Chapter 7
Digital Competence in Initial Teacher Training in the Use of Artificial Intelligence:
Students' Perceptions of Artificial Intelligence Use in Education

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ABSTRACT

This multiple case study analyses the perceptions and attitudes of students from the Duques de Soria Campus at the University of Valladolid regarding the use of artificial intelligence (AI) tools in education. A total of 25 students from the Early Childhood Education program and 53 from the Primary Education program were evaluated.

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Using a mixed-methods approach, two dimensions of the Digital Competence Framework for Citizens (DigComp 2.2) were explored: competence 1.2, focused on the critical evaluation of data, and competences 3.3 and 5.3, related to copyright and the creative use of technology. The results show that Primary Education students evaluate information more critically, while Early Childhood Education students view AI as a creative resource. This study highlights the importance of training in digital skills for the ethical and responsible use of AI, suggesting curriculum improvements and future research directions.

INTRODUCTION

Digital skills are becoming increasingly essential for citizens in the 21st century, particularly for university students who must navigate an ever-expanding and complex digital landscape. These skills extend beyond the basic ability to use technology; they encompass critical thinking, ethical awareness, and the capacity to evaluate and synthesize digital information responsibly. As highlighted by Estrada-Molina (2024), such competencies are indispensable for addressing the challenges of the modern information age, where the rapid dissemination of data often blurs the lines between credible and unreliable sources.

The emergence of Artificial Intelligence (AI) tools such as ChatGPT has further transformed the educational environment, providing innovative opportunities to personalize learning and facilitate immediate access to vast repositories of information (Estrada-Molina et al., 2024; Sandu et al., 2024). These advancements, while promising, have also raised critical questions about the responsible and ethical use of such technologies in academic and professional settings. This duality underscores the importance of structured training in digital competences to prepare future educators for the multifaceted challenges posed by AI tools (Gallego-Jiménez et al., 2024).

In the educational domain, the European Digital Competence Framework for Citizens (DigComp 2.2) provides a comprehensive guideline for developing these skills. Specifically, competences such as 1.2 ("Evaluating data, information and digital content"), 3.3 ("Copyright and intellectual property licensing"), and 5.3 ("Creative use of digital technology") serve as foundational pillars for fostering critical evaluation and creative engagement with AI-generated content. These competences are particularly relevant in teacher education programs, where the ability to discern credible information, respect copyright laws, and leverage technology innovatively are crucial for shaping the next generation of learners.

Within this context, the integration of AI tools into the curricula of Early Childhood Education (ECE) and Primary Education (PE) programs offers unique challenges and opportunities. ECE educators, who work with children aged 3–6