



PAPER

Exploring equity in education for sustainable development: integrating community-based learning and teaching

Rehan Shah^a , Anne Preston^b , Stephanie Fuller^a , and Elena Dimova^b

^aQueen Mary University, UK, ^bUniversity College London, UK

ABSTRACT

This study explores the potential of Community-Based Learning and Teaching (CBLT) to address equity issues in Education for Sustainable Development (ESD) within university curricula. This was motivated by the premise that equity in ESD is best advanced when CBLT is meaningfully embedded into learning development practices, creating opportunities for dialogue, co-creation, and reflection. We used a mixed-methods, participatory approach that combined module mapping, staff engagement activities, and a 'students-as-partners' model to examine how ESD and CBLT were embedded across two neighbouring institutions in England. The research highlights how CBLT fosters deeper student engagement, supports culturally responsive pedagogies, and facilitates critical participation in sustainability education. It also reveals ongoing challenges, including limited interdisciplinary collaboration and institutional barriers to inclusive practice. Our study proposes that future efforts should focus on expanding interdisciplinary opportunities, ensuring culturally responsive teaching, and building stronger institutional support for community-driven learning to promote equity-focused pedagogy in higher education.

KEYWORDS: education for sustainable development (ESD), community-based learning and teaching (CBLT), inclusive curricula, interdisciplinary learning.

ARTICLE HISTORY: Received 7 August 2025. Accepted 20 February 2026.

Introduction

Education for Sustainable Development (ESD) in higher education aims to prepare students to address global sustainability challenges, yet equity in access and participation remains underexplored. In this study, equity refers to the fair and inclusive distribution of opportunities, recognition, and participation in ESD, particularly for students and communities historically under-represented in higher education. Beyond higher education, one example that illustrates the immediate need for more inclusive and sustainable practices, alongside possibility of change can be seen in community-driven sustainability initiatives, such as neighbourhood repair cafés or local reuse hubs, which demonstrate how collective action at a local level can create tangible social and environmental impact in response to resource scarcity, waste, and social inequality. We propose therefore that Community-Based Learning and Teaching (CBLT) offers a way to enhance access and participation for students by foregrounding learning in the university's surrounding locality, where students engage with local partners to address issues and priorities identified within the community. Although CBLT's value in creating meaningful learning is recognised, its connection to learning development and inclusive curricula in ESD needs further investigation. This paper draws on curriculum mapping and staff workshops to illustrate how CBLT can be embedded within learning development to strengthen equity in ESD.

The United Nations sustainable development goals

The 2030 Agenda for Sustainable Development, developed by the United Nations in 2015, aims to transform the economic, social, and environmental dimensions of global development (UNESCO, 2017). By 2023, the halfway mark, only 15% of the goals were on track, prompting the launch of the SDG Halftime campaign to re-engage individuals in action (The Global Goals, 2023).

The Sustainable Development Goals (SDGs), shown in Figure 1 below, build on the Millennium Development Goals (MDGs), expanding focus from primary education to include higher education in achieving Goal 4: Quality Education (Owens, 2017). Goal 4 promotes inclusive, equitable, quality education and lifelong learning opportunities for all. Increasingly, it is recognised as key to achieving all SDGs, with Malala Yousafzai stating that 'all the SDGs come down to education' (Goggins & Hajdukiewicz, 2022, p. 2).



Over the last decade, higher education has worked to align its pedagogies with the SDGs (Owens, 2017). UNESCO advocates that education systems move from being reactive to becoming responsive—developing holistic, interdisciplinary knowledge and solutions through stakeholder collaboration (UNESCO, 2017). This fosters a deeper understanding of the interconnectedness of causes and effects, crucial for sustainability. One way to achieve this is through engaging local communities not as recipients but as active contributors in planning and managing sustainable development (Lucena et al., 2010).

Figure 1. United Nations sustainable development goals (United Nations, n.d.).



Community-based learning and teaching

Since the 1980s, development practitioners have called for participatory approaches and equal partnerships between communities and educational institutions (Lucena et al., 2010). Yet many higher education programmes have remained disconnected from the communities they impact. In engineering, for example, projects often follow a top-down model with minimal input from the local communities they affect.

Today, universities are shifting towards greater public engagement, seeking to demonstrate societal value through meaningful, participatory learning and teaching approaches with engaged universities aiming to bridge gaps between research, teaching, knowledge exchange

and social responsibility (National Co-ordinating Centre for Public Engagement, 2023). Although this paper focuses primarily on university benefits, we acknowledge that meaningful CBLT is grounded in collaborative, co-designed partnerships with community groups.

Literature review

Historically, community engagement in higher education has included volunteering, internships, and work placements (Salam et al., 2019). In the UK, university-based volunteering dates to the eighteenth century, when students from the Universities of Oxford and Cambridge visited the sick and imprisoned, leading to the rise of community centres and university settlements in poor urban areas (Millican & Bourner, 2014).

In the twenty-first century, universities have begun embedding community engagement into curricula, shifting from voluntary to academic practice (Salam et al., 2019). Known as 'service learning' in the US and 'community-engaged learning' in the UK, it is an educational approach where students engage in organised activities benefiting local communities while reflecting on academic content (Bringle & Hatcher, 2000). These efforts are collectively described as Community-Based Learning and Teaching (CBLT).

The reflective nature of CBLT enhances students' academic understanding and civic responsibility (Bringle & Hatcher, 2000). It also develops transferable employability skills—problem-solving, teamwork, critical thinking—while encouraging practical, real-world application of disciplinary knowledge (Salam et al., 2019).

UNESCO identifies key sustainability competencies: systems thinking, anticipatory thinking, problem solving, self-awareness, and collaboration (Leicht et al., 2018). These can be very well developed in applied experience in community contexts, which CBLT offers. The 2014 Kominkan-CLC Conference on ESD in Japan recognised the value of CBLT in building sustainable societies (UNESCO, 2017). CBLT provides inclusive, intergenerational learning that bridges formal and informal education, promoting empathy and community-oriented mindsets.

CBLT has also been shown to improve civic responsibility. A US study involving 1,257 students found significant improvement in civic engagement skills among those who participated in CBLT. The most significant gains were seen among Black/African American students and



women, highlighting the potential of CBLT to support inclusive sustainability practices (Carlisle et al., 2020).

Illustrative case studies of CBLT for sustainable development

The following case studies illustrate how CBLT operates across three distinct higher education contexts in Ireland, the UK, and France. Despite their differing institutional missions, governance structures, and socio-political environments, all demonstrate how CBLT can advance sustainable development through community partnerships, active student engagement, and alignment with SDG-related goals. Taken together, they highlight the adaptability and versatility of CBLT in supporting sustainability and civic responsibility in diverse educational settings.

University of Galway, Ireland

The 'Community Knowledge Initiative' at the University of Galway, launched in 2001, mainstreams community-engaged learning, including a module called 'Community Engaged Building Project' for second-year engineering students (Goggins & Hajdukiewicz, 2022). Initially voluntary, the module became compulsory in 2020/21 following positive feedback.

Students collaborate with community partners to define a project, set learning outcomes, sign a partnership agreement, and carry out research and evaluation over seven weeks. The final report includes technical recommendations and is shared with peers and community stakeholders. Students also reflect on their learning and relevance to the SDGs.

The university mapped the SDGs across 164 student projects from 2014 to 2021, with the majority found to relate to SDGs 3 (Good Health and Wellbeing), 7 (Affordable and Clean Energy), and 11 (Sustainable Cities and Communities). Students reported being more motivated to work on projects with real-world impact and gained valuable skills such as teamwork and communication. Community partners found the outcomes useful and expressed interest in continuing the collaboration stating that 'this module gives a great opportunity for students to get involved in real life projects that will make a difference' (Goggins & Hajdukiewicz, 2022, p. 11).



London Metropolitan University, UK

The 'London Met Lab' module is open to students from all disciplines and focuses on community projects in one of six themes: Crime, Discrimination, Environment, Health, Poverty, and Social Wealth with the themes aligning with SDGs 1 (No Poverty), 10 (Reduced Inequalities) and 16 (Peace, Justice and Strong Institutions) (Owen, 2023).

Delivered over an academic year, the module includes reflection, preparation, project work, and assessment with students maintaining a reflective journal and submitting a final report or presentation. The module ensures both community benefit and equitable student participation, allowing students from varied backgrounds to gain valuable experience, skills, and insight.

SciencesPo University, France

At SciencesPo, the Civic Learning Programme is a mandatory component of all Bachelor of Arts degrees (SciencesPo, 2022). Students complete two civic experiences, an internship with a non-profit and an independent project, and a capstone essay linking their learning to academic study. Projects support individuals facing discrimination, fostering a strong sense of civic responsibility (Owen, 2023).

SciencesPo illustrates how Equality, Diversity, and Inclusion (EDI) is central to CBLT for sustainable development. By involving underrepresented community voices in project planning and implementation, CBLT supports SDG 10 (Reduced Inequalities).

CBLT also levels the playing field among students by providing equitable access to professional development. Students gain experience, network, build skills, and connect their learning to locally relevant community contexts. This helps prepare them for employment while grounding their development in sustainability values and civic responsibility (Shah et al., 2023).

Barriers to CBLT

Despite growing interest, implementing CBLT across universities remains challenging. Time constraints are a key issue—deep learning requires sustained engagement, which is difficult to achieve with short-term or add-on activities (Natarajarathinam et al., 2021). In our previous work, we have examined in detail how many academics rely on 'individualised approaches ... premised on teachers' time to develop the kinds of quality relationships needed to work in



partnership with communities', revealing significant structural challenges in scaling CBLT (Shah et al., 2023, p. 5). Our earlier findings also show that the absence of centralised systems to coordinate CBLT—such as a single communication platform—results in duplicated efforts, inconsistent messaging, and inefficiencies. We additionally found that pedagogical constraints, including rigid academic calendars and assessment structures, often sit in tension with the more fluid, unpredictable nature of community-based work.

Effective CBLT also depends on clear communication between academic and community partners. Strong planning, aligned expectations, and clarity of roles are crucial. Our previous research also identified relational challenges, such as differing expectations around timelines, project scope, and outcomes, alongside concerns about the inclusion or exclusion of certain voices and uneven power dynamics, all of which can undermine partnership sustainability.

Additionally, financial barriers, such as travel costs, can prevent student participation.

Institutions should explore funding solutions to make CBLT more accessible (Natarajarathinam et al., 2021). We have also shown that inconsistent budgeting and unclear procedures for compensating community organisations disproportionately disadvantage smaller or under-resourced groups, reinforcing inequities.

Taken together, these insights from our previous work form a central motivation for this paper, which seeks to address these interconnected structural, pedagogical, relational, and financial barriers to more equitable and sustainable CBLT.

Research questions

We formulated the following overall research question (RQ) based on the premise that CBLT is particularly relevant for exploring equity issues in ESD because it creates opportunities for students to engage with real-world sustainability challenges in ways that are culturally responsive, inclusive, and grounded in their own communities:

RQ: To what extent can equity issues in ESD be effectively addressed through the integration of community-based learning and teaching approaches in approaches to learning development in university curricula?

We used our two institutions in England (Uni 1 and Uni 2) to identify existing practices that combine ESD and CBLT by mapping SDGs in CBLT modules, analysing gaps in equitable



learning outcomes, and developing co-designed recommendations. This informed our three sub-research questions, guiding our exploration of how CBLT can support more relevant and socially just sustainability education:

RQ1: How are the SDGs embedded within the curriculum across CBLT modules at Uni 1 and Uni 2?

This question is answered through results obtained from a systematic quantitative mapping exercise of SDGs present within existing CBLT modules across both institutions.

RQ2: What are the key gaps and challenges in achieving equitable learning outcomes for ESD?

This question is addressed using findings from a qualitative analysis of identified CBLT modules through comprehensive scrutiny of their module descriptions in relation to sustainability pedagogies and ESD competencies.

RQ3: What initial recommendations can be developed for educators and learning developers to integrate CBLT approaches to enhance ESD practices?

This question is answered through data acquired from co-design workshops conducted with learning developers and educators, which served as a participatory space to interpret the study's findings collaboratively and generate practice-informed strategies for embedding equitable, community-engaged approaches to sustainability in the curriculum.

Methods

We employed a mixed-methods approach (Creswell & Clark, 2007) to analyse the integration of ESD and CBLT within the curricula of our two institutions, Uni 1 and Uni 2. To address our research questions comprehensively, we adopted a phased mixed-methods design, following Creswell and Clark's (2007) sequential approach in which quantitative mapping was conducted first to provide an overview of existing provision, followed by qualitative analysis and participatory co-design to deepen and contextualise these findings. Our project also embraced a practice-based participatory action research methodology (Swantz, 2008), actively involving staff in research and discussions through co-design workshops. Adopting the students-as-partners approach (Healey et al., 2014) as a model for fostering student co-creation in learning and institutional development, we also engaged a final-year undergraduate student with an interest in CBLT and ESD to take an active role (Cook-Sather et



al., 2014), both in leading the data collection and analysis stages and disseminating our findings externally. Our research was structured across three key phases.

Phase 1: SDG mapping

A systematic keyword analysis of 59 module descriptions was conducted to assess the extent to which SDGs and CBLT approaches were embedded at the module level across both Uni 1 and Uni 2. Our aim was not to compare the extent of SDG engagement within the existing provisions of the two universities, but to use them as case studies to explore key trends and variations in SDG integration.

The process comprised:

Keyword search for CBLT modules: Module catalogues from both universities were searched using keywords such as ‘community’, ‘communities’, ‘civic’, ‘engagement’, ‘local’, ‘inclusion’, ‘diversity’, ‘justice’, ‘equity’, and ‘society’. This helped filter relevant modules that incorporate CBLT principles.

SDG mapping: The identified CBLT-related modules were then analysed through their descriptions to determine their alignment with SDGs using keywords from the SDGs, described in Appendix of the paper.

Data recording and categorisation: Results were systematically recorded in a spreadsheet with separate sheets for each university. Additional data points included the level and year of study (undergraduate—Levels 4-6, postgraduate—Level 7), the faculty/department and a brief module synopsis.

Phase 2: Qualitative analysis of selected modules

From the identified modules above, a detailed examination of module descriptions was undertaken to identify in detail the kinds of pedagogies and assessment which were in place to support sustainability education in CBLT. Using module specifications, two of the authors used descriptions of teaching and assessment methods to establish broad categories, as shown in Table 1 below. The two authors then independently completed coding for all modules before coming together to moderate approaches. Coding was based on keyword identification and thematic analysis (Braun & Clarke, 2012) of module specifications.



Table 1. Categories and examples of community engagement identified.

Category	Example
Placement	Students placed with a local environmental charity to support delivery of sustainability workshops for residents.
Research project	Co-research with a community centre to study barriers to digital inclusion in the neighbourhood.
Case studies	Documenting how a local food co-op addresses food insecurity and sharing findings back with the group.
Consultancy	Students advising a community arts organisation on improving accessibility for diverse audiences.
Events	Co-organising a community sustainability fair with local partners to showcase grassroots initiatives.
Community project (group)	Student teams collaborating with a residents' association to design a pollinator-friendly garden.
Community project (individual)	A student working one-to-one with a refugee support group to develop tailored learning materials.
Internship	A summer internship with a local social enterprise to support their impact measurement and reporting.
Creative project	Producing a co-designed storytelling exhibition with young people on local climate futures.

In addition to the analysis of teaching and assessment methods within modules, we additionally explored the kinds of skills and competencies that the modules were supporting students to develop. To undertake this mapping, we drew on the cross-cutting sustainability competencies identified by UNESCO (2017):

- Integrated problem-solving competency.
- Collaboration competency.
- Normative competency.
- Strategic thinking competency.
- Systems thinking competency.
- Anticipatory competency.
- Critical thinking competency.
- Self-awareness competency.



These competencies provide an established framework for preparing learners to address complex global challenges. From these eight competencies we chose to focus on four (highlighted in bold above) which are most relevant to community engaged sustainability education (Pritchard et al., 2021).

Integrated problem-solving is fostered through interdisciplinary teamwork where students draw on diverse subject perspectives to tackle complex real-world issues. This approach mirrors the collaborative nature of sustainable development challenges, encouraging learners to think holistically. Collaborative competency is also central to CBLT, as students work in supportive social learning environments alongside peers, educators, and community partners, co-constructing knowledge through shared inquiry and practical engagement. Through direct involvement with local communities, normative competency is cultivated when students are exposed to and learn to value diverse cultural perspectives and lived experiences, promoting inclusivity and social justice. Finally, strategic thinking competency is embedded as students are encouraged to design and implement innovative, context-sensitive actions aimed at creating meaningful social or environmental change, both locally and globally.

Module alignment with these four competencies was identified using keyword identification and thematic analysis of the module specifications by the two authors working independently before coming together for moderation of the coding.

Phase 3: Co-design workshops

Two workshops, one hybrid and one face-to-face, were held with learning development staff and faculty educators from various institutions to co-create practical recommendations for integrating CBLT into ESD curricula. Building on findings from the two research questions about SDG embedding and equity issues in ESD, participants engaged with key themes through small-group activities and guided discussions. This collaborative process grounded the analysis in professional experience and directly informed the recommendations presented later in the paper.

Participants were invited to attend based on their current work or interests in ESD and CBLT and came from a range of disciplines as detailed in Table 2 below.



Table 2. Range of participant disciplines represented at co-design workshops.

Disciplines	Disciplines (continued)
Engineering	Education
Medicine and Physiology	Engineering Management
Creative Health	Digital Education
Museums & Heritage Studies	Sustainability Operations & Engagement
Materials Science	Systems Thinking
Computer Science, Artificial Intelligence	Civil Engineering
International Development	Agricultural Engineering
Environmental Engineering	Sustainable Energy

Workshop design and structure

The workshops followed a semi-structured format, beginning with an overview of CBLT and its relationship to SDGs. Participants engaged in a module mapping activity, where they analysed existing module descriptions to assess how CBLT and SDGs were embedded within curricula. This was followed by a presentation of the SDG-specific findings from our work, providing context for discussions on disciplinary and institutional differences in sustainability education.

Three key discussion sessions were facilitated:

1. **SDGs in CBLT Modules:** participants explored the extent to which different SDGs were embedded within the existing CBLT modules and discussed strategies for broader integration.
2. **Institutional Role in Sustainability Education:** this session examined how universities approach CBLT and sustainability, with a focus on their alignment with institutional priorities and employability agendas.
3. **Pedagogical Approaches for Inclusive Learning:** discussions centred on culturally responsive teaching methods, challenges in shifting from traditional pedagogies, and ways to enhance student engagement in sustainability education.

Data collection and analysis

To strengthen the analysis methodology, we drew on common practices in participatory and co-design research, where workshop data are examined through a combination of thematic



grouping and triangulation across sources (Braun & Clarke, 2006; Sanders & Stappers, 2008). Workshop discussions were captured via facilitator notes, Padlet contributions, and Mentimeter activities, which together provided a mix of observational, reflective, and real-time participant inputs. These materials were then iteratively coded to identify recurring themes, points of consensus, and emerging design ideas. This structured synthesis enabled us to translate the data from learning developers and educators into initial recommendations addressing our final sub-research question: *what guidance can support the integration of CBLT approaches to enhance ESD practices?*

Results

We present our findings below to address the first two sub-research questions.

How are the SDGs embedded within the curriculum at Uni 1 and Uni 2 across CBLT modules?

The mapping exercise revealed a strong but uneven integration of SDG across CBLT modules at both universities, with Figures 2, 3, and 4 below showcasing the number of modules covering the different SDGs. Out of the 59 modules analysed across Uni 1 and Uni 2, 10 of the 17 SDGs were represented, indicating a solid foundation for sustainability-focused education. However, there remains significant room for improvement to ensure a more comprehensive alignment with the SDGs.

SDG 9 (Industry, Innovation and Infrastructure) emerged as the most frequently addressed goal, appearing in 20 out of 59 modules across both institutions as displayed in Figure 2. This suggests a strong emphasis on equipping students with skills related to technological and infrastructural advancements, likely reflecting the practical and applied nature of many CBLT modules.

At Uni 2, SDGs 10 (Reduced Inequalities) and 11 (Sustainable Cities and Communities) were among the most frequently covered SDGs as shown in Figure 3. These priorities align with Uni 2's broader institutional commitments to social justice and urban sustainability. Meanwhile, at Uni 1, SDGs 10 (Reduced Inequalities) and 16 (Peace, Justice and Strong Institutions) were more prominent as evident from Figure 4, reflecting a focus on equity, governance, and institutional integrity within the curriculum.



Despite these strengths, a critical gap was identified in SDG 13 (Climate Action), which appeared in only 3 out of 59 modules across both universities. Given the increasing urgency of climate-related education, this represents a key area for future development. Expanding the integration of SDG 13 (Climate Action) within CBLT modules could help ensure that students engage more deeply with pressing environmental challenges and solutions.

Figure 2. Mapping of SDGs across CBLT modules (n = 59) at Uni 1 and 2.

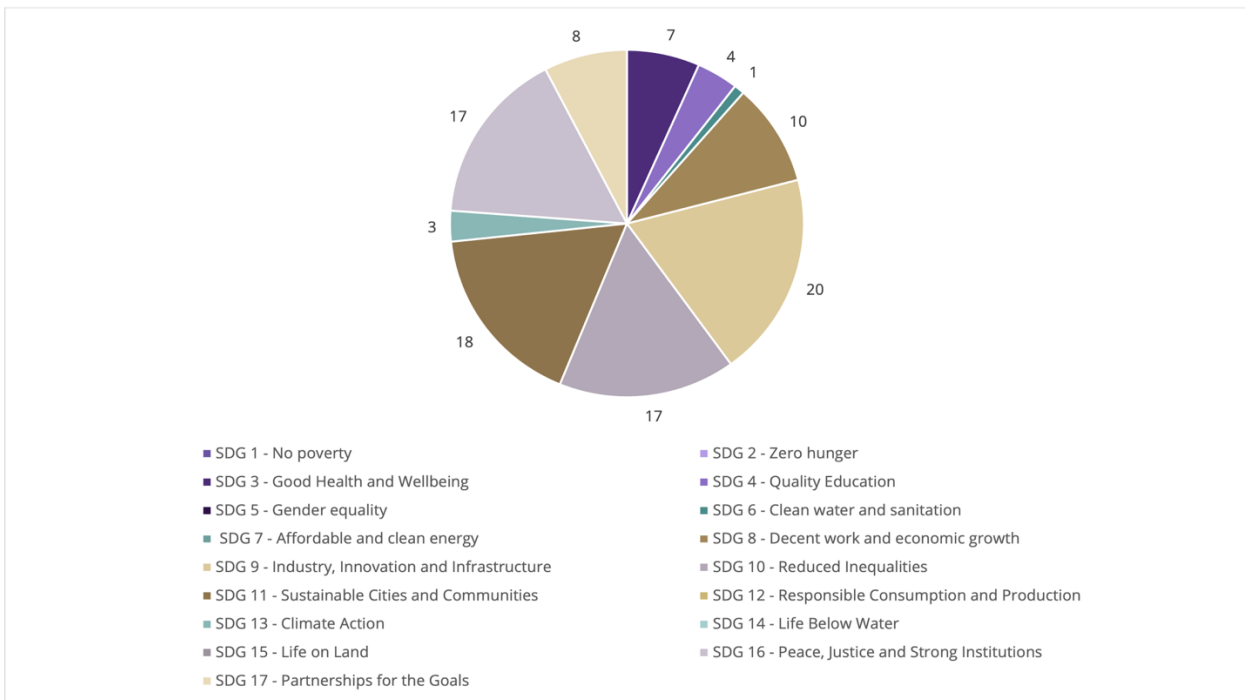


Figure 3. Mapping of SDGs across CBLT modules (n = 24) at Uni 2.

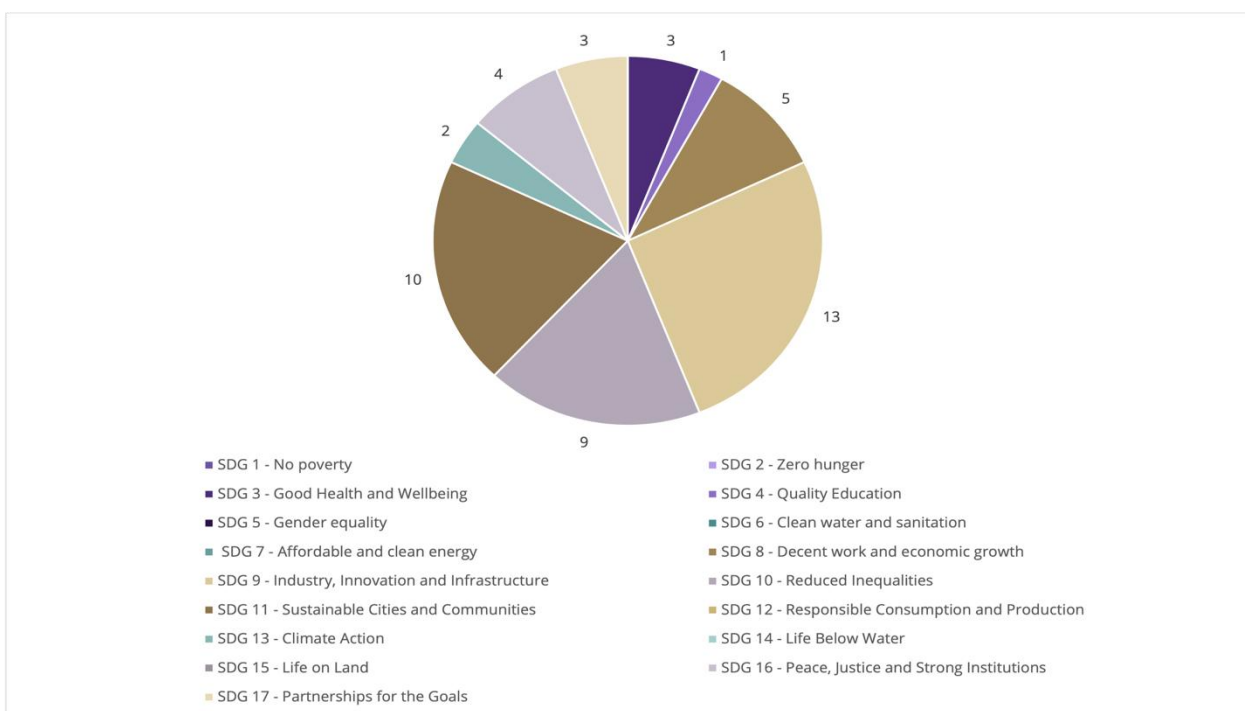
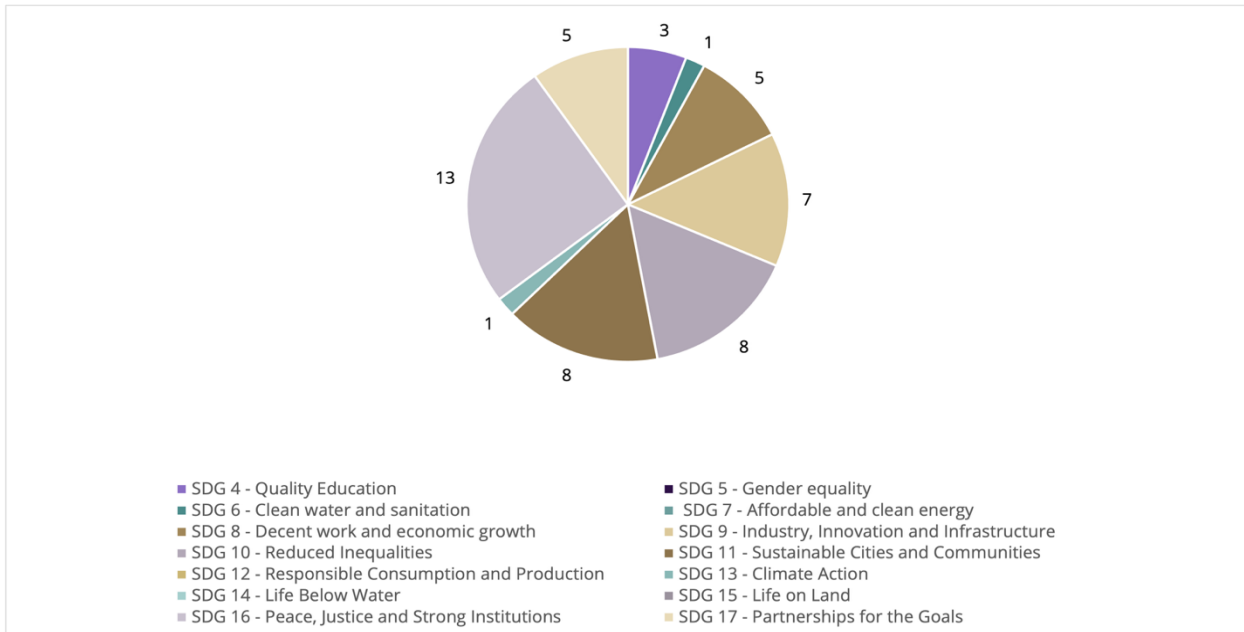


Figure 4. Mapping of SDGs across CBLT modules (n = 35) at Uni 1.



What are the key gaps and challenges in achieving equitable learning outcomes for ESD based on a qualitative analysis of identified modules?

Our analysis of teaching, assessment, and sustainability competencies highlights a key challenge: continued reliance on traditional education approaches. Inclusive and culturally responsive pedagogies remain underdeveloped, and inconsistent community partnerships hinder full CBLT integration. Culturally responsive education requires embedding diverse student backgrounds in inclusive teaching resources (Ladson-Billings, 1995). Figures 5 and 6 below categorise the number of modules in Uni 1 and 2 by type of community engagement.

Figure 5. Forms of community engagement in Uni 2 (n = 24) modules.

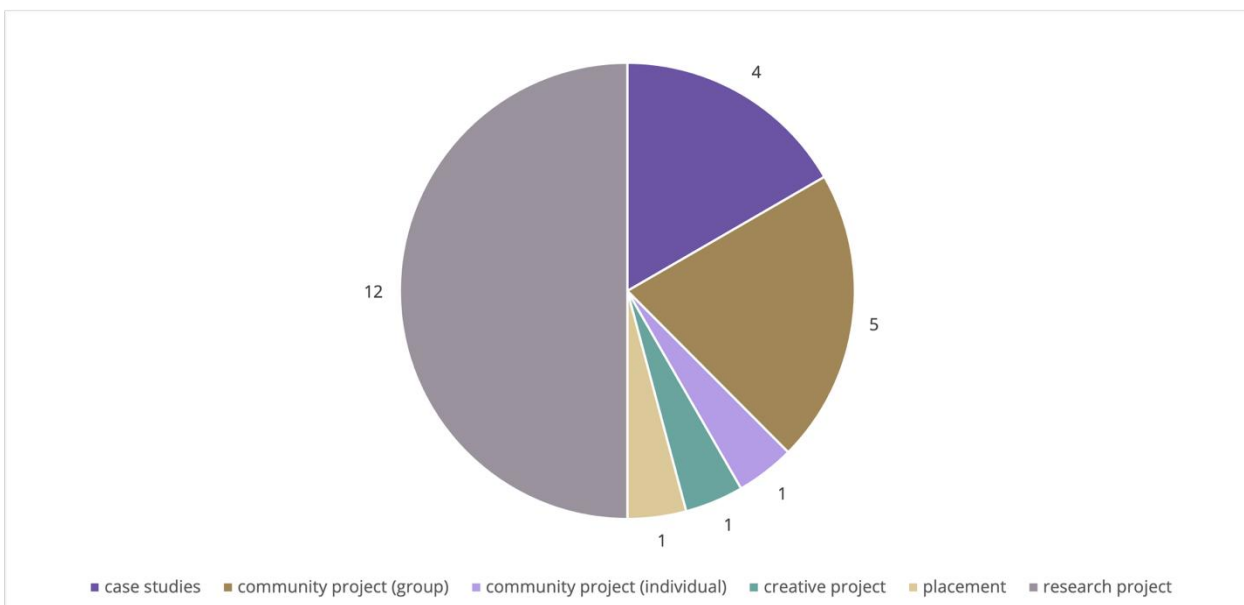
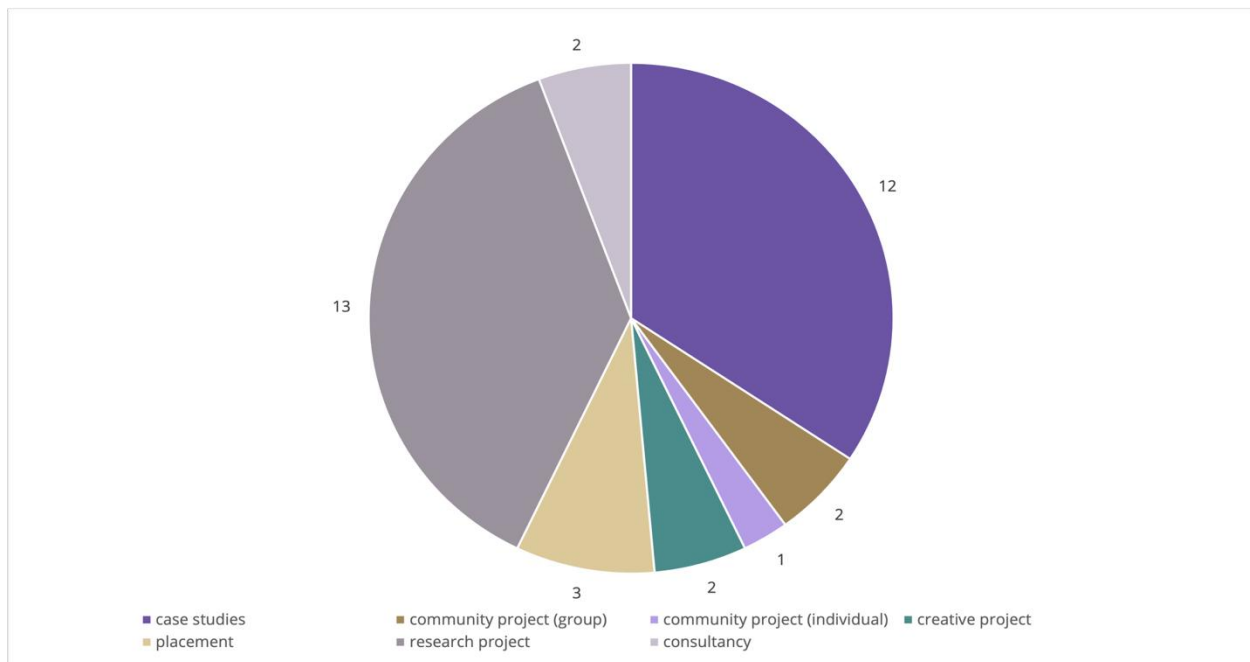


Figure 6. Forms of community engagement in Uni 1 (n = 35) modules.

Of the 59 modules analysed, Uni 2 showed a strong reliance on research projects (50%, n = 12), with fewer case studies (17%, n = 4) and group community projects (21%, n = 5). At Uni 1, research projects were slightly lower (37%, n = 13), with more emphasis on case studies (34%, n = 12) and fewer alternative methods. Research projects often reflected traditional, campus-based learning, with lectures and seminars and assessments based on individual written work. In contrast, modules using community projects, placements, or student consultancy featured off-campus learning and more varied assessments, including reflective reports, community presentations, co-created interventions, and portfolios.

Across the different years of study, case studies dominate at levels 4 and 5, while at levels 6 and 7, research projects become more common as shown in Table 3 overleaf, with greater variation in community engagement methods. While the number of case studies, community projects, and placements remains stable, levels 6 and 7 offer more modules assessed through research projects.

Table 3. Analysis of Uni 1 and 2 modules by category of community engagement.

Category of community engagement	No. of modules	% of modules
Level 4	8	
Case studies	4	50.0%
Research project	3	37.5%
Consultancy	1	12.5%
Level 5	12	
Case studies	5	41.7%
Research project	4	33.3%
Community project (group)	2	16.7%
Placement	1	8.3%
Level 6	15	
Research project	6	40.0%
Case studies	2	13.3%
Placement	2	13.3%
Community project (individual)	2	13.3%
Community project (group)	1	6.7%
Consultancy	1	6.7%
Creative project	1	6.7%
Level 7	24	
Research project	12	50.0%
Case studies	5	20.8%
Community project (group)	4	16.7%
Creative project	2	8.3%
Placement	1	4.2%
Total	59	

In terms of the coding of sustainability competencies, we found strong relevance of each of the four selected competencies across both Uni 1 and Uni 2, however, institutional differences are also present, as evident from Figures 6 and 7 below.

Figure 7. Sustainability competencies covered in Uni 2 (n = 24) modules.

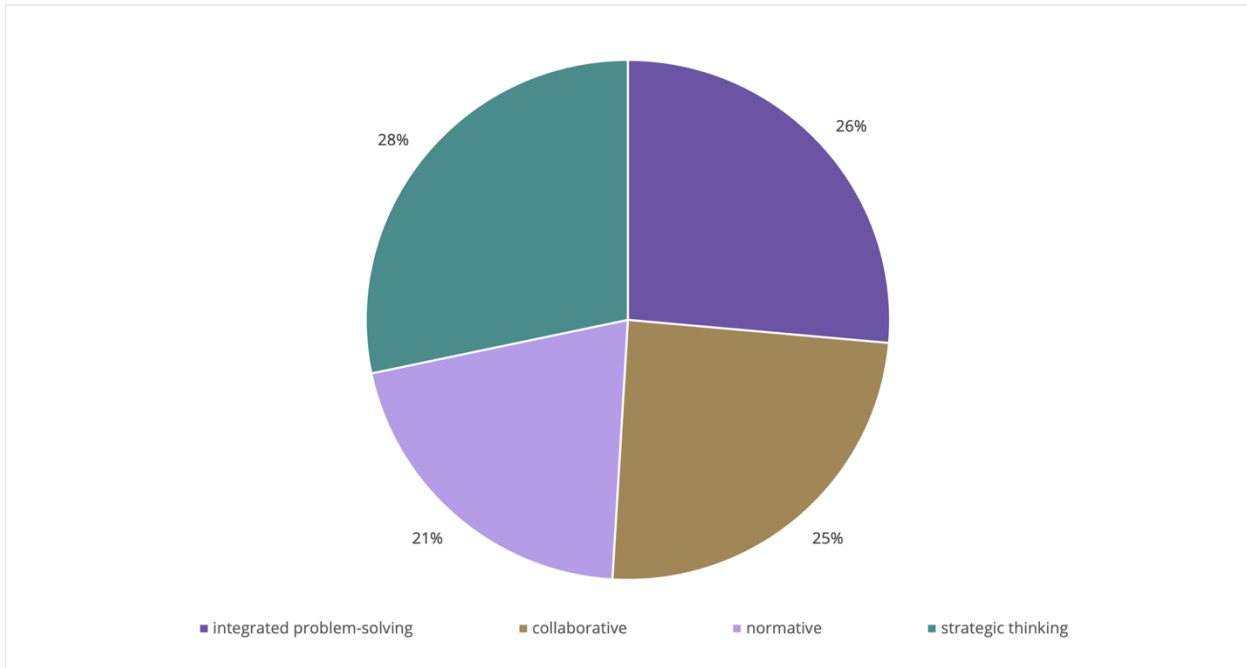
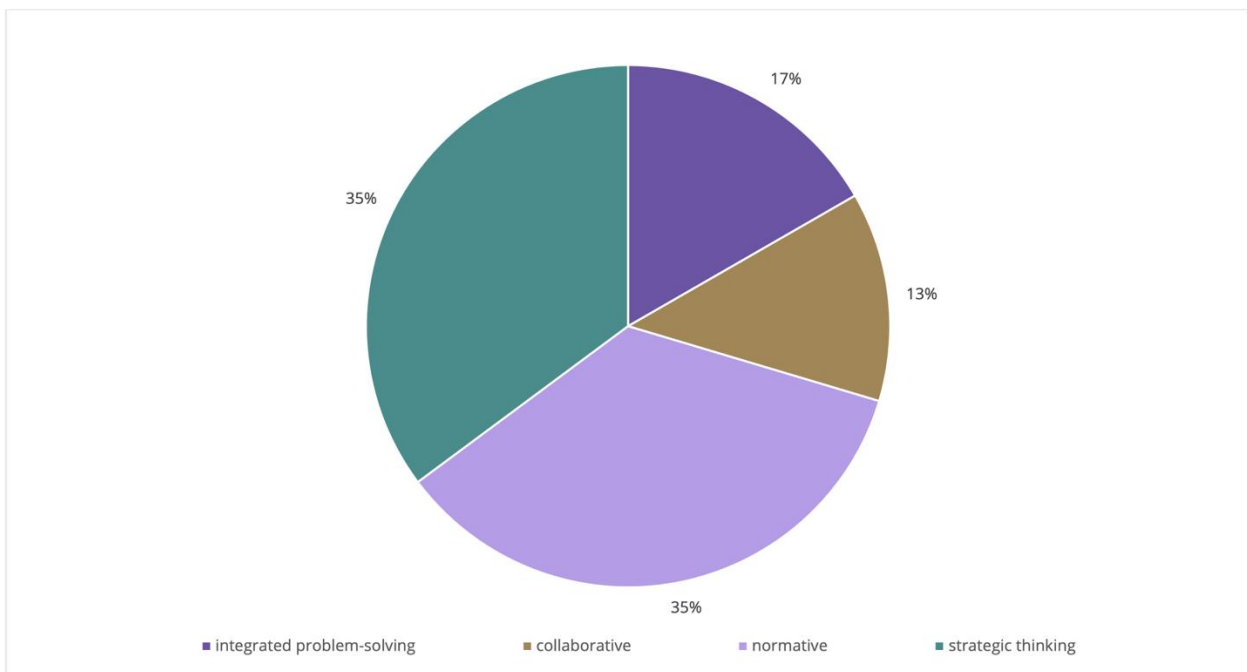


Figure 8. Sustainability competencies covered in Uni 1 (n = 35) modules.



For Uni 2 modules there is relatively even presence of all four competencies, whereas for Uni 1 modules we see more emphasis on normative and strategic thinking competencies. This

may reflect the different institutional emphases in the forms of community engagement that are integrated to modules.

Discussion

This section discusses how equity issues in ESD could be better addressed by integrating CBLT into university learning development to create a space for dialogue, co creation, and reflection, helping students connect academic content with community contexts and making sustainability education more inclusive, relevant, and action oriented. Data acquired from our co-design workshops conducted with learning developers and educators help us answer our final sub-research question: *What initial recommendations can be developed for educators and learning developers to integrate CBLT approaches to enhance ESD practices?*

SDG integration

The mapping exercise of 59 CBLT modules revealed uneven integration of SDGs. 10 out of 17 goals were represented, with SDG 9 (Industry, Innovation and Infrastructure) being the most frequent, reflecting the applied nature of many modules. At Uni 1, SDGs 10 (Reduced Inequalities) and 11 (Sustainable Cities and Communities) aligned with institutional priorities around equity and urban sustainability. At Uni 2, SDGs 10 (Reduced Inequalities) and 16 (Peace, Justice and Strong Institutions) indicated a focus on justice and governance. SDG 13 (Climate Action) was notably underrepresented, revealing a gap in environmental focus.

In our co-design workshops, educators discussed why SDG 9 (Industry, Innovation and Infrastructure) was more prevalent and called for broader inclusion of SDGs, especially SDG 13 (Climate Action), through hands-on climate related community projects. They also recommended moving from staff led SDG mapping to student led reflection on SDG relevance, enabling disciplinary flexibility and alignment with individual learning contexts.

Rather than applying all SDGs uniformly, educators advocated for relevance-based integration such as SDG 9 (Industry, Innovation and Infrastructure) for Engineering and social goals for Humanities. Clearer communication of sustainability in curricula using keywords, bite-sized content and values led framing was encouraged to foster student ownership.



Gaps and challenges in learning outcomes

Our module analysis findings showed a continued reliance on traditional teaching and assessment, such as research projects and case studies, which often lack real world community engagement. This limits opportunities for inclusive and culturally responsive learning, particularly in earlier levels of study. Inconsistent community partnerships also limit the transformative potential of CBLT. While sustainability competencies were represented, there were differences in interpretation. Uni 1 showed balance across competencies, while Uni 2 emphasised normative and strategic thinking.

Educators from our workshops recommended using UNESCO's sustainability competencies like systems thinking and collaboration as a more accessible alternative to SDG mapping. This approach could scaffold students' engagement with SDGs later in their studies. To enhance equity in ESD, they also advocated for more inclusive, student-centred pedagogies. Early exposure to sustainability thinking even before formal projects was seen as key.

Interdisciplinary modules and real-world projects such as environmental audits were encouraged, supported by authentic assessments like reflective portfolios and community reports. Embedding systems thinking early in technical programmes was also emphasised, with case studies on climate resilience, infrastructure, or water management used to explore social and environmental implications.

Institutional commitment

Our work highlights the need for a coordinated institutional approach to embedding CBLT and ESD. Aligning CBLT with broader goals such as employability, social responsibility, and inclusion requires investment in infrastructure, including shared resources, partner databases and assessment tools. Cross institutional collaboration is essential to sharing best practices and embedding ESD at scale. In global contexts, culturally responsive pedagogy must be supported. Ultimately, systemic dialogue and support structures are vital to ensuring CBLT realises its potential for equitable and impactful sustainability education.

Limitations

However, this study also has several limitations, namely that its findings are context-specific and may not be fully generalisable to other institutional or cultural settings. The scale of community engagement was limited, and while interdisciplinary potential is discussed, some



subject areas may be underrepresented. Time constraints also meant that long-term impacts on student learning and institutional change could not be fully assessed. Additionally, the depth of student and community voices, particularly from marginalised groups, was limited, and structural barriers to wider adoption of inclusive, community-driven practices were not extensively explored.

Conclusion

This research advances knowledge in Learning Development by highlighting the potential of CBLT to address inequitable access to participation, representation, and recognition within ESD. By integrating real-world community engagement into curricula, students can critically participate in their learning and engage with sustainability challenges in meaningful ways. The findings suggest that future efforts should focus on holistically integrating under-represented SDGs such as climate action, expanding interdisciplinary opportunities, ensuring culturally responsive teaching practices, and developing institutional support for fair and inclusive, community-driven learning environments. This study provides a foundation for ongoing development in both Learning Development and sustainability education, with implications for broader equity-focused practices that reduce structural barriers for under-represented students and communities.

While this paper primarily focused on the benefits of CBLT for universities and educators, we recognise that genuine community-based learning relies on reciprocal, co-designed, and mutually beneficial partnerships. Although not the central focus of this paper, CBLT inherently involves collaborative agenda-setting, shared decision-making, and ongoing dialogue with community partners. These practices help ensure that community voices shape the direction and outcomes of engagement activities, and we acknowledge the importance of this relational dimension as an essential part of meaningful CBLT in ESD.

To that end, although the SDGs are often critiqued for reinforcing top-down agendas, in this study they are used as a generative framework to support rather than constrain community voice. When paired with CBLT, the SDGs become a tool for enabling bottom-up, co-designed practices that help challenge institutional assumptions and strengthen more equitable forms of engagement.



Disclosure statement

The authors did not use generative AI technologies in the creation of this manuscript.

The authors declare no conflict of interest with this work. All efforts to sufficiently anonymise the authors during peer review of this article have been made.

The authors declare that research participants' informed consent to publication of findings—including photos, videos, and any personal or identifiable information—was secured prior to publication.

The authors conducted the research reported in this article in accordance with the JLDHE Editorial Statement on Ethics.

Funding

This work was supported by the Association for Learning Development in Higher Education (ALDinHE) through a research grant awarded in 2023/24. The authors report there are no competing interests to declare.

References

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association.
- Bringle, R. G., & Hatcher, J. A. (2000). Institutionalization of service learning in higher education. *The Journal of Higher Education*, 71(3), 273–290. <https://doi.org/10.1080/00221546.2000.11780823>
- Carlisle, S. K. E., Nitta, K. A., Murray, D. R., Gourd, K. M., & Shapiro, L. (2020). The Impact of community-based learning on civic engagement. *Journal of Service-Learning in Higher Education*, 11, 102–117. <https://eric.ed.gov/?id=EJ1267638>
- Cook-Sather, A., Bovill, C., & Felten, P. (2014) *Engaging students as partners in learning and teaching: A guide for faculty*. Jossey-Bass.
- Creswell, J. W., & Clark, V. L. P. (2007). *Designing and conducting mixed methods research*. Sage.



- Goggins, J., & Hajdukiewicz, M. (2022) The role of community-engaged learning in engineering education for sustainable development. *Sustainability*, 14(13), Article 8208. <https://doi.org/10.3390/su14138208>
- Healey, M., Flint, A., & Harrington, K. (2014, July 1). *Engagement through partnership: Students as partners in learning and teaching in higher education*. AdvanceHE. <https://www.advance-he.ac.uk/knowledge-hub/engagement-through-partnership-students-partners-learning-and-teaching-higher>
- Ladson-Billings, G. (1995) But that's just good teaching! The case for culturally relevant pedagogy. *Theory Into Practice*, 34(3), 159–165. <https://doi.org/10.1080/00405849509543675>
- Leicht, A., Heiss, J., & Byun, W. J. (Eds.). (2018). *Issues and trends in education for sustainable development*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000261802>
- London Metropolitan University. (2021). *London Met Lab: Empowering London*. <https://www.londonmet.ac.uk/about/london-met-lab/>
- Lucena, J. C., Schneider, J., & Leydens, J. A. (2010). *Engineering and sustainable community development*. Morgan & Claypool.
- Millican, J., & Bourner, T. (2014). *Learning to make a difference: Student-community engagement and the higher education curriculum*. NIACE.
- Natarajarathinam, M., Qiu, S., & Lu, W. (2021). Community engagement in engineering education: A systematic literature review. *Journal of Engineering Education*, 110(4), 1049–1077. <https://doi.org/10.1002/jee.20424>
- National Co-ordinating Centre for Public Engagement. (2023). *Introducing public engagement*. <https://www.publicengagement.ac.uk/introducing-public-engagement>
- Owen, D. (2023). *Taking stock of engaged learning: How universities are supporting community-based and service-learning*. National Co-ordinating Centre for Public Engagement. <https://www.publicengagement.ac.uk/resources/practical-tools/taking-stock-engaged-learning-how-universities-are-supporting-community>
- Owens, T. L. (2017). Higher education in the sustainable development goals framework. *European Journal of Education*, 52(4), 414–420. <https://doi.org/10.1111/ejed.12237>
- Pritchard, D. J., Connolly, H., Egbe, A., Saeudy, M., Rowinski, P., Bishop, J., Ashley, T., & Greenbank, A. (2021, November 24). *Multi-disciplinary event for community-based learning and action for the UN SDGs*. AdvanceHE & The Quality Assurance Agency in Higher



Education. <https://www.advance-he.ac.uk/knowledge-hub/multi-disciplinary-event-community-based-learning-and-action-un-sdgs>

Salam, M., Awang Iskandar, D. N., Ibrahim, D. H. A., & Farooq, M. S. (2019). Service learning in higher education: A systematic literature review. *Asia Pacific Education Review*, 20(4), 573–593. <https://doi.org/10.1007/s12564-019-09580-6>

Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign: International Journal of Co-Creation in Design and the Arts*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>

SciencesPo. (2022). *The civic learning programme: Exercising citizenship*. <https://www.sciencespo.fr/college/en/academics/bachelor/civic-learning-programme>

Shah, R., Preston, A., & Dimova, E. (2023). Making community-based learning and teaching happen: Findings from an institutional study. *London Review of Education*, 21(1), Article 17. <https://doi.org/10.14324/LRE.21.1.17>

Swantz, M. (2008). Participatory action research as practice. In P. Reason, & H. Bradbury (Eds.), *Handbook of action research: Concise paperback edition* (2nd ed., pp. 31–48). Sage.

The Global Goals. (2023). *Discover the SDG Pavillion*. <https://www.globalgoals.org>

UNESCO Institute for Lifelong Learning. (2017). *Community-based learning for sustainable development* (Lifelong learning policy brief, 8). <https://unesdoc.unesco.org/ark:/48223/pf0000247569>

United Nations. (n.d.) *The 17 goals*. <https://sdgs.un.org/goals>

Author details

Rehan Shah is a Lecturer (Assistant Professor) in Mathematics and Engineering Education at Queen Mary University of London (QMUL) and an accredited Senior Fellow (SFHEA) of AdvanceHE with research interests in Mathematics and Engineering Education pedagogy (diversification of STEM curricula, threshold concepts and concept inventories, university-industry and community partnerships, education for sustainability, and embedding ethics and sustainability in Mathematics). He specialises in education research methods including systematic literature reviews, semi-structured interviews, focus groups, and survey design.

Anne Preston is Associate Professor in Interdisciplinary Practice and Media Communities at UCL. Her practice revolves around the emerging challenges and opportunities inherent in learning with, through, and around interdisciplinary curriculum development in higher



education, with a particular interest in entrepreneurship and sustainability education. She does this within the context of UCL EAST, UCL's new campus in East London.

Stephanie Fuller is Academic Practice Taught Programmes Manager at Queen Mary Academy, and Programme Director for the university's educational development programmes, the Certificate in Learning and Teaching and PG Cert Academic Practice. She leads on curriculum enhancement support for colleagues across the university, with a special focus on graduate attributes, employability, and sustainability in the curriculum.

Elena Dimova is a UCL graduate, who now works in Amazon Web Services in London. She pursued an interdisciplinary undergraduate degree (BSc Arts and Sciences), and her academic expertise lies in the field of Psychology, Creative Media, and Communications. She has a deep interest in holistic education and innovative teaching practices.

ORCID

Rehan Shah  <https://orcid.org/0000-0002-5025-3503>

Anne Preston  <https://orcid.org/0000-0001-9738-2612>

Stephanie Fuller  <https://orcid.org/0000-0002-6740-3539>



Appendix: SDG mapping keyword list

SDG	Title	Keywords used for mapping
SDG 1	No Poverty	poverty; deprivation; social protection; economic vulnerability; basic needs
SDG 2	Zero Hunger	food security; nutrition; sustainable agriculture; food systems; farming practices
SDG 3	Good Health and Well-Being	wellbeing; mental health; public health; health education; healthy living
SDG 4	Quality Education	education for sustainable development (ESD); learning for sustainability; inclusive education; pedagogy; curriculum design
SDG 5	Gender Equality	gender equity; women's empowerment; gender inclusion; discrimination; gender participation
SDG 6	Clean Water and Sanitation	water security; water quality; sanitation; hygiene; wastewater management
SDG 7	Affordable and Clean Energy	renewable energy; clean energy; energy efficiency; sustainable energy
SDG 8	Decent Work and Economic Growth	employability; skills development; economic inclusion; labour practices; entrepreneurship
SDG 9	Industry, Innovation and Infrastructure	innovation; technology; infrastructure; digital skills; sustainable industry
SDG 10	Reduced Inequalities	equity; inclusion; access; participation; marginalised groups; social justice
SDG 11	Sustainable Cities and Communities	community engagement; community-based learning; local partnerships; civic participation; place-based learning
SDG 12	Responsible Consumption and Production	sustainable practices; resource awareness; consumption behaviours; circular economy
SDG 13	Climate Action	climate education; climate literacy; mitigation; adaptation; environmental challenges

SDG 14	Life Below Water	marine protection; ocean sustainability; aquatic ecosystems; water pollution
SDG 15	Life on Land	biodiversity; ecosystems; conservation; land restoration; environmental stewardship
SDG 16	Peace, Justice and Strong Institutions	governance; ethics; transparency; human rights; civic responsibility
SDG 17	Partnerships for the Goals	collaboration; partnerships; cross-sector engagement; global cooperation; multi-stakeholder initiatives