The emphasis on transformation is a central tenet of ESD; it is a critical pedagogy, envisaging a different future, and seeing learners as agents for influential change in their professional, personal and civic lives. The well-regarded CoDesignS framework for ESD (2021) also articulates a curriculum that centralises sustainability competencies, integrates them with the UN SDGs, and, crucially, employs active and participatory learning approaches with transformative potential. Frameworks like CoDesignS are helpfully complemented by multiple learning and teaching textbooks focused on the principles and practice of ESD (e.g., Leal Filho et al., 2025; White et al., 2025), drawing on both global north and south perspectives.

Faced with criticism that school and “university education is also often narrowly academically focused” (ILO, 2025: 38), there is within ESD a widely acknowledged need for a greater skills focus alongside the need to ensure representation, including of gender and marginalised ethnic groups. The Greening Education Partnership (2026) specifically sets out the need for holistic learning across the dimensions of cognitive, socio-economic, and behavioural competencies, incorporating inclusive approaches to gender and indigenous knowledge. Moreover, skills for a ‘fair and just’ green transition require that a broader, systemic view of society is adopted in curriculum planning. The importance of drawing on diverse global perspectives is frequently stressed in the ESD literature. Mbah et al. (2025, p. 14), in discussing climate change education in Africa, note that “Effective pedagogies for teaching about climate change should incorporate indigenous and innovative ways of addressing specific environmental issues and realities.”

The UK Quality Code for Higher Education sets out the principles for securing academic standards and assuring and enhancing quality. The most recent iteration (QAA, 2024) encourages the delivery of ESD to ‘ensure that all learners acquire the knowledge and skills needed to promote sustainable development’ (SDG target 4.7). The Subject Benchmark Statements (SBS), designed to guide Higher Education providers on curriculum content and the nature of the student learning experience, are nested within the Quality Code and serve to provide further impetus for ESD (QAA, 2026). The most recent SBS review cycle intentionally places greater emphasis on wider ‘social goals’, including ESD. Moreover, the ways in which quality assurance processes within universities can be configured to support engagement with ESD are usefully addressed in the QAA-funded collaborative project ‘ESD and Academic Quality’ (Reeves et al., 2023). The final report offers practical suggestions for integrating ESD into academic quality and student voice processes and presents seven ‘SUCCEED’ principles to guide this activity.

Within the context of these various strands of guidance, universities can assess their sustainability credentials and compare their progress with peers using an increasing number of evaluative frameworks. Three illustrative examples are mentioned briefly here: 1, The Times Higher Education University Impact Rankings (Times Higher Education, 2025b) structured around the UN SDGs; 2, the People and Planet University League (People and Planet, 2025) with an emphasis on environmental and ethical performance; and 3, Responsible Futures, co-ordinated by SOS-UK, exploring and enhancing, through student led approaches, the whole student experience through the formal, informal and subliminal curriculum (SOS-UK, 2024).

Positioning skills for a green transition within ESD

Across this variety of ESD-related publications and frameworks, the connections to green skills can be recognised or at least inferred. For example, the growing interest in sustainability competencies as a framework for curriculum design has clear synergies with the threefold UNICEF green skills framework adopted in this research study, which distinguishes among technical, transferable, and transformative skills (as discussed within the literature review). Common foundations draw attention to the importance of self-awareness and emotions, and to how individual mindset, values, and motivations are precursors to transformative intent and action. The widely used UN SDGs are underpinned by a concern for equitable and just transitions, which, in turn, resonates with this project's framing of green skills. At times, the articulation of green skills is more explicit, for example, by professional bodies which accredit specific HE programmes or within disciplinary literature such as Trevisan et al. (2025), which examines circular economy education and training for the manufacturing sector.

The work of Wickson et al. (2025), which studies competencies for sustainability transformation, extends ‘head, heart and hands’ dimensions of learning to also include ‘gut’ in terms of emotional recognition, holding, processing and integration. In responding to the climate crisis and related eco-anxiety, this is a helpful model to guide ‘whole person’ learning approaches represented through frameworks such as the ‘Sustainability Mindset Principles’ (Rimanoczy, 2021) and the ‘Inner Development Goals’ (IDGs) (Inner Development Goals, 2026). For example, in an application of the

IDGs to the climate crisis, Bodor et al (2025: 1) set out how the dimensions of ‘Being, Thinking, Relating, Collaborating and Acting’ can embed and expand climate literacy through inner qualities of ‘transformative skills’ “that help translate scientific understanding into transformative shifts in the way we do things, individually and collectively”.

Reay’s (2023: 4) report to the Climate Change Committee on ‘Skills and Net Zero’ highlights the paradox that “Although most universities have committed to reducing emissions from their estates and activities, few have fully embedded Net Zero into their learning provision”. Without addressing this, universities might not only “fall behind in the green skills race” (MacGregor, 2024: no page), but risk credibility. A report into ‘Accelerating the UK Tertiary Education Sector to Net Zero’ concludes that “All universities should update their strategic plans to address Net Zero skills and lifelong learning provision” (Royal Anniversary Trust, 2023: 5), highlighting that the international scope of many Higher Education institutions enables local through to global capacity building.

UNESCO’s (2024) ‘Greening curriculum guidance’ states that, regardless of subject specialisation, students should be able to understand key climate concepts, including a critique of wider economic and social structures. Similarly, SOS-International’s (2024) ‘Green skills and green jobs youth consultation’ report notes the need for students and graduates to understand environmental job opportunities relevant to their discipline and career path. This highlights the need for responses across formal, extracurricular and co-curricular learning pathways. The National Foundation for Educational Research (2025) warns that young people leaving education without the necessary skills face a disproportionate risk of exclusion from growing occupations. Given the growth in the green jobs sector, this warning can be extended to an imperative for higher education to embed transferable and transformative green skills across its curricula.

The Environmental Association of Universities and Colleges (EAUC) Scotland’s (2025: 5) green careers guide states “every job is a green job” and refers to green enabling jobs and behavioural change jobs that contribute to societal transformation. The guide further refers to technical and transferable (or ‘meta’ skills) and how these can be developed through formal learning alongside extracurricular activities. The framing of technical, transferable, and transformative skills aligns with leading ESD frameworks, such as the GreenComp European Sustainability Competency Framework (Bianchi et al., 2022) and UNESCO’s (2019) eight sustainability competencies. ESD frameworks typically provide a breakdown of knowledge, skills and behaviours associated with each attribute. However, these sustainability frameworks do not explicitly outline the importance of technical and, moreover, transferable skills to deliver sustainability/green outcomes. This report aims to address this clear gap in the guidance literature and support the greater embedding of all the skills needed for a green transition within HE provision.

Aim of this project

The overall aim has been to develop an understanding of employer, student and HE staff perceptions of green skills acquisition within UK HE curriculum practice and of opportunities for sharing and developing good practice.

Four specific objectives have been to:

1. Distinguish green skills from broader existing Education for Sustainable Development (ESD) HE curriculum frameworks
2. Demonstrate the applicability and utility of selected green skills frameworks in an HE curriculum context
3. Gather empirical evidence across stakeholder groups (students, HE professionals, employers) of the extent to which current curricula (formal, co-curricular, extracurricular) support green skills acquisition
4. Develop co-created recommendations for sharing good practice and addressing developmental areas

Green Jobs: a ‘shades of green’ approach

The demand for green jobs and green skills is described as ‘resilient’ at both the global (World Economic Forum (WEF), 2025) and UK national level (LinkedIn, 2026; PwC, 2024). Such resilience is reflected in successive LinkedIn ‘Global Green Skills reports (2024,2025), which show that global demand for green talent has grown twice as quickly as the supply of labour, and that, in 2025, hiring for green talent has grown at twice the pace of skills in the workforce. "Environmental stewardship" has entered the top 10 fastest-growing skills 2025-30 for the first time (WEF, 2025), thus illustrating the relevance of green skills across a spectrum of job roles. LinkedIn's (2026) analysis of green skills in the UK identifies that 36% of UK workers are interested in green transition roles, rising to 55% among millennials and 49% among Gen Z. 79% of firms in the European Union report a lack of appropriately skilled staff as a barrier to green investment - a mismatch projected to leave nearly one in five green-skill vacancies unfilled by 2030 (Cedefop, 2026)

In the UK, the Confederation of British Industry (Confederation of British Industry, 2025) details that total employment contributions from the net-zero economies have grown considerably (15.2%) and support 125,700 more full-time equivalent (FTE) jobs than in 2022. At a time of complex global climate politics, the World Economic Forum (WEF) (2025) ‘Future of Jobs’ report gives confidence that the green transition remains a priority for many global organisations, with a significant increase expected in organisational transformations to reduce carbon emissions. The WEF report highlights that green jobs have remained resilient through disruptions, such as the Covid pandemic, and is clear about the need for the workforce to be equipped with the skills necessary for a net-zero future. The International Labour Organization (2025) highlights the intersection between the green and digital transformations, and calls for more alignment in policies and qualifications that address both transitions simultaneously - such as the spectrum of skills for energy-efficient data technologies.

There have been many differing definitions of green jobs, since early United Nations policy definitions. The United Nations Environment Programme (UNEP, 2008: 3) adopted a limited sectoral scope focusing on a ‘substantial’ contribution to ‘preserving or restoring environmental quality’ while also noting the need for ‘decent work’. In 2016, the International Labour Organization literature began to extend beyond traditional sectors to new, emerging sectors such as renewable energy and energy efficiency. There have since been many further definitions arising from policy concepts through to statistical measurement definitions, but in common is the interrelationship between environmental sustainability and labour markets and the need for a ‘fair and just’ transition (International Labour Organization, 2023).

A comprehensive categorisation of green jobs drawing on the well-known US Bureau of Labour Statistics O*NET is provided by Dickinson et al. (2022: 5):

“Green New and Emerging Occupations: these are occupations that have unique requirements for working in or on the decarbonisation of goods, processes and services, such as electric vehicle power unit designers.

Green Enhanced Skills and Knowledge Occupations: occupations that currently exist but require a change in their competencies and/or context for working in or on the decarbonisation of goods, processes and services e.g., maintenance of electric vehicles (EVs);

Green Increased Demand Occupations: those occupations whose demand is increased due to the decarbonisation of goods, processes and services, but do not entail significant changes to their competencies or context e.g., example electric power line installers.”

However, such definitions are not universally agreed. For example, some consider only low-carbon sectors to be 'green', while others associate green skills and jobs only with sectors that are decarbonising and enabling others to work on decarbonisation (Simmonds & Lally, 2024). The "lack of clarity about the definition of occupations and skills for the green transition" is described as standing "in the way of identifying them and forecasting skills needs" by Cedefop, (the European Centre for the Development of Vocational Training) (Cedefop & UNESCO-UNEVOC, 2025, p. 13).

The Green Jobs Foundation (2025) describes the greening of jobs as being at a 'point of flux' and emphasises the need to move on from debates on what green jobs are, and instead to focus on skills development. It describes 'shades of green' based on jobs that are directly or indirectly green, enabling green work, thus transforming all sectors and roles. This is supported by the 'Green Jobs Taskforce Report' (gov.uk, 2021, p. 6) which defines green jobs and associated skills as those that both directly contribute to and indirectly support the achievement of UK net zero emissions targets:

"The opportunity for green jobs and skills should not be considered as niche or restricted to certain sectors of the economy. Every job has the potential to become 'green' as the world moves to combat climate change, and there are a huge range of skills which will support the transition to a net zero economy"

Reay's (2023, p. 10) report for the UK Climate Change Committee sets out sector-level skills implications, categorised as having a 'core', 'enabling', or 'peripheral' role in a green transition, with differing implications within each. However, there are challenges in using large datasets, such as job advertisements, since green skills may not be explicitly specified in job descriptions for technical specialist roles, where such skills (such as environmental compliance) are implicitly expected (Cedefop & UNESCO-UNEVOC, 2025). The report also highlights that 'job greenness' is not always made explicit in skills requirements, even when integral to broader skills supportive of organisational mission and vision. As (Cedefop & UNESCO-UNEVOC (2025, p. 25) note, "Requesting employees to be innovative so that they can drive and adapt to change, while not solely relevant for green transition, can play an important role in shaping it".

Rather than separate 'green' from 'brown' jobs (Bohnenberger, 2022), Cedefop (2023) recommends a 'greenness' scale can be helpful to classify jobs, recognising that most jobs probably include 'green' and 'non-green' tasks and skills. Similarly, the Institute for Apprentices (2023) categorises 'light green', 'mid-green' and 'dark-green' occupations. A European Union project on 'Green Guidance' provides a suite of publications that are relevant to career practitioners and educators, one of which recommends being "clear about what green jobs are and how individuals can engage in their careers in a green way even if they are not in a green job [...] understanding about and capability in the skills that are needed for the green economy" (Bakke et al. 2024: 33). Another publication details that "Green jobs are difficult to define. It is likely to be more helpful for both guidance professionals and individuals to use a variety of labour market information and data to assess the relative 'greenness' of jobs as part of their career decision making" (Hooley et al. 2024: 31).

Deloitte and IEMA (2022) define green jobs as 'specialist roles that focus on specific domains or initiatives dedicated to improving environmental outcomes for an organisation or the economy'. It also sets out the need for an "environmentally sustainable mindset as the norm for everyone", in that all employees will need environmental awareness with corresponding shifts towards green skills in non-specialist sustainability roles. This project is informed in particular by Deloitte and IEMA's (2022) identification of four shifts in the market for green jobs and green skills, which includes; specialist green skills for new green sectors; green skills in non-specialist roles; expanding skill sets for those in specialist sustainability roles; and transition of workforces from unsustainable sectors.

Arguably, all individuals have some degree of choice in how they apply skills to job roles to manage environmental impact, and this choice is influenced by attitudes and dispositions (OECD, 2025).

Such a perspective supports Carosin and Canzittu's (2019) career guidance for the 21st century, which advocates the importance of self-awareness in enabling individuals to understand their interests and values, alongside awareness of the labour market and the impact of various industries, in order to align personal and societal development. This is also reflected in the OECD (2025) 'Career readiness framework for green guidance', which advocates for foundational environmental literacy for all to support individuals in exploring, experiencing, and progressing towards green jobs. Thus, in summary, the position adopted in this report is that every job can be 'greened' (i.e. a shades of green approach), and that this categorisation carries a broad spectrum of skills requirements, which are explored in the following section.

Skills for the green transition: Technical-Transferable-Transformative (TTT)

Having positioned the potential for all jobs to be greened in the previous section, green skills are, accordingly, understood within this report as:

"The skills needed by the workforce, in all sectors and at all levels, in order to help the adaptation of products, services and processes to the transformations due to climate change and to environmental requirements and regulations" (OECD/Cedefop, 2014, p. 16).

This report also draws on a definition of green skills by The International Labour Organization (2024: no page) as:

"Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind".

Taken together, the green transition calls for skills that straddle climate and related environmental concerns, including those related to nature, water, and biodiversity, while promoting equity and inclusivity in addressing structural inequalities as well as intra- and intergenerational equity. Before setting out the frameworks which have informed this design, this section begins by providing some context on the landscape of green skills terminology. The term 'green skills' is used broadly here to encompass abilities, capacities, knowledge, and competencies, which are distinct yet interrelated concepts. Despite the common phrasing 'green skills', as reflected by the section title, they might be better understood as 'skills for the green transition' to reflect their broad scope.

Terminology and classification of green skills

The European Classification of Occupations, Skills and Competencies (ESCO) identifies 571 green skills (European Commission, 2022). The open-source 'Green Skills Map' features 243 green skills clusters (Green Skills, 2025). It was not the aim of this research to comment on how green skills are classified, but rather to identify a suitable framing to inform workshop design in a way that could be readily understood by students, educators and employers. Of significance among green skills classifications is the differentiation between those skills that are generally transferable across job roles and functions, and those that unlock and enable 'just transition' through addressing social and economic structures. Accordingly, this project differentiates green skills by whether they are technical, transferable, or transformative.

LinkedIn's (2025) 'Global green skills report' identified 1,200 green skills across 12 categories, which are similarly adopted in the LinkedIn (2026) 'UK green skills report'. Although the UK report does not explicitly detail transferable skills and transformative capacities, it describes green skills as 'core business skills', which are illustrated across its case studies and its statement that the data shows:

"Green skills diffusing across organizations and roles, becoming a standard part of how work is done, particularly as mitigating risk, increasing resilience, and thinking systemically become fundamental aspects of more job titles". (LinkedIn 2026: 13)

"The Green Jobs Foundation (2025, p. 26) describes how "the skill itself isn't always green, it's the purpose that makes it green." Aligning with this, OECD (2024) and the Green Alliance (2026) both suggest it is more accurate to discuss 'skills for a green transition' - for example a cook devising new menus to reduce food waste or a data analyst using their skills to support investment in green technology instead of fossil fuels. How an individual chooses to apply skills depends on both job market opportunities and individual values and characteristics.

Skills England (2026: 54) Standard Skills Classification for the UK explicitly recognises green skills, alongside digital skills, STEM and AI, and touches upon 'green and green enabling skills'. This follows the governmental 'Net Zero' report (gov.uk, 2021, p. 90), which sets out the importance of 'cross-cutting' skills to a green transition, which it describes as "an array of skills not unique to green roles", and that go beyond 'technical' roles. At a global scale, the International Labour Organisation (2025) is clear that the twin technological and green transitions will require both technical and interpersonal skills, noting the increasing value placed on interpersonal skills, as they are less susceptible to technological replacement. A case study within LinkedIn's (2026) UK green skills report also illustrates the intersection of AI, green skills, and human capacity:

"AI and data are critical enablers of the energy transition, but it's people who turn insight into impact. By equipping engineers and operators to question, interpret, and apply these tools, we unlock human creativity and collaboration — essential capabilities for tackling the most complex sustainability challenges." (Lisa Wee, AVEVA Chief Sustainability Officer- LinkedIn, 2026: 28)

The QS World Future Skills Index (2027: 27) found that employer demand gaps are most pronounced not in technical skills but in 'human cognitive skills' and 'human-centred leadership' and that closing the skills gap "will require focus on building the experiential, judgement-forming and leadership-development infrastructure". Such focus is also apparent in Krstic and Towne's (2026) British Council study of higher education alumni across 130 countries, in which the skills most frequently identified as developed during UK study for career success included critical thinking, collaboration/teamwork, self-confidence, and communication.

Technical versus transferable and transformative skills

Notably, as far back as 2010, Cedefop called for improving 'generic' green skills across the workforce (Cedefop, 2010), and, in more recent work, differentiates between 'technical' and 'transversal' skills, which is a helpful underpinning for the approach to workshop design in this project.

"Skills and competences but also knowledge, abilities, values and attitudes needed to live, work and act in resource-efficient and sustainable economies and societies. They are:

technical: required to adapt or implement standards, processes, services, products and technologies to protect ecosystems and biodiversity, and to reduce energy, materials and water consumption. Technical skills can be occupation-specific or cross-sectoral;

transversal: linked to sustainable thinking and acting, relevant to work (in all economic sectors and occupations) and life. Alternatively referred to as ‘sustainability competences’, ‘life skills’, ‘soft skills’ or ‘core skills’” . (Cedefop, 2022, p. 5)

The definition of ‘transversal’ skills above illustrates that several alternative terms are used to describe non-technical/specialist skill sets. Table 1 presents thirteen terms identified in this literature review to describe such skills; while this is indicative rather than exhaustive, it illustrates the broad terminology surrounding green skills. This diversity of terminology might act as a barrier to understanding; thus, the classification of technical-transferable-transformative (TTT) adopted in this project is one suggestion that might help overcome it. Further analysis could focus on distinguishing factors related to skill, capability, and competencies, alongside dimensions such as knowledge, attitudes, and behaviours. The purpose here is to position the adoption of ‘transferable’ and ‘transformative’ skills as differentiated from ‘technical’ skills, for the purpose of this research.

Table 1: Terminology for ‘non-specialist’ green skills

Terminology	Reference
Transferable	(Cedefop, 2023; gov.uk, 2021; SOS-International, 2024; UNICEF, 2024)
Transformative	(Kwauk & Casey, 2021; Simmonds & Lally, 2024; UNICEF, 2024; VET, 2023; Bodor et al, 2025)
Generic	(Cedefop, 2010; Kwauk & Casey, 2021; Pavlova & Singh, 2022; VET, 2023)
Cross-cutting	(gov.uk, 2021)
Enabling	(Green Skills, 2025; Simmonds & Lally, 2024)
Green mindset	(Cedefop, 2023; Pavlova & Singh, 2022)
Soft	(Economist Impact, 2024; SOFTEN, 2024; SOLAS, 2024; SOS-International, 2024; THE, 2025)
Cross-sectoral	(Economist Impact, 2024)
Instrumental	(Kwauk & Casey, 2021; Simmonds & Lally, 2024; UNICEF, 2024)
Transversal	(Cedefop, 2022; European Commission, 2022; European Training Foundation, 2023; Nesta, 2021; SOLAS, 2024; VET, 2023)
Understanding/attitudes	(Simmonds & Lally, 2024)
General	(World Skills UK, 2022)
Cross-functional	(Nesta, 2021)
Human	(THE, 2025)
Adaptive	(Fuchs, 2024)
Intrapersonal	(Fuchs, 2024)
Emancipatory	(Fuchs, 2024)

Source: Authors

The VET (2023) green skills toolkit, for example, distinguishes between technical (for upskilling and new green jobs) and transversal skills, which it terms ‘generic’ and ‘transformative’. The analysis of big data from online job advertisements provides insight into the relevance of ‘transversal’ skills such as teamwork, adaptability, and problem-solving in technical green role profiles, such as those of renewable energy professionals (Cedefop & UNESCO-UNEVOC, 2025, p. 28). The identification of ‘transformative’ capacities can be linked to the integration of climate justice into the skills literature (Kwauk & Casey, 2021; Kwauk & Casey, 2022). The RACE Report (2025) highlights the disparity in minority ethnic representation within environmental and conservation-focused organisations, and LinkedIn (2026) spotlights the gender gap in green skills in the UK. Equity and inclusivity for a just

green transition must be fundamental considerations in workforce skills development and educational curricula alike, guided by inclusive design principles.

Frameworks underpinning the TTT design of this research

Kwauk and Casey's (2021, 2022) green skills framework underpins the design of this research, in its identification of what it terms 'instrumental' (categorised as 'specific and 'general') through to transformative capacities (in which generic capacities are described as "cross-cutting skills that service both technical, instrumental and adaptive, transformative ends"). This framework was adapted by UNICEF (2024), which built on it to distinguish between technical (rather than 'specific') and transferable (rather than 'generic'). The workshop design here draws on UNICEF's reframing of skills as technical, transferable, and transformative.

The broad applicability of Kwauk and Casey's original framework is suggested by its adoption in a slightly revised form in Simmonds and Lally's (2024) parliamentary brief on green skills in education and employment. The technical-transferable-transformative framing has been used effectively to analyse interview findings from sustainability business leaders regarding perceptions of skills needs (Cripps, 2026). It has also been successfully deployed in 'An organisational guide to skills for green workforce transformation' (Cripps and Ho 2026), in which industry leaders author chapters premised upon the application of transferable and transformative skills.

Thus, the adoption of this UNICEF framing for workshop design here is premised on its broad applicability and accessibility from industry, policy, and research perspectives. The consideration of technical and transferable skills aligns more closely with the language used in job descriptions and organisational competency frameworks. For example, the current 'Sustainability skills map' of the 'Institute of Sustainability and Environmental Professionals (ISEP 2026) distinguishes between core knowledge competencies, technical knowledge competencies and skills for sustainable leadership. ISEP differentiates between technical specialist and generalist roles; the latter having "an increased need for business strategy and 'soft' skills" (ISEP 2025: 29).

The Times Higher Education (THE) (2025a: 21) 'Green Skills Assessment Framework' features 12 green skill 'touchpoints' (or categories) across the learner journey in 3 pathways: classroom, society, and global. Within each category, skill areas are differentiated as 'technical' (discipline-specific), 'human' (cognitive and socio-behavioural skills that complement discipline-specific learning, also referred to as 'soft skills') and 'application' (development and practice in real-life settings). These three categories align with the 'technical-transferable-transformative' skills framing for this research.

The European Training Foundation (2023) similarly promotes 'a holistic green education reform' incorporating knowledge and skills alongside 'sustainability mindsets' that empower individuals towards pro-environmental behaviour. A typology of green skills by Pavlova and Singh (2022, based on Pavlova 2016/17) similarly illustrates the foundational importance of attitudes and values as part of a green mindset as a foundation to 'generic skills' (i.e. transferable skills) that are increasingly important across green specialist jobs and to support the 'greening' of more jobs. The holistic approach to skills for a green transition is captured well in a literature review for 'Green Guidance', which concluded that;

"Green competencies are more than just technical 'green skills' but also include creativity, a wider understanding of social and political systems, the capacity to influence others and the capacity to manage your emotional response to environmental change". (Bakke et al. 2024: 17)

The following section sets out how the technical transferable, transformative (TTT) framing was operationalised through workshop design.

Workshop conceptual design

Workshop design was premised upon building insight into how educational programmes (curricular, co-curricular and extra-curricular) already contribute to green skills and green jobs through broader skills development, and where they might be further developed. It was also considered important to support HE staff participants to understand how responses to green skills are already or could be positioned within their existing Education for Sustainable Development initiatives.

The workshops adopted UNICEF's (2024) list of technical, transferable and transformative green capabilities/skills, because, as set out in the previous section on green skills, this framework provides a comprehensive, yet manageable presentation of skills to enable meaningful discussion. The workshops also used Project Drawdown's (2021/2025) 'Drawdown-aligned business framework' to provide a distinctive, organisationally-oriented structure for discussion. The adaptations of these frameworks are shown in the workshop handouts in the appendices.

Project Drawdown is a leading non-governmental organisation based in the United States, and a globally influential climate voice. It researches and disseminates solutions to avoid and reduce climate-heating greenhouse gases, and how to move to the point of 'drawdown' as the point in time where harmful gases decline. It has developed an extensive set of resources on how climate links to roles through 'job function action guides' (Project Drawdown, 2021/2025), and its messaging aligns here with 'every job is a sustainability job' (EAUC 2025; gov.uk, 2021).

The 'Drawdown aligned framework' was initially developed in 2021, and revised in 2025. It defines a drawdown-aligned organisation as one that "leverages all aspects of its business— its social, political, and financial capital—to reduce emissions well beyond its own operations and help secure a just climate future for all" (Project Drawdown, 2021/2025: 4). Although its work is focused on greenhouse gas emissions, Project Drawdown recognises the nexus of climate, people (encompassing equity, for example) and nature (encompassing biodiversity and water, for example) (Project Drawdown, undated).

The framework provides helpful scoping for exploring green skills and green jobs, supporting the research position that every job role and function can adopt at least some aspects of climate-related (and, by extension, green) tasks. The framework is composed of eight 'leverage points' (emissions reduction, climate disclosures, stakeholder engagement and collaboration, climate policy advocacy, product partnerships and procurement, business model transformation, investments and financing, long-term thinking). While described as a 'business' framework, it is applicable across organisational sectors and sizes as well as job roles.

The Project Drawdown framework's eight leverage points align well with the recently released Institute for Sustainability and Environmental Professionals (ISEP) (2025) report's identification of nine 'disciplinary focus' areas for sustainability professionals, as mapped in Table 2.

Table 2: Mapping of ISEP 'disciplines' and Project Drawdown 'leverage points'

Project Drawdown leverage point	ISEP discipline
Emissions reduction	Data and tech projects Procurement design and delivery Products and innovation
Climate disclosures	Reporting and disclosure Compliance management and assurance
Stakeholder engagement and collaboration	Communications and engagement
Climate policy advocacy	Communications and engagement
Products, partnerships and procurement	Procurement design and delivery Products and innovation
Business model transformation	Products and innovation Training/education
Investments and financing	Risk management/projects
Long-term thinking	Strategy and research

It was recognised from the outset that, in engaging multi- and inter-disciplinary stakeholder groups, some aspects of Project Drawdown's framework were likely to resonate more than others. The framework's terminology is management-focused but relevant to the broader context of any organisation where students/graduates from any discipline might work. It was thus considered an appropriate and potentially illuminating structure and springboard for discussion, with some minor adaptations made (see Table 3).

The revisions include amending Project Drawdown terminology to more explicitly broaden it beyond climate. The leverage point on 'long-term thinking' was extended to a broader scope of values-based thinking, reflecting ESD competencies. Most significantly, a ninth leverage point was introduced - 'Responsible data and technology solutions', recognising the interconnections between green and digital transitions. An open invitation was given to workshop participants and facilitators to suggest any further reframing or additions based on the workshop discussion. The following section outlines how the frameworks were deployed during the workshops.

Table 3: Project Drawdown leverage points and workshop resource revisions of terminology

Project Drawdown (original)	Revision
Emissions reduction	Natural resource & just transition solutions
Stakeholder engagement and collaboration	Stakeholder communication and engagement
Climate policy advocacy	Green, just and inclusive policy advocacy
Product, partnership and procurement	Products/services, partnerships, procurement
Business model transformation	Organisational model innovation and

	transformation
Investments and financing	Risk management in investments and financing
Long term thinking	Resilience and values-based mindset for futures literacy
Climate disclosures	Reporting and disclosure transparency and assurance
	Responsible data and technology solutions (including AI)

Methodology

The project followed a methodology consistent with that outlined in the original bid to the QAA, namely: a literature review; identification of workshop design principles; recruitment to and delivery of at least one workshop at each university partner; and subsequent analysis of both quantitative and qualitative data. Central to the methodology was consistent engagement with three stakeholder groups: students, university staff, and employer representatives. A key contribution to project design, execution, and research assistance was made by Students Organising for Sustainability (SOS) UK.

The workshop resources are shared in the appendices of this report, so that they may be used by other institutions that wish to run the workshop. The supporting powerpoint slide deck can be accessed via the QAA project site.

Ethics Approval

The study and its methodology were initially approved by the Oxford Brookes Research Ethics Committee. Subsequently, the four other participating universities submitted related applications within their institutions and received approval to generate data through their networks.

Workshop Delivery

Eight workshops were planned, of which seven were fully delivered. Of these seven, six were online and one was in person. Workshops took place between November 2025 and April 2026. There were 125 participants in total. Each workshop lasted two hours and was facilitated by two members of the core project team.

Workshop Pilot

Oxford Brookes University ran the first workshop in September 2025 to pilot the workshop resources. Following this, revisions were made to the Padlet design in order to simplify the requirements.

Participant Recruitment Criteria:

Students - open to UG, PG and Research students, with a minimum of one year in Higher Education (not necessarily at the institution where the workshop took place), and with a demonstrable interest in sustainability. Recruited via staff and student union/society networks, using email, leaflets and word of mouth.

University staff - educators, educational support and other professional services staff (e.g, estates, careers). Recruited via messaging within existing teaching and university sustainability staff networks.

Employers - representatives (including HR, graduate recruiters, operational managers) of employers known to the careers, alumni and business engagement teams of the five university partners. Recruited via email and word of mouth.

Incentives

Students were offered a £15 voucher as a thank you for participating in a workshop. Other participants were not materially incentivised. Catering was provided at the in-person workshop.

Types of data generated

Quantitative - during the workshops, participants were asked to identify the Project Drawdown Leverage Points most relevant/meaningful to them individually. These inputs were captured on a Slido poll and subsequently analysed. In addition, once in breakout rooms/on breakout tables, participants were asked to collectively agree two Leverage Points to focus their discussions on. These choices were captured on Padlets.

Qualitative - the Padlets also captured individual reflections and summaries of group discussions on the two chosen Leverage Points. In the context of these Leverage Points, participants were also asked to discuss what was working well/could be improved with reference to the teaching and application of the technical, transferable, and transformative skill categories in the UNICEF framework. Audio recordings were made of all breakout discussions, and transcripts generated. Qualitative analysis, therefore, draws on both the Padlet contributions and the transcripts.

Data Analysis

This section summarises the approach taken to the analysis of:

1. Online poll using Slido - prioritisation of leverage points
2. Online discussion board using Padlet - prioritisation of leverage points selected for discussion
3. Breakout group transcript discussions

a) Slido leverage point prioritisation analysis

Workshops began with a poll (using Slido) in which participants selected the top three leverage points most important to their area of work or study, categorised according to stakeholder group (students, academics/professional services, employers).

Data analysis is based on Slido engagement rather than attendance figures, which accounts for the fact that response numbers are not always consistent with workshop participant numbers. Non-responses may be due to technical issues, a late arrival, or a misunderstanding. Ghost votes may be due to facilitators accidentally submitting votes or to a participant using two devices.

Figure 3 in the section on 'Workshop findings' shows leverage point voting data collected across all institutions. Data were also analysed for each workshop:

- A raw 'count' of votes is provided for each stakeholder group for each leverage point.
- The percentage of votes for each leverage point, weighted according to the total respondents within each stakeholder group, both at each workshop and overall for that stakeholder group

The aim of this stage of analysis was to identify respondent priorities, rather than assess statistical significance. The data are interpreted as a "directional snapshot" of stakeholder sentiment rather than a definitive population measure.

b) Padlet prioritisation of leverage points

The Padlet tool enabled collaborative input on a shared discussion board, where participants collectively agreed on two leverage points most significant to all group members. For each leverage point, they were then asked to discuss what is working well, and what can be improved, with reference to technical, transferable and transformative skills (TTT).

The design of the Padlet enabled three columns representing the TTT skills, with nine comment boxes under each column to represent the leverage points. This led to a whole-group workshop output of shared comments, categorised by skill and leverage point.

The first stage of analysis of the Padlet data was to identify which leverage points were prioritised for discussion. A first phase of thematic grouping based on Padlet entries provided a structure to begin thematic analysis. This phase was also informed by event summaries written by each workshop facilitator. These summaries surfaced initial insights and themes identified at the individual workshop level.

c) Breakout group discussion analysis (padlet and transcripts)

Facilitator summaries, Padlet, and workshop transcripts have been analysed with two main purposes. First, to gather participants' insights into how the three skill sets (technical, transferable, and transformative) within the UNICEF framework are taught, learned, and applied. Second, to identify any further overarching themes to bear in mind when seeking to promote green skills acquisition. These considerations might relate, for example, to the organisational context, the availability of work-based learning, and the need for an integrated, scaffolded approach to skills development. This stage of the analysis proceeded iteratively, involving initial human interrogation and the collection of key text excerpts, an AI (Gemini) phase of sense-making within each data category, and the refinement of the AI-generated analysis through sense-checking against the text excerpts and their original documentary/workshop contexts. Beyond this project report, all the Padlet and transcript records will be further interrogated using explicit theoretical/conceptual lenses of enquiry that have not been applied as yet.

Limitations of the methodology

The modest nature of a QAA CEP award necessarily speaks to a modest methodology. This study does not seek to provide a statistically valid and representative depiction of green skills pedagogic practices across the whole of UK Higher Education, or provide prescriptive recommendations. The workshop methodology adopted means there are necessarily limits to the generalisability of findings from 125 participants across five English universities to the UK sector as a whole.

Nonetheless, the methodology has enabled us to experiment with and demonstrate the utility of our two chosen conceptual frameworks (UNICEF and Project Drawdown) for those seeking to advance green skills work across the sector. The consistent engagement with three stakeholder groups has

enabled triangulation both within and across workshop data sets. The range of disciplinary perspectives across students and staff, the inclusion of HE professional services staff and the range of sectors from which employers were drawn have all contributed to a reasonably representative data set. The five collaborating universities reflect a good mix of regional, mission, and student profiles within English HE. The intentional commissioning of case studies has enabled some limited depiction of Scottish and Northern Irish practices.

For data generation, each collaborating partner was provided with a reporting template to ensure a consistent approach and enable comparative analysis. However, in practice, complete consistency was difficult to achieve. Feedback mechanisms between the project leads and workshop facilitators during the completion of the data templates sought to mitigate differences.

Within each workshop, the representation of each of the three stakeholder groups varied. In particular, in some workshops, students were noticeably more present and vocal than in others. This means that one or more of the three stakeholder groups may have had a stronger influence in some workshops than others. The facilitators were briefed to manage these dynamics and, wherever possible, draw all participants into the discussion. It is recognised that there is a recruitment bias towards students interested in sustainability, and that the student voice here is not necessarily indicative of students' mainstream attitudes towards the curriculum experience.

While the workshop design sought to elicit views on technical/transferable/transformational skills and align them with what was perceived to be working well/what could be developed, it was not always possible to do so systematically given the free-flowing nature of the discussions. To mitigate this challenge at the analysis stage, the workshop reporting templates were designed to encourage skills-based reporting as the facilitators made sense of the Padlet and transcript data available to them. An iterative checking-back and review process (between the project leads and the workshop facilitators) has also helped ensure that the data analysis remained grounded in the actual workshop conversations.

Finally, as the Padlet findings show later, some Project Drawdown leverage points were not chosen at all across the seven workshops. The findings, therefore, cannot address how best to develop skills relevant to utilising the full set of leverage points. Indeed, an initial analytical assumption that findings might be organised around leverage points was discarded for this reason. Some leverage points received little discussion, possibly because they were considered too specialised, business- or corporate-focused, or not relevant to an educational framing, though this would require further research to understand. Similarly, while it was felt important to consider all TTT skills as potentially relevant to each leverage point, in reality there was a comparatively greater focus on transferable skills, perhaps due to feeling more 'familiar' with this skills language.

Consultations on draft report

To improve the quality, usability, and readability of this guidance, the draft findings and recommendations were sense-checked in two ways:

1. Via presentation and dialogue at three conferences: The ESD Exchange at De Montfort University (April 2026); the Chartered Association of Business Schools Learning, Teaching and Student Experience conference (May 2026); and the UN PRME Chapter UK and Ireland Annual Conference (June 2026).

2. Via circulation of a draft version of this guidance to a network of 'critical friends', i.e. students, HE staff and employers associated with the project, as well as those well-qualified to comment but without previous involvement in the project.

Participant Profiles

Overall participant numbers

There were 125 workshop participants in all: 54 students, 44 university staff and 27 employer representatives. Each workshop contained a different balance of participants, but no workshop was entirely without a particular stakeholder voice (Table 4).

Table 4: Workshop participants by stakeholder type

University	Students - PG and Research	Students - UG	Staff - academic and professional services	Employers/other professional bodies
Aston	6	6	5	5
De Montfort	9	5	7	3
Exeter	2	1	5	6
Manchester Metropolitan - workshop 1	2	5	7	3
Manchester Metropolitan workshop 2	1	6	12	2
Oxford Brookes workshop 1		6	4	4
Oxford Brookes workshop 2	1	4	4	4
Total	21	33	44	27

University staff profile

The 44 university staff participants were fairly evenly distributed across subject areas, with consistent representation of professional services staff (particularly those working in employability/careers roles) (Table 5).

Table 5: University staff participants by subject and service area

Social Sciences (including Business Schools)	Arts and Humanities	STEM	Professional Services including campus operations + careers
12	7	13	12

Student profile by subject area

54 students participated, with a noticeable skewing towards STEM and Business subject areas. Recruitment methods sought to achieve a better balance, but the imbalance perhaps speaks to where current green skills teaching and learning are most evident (Table 6).

Table 6: Student participants by subject area

Social Sciences (including Business Schools)	Arts and Humanities	STEM
26	2	26

Employer profile

The 27 employer representatives reflected a cross-section of sectors (for-profit, public, non-profit) and ranged from Small and Medium Sized enterprises (SMEs) to major corporates. A small number were explicitly 'green' in their identities or industries, with the majority of employer representatives working in organisations seeking to improve their environmental performance as part of their general organisational practice (Table 7).

Table 7: Employer participants by sector background

Manufacturing (2)	Engineering (3)	Biotechnology	Recycling
Sustainability training and consultancy (4)	Other training and consultancy (3)	Public sector (3)	Sports science
Aviation services (3)	Professional Associations (3)	Energy	Technology/IT
Scientific Society			

Workshop Findings

Polling and Discussion Board data

Slido Polling Data Analysis - prioritisation of leverage points by stakeholder group

Figure 3 illustrates the selection of each Leverage Point (LP) across the different stakeholder groups for all workshops. The results detail participants' selection of three leverage points most relevant to their role.

Figure 3: Participants' selection of leverage points by stakeholder group (Slido poll analysis)

Stakeholder Group	LP1	LP2	LP3	LP4	LP5	LP6	LP7	LP8	LP9	n
Academics / Prof. Services	44%	59%	31%	18%	33%	3%	72%	15%	21%	39
Employers	33%	71%	25%	33%	25%	8%	50%	29%	25%	24
Students	43%	49%	40%	26%	23%	21%	42%	19%	30%	53
Overall	41%	57%	34%	25%	27%	12%	53%	20%	26%	116

76–100%

51–75%

26–50%

0–25%

The overall total across stakeholder groups indicates that LP2 (Stakeholder engagement and collaboration) (57%) and LP7 (Future and resilience-based mindset) (53%) were prioritised most, followed by LP1 (Natural resources and just transition solutions) (41%). Of these, LP2 (Stakeholder communication and engagement) is comparatively the most consistently prioritised leverage point across groups. This suggests that LP2 is broadly applicable across organisations, roles, and perceptions of employability. It is notable that employers prioritised this, underscoring the importance of developing skills in this context of the green transition.

Conversely, while LP7 was high in overall prioritisation, it was also the most divergent. It was favoured by academics/professional services, but much less so by students. The lack of weighting by students might be illustrative of those participating who feel they already hold sustainability values, or perhaps because it is perceived as less readily tangible or actionable in terms of skills. Conversely, for educators/professional services staff, a future and resilience-based mindset forms a key part of education for sustainable development approaches. For employers, it was the second most prioritised leverage point, suggesting the potential for educational systems to more effectively connect teaching and learning on resilience and a values-based future mindset to employability.

LP6 (Risk management in investments and financing) was the common outlier across all groups. This reflects its specialist function, and it is interesting that students comparatively prioritised it most from the stakeholder groups. This is likely to reflect the relatively large number of business students involved in the workshops and the recognition of green finance's growing significance across organisations.

Padlet Discussion Board Analysis - prioritisation of leverage point by stakeholder group

Figure 4 shows that of the nine leverage points, five were reflected in the padlets across the workshops. Based purely on the Padlet data entries (which may differ from what was covered in the discussion captured in the transcripts), most groups focused on 3 leverage points, with two groups working with 2. This gives some indication of overall discussion themes.

Figure 4: Padlet discussion board entries made per leverage point - by university workshop

● Selected ○ Not selected

Group	LP1	LP2	LP3	LP7	LP9	Total
OBU 1 Oxford Brookes	●	○	○	●	○	2
OBU 2 Oxford Brookes	○	●	○	●	○	2
DMU De Montfort	●	●	●	●	○	4
Aston Aston	○	●	○	●	●	3
MM 1 Manchester Met	●	●	○	●	○	3
MM 2 Manchester Met	●	●	●	○	○	3
Exeter Exeter	○	●	○	●	●	3

LP2 (stakeholder communication and engagement) and LP7 (resilience and values-based futures mindset) were most widely selected, followed by LP1 (natural resources and just transition solutions), which mirrors the Slido poll results. LP3 (green, just and inclusive policy advocacy) and LP9 (responsible data and technology solutions) each received attention from three groups. The focus on LP9 might suggest that it is becoming an increasingly significant feature of experiences across disciplines, subjects and job roles. The focus on LP3 is interesting, indicating the need for more attention towards skills for advocacy and political agency.

Notably, four leverage points - LP4 (Products, Services, Partnership, Procurement), LP5 (Organisational model innovation and transformation), LP6 (Risk management in investments and financing) and LP8 (Reporting and disclosure, transparency and assurance) were not selected by any group, despite LP4 and LP5 each registering around 25% in the Slido data, suggesting these may be individually recognised as important but did not translate into group discussion.

Comparison across Slido poll and Padlet prioritisation

There is clear convergence between LP7 (Resilience and values-based futures mindset) and LP2 (Stakeholder communication and engagement) as the dominant leverage points in both tools. LP3 (Green, just and inclusive policy advocacy) is interesting, as while students identified it as of interest in the previous Slido, it was not significantly prioritised for discussion. LP9 (Responsible data and technology solutions incl. AI) had not been identified as a priority in the Slido prioritisation poll; but discussions around AI were rich (as reflected in the padlets and transcript).

Methodologically, the use of two instruments can be seen as complementary: the Slido polling data indicate individual priorities for each stakeholder group, while the numerical count of Padlet discussion board entries illustrates priorities once a group dynamic was at work. Further qualitative analysis of the Padlet text entries and the transcripts (in the next section) will add another layer of insight.

Workshop Discussion Findings

This section presents findings from the discursive elements of the seven workshops involving 125 participants, structured around technical, transferrable and transformative skills. Participants were invited to identify and reflect on evidence from their experience of green skills acquisition. This was in the context of preparing students/graduates to take action on two or three collectively chosen leverage points. They were asked to provide examples of what is working well, and where improved practice is needed.

Guidance provided on what was meant by working well

For educators and HE professional services staff - that you believe you are already teaching or in other ways supporting the green skills required, taking into account formal, extra and co-curricular learning experiences

For students - that you believe these skills are developed through your learning programme and wider university experiences

For employers and other professionals - that you believe new graduates /entrants in your organisations have these skills. Industry professionals should consider all aspects of your experience with new graduates/entrants e.g. in contexts such as recruitment, training needs assessment and performance management.

The facilitators structured the discussion around the three broad skill categories before drawing out more detailed reflections when individual skills within the UNICEF framework were highlighted by workshop attendees.

The findings presented below are organised in relation to the three skill categories, followed by consideration of transversal themes. Where observations are specific to individual leverage points, this is stated. As the padlet analysis above has identified, some leverage points were not chosen at all across the seven workshops. The findings therefore cannot address the full set of leverage points.

NAMING PROTOCOL

Where quotations are cited, their origins are shown using the following protocol:

Institution of origin	Abbreviation (where used)
Aston University	Aston
De Montfort University	DMU
University of Exeter	Exeter
Oxford Brookes University	OBU
Manchester Metropolitan University	MM

Participant role descriptor	Abbreviation (where used)
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HE Professional Services	PS
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Educator	
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Student	
---------	--

Employer	
----------	--

Workshop Facilitator	Facilitator
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Data Source/Reference	Abbreviation (where used)
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Padlet	
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Workshop transcript	Transcript
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Leverage Point	LP
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Technical Skills

The thematic analysis in this section, as in other sections, synthesises views from workshop transcripts across five UK universities - Oxford Brookes University [OBU], Aston University, De Montfort University [DMU], the University of Exeter (Exeter) and Manchester Metropolitan University [MM] - as to how green technical skills, aligned with the UNICEF green skills frameworks, are acquired.

Three core themes emerge from the data: the proficiency of foundational data and digital skill delivery, a tension between disciplinary specialisation and interdisciplinary needs, and the limits of university curricula

Theme 1: Proficiency in foundational data and digital skills

There is a considerable consensus across universities that foundational technical skills, particularly relating to ICT, data literacy, and emerging digital solutions, are currently taught well. Students and employers alike recognise that these skills are clearly identifiable and increasingly vital for sustainability roles.

- **Visible and tangible:** Participants note that the "advantage of tech skills is they are more clearly understandable" (OBU padlet, ref LP1), and an employer confirmed that "discipline specific tech skills are clearly in evidence in graduates" (OBU padlet, Ref LP1). Students from varied disciplines, including nutrition and economics, cited data analysis ICT skills (OBU padlet, ref LP1) as being well-taught. Furthermore, participants recognised that data literacy is essential, noting the growing importance of digital and data skills, to support "reporting and disclosure, data and technology solutions" (Aston Facilitator).
- **Strategic application:** Data, research, and financial literacies are increasingly seen as technical mechanisms to drive sustainability agendas. For instance, skills like "data analysis", "research"

and "financial skills" are important to support effective campaigns that outline and reinforce the need for climate action (DMU, padlet, ref LP2).

Theme 2: A demand for interdisciplinarity

While students might be technically competent in their specific fields, a critique from both employers and educators is that graduates too often possess a narrow range of technical skills. They thus lack the interdisciplinary breadth required for modern sustainability roles.

- **Disciplinary variances:** The specific technical skills taught are necessarily dependent on the subject area. A psychology program provides "a strong area of focus" (MM educator, transcript, ref LP1) in data analysis but might omit sales or marketing. A fashion programme might focus on "new technological developments (especially around the use of virtual modelling and AI)" (MM educator, transcript, ref LP1).
- **Carbon literacy training** at a whole school or institutional level was frequently cited as an example of how to develop green technical skills within an interdisciplinary setting and in tandem with transferable and transformative skill acquisition
- **Risk of over-specialisation:** Graduating with a highly specific degree means students are often "quite far ahead in that one area, but they're not going to possess a whole range of these technical skills". This siloed approach creates gaps where an engineer, for example, might lack "complementary research, innovation, or marketing skills". (OBU employer, ref LP2)
- **An interdisciplinary mindset:** There is a voiced need to break out of these silos. Educators emphasise a "need for broader knowledge beyond one's specific field to understand root causes and find solutions" (DMU, padlet, ref LP7). To effectively address sustainability, students require "almost a global mindset, which works for all disciplines. You need to know much more than your field of knowledge. It's very often quite limited" (DMU educator, transcript, ref LP7). To achieve this, universities must adopt "an interdisciplinary teaching approach... to get the full technical skills coverage" (MM educator, transcript, ref LP1).

Theme 3: Curriculum limitations and the role of the employer

The final theme highlights the limits of higher education curricula and the need for technical fluency to be co-developed by employers.

- **Environmental costs of technology adoption:** Even when advanced technologies are introduced, their sustainability implications are poorly understood. In fashion, virtual modeling reduces physical resource use, but "at the moment the resource cost in terms of additional energy use/carbon footprint seems little understood" (MM educator, transcript, ref LP1). Similarly, it was noted that "students and academics need better access to current information about AI especially in regard to the sustainability implications of AI" (DMU padlet).
- **The employer's responsibility:** Some employers recognised that universities cannot teach every niche framework. For example, regarding carbon accounting or sustainability reporting standards (like GRI), an employer noted: "It's unrealistic to expect graduates to arrive already equipped to produce a sustainability report." (MM employer, transcript, ref LP1). As this same employer noted, investing in graduate growth, providing structured training, and giving them the time and

resources to learn specialised technical compliance on the job is "not optional - it's foundational."

Transferable Skills

The analysis evaluates perceptions of how transferable skills, aligned with the UNICEF green skills framework, are taught and learnt in the context of higher education.

Four overarching themes emerge from the data, detailing a tension between traditional academic delivery and the demands of the green economy.

1. A "translational" communication shift and a confidence gap

Across all of the workshops, communication was identified as a critical yet unevenly developed transferable skill. Participants suggested that technical scientific expertise is no longer sufficient on its own. Employers and students alike recognised the rising premium placed on "translational skills"—the capacity to interpret complex data and convey it meaningfully to non-technical, diverse audiences. As an MM student reflects, they initially believed sustainability was exclusive to science or engineering, but came to realise that:

"...having the soft skills of just being able to educate someone and communicate why sustainability is important is just as important as being able to engineer some kind of new renewable energy or make something more efficient" (MM Student, transcript, Ref LP2).

This requires a reorientation of communication styles. An Exeter employer notes that while they used to look for "pure sort of scientists," the contemporary green economy demands "communications, translation, [and] decision support kind of skills" (Exeter, Employer 1, transcript). To achieve this, graduates must pivot from an academic focus on exhaustive detail to a workplace mindset that is "short, quick and to the point" (Exeter, Employer 4, transcript). Furthermore, effective translation must emphasise "inclusion rather than authority... bringing sustainability to a level that lots of people can understand" (Exeter, Employer 5, transcript). This is echoed by a DMU employer who notes how communication resonates at multiple levels, for example when "talking upstream to the government" (DMU Employer, transcript, Ref LP2) to enact large-scale policy changes. The link to technical skills is also highlighted, for example in relation to Carbon Literacy Training. Moreover, an employer argues that graduates must master "skills of translation to make information intelligible and accessible" using software like Power BI to effectively "demonstrate impact and KPIs" (MM employer, transcript, ref LP7).

However, a recurring barrier to demonstrating these skills is a perceived and pervasive "confidence gap" among graduates, which often manifests as "anxiety toward standard workplace interactions" (Exeter, Facilitator summary). Some participants note that recruits are "terrified of answering the phone" (Exeter, Employer1, transcript) or find the prospect of working with real clients "quite intimidating" (Exeter, PS1, transcript). This lack of confidence also impacts seeking volunteer opportunities and is attributed by some to a post Covid effect (DMU, educator). The issue also manifests in some students feeling intimidated at the prospect of public presentations (Aston,

Student). To bridge this gap, educators advocate moving away over time (so as to avoid compounding confidence problems) from traditional essays toward diverse, real-world assessment formats (Exeter, educator).

2. Structural barriers to collaboration

While competencies like teamwork, negotiation, and coalition-building are frequently cited as vital for action on climate and nature, participant views suggest that universities often struggle to teach them effectively. Educators recognise that transferable skills are frequently poorly scaffolded. For instance, students are assigned group tasks and told they are practising teamwork, but the mechanics of collaboration are rarely explicitly taught or reflected upon (OBU, Padlet). Consequently, group projects degenerate into a mere "collection of individual efforts" (OBU, Padlet).

An MM staff member critiques this pedagogical gap, questioning whether universities include enough in the curriculum around the softer skills of interacting with others and building consensus, explicitly asking how graduates are being prepared to:

"...work with people who might be advocating for very different points of view or may have very different sensitivities around these issues" (MM Educator, transcript, Ref LP2).

This educational mismatch is perceived to be further exacerbated by two factors:

- **The COVID effect:** The pandemic is deemed to have disrupted social development. Participants observe that "communication skills are slightly different for this generation" (DMU, Educator, transcript) because young people lost vital opportunities to build a baseline competency in socio-emotional interactions during lockdowns (Aston Student; DMU Educator).
- **Grading systems:** The frequently individualised, outcome-focused nature of higher education can actively undermine collaborative skill development. Students become transactional, prioritising marks over cooperative learning. As one educator notes, a student will quickly abandon collaborative efforts if a peer risks lowering their grade:
"You might start off thinking, let's do it as a group. You end up thinking, hold on, you're not (going to) harm my grades... I'm just going to work on my own" (DMU, Educator, transcript).

This structural focus on grades can leave students feeling like they are "just a grade average" (DMU Student, transcript, Ref LP7), limiting their ability to develop their own capabilities, sense of self and the intrinsic motivation needed to support wellbeing and sustain efforts to tackle the environmental crisis.

3. Resilience, adaptability, and conflict resolution

Enabling a green transition requires graduates to possess emotional and professional resilience. Graduates entering workforce environments discover that existing industries are "notoriously slow to change" and "enshrined in [their] own thinking" (OBU Employer, transcript, Ref LP7). This dynamic

requires professional fortitude, as senior leaders may lack sustainability training and need to learn from fresh graduates:

"You have to be resilient. You have to be proactive, you have to keep positive and you have to [have] 'negotiation' skills ... and that's not going to be very easy" (OBU Employer, transcript).

The value of critical thinking skills in addressing resistance is also noted, as it "allows you to maybe think past what you're taught and think how does it apply ... how does the impact of what you're learning apply in the real world" (MM, PS, ref LP2, transcript)

Furthermore, the accelerating pace of technological and policy disruption means that "flexibility and adaptability are key now when it comes to understanding that jobs might change over time" (DMU, Educator, transcript, Ref LP7). This also requires psychological flexibility to navigate "climate anxiety" and the heavy emotions tied to environmental crisis awareness. Students strongly advocate for this inclusion, noting:

"Especially talking about emotions... It's also sustainable to talk about those things and learn how to handle them. We should be able to speak with the younger generation and teach them about emotional intellect" (DMU Student, transcript, Ref LP2).

Crucially, participants identify conflict resolution and strategic stakeholder management as major deficiencies in current university training. Graduates frequently express a need for training in "handling conflict... and disagreement" (Exeter, Employer, transcript). This is reinforced by a public sector employer who warns that without being clear about the overall strategy stakeholder engagement can backfire, noting that we can get "mired in sort of... trying to manage stakeholders to the point of just paralysis a lot of the time" (MM, Employer, transcript, Ref LP2).

4. The visibility and valuing of transferable skills

A final theme centres on a lack of explicit recognition of transferable skills. Because technical skills are tangible—such as writing a program or building a system—students can easily recognise and value them. Conversely, transferable skills are abstract, causing students to "struggle [and] feel I haven't learned any" (OBU, Educator, transcript). There is support for greater valuing of key interpersonal skills like "empathy and listening" as vital to "develop an understanding of an individual's personal motivators and then (be able to) pivot to address these" (MM Padlet, Ref LP7) in the context of sustainability work.

Participants also identified what they deem significant omissions in the UNICEF framework, such as "the basic curiosity of knowing, of understanding" (DMU Facilitator, Ref LP2) as this is key to creative thinking and solutions. Also omitted is the underrated ability to "challenge and ask the most important questions" (DMU Educator, transcript, Ref LP7).

The value of transferable skills when navigating emerging tools like Generative AI is noted. Employers emphasised that the core green competency is not the technical usage of AI itself, but the transferable skill of critical thinking and interrogation. Graduates must possess the analytical

framework to ask, "is it right, checking everything" (Exeter, Employer 4, transcript) to combat AI hallucinations. Moreover, an over-reliance on AI in job applications is actively penalised by employers, as "heavy AI generated content... immediately just reduces and dilutes that message" (Exeter, Employer 3, transcript), stripping graduates of the authentic, persuasive, critical voice necessary to drive institutional change.

Transformative Skills

Grounded in the UNICEF green skills framework, the analysis here explores perceptions of how transformative skills are being developed - the high-level, disruptive competencies required to navigate complexity, challenge structural paradigms, and pursue systemic green transformations.

1. Relative invisibility and Implementation barriers

It was notable that in all workshops the discussion gravitated more towards technical and transferable skills, resulting in less attention to transformative capacity building. Where discussed, a consensus emerged among participants that transformative capacity-building is relatively marginalised within UK higher education compared to technical or transferable skills. As a student observes:

"From the educational point of view, there is less focus on transformative skills and more on transferable skills" (DMU Student, transcript, ref LP7).

This imbalance is seen to be driven by systemic and pedagogical barriers. Professional Services staff, for example, may find it difficult to operationalise these abstract capacities. A professional services speaker candidly queries why university career centres structurally default to simpler competencies:

"Is it easier for us to kind of focus on the transferable green life skills because there's more flexibility? Is there a limiting factor that restrains us from exercising more of a focus on transformative capacity skills for green transformation?" (Exeter, PS2, transcript, ref LP7).

Furthermore, embedding transformative skills acquisition into the core curriculum faces a variety of hurdles, "partly due to their complexity and time limitations" (MM facilitator, transcript, ref LP1). This structural challenge is compounded by a lack of staff readiness, with some educators identifying an absence of "staff confidence" when tasked with teaching potentially disruptive concepts (OBU educator, padlet). Echoing concerns about overwhelm elsewhere, even when employers acknowledge that graduates possess a capable "futures mindset", they note a problematic driver for this, namely that they are deeply invested "probably because they're so scared about the future" (OBU employer, transcript, ref LP7).

2. Social justice, inequality and political literacy

A prominent theme across the datasets is a demand from both students and educators for higher education to position "education as a tool for social justice" (DMU Staff, transcript, ref LP7). Participants argued that mainstream climate education is often sanitised, leaving graduates unequipped to critique systemic issues. There is a strong call for curricula that empower students

with the "ability to analyse unequal systems of power" (OBU facilitator summary; DMU Student, transcript, ref LP2).

A DMU educator outlines a radically inclusive and disruptive vision of what this transformative curriculum must cover:

"Making sure our students can analyse unequal systems of power, can take collective action, disruptive versus normative thinking, political agency and activism, and [...] valuing traditional indigenous knowledge, so we challenge some of those dualistic aspects of humans and the environment" (DMU, educator, transcript, ref LP1).

The perceived lack of depth in this area is viewed as a significant failure. An MM student notes that "coverage of the social justice aspects of sustainability could be stronger in the curriculum," an assessment supported by an MM educator who highlights an urgent "need for greater emphasis on the inequalities that are emerging in the transition towards a more sustainable future" (MM, transcript, ref LP2). Students emphasise that true green transformation cannot occur without a total educational overhaul centered on "inclusion" (DMU, Student, transcript).

Moreover, for transformative capacities to move from theory to practice, graduates need to possess the political literacy needed to challenge established systems. However, participants suggested that specialised political discourse can act as a structural gatekeeper. Students explicitly ask for help in "breaking down (or using accessible) political language," warning that if they "don't have the... familiarity with like political terms [that can be a barrier]" to enacting change (DMU, Student, transcript, ref LP3).

Without political literacy, graduates cannot build the strategic networks required to fund and implement green initiatives. Employers note that coalition-building skills are an indispensable asset for modern sustainability work:

"...sustainability solutions are often expensive and you need to build both internal and external (cross sector) coalitions to support their adoption" (OBU, employer, padlet, ref LP4).

Despite evidence of some institutional barriers, there was also evidence of interdisciplinary frameworks successfully helping students to think across boundaries and become more effective and resilient disruptors. As an Exeter employer observes, this interdisciplinary adaptability can also serve to future-proof graduate careers:

"...they're becoming a lot more resilient in finding ways of incorporating their values in a career, even if it's not necessarily a green career... we're getting students coming from architecture degrees who are bringing nature-based solutions into their work... if we think of future proofing, that is a great way of doing it" (Exeter, employer, transcript, ref LP7).

When the political dimensions of the green transition are ignored, graduates face an intense reality shock. A student, who attended a pre-COP simulation and COP30 in Brazil, notes that moving from theory to real-world policy environments was an outright "shock". They went on to say:

"I think when you're talking about policy and leveraging your social and financial power, you need to have that basic understanding of how the political system works... when lobbying is going to be effective." (MM, student, transcript, ref LP3).

3. Systems thinking

To enact a green transition, graduates require macro-level cognitive tools like systems thinking, interrelational thinking, and anticipatory thinking. Many of the students recognise that macro-problems require whole-system views, noting, for instance, that:

"It's [systems thinking] also a very crucial skill because we have to think about it [transitions] as a whole" (DMU Student, transcript, ref LP1).

From a practical corporate perspective, employer and educator participants also flagged systems thinking as a prerequisite for complex compliance implementation, such as "scope three emissions reduction" calculation and reporting (DMU Padlet, ref LP3).

However, some educators argued that teaching these frameworks requires fighting against deep-seated discipline-specific biases. For instance, shifting traditional academic disciplines out of a market-driven silo is remarkably difficult:

"In marketing terms, systems thinking is very much geared towards the customer. And trying to shift that into a more broad base of a human system as opposed to the consumer system is challenging" (OBU, marketing educator, transcript).

This academic tension can also reflect a broader tension between the purposes of higher education and of business: the clash between a student's desire for long-term "environmental stewardship" (OBU padlet, ref LP4) and an "industry... focused on the short term benefits" (Aston, employer, transcript).

Transversal Theme One - The need for an interdisciplinary and integrated approach to skills development

1. The impact of disciplinary siloes

As already identified, siloed disciplinary structures in HE are experienced as a barrier with pedagogical and institutional design implications. As one educator observed:

"I think we are creating these silos by admitting students into programs on a disciplinary basis. And students come into that learning environment with thinking such as I'm going to become a construction project manager, I'll be an architect, I'll be a quantity surveyor....' And then we keep saying to these students throughout their education 'Oh, but you must work in groups because you must learn how to work across disciplinary boundaries'. But why do we create those boundaries in our education institutions in the first place?" (OBU, educator, transcript)

The role of accreditation bodies in this regard is also perceived as not always helpful. As a different OBU educator put it, 'we are more into what the accreditation bodies want rather than looking at what would we would want students to learn about, perhaps I think there is a struggle between the amount of time we have and the amount of skills that the accrediting bodies want students to have (OBU educator, transcript, ref LP2).

The opportunities presented by work integrated learning for addressing siloed practices are explored elsewhere. And there is recognition too for the many efforts universities already make to nurture interdisciplinary learning. As an employer noted, "the interdisciplinary and multidisciplinary thinking. (...) I'm seeing a lot more (of it) in the students.' (Exeter, employer, transcript).

2. Sequencing and scaffolding

A prominent theme across the datasets is the necessity for sequencing and scaffolding. Participants argue that high-level transformative capacities—such as systems thinking, interdisciplinary working, and coalition building—cannot be developed in isolation. They depend heavily on properly scaffolded transferable, often interpersonal skills. When universities fail to systematically teach the mechanics of foundational competencies like teamwork, the capacity for broader structural transformation is compromised. An OBU educator captures this failure through a student's reported perspective on group assignments:

"(She said) what happens is that you are left to sink or swim... there is no systematic teaching and structuring and feedback or mentoring... on what it takes to be... effective within a team. And then she was pointing out... if you haven't got the transferable bit right, it's actually quite hard to do the transformative bit." (OBU, educator, transcript).

Without foundational scaffolding around collaboration, graduates lack the ability to pull together diverse subject expertise or mobilise collective action and coalitions. Much green skill expertise is fundamentally relational; it requires bridging individual competencies. As a student aptly notes on a digital padlet:

"Systems thinking only works when you pair it with human skills, critical thinking needs empathy, data skills need ethics, and problem-solving needs an understanding of power." (MM, student, padlet, ref LP2).

3. Fusing technical ability with relational translation

As highlighted in the transformative skills findings, specialised technical knowledge is incomplete without the communicative and psychological transferable skills required to apply it in professional contexts. Employers explicitly state that the green economy cannot rely on specialist skills alone. Operationalising a technical project, such as a carbon reduction roadmap, requires complex communication, relationship management, and personal resilience to navigate non-responsive supply chains (OBU, employer, transcript). Another OBU employer describes the limitations of hiring a purely detail-oriented "sustainability analyst":

"They are likely to be 'happy to be left with a job to get on with it.' But at the same time they have got to get everybody in the company on board with what our ethos is... They've also got to report upwards... So they can't be completely on their own and quiet." (OBU, employer, transcript).

Similarly, DMU facilitator summaries note that technical actions like engineering or market research are optimised only when combined with "futures and critical thinking and collaboration to support collective action and resilience over the long term" (DMU facilitator summary, ref LP1). When these domains are disconnected, graduates lack the confidence to deploy their core knowledge. An MM educator observes that a failure to teach decision-making and critical thinking well enough means "recent graduates [do not] feel confident to express their opinions in the workplace and communicate their technical skills effectively" (MM, educator, padlet, ref LP2).

Participants also argued that an integrated curriculum is needed to prepare students for the socio-political realities of the workplace and the broader climate crisis. For instance, critical thinking must be paired with empathy to build "rapport with people... and engage them on climate issues" (DMU, Padlet). Furthermore, participatory skills are highlighted as an emotional anchor, helping "young people to cope with uncertainty and challenging emotions" (DMU, Padlet) when confronting systemic climate anxiety.

Ultimately, isolated knowledge categories leave graduates unprepared. To drive systemic change, higher education needs to move beyond providing isolated "ingredients" and instead teach the integrated "recipe" of green transformation (MM, student, padlet, ref LP2).

Transversal Theme Two - The centrality of experiential and work-based learning

These findings explore how experiential and work-based learning (WBL) facilitate the acquisition of technical, transferable, and transformative green skills, aligning with the UNICEF green skills framework.

1. Bridging the theory-practice gap

A prominent theme across the institutions is that while traditional curricula provide strong technical foundations, they often fail to deliver the practical application required to develop green skill expertise. Participants consistently also noted a mismatch between having sustainability knowledge and being able to use it in a career context.

Some transferable and transformative green skills—such as leadership, resilience and coalition building are inherently difficult to teach in a lecture theatre. Transcripts reveal that experiential learning acts as a crucible for such skills development, preparing students for the "shock" of the professional world. More specific findings include:

- **The insufficiency of theory:** Academic frameworks can provide the groundwork but need subsequent real-world grounding. As one student noted, “there’s a good fundamental understanding but the practical is missing” and to counter this advocated for “using more real world case studies” (Aston, Student, transcript, ref LP7).
- **Disciplinary relevance:** Educators emphasised that green skills shouldn't be taught in isolation, but embedded directly into a student's career pathway. One educator commented that sustainability must be “done in a way that's relevant to the discipline and the future practice and professional practice of our students ... I really advocate that every job is a green job” (MM, educator, transcript ref LP7).
- **Employer demand for action:** Employers strongly reinforced these sentiments, prioritising actionable capability over passive knowledge. One employer explicitly stated that “employers want people who can do stuff, not who know stuff” and that “putting it into practice is so important” (Exeter, employer, transcript, ref LP2).
- **Interdisciplinary realities:** Many university programmes can struggle to replicate the multidisciplinary environments of green careers. Educators acknowledge that it is “difficult to really replicate what it's like in the real world, sometimes due to time constraints” (MM, educator, transcript, ref LP2/3). To bridge this, they suggest WBL pedagogies like role-playing to help students “familiarise students as much as possible with what it's like in practice to communicate in interdisciplinary contexts” (MM educator, transcript, ref LP2/3).
- **Navigating stakeholder dynamics:** Traditional courses fall short in building interpersonal confidence. One student who completed a placement year argued that while courses provide technical foundations, the “awareness around how to interact with stakeholders and stuff... are the kind of things that you can only really develop through those employability experiences” (Exeter, student, transcript, ref LP2).
- **Validation and motivation:** Hearing directly from industry professionals validates the importance of a green mindset, making the transition into work smoother. A student observed: “I think it's really motivating to have those employers ... validate the green skills and sustainability within the real workplace and not just have your, you know, your lecturers and academics telling you” (MM, student, transcript, ref LP7).

2. Promoting access to experiential and work integrated learning

While the value of experiential learning is undisputed, universities can face structural challenges in making these opportunities accessible.

- **A shift to Work-Integrated Learning (WIL):** Traditional placements and internships are highly valuable, yet they present equity issues. One professional services staff member commented that “whilst placements and internships are valuable... they aren’t accessible or feasible to all students” (MM PS, transcript, ref LP2/3), driving a shift toward scaling up internal Work Integrated Learning (WIL), such as live project briefs. The case studies in this document demonstrate multiple ways in which such WIL is being introduced and experimented with in UK HE.
- **Structured extra-curricular schemes:** For those students able to take advantage of them, programmes like the University of Exeter’s “Green Consultants” offer a scalable model, operating

as “an extracurricular programme that any student at the university can undertake at any point which involves some online learning to start with and then... you can apply for a project... with a local organisation” (Exeter, PS, transcript, ref LP2).

- **Reconnecting with the community:** To foster genuine civic and green skills, some participants called for further investment in "community advocacy, volunteering and social action networks" (DMU, facilitator summary, ref LP3).
- **Getting good grades is not enough:** Employers noted contact with the world of work could broaden student perceptions about what constitutes success is important “Currently, it's all about attainment. You get the grades. You don't actually get that young person an experience of a world of work. Encounters with industry (can) help shape that (understanding of success)” (DMU, Employer, transcript, ref LP7)

3. Gaps between employer needs and university programmes

A view was expressed across most of the workshops that the feedback loop between academia and industry was not as robust as it could be. For example, an Aston educator noted that “employers aren’t as clear as they could be as to what they want from graduates” (transcript) while in the same workshop an Aston employer observed a misalignment in that “the tools... in the academic world... may not be the actual tools the industry wants” (Aston, Employer, transcript ref LP9). In the DMU workshop it was noted that organisations such as schools and even some employers can be unaware about the green skills required in the economy. In a Manchester Metropolitan workshop, both the problem and a solution were highlighted when a public sector employer commented on a degree of misalignment between university curricula and the evolving green skills job market. However, local skills improvement plans were identifying this misalignment and how to respond to it (MM employer, transcript, ref LP1)

Transversal Theme Three - Recognising and valuing green skills

Students frequently fail to recognise their own green skills due to lack of explicit labelling, a lag in reflective awareness, and low self-confidence.

1. Lack of overt framing and purpose

Many of the green skills contained in the UNICEF framework are embedded within existing programmes of study but are not explicitly labeled as green. For instance, essential core capabilities like teamwork and conflict resolution are integrated into the curriculum, "but they're not necessarily that overt" (MM, educator, transcript, ref LP2). Because universities do not explicitly flag these competencies, students struggle to identify their green career value.

Furthermore, the green nature of a skill is often determined by its context rather than the action itself. As one academic observed, “...students may not necessarily know that they are learning and practising green skills. But in the context of a particular employer or a particular green job or sustainability job, that is a green skill” (MM, educator, transcript, ref LP2).

2. A "reflection lag"

Students experience multiple competing priorities, which can force them to focus in siloed ways on "what's next after graduation" (OBU, student, transcript). This immediate pressure crowds out the deeper reflection needed to connect disciplinary learning with green capabilities and career options.

Consequently, realising the value of training like Carbon Literacy (CL) often suffers from a significant time lag. Manchester Metropolitan have embedded CL training across multiple programmes. But educators note that "it can take a while to 'join up those dots'" (MM, educator, transcript) and that the significance of the training usually "only take[s] time to emerge during the student journey or possibly only after graduating" (MM, educator, transcript, ref LP2). This delay can result in students realising the value of sustainability skills late in their degree, leaving them to pursue training in a "rush or 'panic'" (MM, student, transcript, ref LP2). Another MM student (MM student, transcript, ref LP2) agreed that the significance of their carbon literacy training had gradually become evident to them: 'I really started to see the benefit of it in the sense that the course itself isn't just purely about understanding climate change. It's about being able to communicate it.' They have since trained as a student trainer for CL which enables them to co-deliver CL training with staff within modules and be paid for this work (a distinctive feature of the MM delivery model for CL -see case study for more details). This extended reflection on CL also highlights the need for sustainability and green skills to be in core modules and scaffolded throughout a course, to offer multiple not just one opportunity to reach students.

3. A confidence gap (once again)

A lack of professional confidence can be why students frequently possess the necessary skills but fail to recognise them. In a field such as science communication, an employer noted that students "worry about not having those science communication skills" to bridge complex theory with public interaction (Exeter, employer, transcript, ref LP2). However, when put to the test, they show high capability:

"The students have that knowledge, they have that creativity, they're really capable. And so actually, they're not lacking the skills, they're just lacking the confidence, they're lacking the practice." (Exeter, employer, transcript, ref LP2)

Without deliberate institutional support to help students explicitly articulate and practise these capabilities, their green skills will remain unacknowledged and underutilised when they make job applications.

Transversal Theme Four - Hope and agency rather than anxiety and overwhelm

1. The agency challenge

A recurring narrative across the transcripts is that confronting students with the scale of the ecological crisis without providing avenues for action breeds paralysis rather than progress.

- **Knowledge is not enough:** Knowledge alone does not translate to action. When systemic problems feel too vast, students can disengage. As an educator noted, there is a distinct "gap between knowing about the problem and being able to do those things... because the problem seems too big, the world outside seems too complex" (OBU, educator, transcript, ref LP7). Without structuring curricula to inspire and communicate the potential for collective action, students are "held back" and cannot "feel as resilient... optimistic or able to exercise [their] agency" (OBU, educator, transcript, ref LP7).
- **Nurturing existing student values:** Educators and professional services staff emphasise that consistently negative framing actively undermines educational goals. One staff member stressed that the way we communicate climate change "needs to make sure it's got that message of hope in it. And I think if you don't do that, then you do have real danger of losing those (student) beliefs and those values" (MM, PS, transcript ref LP7). This risk is echoed directly by a student who warned that "you do run the risk of like crushing people's values when you overwhelm them with, like, far too much" (MM, student, transcript, ref LP7).
- **Structured training as an antidote to anxiety:** Conversely, targeted and directly relevant upskilling can reduce the potential for feeling out of control. Foundational training, such as Carbon Literacy, provides "students with sort of a sense of agency and not this anxiety around the topic, because I think if you don't have that sort of base knowledge, you can sort of look at it all and feel it's quite daunting" (MM student, transcript, ref LP2).

2. A change agent mindset

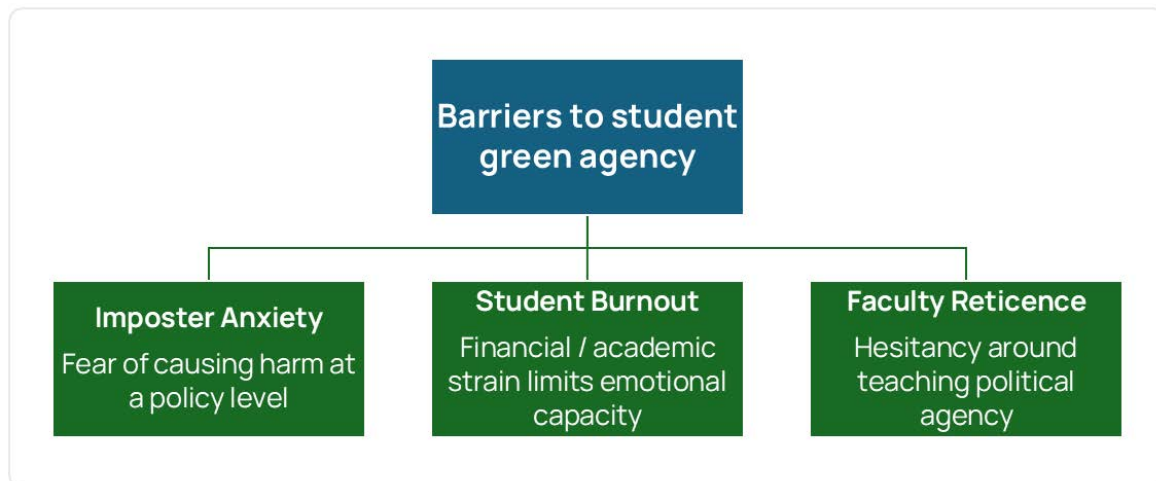
To cultivate true transformative skills, education needs to instil a "change agent" mindset. This includes building the self-confidence required to implement solutions and navigate professional spaces.

- **Fostering a change agent mindset:** Educators argued that universities must prepare students for volatility by building confidence. The goal is to nurture a mindset where "they feel confident to have a go and apply those principles to different scenarios" when dealing with complex, imperfect data sets (MM, educator, transcript, ref LP7). This confidence directly feeds into transformative skills, giving students the "self-confidence in oneself to speak up, to kind of push these things, but in an understanding way" (Exeter, student, transcript, ref LP7).
- **Enabling workplace leadership:** Employers reinforced the view that confident graduates possess the leverage to revitalise established organisations. An employer noted that even when institutions face resource or time pressures, a confident graduate can "come in, (be) able to help that organisation make exactly the change that they want to make... you can take ownership of it" (OBU, employer, transcript). Another employer argued strongly that in a post-truth environment, graduates in green roles must act as advocates for evidence – "more than any time, we need to be like the voice of... kind of bringing (...) science back to the table of why things are as they are and kind of presenting the environmental case in that way (...) through a professional lens (Exeter, employer, transcript, ref LP2). Furthermore, true agency manifests as ethical autonomy, giving graduates the professional confidence to make distinct moral choices, such as the "freedom to say, actually, from an environmental perspective, you don't have to work on this if you don't agree with it" (Exeter, employer, ref LP2).

3. Barriers to nurturing agency

Despite its necessity, participants reported that embedding agency and hope into green skills delivery can encounter psychological, pedagogical, and external challenges.

Figure 5: Barriers to nurturing agency



- **The fear of doing harm:** Students can experience imposter anxiety regarding the real-world impact of their actions. This can lead to paralysis, with one student admitting: “I think that some people, I think myself included, are worried about getting it wrong and causing harm, especially when you're talking on a policy level... What if I action it wrong? And what if it hurts people that I'm trying to help?” (MM, student, transcript, re LP3).
- **Student disengagement and burnout:** Disengagement often exists among students that lack exposure to green sectors. While some individuals are highly active, they recognise a clear divide between themselves and their peers. One student noted that while they are well-exposed to people interested in green issues, “if I took a course mate with me on a green skills course, I’m not sure that they’d want to be there or really understand it” (OBU, student, transcript).
- External variables can deplete student resilience. Skills are harder to build when students face “political, financial (pressures) and students honestly just trying to survive uni sometimes these days... they're so burnt out” (Exeter, student, transcript, ref LP7). When coupled with stark climate realities, looking toward the future “can just be almost too overwhelming and they kind of retreat into themselves... it all just seems so impossible” (Exeter, student, transcript, ref LP7). More positively, in that same exchange, and reflecting similar exchanges at Manchester Metropolitan, an Exeter student notes that despite these challenges ‘I think it comes back to having those experiences outside of formal teaching of where those skills can really grow and kind of develop there.’ (Exeter, student, transcript, ref LP7)
- **A mindset and organisational systems gap:** Graduates walk into organisations filled with “people who have not been trained in that way and systems that have not been set up in that way” (MM, employer, transcript, ref LP7). The core challenge becomes: “...how do you communicate with people who are probably in more senior roles than you and who have systems and governance set up in a particular way, as they have done for decades that doesn't match this future-based mindset you've got?” (MM, employer, transcript, ref LP7). In such situations students on placement or recent graduates can feel powerless to implement their training, with one noting that “it's very hard to apply any of these well-meaning skills you've

learned to the sector when you feel like it's the sector that needs the change" (MM student, transcript, ref LP7).

- **Institutional blind spots and staff reticence:** Finally, universities themselves can struggle with how to nurture agency. Staff note that "students don't often realise how much power they have" and that helping them realise their own choices and impacts "is something we're not very good at" (Exeter, PS, transcript, ref LP2). This challenge can be accompanied by an internal need to build agency among faculty members, as some educators display a distinct "reticence... to engage with controversial topics and building 'political agency' in students" (MM educator, transcript ref LP 2+3). The widely acknowledged slowness of universities to enact all (not just green) module innovations was also cited as damaging to staff agency (DMU, educator, transcript).

Transversal Theme Five - working and learning with AI

Concerns voiced about the use of Artificial Intelligence (AI) in teaching, learning and practising green skills can be categorised into three main areas: environmental and ethical conflicts, cognitive decline and behavioural shifts, and institutional confusion coupled with a lack of guidance. It should be emphasised that many of these findings are relevant beyond a green skills context.

1. Environmental impacts and ethical conflicts

A primary concern is the direct contradiction between the resource-intensive nature of AI infrastructure and the core principles of sustainability. Educators in technical fields note ethical tensions when training students to use these systems:

"So I think when I look at my own subject area, there's a bit of conflict of interest. You think of AI, you think of huge big data centres, the amount of energy it uses, the amount of water it uses ... and at the same time we are teaching them how to use AI, how to make use of these data" (OBU, Computing Studies educator, transcript)

2. Stifled critical thinking, curiosity, and resilience

Participants expressed concerns that continuous reliance on AI tools erodes fundamental cognitive skills such as curiosity, independent research capability, and critical analysis—that are vital for solving complex environmental issues.

Some participants observed that "'AI has now made people less critical and curious' and that 'there is a conflict between whether new technology stifles innovation or promotes it'" (DMU, Padlet, ref LP7). Some perceived a divide opening between how students complete work and what employers require. Workshop summaries highlight a "clear divide exists between student reliance on AI and industry concerns about overuse" (Aston facilitator, ref LP9), noting that while "students were talking about how we are using AI quite a lot" (Aston, student), "industry had the worry... how this is going to affect critical thinking" (Aston, employer).

Some students acknowledged that instant access to answers potentially diminished personal effort and long-term professional stamina:

"...I think what you (an employer) said about the new generation of employees being slightly less resilient, I think that could also link into when you kind of have all this information at a touch of a fingertip you're far more reluctant to research it yourself and kind of actually put that effort in and I think that's going to rub off slowly as people kind of get lazier in a sense." (OBU, student, transcript)

3. Institutional confusion and mismatched expectations

Because AI technology is evolving rapidly, university policies and expectations have been in flux. This lack of established policy can create a climate of anxiety, peer pressure, and mixed messaging for students.

- **The fear of being left behind:** Some students feel a strong pressure to adopt AI to stay competitive, yet perceive that they lack the proper training to use it safely or ethically. One student expressed that "there's a lot of uncertainty about how to appropriately use AI, how to ethically use AI" and worried about a "race to the bottom" where "if I do not start to understand AI and things like that, will I get left behind?" (Exeter, student, transcript, ref LP9).
- **Unprepared teaching staff:** Educators openly admit that universities are finding it difficult to keep pace with the technology, leaving students vulnerable to academic penalties. One academic noted that some students are "feeling like, oh, well, will I get a lower grade if I'm not using it or if I use it and I use it wrong, I'm scared of certain consequences" (Exeter, educator, transcript, ref LP9). They attributed this to rapid technological shifts, stating, "it's so new and evolving that we've not had time as teaching staff to put the foundations in place that are necessary to support students with the kind of responsible use of AI" (Exeter, educator, transcript, ref LP9).
- **Mismatched workplace assumptions:** This educational gap creates direct friction during the transition to employment, where students and employers can operate on different assumptions. Employability staff noted a distinct "mismatch between what students believed or knew about AI and what some employers expect" (Exeter, PS, ref LP9). In contrast to the earlier finding about employer fears of AI reducing critical thinking, it was also reported that, in one instance, a student on placement avoided AI because they assumed it was forbidden, while "that employer definitely had an assumption that that [AI] would be the first port of call" to accelerate the task (Exeter, PS, ref LP9).

Summary of findings

Technical skills

1. A broad consensus that technical skills are generally taught well
2. Carbon Literacy Training frequently cited as an effective vehicle for green skills acquisition
3. Participants recognised that data literacy is increasingly central to sustainability roles
4. An interdisciplinary teaching approach is needed to get the full technical skills coverage needed in graduates
5. Employers are realistic about what can be expected.

Transferable skills

1. Widely seen as essential by all participants, especially adaptability, communication skills, resilience, strategic thinking and teamwork
2. But less tangible than technical skills, more difficult to know when learnt
3. Translational communication skills highlighted as essential
4. Concern that teaching the transferable skills is often surface level
5. Gaps in relation to resilience (highlighted by employers, linked by some to Covid), empathy and confidence
6. Curiosity, the ability to challenge, active listening and questioning – all important but missing from the UNICEF list, but foundational to underpinning subsequent transformative skills

Transformative skills

1. The least talked about of the three categories, which some ascribed to the challenges involved
2. Agreement that the ‘ability to analyse unequal systems of power’ is a foundational skill in the transformative category, backed up by systems and anticipatory thinking
3. A lack of staff confidence cited as a factor by some educators
4. Some calls for a greater focus on social justice in the curriculum
5. Calls (within the context of LP3 particularly) to support students to better understand the reality of political processes, lobbying and influencing policy making
6. A challenge cited a few times: short-termism in industry vs need for long-term thinking

Transversal theme findings

1. Recognition that the three categories of skills are interconnected in multiple ways and an associated priority to develop skills within interdisciplinary settings. Within this context, the centrality of translational skills (and associated inter-personal skills) was a recurrent theme.
2. Scaffolding and sequencing needed so that transferable skills acquisition enables transformative capacity building
3. Experiential and work-based/integrated learning central to green skills learning and application
4. It takes time for students to recognise and value green skills development. This could be better supported by promoting green careers opportunities, identifying transferable skills as explicitly green, and supporting students more to articulate their ongoing skills development.
5. Green skills education like all ESD must facilitate agency, hope and confidence, not anxiety and overwhelm
6. The need for universities to better support the transition to the day-to-day ‘reality’ of the workplace, including the ‘shock’ of encountering people and systems that don’t reflect a green and transformative mindset
7. Siloed disciplinary structures in HE identified as a structural barrier - a pedagogical issue and an institutional design problem
8. Weak feedback loops between HE and employers
9. Profound concern about AI in the context of green skills teaching and learning; its environmental impacts, ethical dilemmas and impacts on student behaviours e.g. encouraging ‘laziness’ and less criticality

Overall, the findings suggest that developing green skills requires an approach that better integrates technical skills with transferable and transformative capabilities, supported by 'real-world' experience and stronger collaboration between HE and its stakeholders

Conclusions and Recommendations

The following conclusions and recommendations are derived from our literature review, workshop findings and case study organisational examples.

For policy makers and HE institutional leaders

1. Recognise that the green transition is a political as well as a skills project, and that this requires (a) expertise in political change and advocacy processes as well as (b) resilience in the institutional commitment to green skills and tackling climate change in the face of potential opposition
2. Start from the position that every job can potentially be greened, and that green skills are relevant to all jobs and all disciplines
3. Recognise that if this potential is acknowledged and acted upon by policy makers, educators and students alike, it will contribute towards employability, organisational and sustainability outcomes
4. Work with the grain of existing institutional teaching and learning commitments, and build on prior Education for Sustainable Development engagement e.g with Circular Economy principles
5. Adopt a green skills framing to signify/brand the distinctive employability priorities arising from prior institutional adoption of commitments to ESD and initiatives such as UNPRME, CoDesigns, Responsible Futures, etc.
6. Signal support at institutional level for curricular, co and extra curricular engagement with issues of inequality, social justice and political literacy as these are foundational for transformative action taking
7. Make use of the UNICEF and Project Drawdown frameworks, the value of which for curriculum review has been demonstrated through this project
8. Ensure senior leadership teams are able to engage in and influence policy level discussion with employers, skills agencies and public bodies, locally and beyond, on green skills development needs across diverse subject areas
9. Ensure senior leadership teams are able and willing to promote positive green skills narratives in the media
10. Align policy related to AI with green skills policy to ensure the digital and green transformations are complementary
11. Consider the implementation of green skills or skills for a green transition CPD for teaching and related professional services staff.

For curriculum designers and teachers

1. Recognise the need for an integrated and scaffolded approach to technical, transferable and transformative skill development; in particular that certain transferable skills are prerequisites for transformative skill acquisition and application
2. Conduct curriculum mapping of green skills and how these are assessed, with a view to ensuring multiple exposures to green skill learning opportunities across the duration of a programme of study
3. Integrate green skills across formal, co and extra curricular initiatives - with an emphasis on the opportunities offered by all forms of experiential and Work Integrated Learning (including placements, internships, live consultancy projects, scenario-based role plays etc)

4. Embed more micro learning opportunities within and alongside the curriculum, to increase inclusivity of access to green skills learning
5. Work closely with students to integrate and scaffold skills development through curriculum review and design
6. Keep the need for student agency (a change agent mindset) and related transformative capacities at the forefront of programme design at every level, in the light of the contested environments in which students/graduates will need to call upon their green skills
7. Embed regular reflective practice requirements including, where appropriate, in assessments as a means to capture and make visible green skill learning and application
8. Regularly assess the relevance of green technical skills teaching and acquisition across all subject areas, utilising alumni and current placement students for real-time data gathering, and including reference to professional association requirements where relevant
9. Seek professional body (e.g. ISEP) accreditation for programmes of study where relevant to likely future graduate careers
10. Develop diverse interdisciplinary learning experiences via green transition challenge projects (see case studies)
11. View systems concepts as foundational for interdisciplinary initiatives
12. Recognise that AI adoption will continue to impact the nature of green skill needs for the economy and develop practice that recognises this intersection. In particular take an approach to AI-related curriculum development which reflects the opportunities for green skill acquisition this offers (see Open University Responsible by Design case study)
13. Work with university partners (overseas delivery and local F.E) to ensure green skills development aligns with local economy and workforce needs
14. Engage with secondary schools and schools/youth policy to support state education to provide the necessary transferable skills that can be further developed and support engagement with transformative skills in HE
15. Promote the take up of Carbon/Climate Literacy Training, for its potential to integrate technical, transferable and transformative skills acquisition and, through certification, for its contribution to employability outcomes

For careers and employability specialists

1. Expand work-based learning commitments to work-integrated learning commitments, to broaden impact (see case study examples)
2. For those working on a civic university agenda, recognise how supporting place-based future green economic activity in their localities can also generate vehicles for curriculum integration and student green skill development
3. Encourage employers to diversify the range of short and longer, green skills focused work based learning opportunities available to students, to increase equity of access
4. Allocate the staff time needed for creating and maintaining local place-based learning opportunities that require collaboration with local partners
5. As students can experience values-related workplace shock in transitioning to the workplace - be aware of the need to perform a balancing act in 'preparing for the worst' while encouraging a change agent mindset
6. Consistently signal green skills learning in the curriculum to help students build their own career narratives around green skills and thus make them visible to employers. This is particularly the case with the less tangible transferable and transformative skills

7. Resource careers teams to keep up to date with the local, national and international picture of green transition related job opportunities and associated skills discussions, based upon resources such as those of [Green Guidance](#)
8. Careers professionals and educators to coach students to signal green skills to employers, based upon the understanding that all job roles can be greened
9. Careers services and relevant academic modules to systematically promote green careers opportunities (utilising employers and alumni), emphasising the documented gap between labour market supply and demand

For student unions and student advocacy bodies

1. Advocate for an education system that supports students to develop as individuals with caring positive aspirations for themselves and the planet, using a green skills framework to guide this
2. Promote, and educate students about, the importance of green skills
3. Promote activities which support students to develop their transferable skills e.g. team building, emotional literacy, from freshers week onwards, as part of helping to scaffold learning that supports subsequent transformative capacity development
4. Support students to engage with academic and professional services staff on green skills issues, including providing guidance on how green skills activity can be captured in module evaluations
5. Encourage student societies to think about if and how their activities support green skills
6. Consider introducing a green skills society award
7. As employers in many cases of current and recent graduates, embed green skills in training opportunities and in staff development policies and practices, including in 1-1s as part of line management
8. Engage with HE sector and institutional level policy around green skills, highlighting the national shortfall of green skills as a structural issue

Future Research and Knowledge Exchange Priorities

The project team has identified the following research questions as being worthy of further exploration by those interested in the green skills agenda.

1. How might universities embed the development of advocacy skills within the curriculum - to enable students/graduates to influence change within communities, organisations and political systems?
2. How are green skills best developed in different disciplinary contexts?
3. What drives students from different disciplines to engage with green skills or skills development for a green transition?
4. How do employers measure green skills within recruitment procedures and performance management systems?
5. To what extent does additional 'green' certification or professional association accreditation support graduate employability, in the experience of students and/or employers?
6. Do HE, FE, employers and private training organisations have a shared understanding of green skills needs and, if not, what are the implications of this?
7. What are the most effective levers to bring about changed skills priorities in Higher Education curricula?
8. How to better map and understand the barriers within HE to teaching, learning and applying transformative green skills?
9. What are international experiences of transformative green skills development in Higher Education, and what can UK HE learn from them?

Green Skills Case Studies

Case studies offer an opportunity to demonstrate current practice in green skills acquisition in and outside the curriculum in a variety of subject areas. Given the findings of this project, it is little surprise that many of the cases featured here involve inter or cross disciplinary methodologies in work-integrated settings. Below is a summary of the case studies to be found in this guidance and on the project's QAA webpage. Case studies are listed in order of institutional name. Authors and their contact details are also provided.

Case Study Title	Institution	Disciplinary Area	Authors	Author contact details
Engineers Without Borders (Foundation+UG)	Aston University	Engineering	Ana Kyoseva	a.kyoseva@aston.ac.uk
Sustainable Development in Practice Module (PG)	De Montfort University	Cross disciplinary within STEM, mainly Engineering	Andrew Reeves	areeves@dmu.ac.uk
Trading and Investments Simulation (PG)	De Montfort University	Business and Finance	Neil Lancaster	neil.lancaster@dmu.ac.uk
Salvage not Scrap Project (UG+PG)	Glasgow School of Art	Fine Arts	John Thorne	J.Thorne@gsa.ac.uk
Sustainability in Practice Module (UG)	King's College London	Geography	Rowan Gard	rowan.gard@kcl.ac.uk
Sustainability Management Project Module (UG)	Manchester Metropolitan University	Business and Management	Jordan Peel	jpeel@mmu.ac.uk
Carbon Literacy Training Project (UG+PG)	Manchester Metropolitan University	All	Chris Ribchester	c.ribchester@mmu.ac.uk
Responsible by Design AI	The Open University	All	Paul Astles	paul.astles@open.ac.uk

curriculum design tool			Eleanor Moore	eleanor.moore@open.ac.uk
Green Careers in Northern Ireland	The Open University	All	Tara Craig	tara.craig@open.ac.uk
Create your Future (UG careers programme)	University of Exeter	All	Fernando Correia	F.Correia@exeter.ac.uk
My Tree Project (UG)	University of Leicester	Biological and Ecological Sciences	Moya Burns	mlb40@leicester.ac.uk
Sustainability Enterprise Partnership Project module (UG)	University of Leicester	Cross disciplinary	Alice Jackson	esd@leicester.ac.uk
Sustainable Marketing Module (UG)	University of Southampton	Marketing	Karen Clinkard	K.j.clinkard@soton.ac.uk
Sustainability Clinic Module (UG+PG)	University of York	Interdisciplinary	Angela Purdham	angela.purdham@york.ac.uk
Sustainability Consultancy Module (PG)	University of Westminster	Cross disciplinary	Yasmin Kulasi Dain Son	Y.Kulasi@westminster.ac.uk dain.son@inclusivesustainability.co.uk

Aston University - Engineers without Borders

1) Name of institution

Aston University

2) Name of the initiative

Engineering for People Design Challenge

3) Initiative outline

The previously voluntary [Engineering for People Design Challenge](#) has been integrated into the core learning of two engineering programmes. Students can now experience the learning from these challenges through an 'Interdisciplinary Design Project' (Year 1 Engineering and Science) module and a 'Global Engineering Project' (Foundation Year) module.

4) Context/history/need for initiative

For more than four years, Aston University delivered the Engineers Without Borders (EWB) Engineering for People Design Challenge as an optional, volunteer-based activity during Reading Week. Following a final poster presentation, selected teams continued to develop their work for submission to the national EWB competition.

Following a curriculum review, Aston University introduced a new interdisciplinary approach to engineering and science education with a stronger emphasis on sustainability, collaboration and global responsibility. As part of this transformation, the EWB Design Challenge was embedded within the Year 1 Interdisciplinary Design Project module, making it accessible to approximately 1,500 engineering and science students annually. The challenge was also incorporated into the Foundation Year Global Engineering Project module, where students can select it as one of several sustainability-focused project options.

5) What happens and how it is assessed

Students work in interdisciplinary teams using the annual Engineers Without Borders UK design brief to develop solutions to real-world challenges. Over a period of five to six weeks, teams research the context of the problem, consider stakeholder needs, develop and evaluate potential solutions, and communicate their proposals through a poster and presentation. Project outputs require students to address sustainability, ethics, stakeholder engagement, design analysis, future recommendations and personal reflection. Assessment is via group poster preparation and presentation.

6) Green Skills developed or applied

Students develop a range of green skills, including systems thinking, sustainable design, stakeholder engagement, teamwork, communication, ethical decision-making and global citizenship. The interdisciplinary nature of the module encourages students to consider technical, environmental, social and economic dimensions of engineering challenges simultaneously.

7) Contributions to leverage points

The case study aligns particularly with Leverage Point 1 (Natural Resources and Just Transition Solutions), Leverage Point 2 (Stakeholder Communication and Engagement), Leverage Point 5 (Organisational Model Innovation and Transformation), and Leverage Point 7 (Futures Literacy Through a Values-Based Mindset).

8) Impact, successes, challenges

One of the strengths of this approach has been the ability to scale sustainability-focused learning from a small voluntary activity to a curriculum-embedded experience reaching a large and diverse student cohort.

As the curriculum changes are recent, formal evaluation is ongoing. However, the transition from a voluntary challenge to a curriculum-integrated learning experience demonstrates one approach to embedding sustainability and green skills at scale within STEM education. By moving beyond optional participation and into core teaching, institutions can provide all students with opportunities to engage with authentic global challenges and develop the competencies needed for future green careers.

9) Advice for others

Institutions considering similar initiatives may find it beneficial to begin with established, voluntary, challenge-based learning frameworks, such as the Engineers Without Borders Design Challenge, before scaling them into the curriculum. Embedding sustainability within assessed activities can help ensure that all students engage with green skills, while interdisciplinary teamwork provides opportunities for students to consider environmental, social and economic perspectives when developing solutions to complex global challenges.

De Montfort University - Sustainable Development in Practice

1) Name of institution

De Montfort University

2) Name of the initiative

Sustainable Development in Practice (SDIP)

3) Initiative outline

SDIP is a 30 credit module within the MSc programme 'Energy and Sustainable Development'. It is taken annually by a small cohort of predominantly international students with an engineering background. It aims to provide the Transferable Skills and Transformative Capacities needed for learners to support a green transition.

4) Context/history/need for initiative

SDIP was developed in 2024, largely based on a predecessor 'Leading Change for Sustainability'. The module was designed specifically to develop sustainability competencies for application in professional settings with a focus on environmental sustainability issues.

5) What happens and how is it assessed

The module is made up of interactive taught sessions, focused on group-based engagement with core topics and challenge-based group tasks. This includes responding to live briefs provided by colleagues from the university and the local community.

Key focus areas are;

- Self-awareness and respect for diverse viewpoints, included through activities to reflect on and hear the group's life experiences prior to the course, as well as core values and beliefs
- Reflective practice as a key focus, addressed through an assessed activity where learners reflect on trying to adopt a pro-environmental behaviour of their choice during the course period
- Putting practice-based and research-informed knowledge on an equal footing, through regular use of case study videos and guest speakers from local government, NGOs and businesses
- Experiential learning, including a visit to an inspiring local eco-housing development and a campus tour focused on sustainability features
- Embedded one-day accredited Carbon Literacy Training, covering the causes of climate change and leading to pledges for action by learners.

Many students focus predominantly on what is assessed. The module therefore ensures that anything essential is assessed (such as engagement with the real-life behaviour change task), but also supports students to focus on the task without undue anxiety. The presentation assessment has a high weighting (30%) for Q&A responses, responding to the reality that slides and content can now be generated through GenAI tools.

6) Green Skills developed or applied

Transferable Skills developed include: Collaboration; Communication; Critical Thinking; Empathy; Growth Mindset; Open-mindedness; Problem-solving; Teamwork

Transformative Capacities focussed upon include: Ability to analyse unequal systems of power; Disruptive vs Normative Thinking; Political agency and activism; Reflexivity; Respecting diverse viewpoints; Systems thinking; Trans-cultural, trans-spatial, trans-temporal mindsets; Valuing traditional and indigenous knowledge; Working within complexity.

7) Contributions to leverage points

In terms of Project Drawdown's leverage points, a key focus is 'Natural resources and just transition solutions' (embedded through Carbon Literacy and a focus on the Clean Energy Sustainable Development Goal) and Stakeholder Communication (embedded through the presentation and report-based assessments and in-class group activities). A values-based mindset is cultivated through a range of activities prompting reflection on values and respect towards diverse perspectives on values. (LP1,2,7)

8) Impact, successes, challenges

Students report year-on-year that the module has a **transformative effect** on them, by making them internalise the ethos of sustainability through taking action and appreciating how the actions of others achieve societal change.

The module has had **spillover impact in the wider community**, with several aspects of the course delivered as standalone training for partner organisations locally.

9) Advice for others

The module demonstrates that students have an appetite for active learning and are open to developing their sense of self as having agency and commitment to make a difference on sustainability issues. This might feel difficult for educators more comfortable with supporting students to 'learn about' a topic at a distance rather than through experiential learning incorporating personal action and reflection, but this extra engagement seems to be a key ingredient in transformative learning.

De Montfort University - Trading and Investments Simulation

1) Name of institution

De Montfort University

2) Name of the initiative

‘International Trading and Investments’ within the MSc programme ‘Accounting and Finance’

3) Initiative Outline

In this investment simulation, PG Accounting and Finance students are asked to improve the financial and environmental performance of a student-managed fund, using industry-specific software and real-time data. Since moving to 30-credit modules and block teaching, sustainability has been embedded throughout this MSc programme. Before this capstone course, students will have studied financial and sustainability reporting, strategy, risk management, and corporate finance..

4) Context/history/need for initiative

With students coming predominantly from professional backgrounds, or with degrees in business, accounting or finance, this programme gives them maximum exemptions from CIMA professional exams (Chartered Institute of Management Accountants). Historically, sustainability has not been a part of these professional accountancy exams. Therefore, this initiative fills a knowledge gap, allowing students from diverse backgrounds to work towards a CIMA qualification, while developing the skills needed for the rapidly growing green jobs market.

5) What happens and how it is assessed

In preparation, students discuss the [Arup 2050 Scenarios](#) – Humans Inc, Extinction Express, Greentocracy and Post Anthropocene. They are encouraged to approach future uncertainty as an epistemological problem – where financial markets are not “clocks” whose direction can be predicted, but are “clouds” which reflect our collective expectations and behaviours.

They manage the student fund using industry-specific software (LSEG Workspace) under an academic licence. Each student is appointed as an analyst for a specific sector. Before trading, students write an essay (in-person) on the history of stock markets, investor behaviour, and the material factors which affect firm performance, including environmental, social and governance factors (ESG). Students complete trading diaries which they use to reflect on the effectiveness (or not) of their recommendations. At the end of the module, they summarise the financial and environmental performance of the student fund, including an investment recommendation for their imaginary client.

6) Green skills developed

As well as applying their knowledge of financial and sustainability reporting, students develop the green skills needed for a career in sustainable finance and investments. This includes not just technical skills, but reflective skills (through their diaries) and decision-making skills.

7) Contribution to leverage points

This contributes to Project Drawdown ‘Investments and Financing’ through the re-direction of investment towards climate and sustainability solutions.

8) Impact, successes, challenges

The intense nature of the simulation, using real-time data, results in a high cognitive load for the students. In the first few weeks, students under-trade - an anchoring or status quo bias - which we reflect upon in the classroom. Later, students show a preference for quantitative models over the analysis of unstructured macroeconomic and stock-specific news. To overcome their high cognitive load, students are provided with an AI agent to support decision-making and incorporate unstructured data. In turn, this prompts further discussions about the use of AI to overcome behavioural biases in decision-making. In their trading diaries, students report positively about work readiness.

9) Advice for others

If you are considering a real-time simulation, go for it! We know that experiential learning positively influences students' perception of their work readiness. We know, too, that work environments are increasingly complex and data-driven. Additionally, analyses using industry-specific software and real-time data, coupled with essays written in-person and reflective diaries, provide safeguards against the use of generative AI.

Experiential learning also comes with challenges. Authentic assessment requires additional administration, such as keeping track of students' trades. There are IT challenges – software enrolments, additional support for students who are absent from the classroom. Lastly, the industry-specific software used – LSEG Workspace - requires a minimum specification PC and data connection, which potentially brings additional costs for students.

Glasgow School of Art - Salvage not Scrap

1) Name of institution

Glasgow School of Art (GSA)

2) Name of the initiative

Salvage not Scrap

3) Initiative outline

GSA Salvage supports students and staff to source, reuse and recycle materials used in our Degree Shows, rather than scrapping them. It is about making the absolute most of what we can find, what we are given, exchange or reuse. It shows that the best environmental solution not only helps nature, it reduces financial costs, makes for deeper practice, uncovers more solutions, is more beneficial to local and sector partners, builds relationships across all levels and allows 'good' to happen.

4) Context/history/need for initiative

GSA Salvage was a 'living lab' formed and designed by students at GSA as part of a SOS-UK and British Academy programme called SHAPE (showing humanities and arts students how they too can have a positive environmental impact). Supported by GSA staff, students from across design, art and architecture disciplines co-designed an approach to materials and artworks reuse that would be engaging for GSA students and staff.

Using online surveys with students, interviews and visits to key staff and sites, the student collective created ideas focused particularly on our end-of-year Degree Show exhibition which generates large amounts of materials and art works, many of which have been historically skipped.

5) What happens

GSA Salvage supported students and staff to source, and reuse and recycle materials used in GSA's Degree Show, rather than scrapping them. Students negotiated the use of a Portacabin as a reuse hub; worked with studio and technical staff to fit around how materials and artworks are already collected, stored and distributed, created comms, and helped reduce rather than increase staff workload.

6) Green Skills developed or applied

Skills such as UNICEF's technical and transferable skills were already deeply rooted in GSA practice: for instance, critical thinking, analysis, adaptability, problem solving and innovative thinking all shone through in GSA Salvage. Students arrived at the project with strong interpersonal, co-design and project abilities; transferable skills that have grown as the project has developed.

7) Contributions to leverage points

LP1: Natural resource & just transition solutions. GSA Salvage aims to make reuse more of a social

norm within the GSA curriculum and programmes and for students to have a greater appreciation of the impacts of practice

LP2: Stakeholder communications and engagement. Students taking part in GSA Salvage have had to contact, negotiate and work with staff and academics at all levels as well as local organisations.

LP3: Green, Just and Inclusive policy and advocacy. GSA's strategic commitment through its newly written Environmental and Social Justice Framework facilitated the group interacting with staff who often willingly supported the work.

LP4: Products/services, Partnerships, Procurement. New partnerships were made within and outside GSA, for example with the Circular Arts Network, who collect, store and redistribute arts materials.

LP5: Organisation model innovation and transformation. Many subject areas at GSA are natural re-users, for example Silversmithing and Jewellery. In addition, when making and research are conducted through a social and environmental justice lens, we deepen that practice when students question what they are making and why.



8) Impact, successes, challenges

This project shows that arts students have a pivotal role to play in Green Skilling and Jobs. We need creative people both to emotionally connect us to issues we face, and to redesign our systems bit by bit. Over a short period, they designed the project from their own ideas and created a presentation and explanation of their approach and what GSA Salvage meant to them. GSA was widely acclaimed at the SOS UK national SHAPE conference in Cardiff.

As in any organisation, staff roles and procedures, health and safety and estates management were already existent. GSA Salvage was a 'new kid on the block' with only a few weeks to establish working relationships. It succeeded and went from zero to full speed over only a few weeks, and it will change and grow as an initiative over time.

9) Advice for others

We often have environmental and social justice written into our top-level strategy, but a reality gap between this and staff and student expectations and aspirations can exist. Initiatives such as GSA Salvage help to bridge that gap.

King's College London - Sustainability in Practice

1) Name of institution

King's College London

2) Name of the initiative

Sustainability in Practice Module

3) Initiative outline

Sustainability in Practice is a final-year undergraduate Geography module that equips students with the skills, confidence, and experience needed to contribute to sustainability transitions through applied, problem-based learning. Working in consultancy-style teams, students collaborate with internal and external partners to address real-world sustainability challenges and develop evidence-based recommendations.

4) Context/history/need for initiative

As sustainability challenges become increasingly complex, employers are seeking graduates who can move beyond theoretical understanding and apply sustainability principles in professional and organisational settings. Sustainability in Practice was developed to bridge the gap between academic learning and hands-on sustainability practice. Over the past two academic years, the module has been redesigned to focus specifically on undergraduate learning, employability, and sustainability practice while supporting King's wider sustainability ambitions.

5) What happens and how is it assessed

The module adopts a **problem-based learning** and **Living Lab** approach centred on real sustainability challenges. Students work in consultancy-style teams alongside university operational staff and external organisations, to investigate sustainability issues and develop practical recommendations. Projects have included collaborations with King's Estates & Facilities, King's Food, and external organisations such as Transport for London (TfL).

To support effective collaboration and professional accountability, student teams sign a group contract at the outset. Team members review and re-sign the contract on a weekly basis, encouraging regular communication, shared responsibility, and early identification of challenges relating to workload or team dynamics. This mirrors professional project management practices and helps students develop skills in collaborative working and accountability.

One recent project explored opportunities to improve food waste management and composting within King's Kitchens. Students investigated existing waste streams, consulted stakeholders,

reviewed best practice, and developed recommendations that were subsequently incorporated into a successful composting system across all King's campuses.

Assessment is based on in-class presentations and reflective final reports that require students to critically evaluate both sustainability theory and practice.

6) Green Skills developed or applied

Technical Skills

- Sustainability assessment
- Systems thinking
- Stakeholder analysis
- Environmental data interpretation
- Research design
- Policy and organisational analysis
- Project management

Transferable Skills

- Professional communication
- Teamwork and collaboration
- Report writing and presentations
- Negotiation and stakeholder engagement
- Problem-solving and project planning
- Time management

Transformative Skills

- Futures thinking
- Critical reflection
- Understanding complexity and uncertainty
- Ethical reasoning
- Environmental responsibility
- Confidence in contributing to organisational change
- Working across disciplinary boundaries

7) Contributions to leverage points

The module contributes particularly strongly to:

- **LP2:** Stakeholder Communication and Engagement
- **LP4:** Products, Services, Partnerships and Procurement
- **LP5:** Organisational Model Innovation and Transformation
- **LP7:** Futures Literacy through a Values-Based Mindset

The Living Lab approach encourages students to work across organisational boundaries and engage directly with the social, institutional, and operational dimensions of sustainability transitions. The module also contributes to King's wider sustainability and responsible futures ambitions by connecting teaching, operational sustainability, and organisational change.

8) Impact, successes, challenges

A strength of the module is its emphasis on experiential learning. Students work on genuine sustainability challenges where there is no predetermined solution, requiring them to navigate uncertainty while balancing environmental, social, economic, and organisational considerations. Students develop not only sustainability knowledge but also the skills, confidence, and transformative capacities needed to contribute meaningfully to a more sustainable and just future.

Students frequently identify the module as one of the most valuable experiences of their degree. For the 2026/27 academic year, enrolment stands at approximately 80 students, the highest enrolment in the module's six-year history. This growth reflects increasing student demand for opportunities to engage with real-world environmental challenges.

Challenges include balancing academic requirements with partner expectations, managing project timelines, and helping students navigate ambiguity. However, learning to work within these constraints is itself an important sustainability competency.

9) Advice for others

Move beyond hypothetical sustainability scenarios wherever possible. Students learn most effectively when working with real stakeholders on genuine sustainability challenges where the outcomes matter. Strong stakeholder relationships are essential, as is providing sufficient support to help students manage uncertainty and complexity. While Living Lab approaches require significant relationship-building and coordination, they can create meaningful benefits for all parties.

Manchester Metropolitan - Sustainability Management Project

1) Name of institution

Manchester Metropolitan University Business School.

2) Name of the initiative

Sustainability Management Project Module.

3) Initiative outline

The core elective 30 credit module is focused on addressing gaps in the sustainability competencies developed through business management curricula and is taught on UG Business Management and Business Management with Law courses. The module advances students' understanding of environmental concepts, including natural cycles, ecosystems, pollution, planetary boundaries, in relation to organisational management and leadership practices.

4) Context/history/need for initiative

Modules were reviewed against the Institute of Sustainability and Environmental Professionals (ISEP), competency mapping toolkit (ISEP, 2016). The mapping highlighted a need to strengthen technical environmental knowledge and skills. The module was developed, building on existing programme content with emphasis on practice and research-informed knowledge and skills for environmentally and socially just transitions. The module design required cross-faculty collaboration, involving the Faculty of Business and Law, Faculty of Science and Engineering and students and external partners.

5) What happens and how it is assessed

Students learn a range of environmental concepts and develop capabilities through workshops and guest seminars from academic/industry professionals. Students are supported to apply this learning through live projects with large organisations (e.g. Lyreco) and also local SMEs sourced through university networks. Students conduct industry and organisational evaluations, develop evidence-based recommendations, including a strong sustainability business case. The module encourages students to view sustainability challenges as iterative processes, requiring personal and organisational reflective practice. Students are assessed through a presentation, a report, reflection, and peer assessment.

6) Green Skills developed or applied

Students develop a range of technical, transferable and transformative skills including but not limited to, communication skills, empathy, reflexivity, research and project management skills, critical thinking and future and anticipatory thinking skills.

7) Contributions to leverage points

LP1; Students engage with doughnut economics, mapping to critically evaluate environmental limits and social foundations in relation to a client organisation. Students then engage with focused analysis in environmental policy, regulation, legislation, management systems and carbon management.

LP2; Students work with clients to address real-world sustainability challenges through group work, requiring effective collaboration and engagement with stakeholders and change leadership. They define their own position through research, whilst being open to the perspectives of others. Students identify different modes of communication and framing for different stakeholders. The module reinforces the importance of collective action in addressing sustainability challenges, moving beyond competitive approaches, through co-design and co-creation in problem solving and opportunity development.

8) Impact, successes, challenges

The design and delivery of the module through inter-disciplinary engagement, leadership support, and active involvement from external partners has worked well. As has the embedding of in depth reflective practice which in turn has helped further refine the module.

Several challenges were identified in the initial delivery, including inconsistencies in supervision, complexities in peer assessment, communication between students and clients, alignment between project work and assessment criteria, variation in student engagement with projects, and requests for further practice workshops in carbon management and reporting. Through targeted adjustments informed by stakeholder feedback, improvements were achieved.

9) Advice for others

Alignment with institutional strategy and nurturing good will to support inter-disciplinary working and coalesce around shared university strategy is recommended. Being willing to engage a wide range of stakeholders in curriculum developments has evident benefits. Processes of continuous reflection and iterative development aid relevance and quality, despite being time consuming.

Pedagogical tools such as the ESD Co-design toolkit can support curriculum development and a transformative, experiential pedagogy. They also ensure alignment with frameworks such as United Nations Sustainable Development Goals, UNESCO sustainability competencies and UNICEF Green Skills framework. Alignment with professional bodies such as ISEP provides specific sustainability competency objectives, and also longer term pathways and membership for students to enhance their professional development.

Manchester Metropolitan University - Carbon Literacy Training

1) Name of institution

Manchester Metropolitan University

2) Name of the initiative

Mainstreaming Carbon Literacy Training (CLT)

3) Initiative outline

The initiative envisages CLT, carefully aligned to the accreditation requirements of the [Carbon Literacy Project](#) (CLP), being embedded into one core module within all undergraduate and postgraduate programmes of study. The training consists of six units of study, which equates to a day's-worth of learning activity. The units can be delivered flexibly across in-person or online and synchronously or asynchronously.

4) Context/history/need for initiative

Manchester Met has been committed to delivering CLT for over a decade. At its heart is a concern to ensure students have a stronger understanding of climate change, the implications of everyday actions for greenhouse gas emissions, and the proactive steps they can take to reduce their personal carbon footprint, both now and in their future graduate careers. This commitment is situated within the context of the University's [Leadership in Sustainability Strategy](#), which includes the target of embedding CLT into all programmes by the end of the 2026-27 academic year. It is also integral to Manchester Met's 'Sustainability' Graduate Attribute, one of six attributes which the University's programmes are aligned to.

5) What happens and how is it assessed

Academic members of staff are trained to deliver CLT within their programme(s) and provided with a suite of resources that can be tailored to their subject context. CLT-qualified students are also trained as session assistants and co-trainers and are paid for their work supporting and co-delivering sessions. The six CLT units comprise Climate change: the basics; Exploring carbon footprints; A zero carbon world; Influencing others; Our professional influence and Taking action. Once completed, all participating students then have the option of completing a structured CLT questionnaire testing their understanding and to identify personal targets to reduce their carbon footprint. The questionnaire is an adapted version of the standard CLP Evidence Form. If approved and successful, the students are then certified as Carbon Literate.

6) Green Skills developed or applied

- Technical skills: Environmental knowledge and awareness
- Transferable skills: Communication, Coping with emotions, Problem solving
- Transformative skills: Environmental stewardship, Future thinking, Systems thinking, Trans-cultural, trans-spatial, trans-temporal mindsets.

The emphasis on communication and influencing skills is a defining feature of the CLT model, supporting students to be agents of change in their future personal and professional lives.

7) Contributions to leverage points

- LP1: Natural resource and just transition solutions
- LP2: Stakeholder communications and engagement
- LP7: Resilience and values-based mindset

8) Impact, successes, challenges

Currently, CLT is embedded into just over a third of all programmes. For students taking a programme within which CLT is not currently embedded, there is the opportunity to take the course as an extra-curricular learning experience instead.

As of May 2026, over 11,200 students have engaged with CLT and 3,680 have been certified Carbon Literate. Research, comparing the perspectives of students before and after CLT, suggests strongly that it impacts positively on green skills, sustainability mindsets and behaviours of participants. Since the inception of CLT at Manchester Met, 210 students have completed the Train-the-Trainer programme. Qualitative research with the trainers has identified wide-ranging transferable skill and employability benefits, with positive implications for their graduate careers. There are currently 233 active Staff Champions and other research has highlighted positive impacts for them too including a renewed sense of institutional belonging and refreshed career identities.

Challenges that have sometimes emerged include delivering CLT to large student cohorts and finding space in the curriculum, particularly for practice-based programmes with stringent PSRB requirements. The development of online, asynchronous content has helped to address these challenges. Close collaboration between the central CLT Team, Staff Champions and Student Trainers is essential to create discipline-specific CLT examples to use within the training to ensure relevance.

9) Advice for others

Push for a strategic, measurable target for CLT supported by senior university leadership, aligned to regular auditing of progress. In parallel to this, advocate for a ring-fenced budget to pay for running costs, including CLP certifications and student trainers.

Develop an active community of practice and work closely with these 'champions' to tailor the content of CLT to disciplinary contexts.

As well as staff, co-create content with students and seek their help to develop creative ways of explaining the value of CLT to their peers.

Be flexible, adjusting the CLT professional development approach for staff to reflect changing circumstances and contexts.

If you're aspiring to introduce CL training at your institution, a good place to start is the '[The Carbon Literacy Toolkit for Further & Higher Education](#)', which Manchester Met was heavily involved in developing.

The Open University - Responsible by Design

1) Name of institution

The Open University

2) Name of the initiative

Responsible by Design — embedding green and ethical AI skills in curriculum design

3) Initiative outline

The [Responsible by Design \(RBD\) framework](#) embeds ethical, environmental and social considerations into curriculum design, following sector-wide examples such as the Association for Learning Technology's (ALT) Framework for Ethical Learning Technology. RBD complements existing approaches to critical AI literacy by focusing on how educators design learning activities and assessments. Rather than asking only whether GenAI can be used, RBD encourages consideration of why, how and at what cost technology is deployed.

4) Context/history/need for initiative

The transition to a green economy is reshaping graduates' expectations across all disciplines. Green skills encompass the knowledge, values and capabilities required to support a sustainable and resource-efficient society, including technical expertise, systems thinking and ethical awareness. At The Open University (OU), the rapid emergence of generative artificial intelligence (GenAI) provided a context through which green skills could be meaningfully developed. While AI offers significant benefits for learning and productivity, it also has substantial environmental and social implications, from the need for extensive material and water resources, to the impact on creative and intellectual property. These present an opportunity to engage students in critical reflection on technology use.

5) What happens

Implementation began within the OU Learning Design Team, where workshops and design discussions were used to integrate RBD into curriculum development processes. For example, structured design prompts, tutorial discussion activities and practical guidance to help embed critical reflection within learning activities. A key strength of the framework is its simplicity: the six-pillar structure provides an accessible entry point for educators across disciplines, enabling widespread adoption without requiring specialist expertise.

Through RBD-informed learning activities, students develop key green skills that align with both employability and sustainability competencies. Importantly, students are encouraged to critically evaluate whether AI use is proportionate and educationally valuable within a given context. Educators are encouraged to design learning that supports students to consider questions such as: What resources are required to use this technology? Who benefits and who may be disadvantaged? What are the environmental implications?



6) Green Skills developed or applied

The approach taken reflects broader international perspectives on green skills development. UNICEF highlight the importance of inclusive, context-sensitive approaches that empower individuals to participate in a green economy, noting that green transitions require both technical skills and the ability to navigate complex social and economic challenges. RBD supports this by embedding reflective and values-driven practices into all areas of learning.

7) Contributions to leverage points

This initiative aligns strongly with Leverage Point 9 (LP9): Responsible data and technology solutions. Project Drawdown emphasises that climate action must be embedded across all roles. RBD operationalises LP9 by equipping students to act as responsible users and decision-makers in relation to digital technologies, recognising that their everyday interactions with data and AI systems have environmental and societal consequences.

The RBD framework supports key considerations including sustainability, bias, exploitation of people and resources, access, equity, opting out, transparency and proportionate use. The sustainability-focused pillar highlights the energy and resource intensity of AI systems, prompting students to evaluate trade-offs between efficiency and environmental harms. This reflects LP9's emphasis on responsible technological choices, as well as Drawdown's call for employees to assess and improve the environmental performance of the systems they use and design.

8) Impact, successes, challenges

Beyond awareness-raising, RBD encourages students to see themselves as active participants in shaping more sustainable and equitable technological futures. It helps to empower students to drive climate action within organisations, rather than restricting responsibility to sustainability specialists.

Challenges remain, particularly in evidencing long-term impact. This reflects a wider challenge in green skills development, where outcomes are often linked to values, judgement and agency rather than easily quantifiable knowledge.

Despite these challenges, the RBD framework demonstrates a scalable and adaptable approach to embedding green skills across higher education. By making the environmental and social implications of technology visible, it enables students to engage with the kinds of complex decision-making required in a green transition. It also illustrates how LP9 can be enacted in practice. Not simply through technical competence, but through the cultivation of responsible, reflective and systems-oriented approaches to data and technology. RBD was recognised as a winner of ALT's Ethical Edtech Award 2025, where judges praised its practical simplicity.

9) Advice for others

For other institutions, a key lesson is that embedding green skills does not necessarily require extensive curriculum redesign. It can begin with simple, structured prompts that make the environmental, ethical and social consequences of technology use visible to students within everyday learning design. This is where RBD makes its strongest contribution: preparing graduates to make responsible technology decisions in every discipline, every workplace and every role.

The Open University - Green Careers in Northern Ireland

1) Name of institution

The Open University

2) Name of the initiative

Raising awareness of Green Skills Careers in partnership with the Department for the Economy (DfE) in Northern Ireland

3) Initiative outline

Develop a range of resources which highlight how green skills are being applied across a wide range of roles locally. Including:

- [A Green Skills Careers Bulletin](#)
- [A young person's guide to green skills careers in Northern Ireland](#)
- [An adult's guide to green skills careers in Northern Ireland](#)

The resources are to be published on DfE citizen-facing platforms and promoted via DfE social media channels. The link to the publications will also be disseminated on the NI Direct Careers website and shared with DfE careers advisers and other key stakeholders.

4) Context/history/need for initiative

The Department for the Economy in Northern Ireland has identified seven growth priority areas, one of which is Low-carbon / net zero (green economy). A ten-year digital & green skills transformation plan has been developed supported by an industry-led green skills delivery group and four sub-working groups. The Open University sits on all four sub-working groups. A key output of the 'Promoting awareness of careers and opportunities in green jobs, green skills and transversal skills' group was a green skills careers bulletin which The Open University played a key role in the development of.

5) What has happened

The initiative was focused on raising awareness of what green jobs are and why they are important. A key part was to include 'career role snapshots' of people working in the green skills industry to provide role models that inspire. The Open University was delighted to supply a case study of a former student who studied a Bachelor's Degree in Natural Science and Masters in Environmental Management, and is now working as a Sustainability Officer.

CAREERS SERVICE

CAREERS OCCUPATIONAL INFORMATION UNIT Bulletin

Green Skills Career Snapshots



Name: Supriya Foster

Role: Sustainability Officer, South West College

"It's given me options that I didn't know were there for me...I'm now of the mindset that the sky is the limit. It's given me the confidence not just to pursue career choices but also further academic choices"

Pathway into a Green Skills career: [Open University Bachelor's Degree in Natural Science and Masters in Environmental Management](#), now working as a Sustainability Officer

Supriya Foster plays a **key leadership role in driving sustainability, climate action, and environmental education** across South West College (SWC). As the college's Sustainability Officer, she works with students, staff and the wider community to encourage greener ways of working and to support action on climate change.

Supriya's background in **Natural Science and Environmental Management** helps her in her role as Sustainability Officer. Through her studies, she developed a strong understanding of the natural environment, including ecosystems and biodiversity, which she now uses in her work. This knowledge supports her in developing practical workshops and sustainability initiatives, leading carbon-reduction work, delivering carbon literacy training, and helping the college plan for a more sustainable future.

In this short video clip, Supriya talks about her career journey to becoming a sustainability officer, explains how being able to combine work and study through distance learning helped her achieve her goals, and outlines her plans for the future.



[Supriya - Green Skills](#)

Another key part was to provide clarity around the education pathways into green skills careers from level two to level seven, developed through the Further Education Colleges and the Universities in Northern Ireland.

CAREERS SERVICE

CAREERS OCCUPATIONAL INFORMATION UNIT Bulletin

Higher Education - Green Skills-Related courses

The Open University

The Open University has a dedicated [Study Sustainability hub](#) that signposts qualifications, micro-credentials and short skills courses, alongside free learning through [OpenLearn's SustainabilityHub](#). Flexible, distance learning lets learners in Northern Ireland upskill or reskill alongside work or other commitments, with routes from taster content to full degrees.

Free Learning and Short Skills (OpenLearn & Micro-credentials)

OU's [OpenLearn Sustainability Hub](#) offers a large catalogue of free courses, articles, videos and interactives covering climate change, energy, circular economy, sustainable transport and more - useful for first steps, CPD, or building foundational green awareness. In parallel, OU sustainability pages highlight skills-focused short courses and micro-credentials for targeted upskilling aligned to workplace needs.

Undergraduate Pathways Environmental Science

► Learners can develop green skills through OU undergraduate pathways in **Environmental Science and Environmental Science (Environmental Management)**.

Interdisciplinary/flexible study

► There are options to build an interdisciplinary programme or tailor study via flexible degrees (such as through the **Combined STEM degree** or an **Open programme**). These routes could enable students to cover topics such as environmental systems, sustainability practice, energy and resource management, and data/digital tools used across green roles.

Postgraduate Pathways (Advanced Environmental & Management Focus)

At postgraduate level, OU offers advanced study in **Environmental Science** and **Environmental Management**, combining policy, regulation and organisational change with technical/environmental analysis, systems thinking and project work.

You can find full information on The Open University courses on [The Open University website](#)

6) Impact, successes, challenges

The project has created a range of resources that help make green skills more relatable and accessible. As the project group included a diverse range of stakeholders, there were challenges around the definition of green skills as there is not one universally agreed definition. There were also challenges in the sourcing of career case studies and the distilling of a huge amount of information into a digestible format.

7) Advice for others

Cross-sector working really helps ensure that the message meets industry needs. Having businesses represented in the working group alongside educational providers ensured pathways from education to careers are clearly defined and meaningful.

University of Exeter - Create Your Future

1) Name of institution

University of Exeter

2) Name of the initiative

Create Your Future

3) Initiative outline

A timetabled, non credit bearing, compulsory first-year undergraduate employability programme of three weeks' duration. Engaging some 4,600 students annually through a blend of workshops and independent online learning, this initiative helps students begin career planning early, with sustainability embedded throughout rather than added as a separate topic. Workshops are tailored to be discipline specific.

4) Context/history/need for initiative

Many UG students delay career planning until their second or third year, despite internships, placements and other opportunities often requiring applications early in Year 2. Exeter's Career Zone developed Create Your Future as a large-scale, structured first-year intervention to address this, helping students connect their identity, values and aspirations with labour market realities from the outset of their degree.

5) What happens and how is it assessed

The first year programme consists of two workshops and structured independent learning, totalling 5–7 hours over three weeks. There is a follow-up review process in the second year.

Workshop 1 — The Future of Work and What Employers Want: explores employer priorities, technological change, wellbeing, equality/diversity/inclusion, and sustainability, anchored in students' own values and aspirations. A key activity asks students to rank personal values and reflect on how these may shape career choices. Students then analyse employers that graduates from their discipline have joined, using Graduate Outcomes data, employer websites, news sources, Windo CSR data, and employee review platforms (e.g. Glassdoor) to test whether organisational claims align with independent evidence.

Independent Learning: Between workshops, students complete a structured self-assessment using Exeter's Skills to Thrive framework, identifying strengths, evidencing capabilities, and noting development priorities.

Workshop 2 — How to Build the Career You Want: helps students translate reflection into action through input from careers practitioners, academic employability leads, and student interns, culminating in the preparation of a three-month SMART action plan. A second-year follow-up revisits progress and next steps. Assessment is formative throughout.

6) Green Skills developed or applied

Technical/Occupational: The employer research activity develops research, ICT, and data evaluation skills, including sourcing and critically assessing corporate sustainability data.

Transferable/Green Life Skills: Critical thinking, communication, decision-making, resilience, and adaptability — developed through values-based discussion and employer investigation — alongside participatory skills, interpersonal competence, strategic thinking, and a growth mindset.

Transformative Capacities: Reflexivity, future and anticipatory thinking, working with complexity, and respect for diverse viewpoints. The programme builds broader literacy in sustainability, EDI, and wellbeing as career considerations, promoting personal agency and environmental stewardship.

7) Contributions to leverage points

LP7 (Resilience and values-based futures mindset): Strongest contribution — the programme explicitly uses values reflection and future-oriented thinking to support better present-day decisions.

LP8 (Reporting and transparency): Students develop skills to evaluate and interrogate employer claims against external evidence.

LP9 (Responsible data and technology): The programme embeds discussion of technology and students apply digital tools to critically assess information sources.

Also meaningful contributions to **LP2** (Stakeholder communications) through structured dialogue, and **LP5** (Organisational model innovation) through examination of how organisations embed environmental and social priorities.

8) Impact, successes, challenges

The programme's major success is embedding green skills within a mainstream, scalable employability offer reaching thousands of first-year students annually. Sustainability is consistently the lens students choose most often when investigating employers, suggesting strong engagement.

Challenges include maintaining appropriate impartiality when discussing controversial employers or greenwashing, and addressing the persistent "values-action gap" where some students prioritise salary or employer brand over values alignment. The programme's response is pragmatic: plant seeds, build evaluative capacity, and connect students to ongoing support.

9) Advice for others

Start early and embed green skills within mainstream employability rather than treating them as optional or niche. Use a values-first approach, make content discipline-specific, ground activities in real graduate destinations, and give students tools to critically assess employers using independent evidence. Combining careers staff, academic colleagues, and near-peer student voices makes sustainability, employability, and action planning feel relevant and achievable.

University of Leicester - My Tree Project

1) Name of Institution

University of Leicester

2) Name of Initiative

The MyTree Project

3) Initiative Outline

The MyTree project is part of a second year UG module available to Biological and Environmental Sciences students. It develops students' green skills through an accessible, campus-based fieldwork intervention. It combines field identification, survey techniques, citizen/community science, and sustainability education while supporting LP7 and LP9.

4) Context/History/Need for Initiative

The MyTree project has been running as an engagement activity within the "Global Change Biology and Conservation" module since 2021, with data related to it offered as a potential Honours project for other Biological Sciences students. This dual use enables the development of a long-term ecological data set, alongside the opportunity for student co-development of the project. MyTree was initially created to provide field skills development at a time when university field trips were not permitted due to Covid. The benefit of this approach without the barriers presented by residential field trips quickly became evident and MyTree has remained embedded within the module ever since.

5) What happens and how it is assessed

Students are each assigned a campus tree for the duration of the autumn term. Each week, students visit "their" tree to photograph it and analyse canopy colour change using digital software as a measure of autumn senescence. This data contributes to a long-term study examining climate change impacts on urban trees. In addition, each week students make observations, or take tree measurements, which relate to the weekly taught content of the module. For instance, during the week that carbon-offsetting is introduced, students are prompted to calculate the carbon storage of their tree and reflect on its equivalence in terms of travel-generated emissions. Students obtain a weekly engagement mark for each submission, which counts towards their overall module grade.

Week	Example Topic	Example MyTree Task (In addition to % colour calculations)
Week 1	Introduction to citizen science and phenology	Find your tree using a What3Words code.
Week 2	Biodiversity	Identify your tree species
Week 3	Ecosystem functioning Ecosystem services	Use the Treezilla App to calculate the ecosystem service of "water intercepted" by your tree.

Week 4	Climate change	Calculate the carbon stored in your tree.
Week 5	Invasive species Over-exploitation of resources	Research whether your tree is native or introduced.
Week 6	Light-week (no teaching)	Reflect on your experience of the MyTree project and explore concepts of nature-connectedness.
Week 7	Pollution Habitat fragmentation	Calculate how much air your tree filters per year. Calculate an isolation value of your tree compared to other trees on campus (calculation form provided).
Week 8	Conservation solutions	Reflect on the limitations of the MyTree data collection methodology. Research tree conservation measures and policies, such as Tree Preservation Orders.

6) Green Skills developed:

Occupational/ Technical Skills: Data analysis, Environmental knowledge and awareness, ICT skills, Monitoring skills, Research skills, Science skills, Technological skills.

Transferable Skills: Critical thinking and reasoning, Problem-solving, Empathy, Participatory skills

Transformative Capacities: Environmental stewardship, Future and anticipatory thinking, Interrelational thinking, Reflexivity

7) Contribution to Leverage Points:

LP7: Futures literacy through a values-based mindset: MyTree participants report that focusing on a single tree enables them to establish a sense of environmental stewardship not experienced in previous environmental education.

LP9: Responsible data and technology solutions: alongside internal assessment, students submit records to national citizen science projects, allowing their data to contribute to wider environmental research. Students also learn about the strengths and limitations of digital and AI-supported identification tools.

8) Impact/Successes/Challenges:

In terms of impact, the project helps students connect abstract environmental concepts to their everyday surroundings. As one student reflected: *“It really opens your eyes to how much biodiversity is out there and right on your doorstep.”*

The project also provides authentic research opportunities. Long-term data collected through MyTree has supported undergraduate research projects investigating both autumn senescence trends and methodological reliability.

The MyTree approach has enhanced inclusivity in the development of technical field-based green skills. Students who experience barriers to participating in residential field trips have reported that this module allows them to develop field skills at a time and pace that suits them, enabling them to balance skill development with other commitments.

Although many students described the experience as transformative, some students report feeling pressure to participate for assessment marks which reduced feelings of autonomy, while others felt pressured by deadlines or were uncomfortable photographing trees in busy public areas. Tree location and student safety also required consideration during project planning.

9) Advice for others

MyTree demonstrates the value of low-cost, place-based field learning at a time when fieldwork opportunities are thought to be declining across HE due to financial, administrative, and time pressures. By centring learning on a single campus tree, this approach appears to foster particularly strong feelings of ownership, environmental stewardship, and long-term connection with nature as demonstrated by this final quote:

“I still have the pictures on my phone just to give a little look at my little baby, my tree, my child, to see how it grows over time.” (student)

University of Leicester -Sustainability Enterprise Partnership Project (SEPP)

1) Name of institution

University of Leicester

2) Name of the initiative

Sustainability Enterprise Partnership Project (SEPP) module

3) Initiative outline

The Sustainability Enterprise Partnership Project (SEPP) is a credit-bearing, interdisciplinary, final year UG, work-related learning module that embeds employability directly into the curriculum through real-world sustainability consultancy with partner organisations. The module brings together students from across disciplines to act as sustainability advisors to local small and medium-sized enterprises (SMEs), delivering professional audit reports and implementation plans based on real organisational data.

4) Context/history/need for initiative

The module evolved from an institutional project providing sustainability audits for local businesses. As this externally funded project came to a close we wanted to be able to continue offering the service and working with professional services staff who have direct business contact, so the decision was made to embed this within the curriculum.

5) What happens and how is it assessed

Students collaborate with businesses, working initially in interdisciplinary groups of up to six and latterly individually, to analyse raw data and produce reports assessing sustainability performance and outlining actionable initiatives, informed by their integrated Carbon Literacy Training (CLT). Since the pilot in 2022–23, the module has engaged nearly 300 students. Each semester, students work with typically two to three partner businesses, with multiple student groups analysing each business dataset. Outputs from the strongest group analyses are synthesised by staff into a single, high-quality report that is shared with each business partner, ensuring clear, actionable insights.

The CLT accreditation costs of the independent Carbon Literacy Project are departmentally funded (£15 per student). This ensures that all students can access a recognised sustainability qualification, removing financial barriers and supporting inclusion.

The module is based on a Living Labs approach and Education for Sustainable Development (ESD) principles. Students are placed in authentic professional roles as sustainability auditors, responding to genuine stakeholder needs, engaging with feedback, and communicating recommendations in a professional context. Assessment reflects this applied, practice-based approach, combining group-based analytical work with individual assignments and the successful completion of Carbon Literacy Training (see Table 1).

Assessment	Assessment Type	Assessment Format	Weight
Carbon Literacy Form	Formative	Individual	0
Written Industry Report single section	Formative	Group	0
Written Industry Report	Summative	Group	50%
Detailed Implementation Plan	Summative	Individual	40%
Professional Reflective Portfolio (includes Carbon Literacy)	Summative	Individual	10%

Table 1: The assessment structure for the SEPP module

6) Green skills developed or applied

Students develop a combination of technical, transferable and transformative skills. They analyse sustainability data and produce evidence-based audit reports and implementation plans across themes such as procurement, energy, waste and travel. They develop professional communication and stakeholder engagement through working with partner organisations, and interdisciplinary teamwork, project management and problem-solving skills by working within groups.

The module also supports the development of transformative competencies aligned with international frameworks (e.g. UNICEF and ESD guidance). Students engage with systems thinking by exploring how environmental, social and economic factors interact, and develop environmental stewardship through applying sustainability principles to real-world challenges. The action-oriented nature of the projects also fosters anticipatory and strategic thinking. Reflective practice is embedded throughout, enabling students to articulate their skills development, values and emerging professional identities, and to critically consider their role in contributing to sustainable development.

7) Contributions to leverage points

The SEPP module most strongly aligns with:

- **LP2 Stakeholder communication and engagement:** Students work directly with partner organisations to interpret data, respond to feedback and communicate sustainability recommendations.
- **LP5 Organisational model innovation and transformation:** Students develop evidence-based recommendations that support the integration and scaling of sustainability practices
- **LP8 Reporting and disclosure, transparency and assurance:** Students produce audit reports, contributing to evidence-based assessment and transparency.

8) Impact, successes, challenges

Students report increased confidence and a clearer understanding of how academic learning translates into professional practice, while businesses benefit from structured sustainability support, effectively building capacity alongside the student experience. The module also strengthens partnerships between the University, local businesses and suppliers.

Delivering an interdisciplinary, partner-based module at scale presents challenges, particularly as this was the first of its kind at the university. These include coordinating stakeholder engagement, managing timelines and expectations across multiple external organisations, and supporting students to work effectively across disciplines.

To mitigate risks such as variable group performance the module incorporates structured partnership management processes. Clear expectations are set with businesses from the outset regarding the nature of student outputs. The module team provides a single point of staff contact and ensures consistency in how student queries are managed. The role of the teaching team in synthesising outputs into a single, high-quality report reduces the risk of underperformance impacting partner organisations while maintaining academic integrity. The inclusion of professional services expertise within the teaching team further strengthens partnership coordination.

9) Advice for others

The SEPP model demonstrates how higher education can integrate sustainability and employability within the curriculum to support authentic green skills development in our students, while supporting real world change for local organisations. It provides a replicable approach to developing graduates who can work across disciplines, engage stakeholders and contribute to more sustainable futures.

University of Southampton - Sustainable Marketing

1) Name of institution

University of Southampton

2) Name of the initiative

Creating impact on an undergraduate, live client Sustainable Marketing module

3) Initiative outline

This is a second year, UG optional module, Sustainable Marketing, on the BSc (Hons) Marketing programme. It is taken by approximately 25 marketing students per year.

4) Context/history/need for initiative

When teaching future marketing professionals, we consider it imperative to provide opportunities to co-create solutions that reduce, or design-out negative impacts of business and marketing on economies, societies and the environment. This module challenges students to interrogate the status quo, adopt small, actionable changes and consider their future as sustainability thought leaders. Working with clients enables students to develop industry-relevant, transferable, personal and professional skills.

5) What happens and how is it assessed

Students research and devise a range of novel solutions from short-term, incremental changes, right up to transformative and disruptive solutions, for live clients. Clients are sourced through the module leader's networks, and have included internal careers service staff, start-ups and social enterprises, and a large corporate.

The module is assessed in two parts: 1) students go to CMSTP www.canmarketingsavetheplanet.com, choose and engage with 100 points worth of CMSTP's Learning Zone resources ; apply to the site authors to gain a Sustainable Marketer certificate; then write a reflection on the new knowledge and skills acquired, and 2) Using the learning from task 1, they respond to one of the live client projects, defining the key challenges and proposing three actionable, sustainable marketing recommendations.

6) Green Skills developed or applied

Technical: Data analysis, entrepreneurship, environmental knowledge and awareness, innovation, marketing, research skills

Transferable: All on the UNICEF list

Transformative: Disruptive vs normative thinking, environmental stewardship, future and anticipatory thinking, reflexivity, respecting diverse viewpoints, systems thinking, working within complexity

7) Contributions to leverage points

The module supports students to have an influence on Leverage Points 2,4,5,&7. For example:

LP 2 Stakeholder communications and engagement: task 1 requires students to communicate professionally with the CMSTP and task 2 requires students to ask insightful questions of the client projects.

LP7 Resilience and values-based futures mindset: one of the lectures is delivered as a Green Futures workshop challenging students to align their personal and professional values to selected UN SDGs.

8) Impact, successes, challenges

The two tasks require a high level commitment from students. All have passed the module to date. A credible, employability boosting impact for students is gaining the #CMSTP sustainable marketing certification. Students have used this recognition on their LinkedIn profiles, for other employability purposes, and even for on-campus activism!

Task 1 requires students to define three personal and professional sustainable lifestyle swaps. For example:

"After the Green Futures workshop, I have decided to apply the UN SDGs for both my personal and professional choices going forward. For example, I will buy local and opt for packaging-free alternatives, and I will buy my work outfits for my placement year from second-hand retailers"

We also plan a longitudinal tracking study to explore if past cohorts are actively implementing their commitments.

Students' client recommendations have already been implemented e.g. the (Business School's) Talent Development Programme (a past client) now expects all speakers at networking events to explain how sustainability is embedded within their roles. Where possible, speakers are selected from organisations with B Corp status.

Three module case studies were also published in the university's corporate SDG report 24/25: <https://eprints.soton.ac.uk/508166/> (page 20).

Challenges include having no budget for guest speakers, and 24/25 vs 25/26 cohorts engaging very differently, with the former being highly interactive and energised, whilst the latter were more subdued.

9) Advice for others

- Connect with the authors of the core textbook adopted; ask for guest sessions, resources, events and offer to collaborate
- Go to events (travel sustainably or attend virtually!) to share experiences and develop collective solutions
- Use live clients – this engages so many of the green skills
- Think about where the students are in their learning journey – prior to your class; at the same time as your class; and what comes next? Align your teaching, learning and assessments accordingly.

University of York - Sustainability Clinic

1) Name of Institution

University of York

2) Name of Initiative

The Sustainability Clinic

(<https://www.york.ac.uk/about/sustainability/teaching-learning/sustainability-clinic/>)

3) Initiative Outline

The Sustainability Clinic is an interdisciplinary elective Community Engaged Learning (CEL) module available to all undergraduate and postgraduate taught students at the University of York. It is a collaboration between Environmental Sustainability at York (ESAY), Careers and Placements and the Department of Environment and Geography, with leadership and teaching staff from diverse disciplines including Arts and Creative Technologies, Biology, Education, Law and Politics.

4) Context/History/Need for Initiative

The Sustainability Clinic provides a supported opportunity for students to test ideas, develop thinking, and to be active citizens who are empowered to make a difference. It increases accessibility of work-related learning, ensuring that any student can develop Green Skills in a professional setting.

5) What happens and how it is assessed

Students work in multidisciplinary teams on a 10 week project, co-developed between the CEL Manager and a community partner organisation. Each team tackles a unique real-world sustainability challenge for their partner, culminating in a clearly defined output. Over the course of the module, taught workshops focus on teamwork, project planning and project management as well as exploration of specific sustainability case studies. Teams meet on a weekly basis with support provided by Expert Advisors, Graduate Teaching Assistants, the Module Convenor and CEL Manager. After an initial partner meeting, teams liaise with their partner via email, receive feedback on a mid-project plan and on their project output, which they present to their partner and key stakeholders during their final meeting. Students are assessed on their critical reflection on their work. They explore the impact of the project on themselves, their team, their partner and broader society. They are also encouraged to consider how their project contributed to their partner's sustainability goals and what it shows about the place of sustainability in that sector.

6) Green Skills developed

Students develop skills to analyse the status quo, research creative responses, and to communicate environmental and sustainability information in a meaningful way. These span technical skills such as research monitoring and project management, transferable skills such as collaboration, problem solving and strategic thinking, and transformative capacities such as working within complexity, collective action and environmental stewardship.

7) Contribution to Leverage Points

Through their projects, students consider aspects of efficiency, justice and social equity (LP1). Specific project types align with LP3 for advocacy projects which could involve literature reviews or

qualitative/quantitative research to provide evidence, influence policy and make recommendations for future policy and LP4 for Sustainability Action Plans. CEL Managers build strong relationships with community partners (LP2) founded on trust, mutual understanding of desired outcomes and shared strategic objectives.

8) Impact/Successes/Challenges

Challenges include how to ensure students in all departments can access the module, how to timetable it effectively and how to support students from diverse disciplinary backgrounds who have very different experiences with teamwork and reflection. We have developed marking criteria involving staff from different disciplinary backgrounds, integrated more explicit support with reflection, and worked with the library to ensure asynchronous support for students. A student testimony reflects the module's success and impact:

"I found this module very enjoyable. It gave me experience working with actual sustainability issues, and improved my teamwork and communication with external stakeholders. It was one of the best group work experiences I've ever had, and the workshops held early on helped with that."
(Sustainability Clinic student)

9) Advice for others

As with all CEL modules, careful consistent relationship management is key to success. Community relationships must be reciprocal, ensuring learning experiences designed in collaboration which considers where the opportunity can add value to the community partner and at the same time underpins students' academic and professional learning and their workplace readiness.





University of Westminster - Sustainability Consultancy

1) Name of institution

University of Westminster

2) Name of the initiative

Sustainability Consulting in Practice: Developing Green Skills Through Authentic, Interdisciplinary Learning

3) Initiative outline

This is a new Level 6 undergraduate elective module (one semester, 12 weeks) offered by the Centre for Education Teaching and Innovation (CETI) and open to students from any undergraduate programme. The module has run once to date.

4) Context/history/need for initiative

The module closes two gaps simultaneously. The knowing–doing gap: students can name sustainability concepts theoretically but cannot apply them with a real client. And the representation gap: only 4.7% of UK sustainability professionals identify as people of colour, against 16% of the wider workforce (RACE Report, 2025), with educational pathways that too often lack inclusive design.

5) What happens and how is it assessed (where relevant)

There are four design features: authentic consulting projects with local clients (e.g. small businesses and social enterprises) recruited through collaboration and partnership with local government; service-learning, delivering genuine value to the community by helping businesses work towards Westminster Council's net-zero targets; industry co-delivery, with sustainability professionals, consultants and leadership coaches actively co-teaching; and interdisciplinary student teams.

Teams are designed combining business, engineering, life sciences, law and creative perspectives. Professional sustainability work is itself interdisciplinary. Composing teams to mirror that reality means students learn how professional sustainability work actually functions.

6) Green Skills developed or applied

Students develop technical skills (e.g. ESG reporting, carbon accounting and net-zero target-setting); transferable consulting skills (e.g. consulting frameworks and project lifecycles; client communication, change and project management); and transformative capacities, notably systems thinking, anticipatory competency, and collaboration across disciplinary difference.

7) Contributions to leverage points

- LP 2 — (Stakeholder communication and engagement): stakeholder mapping, relationship management and client-facing communication are taught and practised.
- LP 5 — (Organisational model innovation and transformation): student teams help local organisations embed sustainability and work towards Westminster City Council's Sustainable City Charter (SCC) and its 2040 net-zero targets.
- LP 7 — (Futures literacy through a values-based mindset): weekly coaching-informed reflection and leadership development cultivate students' sense of purpose and agency.

8) Impact, successes, challenges

What worked

- Students engaging directly and confidently with their client organisations from Week 2; a fast transition into professional behaviour,
- High attendance and engagement were sustained across all 12 weeks
- Of 16 students, around half achieved a first-class mark
- Client satisfaction and student feedback were consistently strong.

Student voice

"The most valuable thing I found in this module is how much I have grown in confidence, as I am a very introverted person... I have also gained a lot of leadership skills and learnt to take constructive criticism."

Challenges

- Working in an interdisciplinary team for a real client was genuinely stretching, making weekly individual and group feedback essential.
- Recruiting clients willing to work with student consultants over 12 weeks requires sustained relationship-building
- Disciplinary diversity creates early friction; structured team-building, rotating roles and weekly reflection were needed to manage it.

Impact

Students finished with a real client-facing project in their portfolios, experience of the full consulting cycle, and demonstrable professional confidence — genuinely differentiating in a green job market that is expanding rapidly yet reports a shortage of work-ready graduates. By opening the module to all disciplines we created an accessible entry point into sustainability careers for underrepresented students; longitudinal tracking of their progression is a priority, and early signs are encouraging.

Client organisations received actionable strategies aligned with the Council's 2040 net-zero targets.

9) Advice for others

The three-phase consulting methodology used to design the module (Initiation and Research, Stakeholder Engagement, Definition and Planning) is replicable; the specific partners are not. What matters is structuring the module around a genuine need of a credible anchor partner (in our case Westminster Council).

- Start with the partner, not the syllabus.
- Design interdisciplinary teams deliberately.
- Invest real time in making students feel seen, helping students see themselves as leaders with agency in the green transition before they enter the workforce.

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