10th International Conference on Higher Education Advances (HEAd'24)
Universitat Politècnica de València, València, 2024
DOI: https://doi.org/10.4995/HEAd24.2024.17334

Co-creating an SDG focused micro-credential

John Scahill, Frances O'Donnell, Ciaran Comerford, Carmel Heaney
Department of Building and Civil Engineering, Atlantic Technological University, Ireland.

How to cite: Scahill, J.; O'Donnell, F; Comerford, C,;Heaney, C. 2024. Co-creating an SDG focused micro-credential. In: 10th International Conference on Higher Education Advances (HEAd'24). Valencia, 18-21 June 2024. https://doi.org/10.4995/HEAd24.2024.17334

Abstract

This project describes the development and co-creation of a micro-credential programme on the UN SDGs by a team of lecturers and instructional designers from an Irish Technological University. The project explores how the programme and module content development process is enhanced and improved through a mutually respectful collaborative co-creation approach that iteratively evolved in response to student feedback and advances in technology and artificial intelligence. The project output is an on-line asynchronous 20 credit programme consisting of 4 x 5 credit modules, all of which are micro-credentials. The project highlights and demonstrates the potential benefits of lecturer/ID co-creation and collaboration, through the use of a structured design approach, storyboarding, continuous review and an openness to embrace and fully engage with student and peer feedback. Mutual respect and a shared understanding of pedagogical approaches enabled the team to transform the challenges of asynchronous material development into opportunities for innovation and enhanced learning experiences.

Keywords: *Instructional Design, Microcredential, SDGs, pedagogy, co-creation.*

1. Introduction

1.1. Background

Higher education institutions have been increasingly adopting a transdisciplinary approach in developing course content to improve sustainability awareness of students while meeting the expectations of society and future employers of the students (Tasdemir and Gazo, 2020). One catalyst for this is the development of micro-credentials, which offer targeted and flexible learning opportunities (Varadarajan, Koh, and Daniel, 2023). Such curriculum development builds upon the strength of traditional approaches while incorporating more innovative design practice to enhance the teaching and learning experience, including contemporary pedagogy and instructional methods that are learner-centred and designed to empower learners to apply

knowledge (Hays and Reinders, 2020). Educators are challenged to apply these theoretical insights to new sustainable learning environments, that are aligned to the real world (Richardson et al., 2019).

1.2. Historical context : Challenge and complexity of ID in higher education

Today, an increasing number of higher education institutions employ teams of instructional designers to support teaching and learning practices as they address the expanding need for technology integration and provision of enhanced online learning to accommodate a diversified student body (Dahlstrom et al., 2015). However, while the field of instructional design has been well established to support professional training endeavours, its' application in the development of college-level courses is still evolving (Sinakou et al., 2019).

Evaluative research outlines the diverse role played by instructional designers (IDs) which encompasses course development, institutional learning initiatives, pedagogy and educational technology workshops, quality assurance of blended and online courses, and educational technology, pedagogy, and accessibility support (Leung et al., 2021). Best practices for instructional design project management are proffered to include clear communication, well-articulated project framing, progress tracking, project close-out and reflection (Leung et. al., 2021).

However, it is recognised that regardless of best practice and the expertise of the instructional designer, the challenges recognised within higher education include lack of faculty buy-in, reasonable timelines, resources, leadership/administration, tools and technology, institutional bureaucracy, awareness, project management, pedagogy, and working with subject matter experts (Intentional Futures, 2016) .

1.3. Gaps in research

Stefaniak, Reese, and McDonald (2020) highlight the gaps in research in relation to IDs working with faculty and point out the importance of IDs and faculty sharing the outcomes of collaborative exchanges. Hence this paper shares the narrative of the collaborative efforts of faculty and IDs in tackling a variety of challenges within higher education to bridge the existing research gaps on the effective employment of instructional design. It stresses the necessity for dedicating resources and time for educators to craft innovative learning experiences. Moreover, the paper aims to address literature which indicates the need for a cultural shift required from faculty towards embracing educational technology and instructional design support (Ivens, 2023). Additionally, the paper heeds the call of Chen and Carliner (2020) who identify a significant research void in relation to faculty attitudes towards collaborating with instructional designers. Few will argue the level of complexity involved in developing timely effective asynchronous learning experiences as well as the challenges of integrating instructional design

within academic settings. The narrative presented in this paper may offer some tangible solutions to both.

2. Experience description

2.1. Project description

The project evolved in response to a national funding call to provide skills- focused programmes designed to meet priority skills needs with a focus on sustainability and the application of micro-credentials as a way to provide industry with short training programmes.

A multidisciplinary team of five was formed to explore how a programme focussed on the contents and aspirations of the United Nations SDGs could be developed and rolled out to students from any disciplinary background. A focus on an inter and multidisciplinary approach was considered an essential feature of the programme design.

2.2. Programme development approach

An initial international horizon scan was carried out to seek out higher education programmes that focussed on the SDGs. A range of short course and small individual modules were discovered, but no programme that specifically addressed the SDGs in an Irish context were identified.

A series of strategic programme design meetings took place and a proposal to develop a 20 ECTS certificate on the SDGs was formulated. The proposal identified a number of key aspects and issues that needed to be considered and incorporated into the development.

The programme should be

1. Non discipline specific and accessible for students from all academic disciplines.
2. At a suitable EQF level so that it was not jargon or discipline specific terminology heavy.
3. Primarily on-line or blended, with minimal requirement for face-to-face interactions, thus ensuring maximum access for students from various geographical locations.
4. Focussed on the application and implementation of SDGs in a regional (Irish) context, as well as on progress on an international scale.
5. Incorporate the principles of UDL to maximise student access to the material.
6. Designed to be as interactive as possible to keep students engaged.
7. Presented as a series of short stackable accredited modules, that could be dipped into and completed with maximum flexibility.
8. Grounded in the inter-connectedness/dependence of the three traditional pillars of sustainability, environment, social and economy

The programme was designed in line with the NFQ standard, which equates 1 ECTS with 25 learning workload hours.

2.3. Programme Structure

The programme is delivered on-line asynchronously, and students can engage with the material at their own pace. Each module is of identical design and consist of five units. The structured approach provides consistency in the modules and supports the use and incorporation of a wide range of media types, which include reading material, videos, interactions and blog type discussion forums.

Each unit in the modules is assessed through a bank of MCQs which are designed to ensure students view and engage with the written and recorded materials. On completion of the MCQs the final assessment consists of the production of an "artefact" (e.g. a report/essay, a blog or a creative presentation) or the implementation and reportage of a short social action project that demonstrates engagement with the module content and material.

3. Preliminary Results

As highlighted in research, the development of asynchronous micro-credentials is fraught with challenges (Varadarajan, Koh, and Daniel, 2023). This paper highlights that such challenges require IDs and lecturers to work collaboratively. The benefits of the collaborative efforts undertaken in this project are demonstrated below from some preliminary student survey responses.

1. The LMS (learning management system) was configured to have a visually clear structure allowing for easy-to-understand navigation. Lecturers made the pedagogical aspect of the structure clear to the instructional design team, who subsequently developed visual cues and navigation material that were in keeping with the principles of UDL. The preliminary feedback shows a positive response from 91.7% of students concerning navigation (16.7% - good, 75% - very good or excellent).

2. The lecturer's tutorial videos benefited from the expertise of the team in terms of background, camera positioning, lighting, eye direction, sound, and tips for interacting with an asynchronous audience. The team worked collaboratively in the video editing process to increase engagement through graphical design, real-life visuals, chunking and the development of interactive activities. The success of this approach is evident through student comments which include "I love the videos... The balance of different types of material... worked well for me". One small-scale survey also showed that 91.6% of students rated the quality of content delivery as "very good" or "excellent".

3. During the piloting phase, reflective discussions between faculty and instructional designers, with a focus on UDL, led to the introduction of an alternative option for students to access content 'on-the-go'. This option took the form of YouTube playlists which were accessible outside the LMS but collated in the modules' structure. Students responded positively to this. "I did like when the playlist option came up…to listen when I was driving…you could take the information in without being at the laptop" and "I liked being able to dip in and out of the course".

4. A common challenge of online learning is an institution's ability to develop genuine and authentic online discussions and relationships (Xia et al., 2022), yet this course has yielded highly informative and rich discussions. Comments from students to date include "The interaction in terms of the other participants and what they were saying and putting into the discussions was really good …very varied… coming from very different backgrounds." and "I felt safe saying what I think".

5. The immediate implementation of student feedback, alongside the quality of the materials, has not gone unnoticed by students, again emphasising a positive result when faculty and instructional designers are given the time and resources to work collaboratively. This sentiment is evident in comments from students such as "I just want to say it's very clear that there's a huge amount of effort gone into this course, and I wanted to thank you and the rest of the team for that." and "There's obviously huge work gone into it and… it's great." More research is required in this area, however, students' appreciation for the effort applied by the multi-disciplinary team may have played a role in building credibility and appreciation for the course.

6. In terms of the effectiveness of the course, many students have stated they would or have recommended the course to others and believe the course has changed their thinking. Comments include "I think it is an insightful way of learning more about the SDGs.. really helping to deepen a person's understanding of global challenges...". "[The content includes] …really different thinking that really made you sit back… and my learning has just mushroomed". "What's changed is my awareness...I'm seeing the SDGs everywhere…and you start to understand what is really going on in the world".

4. Discussion

4.1. Challenges

In the development of this programme, many of the general challenges involved in the multifaceted nature of programme development were encountered. In particular, lecturers faced the daunting task of creating content while managing an existing heavy workload (Kenny and Fluck, 2022), and the instructional design team faced the complexity of transforming the received content into engaging accessible online modules within tight deadlines. Both lecturers

and instructional designers faced the challenge of developing an online course that was engaging yet academically rigorous.

The integration of educational technology tools poses challenges (Kenny and Fluck, 2022), necessitating not only technical know-how but also adherence to the planned pedagogical implementation of social constructivism and Universal Design for Learning (UDL). The skills required of the instructional designers were diverse, spanning video editing, pedagogical knowledge, organisation, communication, technical proficiency, and data analytics. Similarly, lecturers faced the complex challenge of creating online content that was relevant, effectively paced, engaging and in keeping with the diverse needs of online learners.

4.2. Enablers

Conversely, several enablers played a pivotal role in the successful development of this micro-credential. Akin to attributes previously reported (Richardson et al., 2019), strong communication skills and mutual respect among team members helped foster an environment conducive to critical, constructive and honest discussions. The establishment of a clear storyboarding approach facilitated content sharing between lecturers and instructional designers, ensuring clarity and consistency of design and clear structure for learners. Continuous review, monitoring, and an openness to student feedback were instrumental in refining the content. These enablers, enhanced by a collegial partnership between faculty and instructional designers nurtured a reflective and collaborative process which led to timely continuous improvements in course design. Mutual appreciation and a shared understanding of pedagogical approaches meant the team could transform the challenges of asynchronous material development into innovation opportunities and enhanced learning experiences. In the development of this programme, team members' openness to feedback and adaptability served as a crucial facilitator in addressing the challenges encountered.

5. Conclusion

The overall responses from students regarding the course have been positive. Despite the existence of many areas that require further research, this paper argues that the collaborative approach between instructional designers (IDs) and faculty was instrumental in enhancing the online educational experiences of students. The team's constructive communication led to timely solutions throughout the course's design, development, and implementation.

IDs face a variety of challenges, including their positioning within the institutional hierarchy, clarity in roles and navigating the dynamics of collaborative relationships. While some research has highlighted the positive impact of such collaborative efforts, Chen and Carliner (2020) note a significant gap in research regarding faculty attitudes towards collaboration with IDs. This narrative emphasises the value of faculty placing trust in the skills, knowledge, and ability of

the ID team, and the importance of IDs developing mutually respectful relationships with faculty.

This experience lays the groundwork for further exploration on how positive faculty-ID relationships can be fostered, including the balance between the time required to develop high-quality courses, challenges encountered, and scalability of instructional designer-lecturer support. This experience showcases what can be achieved when IDs are explicitly allocated time to focus directly on a small number of projects with clarity on roles and timeframes.

Further areas for investigation include effective methods for gathering and implementing continuous student feedback in online courses, understanding the characteristics that define successful instructional design-lecturer relationships, and identifying the specific elements or combination of elements that contribute to high-quality student discussion responses.

It is vital that digital technology is strategically embedded in educational practices, and this research will deepen our understanding of the crucial role these dynamic collaborations can have on making the shift to quality digital education and innovation in higher education.

References

Chen, Y., Carliner, S. (2020). A Special SME : An Integrative Literature Review of the Relationship between Instructional Designers and Faculty in the Design of Online Courses for Higher Education. Performance Improvement Quarterly, 33(4), 471–495. doi:10.1002/piq.21339

Dahlstrom, Eden, Brooks, D. Christopher, Bichsel, Jacqueline. (2014). The Current Ecosystem of Learning Management Systems in Higher Education: Student, Faculty, and IT Perspectives. 10.13140/RG.2.1.3751.6005.

Hays, J., Reinders, H. Sustainable learning and education: A curriculum for the future. Int Rev Educ 66, 29–52 (2020). https://doi.org/10.1007/s11159-020-09820-7

Intentional Futures. (2016). Instructional design in higher education: A report on the role, workflow, and experience of instructional designers. https://intentionalfutures.com/work/instructional-design

Ivens, J.P. Instructional design, technological design, and their cultural politics. Educ Inf Technol 28, 12823–12843 (2023). https://doi.org/10.1007/s10639-023-11726-4

Kenny, J., Fluck, A. E. (2022). Emerging principles for the allocation of academic work in universities. *Higher Education*, 83, 1371–1388.

Leung, J., Lachheb, A., Abramenka-Lachheb, V., Seo, G, (2021). Managing Instructional Design Projects in Higher Education. In book: A Practitioner's Guide to Instructional Design in Higher Education (2021). https://edtechbooks.org/id_highered/managing_instruction.

Richardson, J., Clarke, D., Grose, J. and Warwick, P. (2019), "A cohort study of sustainability education in nursing", International Journal of Sustainability in Higher Education, Vol. 20 No. 4, pp. 747-760. https://doi.org/10.1108/IJSHE-02-2019-0064

Richardson, J.C., Ashby, I., Alshammari, A.N. et al. Faculty and instructional designers on building successful collaborative relationships. Education Tech Research Dev 67, 855–880 (2019). https://doi.org/10.1007/s11423-018-9636-4

Sinakou, E., Donche, V., Boeve-de Pauw, J. and Van Petegem, P., 2019. Designing powerful learning environments in education for sustainable development: A conceptual framework. Sustainability, 11(21), p.5994.

Stefaniak, J. E., Reese, R. M., McDonald, J. K. (2020). Design Considerations for Bridging the Gap Between Instructional Design Pedagogy and Practice. https://doi.org/10.51869/93jsrmrjkmd

Tasdemir C., Gazo R. (2020). Integrating sustainability into higher education curriculum through a transdisciplinary perspective, Journal of Cleaner Production. 265(2020).

Varadarajan, S., Koh, J.H.L. Daniel, B.K. A systematic review of the opportunities and challenges of micro-credentials for multiple stakeholders: learners, employers, higher education institutions and government. *Int J Educ Technol High Educ* 20, 13 (2023). https://doi.org/10.1186/s41239-023-00381-x

Xia, Y., Hu, Y., Wu, C., Yang, L., Lei, M. (2022). Challenges of online learning amid the COVID-19: College students' perspective. *Frontiers in Psychology*, 13, Article 1037311. https://doi.org/10.3389/fpsyg.2022.1037311