Case study: Using a codesign process as an opportunity and to increase assessment literacy

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Abstract

This is a case study, based on experience of working with Level 5 BSc Environmental Science and Geography students taking the Environmental Management module to demonstrate the value of involving them directly in curriculum and assessment design. The students chose to use the Sustainable Development Goals (SDGs) as the focus for the module content and as the basis for the assessment tasks, a group presentation and an individual report. The benefits of co-design for student engagement and assessment literacy are evaluated with reference to the literature and the impact of the co-design process on student confidence and understanding of the role of assessment in their learning. The approach was successful with this small class, with students providing positive feedback, although it is unlikely to be practical with very large cohorts.

The appendix – summarising the importance of the SDGs to learning and teaching and emphasising the relevance of SDG 4 Quality Education to all seventeen SDGs across subject areas – provides the context for this case study.

Keywords: Sustainable Development Goals; Co-design; Assessment literacy; Feedback; Student Engagement

The rationale for using a co-design approach

For several years, I have been interested in how we use assessment and, particularly, in how to increase students' engagement with feedback, by helping them to understand that this latter is for reflection and learning. Too often, the focus is on summative assessment and feedback may be received only after the module has finished. In the case of exams, little or no feedback is given other than the final mark. Is this the best we can do to support learning? The literature certainly suggests we could – and should – do better. Mueller (2005) raised the need for 'authentic assessment' to measure the knowledge and skills students' have acquired during the learning process. Fook and Sidhu (2010, p.153) have argued that, while the purpose of assessment is to evaluate students' performance, "*institutions of higher education have to revisit their purpose of assessment if they hope to equip their learners with skills and competencies needed to succeed in today's workplace*". Feedback should increase and develop learning (not simply measure it), stimulating reflection and improvement (Carless and Boud, 2018). Winstone *et al*. (2017) systematically reviewed learner engagement and concluded that formative feedback is required to achieve transformative learning and is closer to the 'real world', where work goes to a superior and is returned for reworking. It is not just the nature of the feedback but the way in which it is given that makes it effective (O'Donovan *et al*., 2019). It is a two-way process, with students

responding to feedback and appreciating it as an opportunity for reflection and improvement, but only if they are 'assessment literate' – recognising the purpose of the assessment and how it supports their learning process (QAA, 2018, Guiding Principle 6). A recent Times Higher Education feature entitled 'Does university assessment still pass muster?' suggested that, for both employability and student satisfaction, exams and essays should be replaced with real-world tasks (Mckie, 2019).

This is the context in which I have been developing authentic assessment strategies for the MSc Environmental Conservation students at the University of Greenwich, explaining in detail the purpose of each assignment and its relationship to professional competency and ensuring that students see formative submissions as a learning opportunity rather than additional work. These MSc students are focused on a specific career and so are not so hard to engage but taking this approach with undergraduates is more challenging. My research (usually focusing on finding solutions to some kind of environmental 'problem') has indicated that to adopt a participatory approach which involves stakeholders in any decision-making process is fundamental for success (Bartlett, 2020). I therefore wondered if in order to increase undergraduates' engagement, it might be effective to ask them to design their own module content (obviously keeping within the scope of the topic) and assessments. There is, as highlighted by Brooman *et al*. (2015), little literature on application in higher education (HE), but co-design has been used with good results for both staff and students (Bovill, 2014).

The case study

Two years ago, I inherited a fifteen-credit Level 5 module with the title 'Environmental Management'. The descriptors and the learning outcomes (LOs), although expressed in appropriate academic language, are vague. The students were a mixed cohort from the BSc Environmental Science and BSc Geography programmes. I have found that students at this level tend not to submit formative assignments but focus on the summative, being more interested in the mark than the feedback and thereby missing the opportunity for transformative learning and future improvement. As the number of assignments per module has decreased, this has become a real concern. This module is typically a small cohort, rarely reaching double figures, and so manageable for research into co-design, where the curriculum and assessment are negotiated between staff and students. Co-design has been found beneficial for increasing engagement – for example, the 'Design2Learn' project, which found that giving students control increased their reflection, so enabling them to become more aware of the process of their learning and to see themselves directly involved as 'learning co-designers' (Garcia *et al*., 2018).

In accordance with this basic strategy, I began by introducing the scope of and common themes encountered in environmental management (see figure 1) before asking the students what they were interested in and what they hoped to achieve during the module.

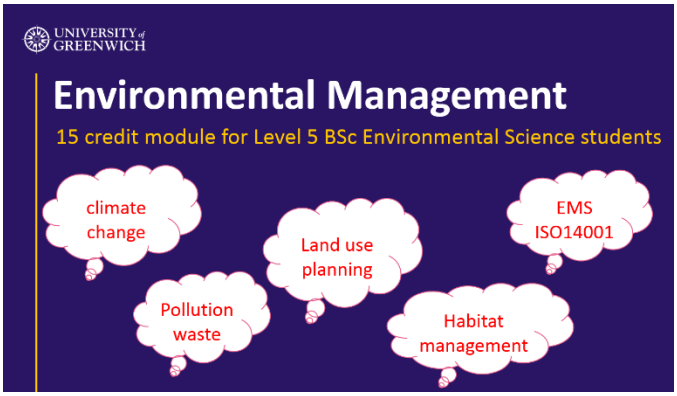

Figure 1: What is environmental management?

The 2018-19 cohort was small and all the students, after perusing job advertisements and comparing the wages offered by the range of environmental employment options, wanted to focus on corporate social responsibility and the skills required for the role of environmental – or sustainability – manager in a company. The focus was therefore on standard systems, with students undertaking auditor training and gaining real experience by contributing to the University's ISO14001 submission – a definite win-win! They were simply delighted to have completed audit reports as evidence of their experience, which helped one get a paid summer placement and which was the topic of her final-year research project. The 2019-20 group was more diverse, with eight students, but they worked together to produce the list of topics that they wanted to cover (figure 2).

Figure 2: The students' list of environmental management topics

The Sustainable Development Goals (SDGs) had been promoted across the campus, with posters illustrating how research and teaching were contributing to achieving specific goals so that students were well aware of these as an international policy framework (box 1; more information on the SDGs is provided as an appendix). It did not take long for the students to make the connection between the issues they had identified as priorities and the SDGs, and they decided these would provide the basis for the module content.

BOX 1: The Universities at Medway Sustainable Development Goals Pilot

At the start of the 2019-20 academic year a collaboration was set up between the University of Kent, University of Greenwich and Canterbury Christchurch University, all based on the Medway campus, to raise awareness of the SDGs and promote their incorporation into teaching and research.

The objectives were to:

- make the SDGs relevant to learning, research and day-to-day behaviours
- ensure that the scope of sustainability was understood to include social and economic issues as well as environmental ones
- highlight the way, in terms of the SDGs, staff and students are delivering
- develop partnership to enable interdisciplinary and interagency collaborations

This was promoted via social media, staff and student posters, exhibitions and talks and engaged with all faculties, directorates, and contractors. This was a pilot with the intention of rolling implementation out to the Avery Hill and Greenwich campuses (London) as well as the Canterbury Campuses of University of Kent and Canterbury Christ Church University.

The University of Greenwich aim was to increase integration of the SDGs in teaching, to sign up to the SDG Accord (EAUC the Alliance for Sustainability Leadership in Education https://www.eauc.org.uk/the_sdg_accord) and to submit evidence to the Times Higher Education SDG Dashboard.

The next step was to consider the two assessment tasks. The first was a group presentation. This was discussed, separating out the transferable skills (research, communication, teamwork) from the technical ones (content) and increasing understanding of the rationale for the task. We looked back at the list of topics, reminded ourselves about the SDGs and agreed that the students should all bring their thoughts the following week. They concluded unanimously that the biggest challenge with the SDGs is that they are interdependent, making it difficult to consider any of them in isolation. For me, this was interesting evidence of inquiry-based learning and showed that they really had reflected, both individually and in collaboration, between classes. Students were organised into small groups and the selected topics (figure 2) randomly allocated between them, the brief being to research the environmental management topic and which specific SDGs were related to it. In all cases, complex interactions were revealed, with multiple links between SDGs so that management action on any of the topics would (or could) contribute to achieving several simultaneously. These were presented in class as formative assignments, receiving peer and teacher comments. Examples of summary slides from the final, summative, presentations are included as figure 3.

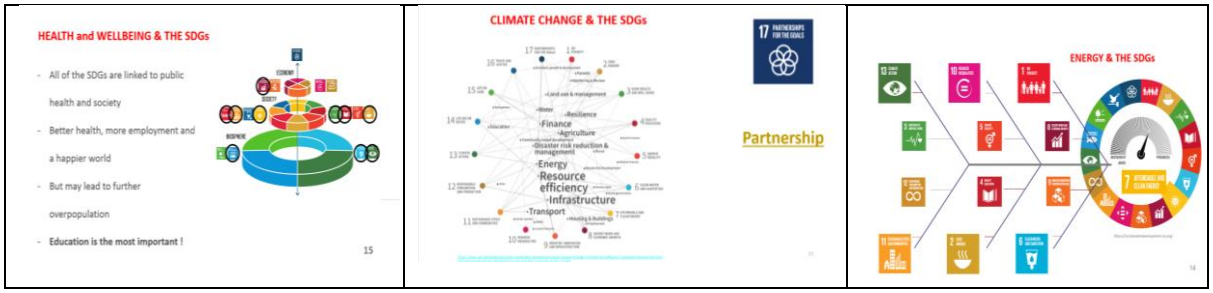

Figure 3. Example summary slides showing graphic representation of the links

The second assignment was an individual report. Options were discussed and it was decided to stick with the SDG theme and to focus on environmental management activities taking place on the campus, identifying how these contributed to achieving SDGs and – importantly – suggesting how this could be improved. The formative assignment submissions provided further opportunity for discussion, bringing in national, regional and University-level policies and direct observation, with the practicality of recommendations evaluated ('options appraisal'). Sharing these in a supportive context is important for learning as well as building students' confidence in their own work (Carless and Boud, 2018). It is particularly important for this to be built into the formative feedback process, as there is no mechanism for peer review of and dialogue about each other's final assignments, particularly when hand-in is at the end of the module.

Evaluation

Getting feedback on modules seems increasingly challenging, with the online system often failing to attract enough engagement to produce an output, let alone anything that can be used as the basis for reflection on teaching and lead to improvement. The 2019-2020 students were asked if they would like to be involved in a presentation at the SHIFT conference, January 2020. They greeted this suggestion enthusiastically as an addition to their curricula vitae (CV), despite its not being credit bearing. With very little guidance, they worked together in class and independently, planning slides and narrative, and this became the focus for reflecting on the benefits and disadvantages of the approach. The consensus was positive about the following aspects:

- being involved in the process
- feeling more engaged
- having the chance to reflect on and develop personal interests
- gaining professional development as well as achieving academically
- appreciating reduced pressure
- being exposed to others' interests – leading to changes in their views
- benefiting from wider perspectives
- realising how everything is connected

The second assignment, the individual report on environmental management in the context of the campus, evaluating the contribution to the SDGs and suggesting enhancements, was recognised as something which an environmental consultant might well be commissioned to do with students and which therefore had potential for their CV; for me, it was authentic assessment, with students demonstrating assessment literacy and active engagement.

Although reduced pressure was considered a benefit of co-design, a different kind of pressure was highlighted: having more responsibility. This was very different from the predictability they were used to, with a handbook outlining what would be covered and with reading material specified, thus reducing the need for them to be proactive in personal research and to decide for themselves what background reading would be appropriate. One student was initially very uncomfortable about the lack of certainty. He was one of two in the cohort who had contacted me in the summer, asking for a module reading list. My response was that I preferred not to provide this in advance, citing the breadth of the topic area and

suggesting that any reading on environmental issues would be useful. He was ultimately supportive of the process and felt he had developed as a result of taking part.

Only three of the students were able to attend and present at SHIFT (figure 4). The timing, in the school holidays, was a difficulty for students with childcare responsibilities; one returned home to Kazakhstan for the md-winter break and two were unwell. This led to a last-minute rearrangement of presenters for each slide, but it was made clear that the views expressed were those of the whole class and, despite nerves, those who did attend enjoyed the experience of presenting at a large event.

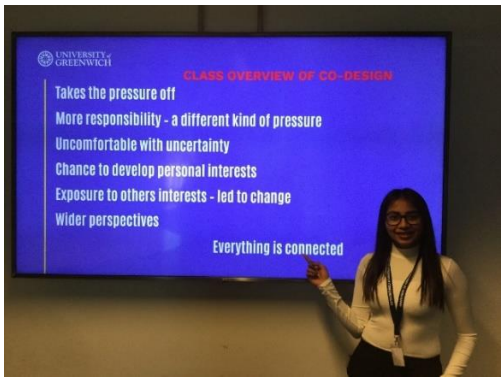

Figure 4: Sabana Khanom presenting the students view at the SHIFT conference

Limitations and conclusions

From my perspective, this co-design approach has successfully increased student assessment literacy and engagement with feedback and, in the 2019-20 cohort, had the additional benefit of successfully integrating the SDGs into learning and teaching. The effectiveness of co-design is clearly demonstrated by the student-led evaluation (figure 4) but capturing quantifiable data was impossible as the students did not engage with the online end-of-module evaluation. It would be interesting to investigate whether this positive effect on engagement carried over into learning in subsequent modules. However, this would be difficult to evidence, particularly as formative assignments with detailed feedback are not universally used. In both years, it has been challenging to gain approval for this approach from the programme leader; this resonates with the finding of Bovill (2014), that staff involved in co-design found it "*risky and nerve-wracking*". Concerns have been raised that by giving students choice and an element of control they could become polarised and that trying to please all could lead to satisfaction for none. While I can see the logic behind this, I can provide the reassurance that the gradual introduction to the co-design process taken with each of these two cohorts would have enabled backtracking to a more traditional approach had that been necessary.

Each group of students is different and, although this has worked well for this module for two years, it would be significantly more challenging with large cohorts and/or with a more specific curriculum – and also if the module were a pre-requisite for another. I have found that it requires constant adaptation and an active response to the students all the way through the process. I would recommend it for modules on wide-ranging topics and without prescriptive learning outcomes It requires more thought than rolling out than rolling out the same material year after year, but it is far more interesting! I enjoy the challenge of adapting

my teaching in response to student interests and career ambitions. The idea of repeatedly delivering the same material fills me with dread – fortunately, as my subject is highly dynamic, even modules with specific content requirements require significant and continuous updating.

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Appendix

The Sustainable Development Goals and Education for Sustainability

The seventeen interconnected Sustainable Development Goals (SDGs) were set by United Nations (UN) General Assembly in 2015 and have been adopted by 193 countries. Each goal has set of targets (169 in total) and measured indicators (232 in total) and the aim is that these will be delivered by 2030. SDG 4, Quality Education, explicitly recognises Education for Sustainable Development (ESD) in Target 4.7, but this is of integral importance for all the other sixteen SDGs as well (see box 2).

Box 2 SDG 4 Quality Education

Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment

(https://sustainabledevelopment.un.org/sdg4)

While environmental education – focused on developing knowledge, skills, values, attitudes and behaviours to encourage people to care for their environment – has long been recognised as a discipline, ESD came to the fore at the UN World Summit in Johannesburg in 2002. The reorientation of the then education system to the promotion of the knowledge, skills, understanding, values, actions and behaviours necessary to create a sustainable world succeeded in ensuring protection of the environmental, social equity and economic sustainability. The UN Decade of Education for Sustainable Development (DESD), 2005-2014, was adopted by the UN General Assembly and the UN Educational, Scientific and Cultural Organisation (UNESCO) was the lead organisation to promote the vision 'of a world where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation' (www.unesco.org/education/desd). The themes in ESD include poverty alleviation, citizenship, peace, ethics, responsibility in local and global contexts, democracy and governance, justice, human rights, gender equality, corporate responsibility, natural resource management and biological diversity (Nevin, 2008).

There is a clear need for ESD to be embedded in the higher education curriculum in a holistic, interdisciplinary way and in policy and strategies across the whole institution; the SDGs have become a mechanism to achieve this. This concept has been led by Students Organising for Sustainability-UK, a subsection of the National Union of Students (NUS) (https://sustainability.nus.org.uk/) and part of an international alliance involving over 100 student-led groups in forty countries working on sustainability. In late 2017, NUS/SOS launched the 'SDG Teach In', aiming to put the Global Goals for Sustainable Development

at the heart of further and higher education (https://sustainability.nus.org.uk/sdgteachin), promoting existing examples. The author was asked to submit a photo and poster statement in the run-up to the first 'Teach In' event, 19-23 February 2018. This has since been repeated annually, with higher education institutions (HEIs) asked to pledge and leader boards posted online.

'Teach SDGs', the official UN resource for all levels, has the same aim, using an apple logo set within the circular arrangement of the SDGs and providing a free *SDGs in Action* app (http://www.teachsdgs.org/). The Times Higher Education University Impact Rankings currently measure the societal impact of HEIs based on achievement of SDGs, the first set of performance metrics having been developed in 2019, with the University of Auckland ranked highest on the basis of it social and economic impact; in 2020, the University of Greenwich maintained its position at 101, out of a total of over 800, and based on contribution to all seventeen SDGs. This is focusing the minds of those in the upper levels of management and currently driving initiatives to promote the SDGs.

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