

How to work with others to create and distribute technology for learning?

Abstract

Digitally supported teaching can be more efficiently delivered in a co-creative way, making the communication between teachers and students and among students more interactive, exploratory and multi-directional. This way, teaching and learning are done with students and not just to them, of course, based on the use of technology. Several approaches may be used in a digital environment to achieve such goals, either synchronously, asynchronously, in online or combined physical- online spaces, following open pedagogy and, e.g., Creative Commons licencing rules. In this chapter, we present three typical strategies of teaching and learning that support the ideas of co-creation in education - collaboration in virtual space, virtual collaborative learning and digital storytelling. The three approaches are based on using, e.g., whiteboard collaboration tools, videoconferencing and messaging tools, cloud storage and file sharing tools, and tools for planning and producing multimedia items such as videos. In the chapter, practical examples from several Erasmus+ projects are listed and explained.



Image. Virtual Collaborative Learning. Image source: <https://www.canva.com/>

1 Introduction

Co-creation follows the constructivist learning theory saying that learners construct their knowledge from lived experiences. Teaching is not considered a one-way process. Learning opportunities come from honouring student voices (*What Is Co-Creation in Higher Education?* | *THE Campus Learn, Share, Connect*,

n.d.). Co-creation overlaps with active learning, which means moving the student from a passive to an active role, encouraging interaction between teacher and students and among students. Active learning practices involve students participating, interacting, or contributing mentally or physically in activities to gather information, solve problems, and reflect upon knowledge based on reading, writing, discussion, group work, and values and attitude exploration (Bovril, 2020). Education is perceived as a shared endeavour where learning and teaching are done with students, not to them. In co-creation, students function as representatives, consultants, co-researchers, or pedagogical co-designers¹, as well as evaluators of their own HE experiences, participants in decision-making processes, partners, co-creators, experts, or change agents (Bovril, 2020; Kaminskiene et al., 2020).

"An individual can't create anything itself. All of our dreams come true with cooperation, co-creation, and co-creation of other souls." (Hina Hashmi)

2 Determining responsibilities for technologies

2.1 Learning spaces

In a learning space, learning and teaching take place. The variety of learning spaces increased due to the internet and online learning. In literature, physical spaces are frequently intertwined with learning purposes. In one of the considerations (*8 Types of Learning Spaces to Consider Including in Your Elementary Classroom - We Are Teachers*, n.d.), four kinds of learning spaces are exemplified: classroom meeting space, writing centre space, collaboration space and creation space. Virtual space is any location where people can meet using networked digital devices. It refers not just to synchronous, highly interactive functions (e.g., chat, blogs, and wikis) but also to asynchronous operations such as e-mail and discussion threads (*Learning Spaces / EDUCAUSE*, n.d.). On the other hand, computer games, language learning with narratives, or digital storytelling are teaching strategies requiring an imaginary learning space. It is like a new form of a book in which every page turning yields an exciting experience for the reader (Ang & Zaphiris, 2009).

2.2 Co-creation learning methods and supporting technology

Virtual learning refers to an environment where students study a digital-based curriculum taught by instructors that lecture online via video or audio (Nelson, 2021). The instruction can occur either in a self-paced (asynchronous) or real-time (synchronous) setting. Synchronous learning refers to instructors and students gathering at the same time and (virtual or physical) place and interacting in "real-time." Asynchronous learning refers to students accessing materials at their own pace and interacting with each other over lengthy periods. Blended learning, on the other hand, is the term given to the educational practice of combining digital learning tools with more traditional in-person or face-to-face classroom teaching. Usually, in a genuine blended learning environment, students and teachers are physically in the same virtual or physical space.

Co-creation learning can be conducted using either a virtual or blended learning strategy. Several pedagogical approaches might be helpful, among others, generative dialogue, negotiation, collaborative work, and participatory design model (Kaminskiene et al., 2020). In addition, dialogue, field studies, interviews,

¹ In the representative role, which tends to be elected, a small group of students represents a larger group. In the consultant role, the students, frequently selected by staff, are usually paid to collaborate on projects. For the co-research and pedagogical co-designer roles, students may be assigned by teachers in cases when they choose to work with a small group of students (Bovill, 2020).

narratives, technology-enhanced methods (flipped classroom, digital storytelling), and negotiated decision-making are among the learning methods efficiently supporting co-creation learning processes.

2.3 Open pedagogy

A powerful form of co-creation is so-called open pedagogy, where students are invited to create their own original resources, openly license their contributions in the class, and share them. In such cases, students can apply a Creative Commons licence to their work and share it through an open repository so that others can find their work and revise or remix it (*What Is Co-Creation in Higher Education?* | *THE Campus Learn, Share, Connect*, n.d.).

3 Recognising distinct levels of competence in technology use

Digital skills are crucial for managing digital teaching and learning initiatives. Several frameworks for self-assessment of digital skills can be found nowadays that should direct the development efforts of higher education teachers and coaches of online teaching and learning at HEIs. Among the frameworks, the following are the most prevalent:

- [DigComp](#) - Digital competencies framework for Citizens defines what it takes to be digitally competent
- [DigCompEdu](#) - The European Framework for the Digital Competence of Educators is a scientifically sound framework describing what it means for educators to be digitally competent
- [DigCompOrg](#) - this framework can be used by educational organisations (i.e., primary, secondary and VET schools, as well as higher education institutions) to guide a process of self-reflection on their progress towards comprehensive integration and effective deployment of digital learning technologies
- [EntreComp](#) - this framework describes entrepreneurship as a lifelong competence, identifies the elements that make someone entrepreneurial and describes them to establish a common reference for initiatives dealing with entrepreneurial learning.
- [PRUDMET self-assessment test](#) – this framework was developed within the PRUDMET project to offer a tool for assessing skills that coaches of digital learning at higher education institutions may need when dealing with training and development of higher education teachers to be able to lead online learning initiatives.

4 Examples of co-creation-based learning

4.1 Collaboration in virtual space

Online collaboration tools are software that lets teams work together over the internet. The purpose of such tools is to facilitate communication, collaboration, and teamwork for remote teams. Technically, a whiteboard is a collaboration tool. So is a phone, or even a round table. Such tools help distributed teams organise, manage, and execute collaborative work. These tools allow communication, managing projects and tasks, and sharing/storing files. Typical tools for virtual collaboration are, for example, (RACHEL, 2022) tools for whiteboard collaboration, project management, shared calendars, instant messaging, cloud storage and file sharing, video conferencing, and wikis.

4.2 Virtual collaborative learning (VCL)

Virtual collaborative learning environments aim to produce technology-based learning processes where students work together in groups to construct and share knowledge. Information and communication technologies favour collaboration in a learning situation since they facilitate ubiquitous and asynchronous learning processes and guarantee access to learning without discrimination. Furthermore, universal design

for learning and ICTs, expanding the possibilities of communication and information processing, can ensure all people's contribution to learning processes, regardless of their abilities and specific conditions. The collaboration will create links of positive interdependence and responsibility, encouraging greater awareness and control of the learning processes leading to the building of communities of practice based on shared understanding, mutual commitment, and a shared repertoire of shared resources. Nevertheless, collaborative learning cannot be successful without the appropriate support, which means that the role of the teacher must be changed from traditional transmissivity perspectives to being a supporter and facilitator of individual and collective learning processes (Herrera-Pavo, 2021; Weber et al., 2014).

4.3 Digital storytelling

Digital storytelling is a pedagogical approach combining traditional and creative learning methods. The aim is to engage otherwise reluctant students in learning, allowing students to create a narrative and illustrate course content, showcase autobiographical knowledge, share a person's or communities' point of view, and promote social justice (Grant & Bolin, 2016). In addition to producing digital stories as a distinct stand-alone activity, students might also be encouraged to develop instructional materials as open educational resources that can be used to support the academic topics and themes of the digital stories they produce. These educational resources can include links to additional readings and websites, external media such as podcasts, interviews or other videos, quizzes, lesson plans, definitions, and other materials that can be used to make the digital story the starting point for further exploration (Robin, 2016).

5 References

- 8 Types of Learning Spaces to Consider Including in Your Elementary Classroom - We Are Teachers. (n.d.). Retrieved December 5 2022, from <https://www.weareteachers.com/classroom-learning-spaces/>
- Bovill, C. (2020). Co-creation in learning and teaching: the case for a whole-class approach in higher education. *Higher Education*, 79. <https://doi.org/10.1007/s10734-019-00453-w>
- Ang, C., & Zaphiris, P. (2009). *Developing Enjoyable Second Language Learning Software Tools*. <https://doi.org/10.4018/9781605660608.ch079>
- Grant, N., & Bolin, B. (2016). Digital Storytelling: A Method for Engaging Students and Increasing Cultural Competency. *Journal of Effective Teaching*, 16, 44–61.
- Herrera-Pavo, M. Á. (2021). Collaborative learning for virtual higher education. *Learning, Culture and Social Interaction*, 28, 100437. <https://doi.org/10.1016/j.lcsi.2020.100437>
- Kaminskiene, L., Zydziunaite, V., Jurgilė, V., & Ponomarenko, T. (2020). Co-creation of Learning: A Concept Analysis. *European Journal of Contemporary Education*, 9. <https://doi.org/10.13187/ejced.2020.2.337>
- Learning Space | Meaning and Definition. (2022, August 23). *Teachmint*. <https://www.teachmint.com/glossary/l/learning-space/>
- Learning Spaces | EDUCAUSE. (n.d.). Retrieved December 5 2022, from <https://www.educause.edu/research-and-publications/books/educating-net-generation/learning-spaces>
- Nelson, M. (2021, August 10). *Differences Between Online Classes and Live Virtual Learning*. ReDefiners WL. <https://www.redefinierswl.org/post/differences-between-online-classes-and-live-virtual-learning>
- RACHEL. (2022, April 10). 8 Types of Collaboration Tools [w/ Top to Use in 2022]. *SmallBiz.Tools*. <https://smallbiz.tools/types-of-collaboration-tools/>

Robin, B. (2011). The educational uses of digital storytelling. Proceedings of Society for Information Technology & Teacher Education International Conference 2006.

Robin, B. (2016). The Power of Digital Storytelling to Support Teaching and Learning. *Digital Education Review*, 30, 17–29.

Tawileh, W., Lovasz-Bukvova, H., & Schoop, E. (2014). *Virtual Collaborative Learning* (pp. 620–642). <https://doi.org/10.4018/978-1-4666-5942-1.ch031>

Weber, P., Lehr, C., & Gersch, M. (2014). Improving Virtual Collaborative Learning through Canonical Action Research. *Electronic Journal of E-Learning*, 12(4), 326–338. <https://eric.ed.gov/?id=EJ1035689>

What is co-creation in higher education? | THE Campus Learn, Share, Connect. (n.d.). Retrieved December 5, 2022, from <https://www.timeshighereducation.com/campus/cocreating-students-practical-considerations-and-approaches>

Wood, P., & Warwick, P. (2018). Exploring Complex Learning Spaces. *Journal of Learning and Teaching in Higher Education*, 1, 59–81. <https://doi.org/10.29311/jlthe.v1i1.2591>