

Chapter 13

Promoting Education for Sustainable Development Using Blended Learning and Digital Tools: Two University Courses, One Case Study

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ABSTRACT

While online learning has become the new normal during the pandemic, experience shows the importance of face-to-face encounters with blended learning (BL) as a format that combines both. This chapter presents two interdisciplinary BL, project-based Master's courses. Both use the Sustainable Development Goals as a framework and design thinking as an approach, while one also uses digital tools beyond the digital media necessary for collaboration. After a brief introduction and consideration of the underlying concepts, the course and student reflections on their learning processes are described. The text concludes with considerations regarding the further development of the course.

INTRODUCTION

In the face of major global challenges such as the climate crisis, loss of biodiversity, social disparities, poverty, and health crises, accompanied by unprecedented dynamics of change driven by, among others, digitalization, we seek sustainable solutions. Education, especially education for sustainable development (ESD), is seen as a catalyst for the necessary societal transformation towards sustainable development (SD) (Stoltenberg & Michelsen, 2020; UN, 1992; UNESCO, 2020), by enabling and empowering people to participate in shaping a sustainable future. Digitalization, on the other hand – although it may increase efficiency aimed at conserving resources – is frequently associated with further growth or speed, as well as with maintaining a competitive mindset and practices that fuel an unsustainable development

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(Ahel & Lingau, 2021; Stoltenberg & Michelsen, 2020), by exploiting natural resources or harming the environment and affected people. Apart from the damage that occurs along the whole life cycle of digital devices, the use of digital media enables the dissemination of fake news; may lead to health harms; and consolidates the power of large digital corporations and their access to data (Mayr & Madritsch, 2022).

Although the negative side effects of digitalization are well known and require urgent global solutions, they do not represent the focus of this paper. Instead, the author uses two specific interdisciplinary university courses at the University of Innsbruck to show how (E)SD, design thinking (DT), and blended learning (BL) can be brought together when designing courses aimed at breaking down major challenges related to (non-)SD and making them manageable for students.

Both courses use the Sustainable Development Goals (SDGs) as a guiding framework. Both follow a design thinking (DT) approach (Brown, 2016), that enables learners to iteratively research, define complex problems, co-creatively develop solutions (McDonald et al., 2018) and collaboratively implement them. Both course designs follow a critical-emancipatory, project-, problem- and solution-based understanding of ESD (Wals, 2011; Vare & Scott, 2007; Mayr & Oberrauch, 2022), and in both courses students are offered both analog and digital teaching-learning spaces in which to work on challenges related to SD in an interdisciplinary and participatory way, through the implementation of a real-world project.

In the past, both courses have had to be adapted to unprecedented developments and situations. The first course was originally designed and implemented as a pure face-to-face (F2F) course but had to be converted to a pure online course due to the pandemic in winter term 2020/21. The second course was originally designed as a BL course, but likewise had to be implemented as a pure online course due to the pandemic. In winter term 2021/22, both courses were finally implemented using a BL format. In doing so, the video conferencing program ZOOM and the digital whiteboard MIRO were used, additional to OLAT, the University's Learning Management System (LMS), which supports file exchange, information sharing, and different communication channels like email and Messenger apps. Using ZOOM and MIRO, students were able to cooperate and interactively collaborate within a virtual space. In one course, students used additional digital tools such as CoSpaces to create virtual realities, or the Locandy platform to develop hybrid scavenger hunts.

This paper describes the design and implementation of the two blended learning (BL) courses, based on theoretical frameworks such as ESD, BL, and DT. Although the focus of the article is not on empirics, an accompanying small research project provides first insights into students' perceived learning processes, as well as into their self-assessment regarding competence development. Moreover, available data helps to assess probable potentials and limits of the BL formats from a student's perspective.

BACKGROUND

In developing and implementing the two BL courses, the challenge was how to optimally integrate the underlying concepts of SD, ESD, digitalization/BL, and DT to most benefit students, given the current situation, uncertain future developments, and the requirements of the new working world. To aid understanding, the concepts underlying the course design are briefly introduced below.

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