

Short Article

How Open Education Can Facilitate Digital Competence Development

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Abstract

In today's digitalized world, proficiency in digital skills is crucial for employability and academic success in higher education. However, there is a gap between students' perceived and actual digital competence, which is rather limited. This paper explores how open education can foster the development of digital competence in higher education, employing theoretical frameworks alongside a practical example. The article examines theoretical approaches that combine open education concepts, specifically Open Educational Practices (OEP), with the principle of constructive alignment. Open education aims to democratize knowledge access and promote collaboration, making it conducive to digital competence development through OEPs. The principle of constructive alignment emphasizes aligning learning goals, assessments, and activities to foster competence development. One example illustrates the effectiveness of this approach, showing a significant improvement in students' digital competence through participatory Open Educational Resource (OER) production. In conclusion, the paper emphasizes the significance of integrating OEPs into higher education pedagogy to assist students in acquiring essential digital competencies.

Keywords: Digital competence, Open educational practices, Open educational resources, Open education, Higher education

Introduction

Digital Competence in Higher Education

In the age of digitalization, digital competence is becoming increasingly important. Many jobs today require some level of digital competence, particularly in communication and collaboration. Digital competence enables individuals to effectively navigate online platforms, search for information, and distinguish credible sources from misinformation. In the digital age, civic engagement increasingly relies on digital platforms for activities such as voting, accessing government services, and participating in public discourse. Technology is constantly evolving, and new digital tools and platforms emerge regularly. The European Commission [1] describes digital competence in five areas. The five key areas of digital literacy are: "(1) Information and data literacy, including management of content; (2) Communication and collaboration, and participation in society; (3) Digital content creation, including ethical principles; (4) Safety; and (5) Problem solving."

Higher education institutions should support students in developing their competencies in employability, academia, and personal responsibility [2]. Despite students' high self-perception of their digital competence [3], their actual digital competence is inadequate [4]. This paper aims to explore how open education can promote the development of digital competence in higher education. To achieve this, we take a theoretical and practical approach. Firstly, we review literature on open education. Secondly, we provide an example of teaching and learning in open education.

Theoretical Approaches to Open Education and Digital Competence Development

To answer this question, we need to combine two theoretical approaches to higher education: conceptualizations and frameworks of open education and its design in higher education, and the principle of constructive alignment in the case of digital competence development.

There are several definitions of open education, with two major strands in the discussion [5]. First, there are those who discuss Open Educational Practices (OEP) in the context of open educational resources (OER). The most influential in this group are Wiley and Hilton [6], who focus their discussion of OER-enabled pedagogy on the different open educational practices enabled by the 5Rs (i.e., retain, reuse, revise, remix, and redistribute). Second, there are those who discuss OEP in relation to open scholarship, open learning, open teaching or pedagogy, open systems and architectures, and open-source software. Exemplary, DeRosa, and Robison [7] focus on open pedagogy and learner-driven practices. In the present article we focus on Cronins' definition, which combines both aspects regarding OERs and learning processes in OEPs, that she defines as "collaborative practices that include the creation, use, and reuse of Open Educational Resources, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners" [8]. Open education aims to democratize access to knowledge, promote collaboration and innovation in teaching and learning, and address barriers to education such as cost, geography,

and institutional constraints [8]. Regarding the research question above, the implementation of OEPs with a focus on student activity in OER production may facilitate digital competence development in higher education.

One theoretical approach for designing education towards competence development is the principle of constructive alignment [9]. This principle is fulfilled when learning outcomes are communicated in advance, performance assessments measure students' achievement of those outcomes, and teaching and learning activities help students to achieve them. Consequently, the development of digital competence can be achieved by defining and communicating the learning goal in advance, assessing digital competence development, and supporting digital learning through activities that focus on information and data literacy, communication and collaboration, participation in society, digital content creation, safety, and problem-solving.

Based on the conceptualizations of open education and the principle of constructive alignment, educators can facilitate the development of digital competence in higher education by implementing OEPs that enable students to construct their own learning through engagement in relevant digital activities. The application of the principle of constructive alignment in OEP design could enhance digital competence, provided that the learning goal addressing digital competence is achieved through appropriate open learning activities and assessment formats. Therefore, students can acquire digital competencies if they are informed of this objective beforehand, if their learning activities concentrate on creating digital content, collaborating, and solving problems, and if the chosen assessment format also covers these learning areas. To enhance students' digital competence, educators and students concentrate on generating digital OERs, and the assessment is based on this production.

Open Education and Digital Competence Development: A Practical Example

To answer the question on a practical level, we draw on an example study by Braßler [10]. The study presents a teaching-learning arrangement that implements OEPs to enable students to co-produce OER. The planning and implementation of the OER production course followed the principle of constructive alignment. To improve students' digital competence development, the course educators and students focused on creating digital (OERs) in the form of videos and scripts covering various topics related to sustainability. The implemented learning activities were designed to develop the students' digital competence. These activities included interdisciplinary peer learning, empowering learners in self-directed problem-solving, providing discipline-based expertise on demand by educators, technical expertise in shooting and editing videos on demand, and several feedback loops on the OER product by students and educators. The assessment was also based on the production of OERs. All interdisciplinary student teams were graded on their OER products. The study indicates a significant increase in digital competence over time among students who produced OERs in the production course, compared to their peers enrolled in courses unrelated to OER content development. In summary, the

implementation of OEPs can enable students to co-construct their own learning towards digital content creation, with a clearly defined learning goal of digital competence, and assessment on digital content. This can lead to the development of digital competence through open education.

Conclusion

The purpose of this article is to analyze how open education can facilitate the development of digital competence in higher education. The key points of the theoretical and practical results are summarized below:

- Implementing OEPs that enable students to actively participate in teamwork and co-creation.
- Implementing OEPs that empower students in digital content creation.
- Defining digital competence development as a learning goal and communicating this to students.
- Implementing OEPs that enable students to co-create digital OERs as a product of their learning process.
- Implementing OEPs that support students in their OERs production.

Consequently, educators should familiarize themselves with the opportunities for implementing in their teaching to support students' development of digital competence.

Conflict of Interest

The author claims no conflict of interest.

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