Chapter 13
The Training Gap From an Analysis of the Mastery of Digital Teaching Competence in Higher Education

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ABSTRACT

Information and Communication Technologies have become essential in our daily lives and teacher training. The inter-semestral MOOC at the Technical University of Ambato in Ecuador addresses this need. Before its implementation, a baseline for Digital Competence was established using the SELFIE questionnaire with 21 management team members and 694 teachers. The results highlight the importance of teacher training in digital competence beyond the merely instrumental. The lack of digital skills training has widened educational gaps, making it crucial to establish relations with the business sector for digital transformation. Continuous training in classroom technologies and comprehensive training models that integrate pedagogical aspects are essential. Using a standardized instrument for measuring Digital Competence in the European Union and applying it to a Latin American country opens a promising research avenue for higher education development.

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1.INTRODUCTION

Information and Communication Technologies (ICTs) constitute one of the fundamental variables of the knowledge society. Regardless of our stance on their value, the era in which we operate is increasingly shaped by technology. In the field of education, its integration must be carefully planned, with the primary goal of empowering individuals and promoting their social and digital inclusion, fostering their comprehensive development (Cabero, 2017). The impact of digital competence on society is widely recognized. Over a decade ago, James (2011), in a study covering various countries, concluded that higher digital competence, which correlates with a reduction in the digital divide, leads to an improved economic situation, and vice versa. This impact is also evident in communication and interaction methods (Roig, 2012), knowledge management (Gairín, 2012), and learning approaches (Sánchez & Ruiz, 2013). Furthermore, the integration of ICT in education can enhance collaborative learning, facilitate access to a wealth of information, and support the development of critical thinking and problem-solving skills. By leveraging these technologies, educational institutions can create more engaging and effective learning environments that cater to the diverse needs of students.

The rise of technology in society has continued to grow, with its penetration increasing significantly due to the emergence of new technologies (Johnson & Adams, 2016; Adams et al., 2017). At the same time, this has expanded access to continuous education, as technology is a key tool for professional development in any field, especially in higher education teaching. Additionally, continuous training not only helps update teachers' knowledge and skills but also contributes to enhancing the quality of university education (Rodríguez Vite, 2017). When university teachers stay up to date with the latest trends and developments in their field, as well as recent legislative changes and new research findings, they are better equipped to deliver high-quality education. Moreover, continuous training enables teachers to develop new skills and improve their existing competencies (Rodríguez et al., 2023). This ongoing professional development is essential for adapting to the rapidly changing educational landscape, ensuring that educators can effectively integrate new technologies and innovative teaching methods into their classrooms. By fostering a culture of lifelong learning, universities can support their faculty in maintaining high standards of teaching excellence.

The concept of digital competence has evolved significantly over the past two decades. Initially focused on basic technological literacy—centered on hardware use, software handling, and internet navigation—it gradually expanded to include pedagogical, communicative, and ethical dimensions. Frameworks such as the European Commission's DigComp and later DigCompEdu reflect this shift toward a more integrated view of digital competence, emphasizing critical thinking, creativity,

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