Chapter 5
Teacher Competencies in the Willingness to Use Artificial Intelligence Pedagogically in the Educational Process: Good Strategies for the Smart Teacher

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ABSTRACT

The purpose of this paper is to explore the teaching skills necessary to effectively integrate artificial intelligence in the educational field. An ex post facto design was

DOI: 10.4018/979-8-3373-7912-8.ch005

used with 88 in-service teachers from Cadiz (Spain). A non-probabilistic design was used intentionally, and a causal instrument was developed by the authors. The analysis revealed significant relationships across several hypotheses. First, the relationship between Anthropomorphism and Performance Expectation showed a medium effect size. On the other hand, the relationships between Emotions and Willingness to Use AI Devices, Performance Expectation and Emotions, as well as Social Influence and Performance Expectation, showed a large effect size. Regarding good practices, the findings suggest that fostering positive emotions and leveraging social influence are key strategies for increasing teachers' willingness to integrate AI in education. Developing institutional support systems, hands-on training sessions, and collaborative learning networks can enhance educators' confidence and competence in using AI tools.

1. INTRODUCTION

Currently, we live in a world where digital tools have completely transformed information management and access to data in all areas of knowledge (Saavedra, 2024). Among these tools, the development of artificial intelligence (AI) has stood out as a key driver of innovation in multiple sectors. In this sense, Villalobos (2024) points out that AI is driving an accelerated transformation at a global level, and its impact is expected to continue expanding in the years to come.

AI has become a central element of modern life, playing a transformative role similar to that of steam engines in the Industrial Revolution or computers in the Information Age (Jiang et al. 2022). For all these reasons, we believe that in 2025 AI is leading a true technological revolution and promises to redefine the future in all aspects of life, including education. The potential of AI lies not only in its ability to improve processes (Mintz et al., 2023), but also in its influence on everyday life (Lee, 2020). According to Nuin et al. (2020), AI has the power to transform fields as diverse as medicine, education, and industry. Thanks to its ability to increase efficiency and precision, this technology is consolidated as an essential tool in all fields of knowledge, including education, which is the one that concerns us in this book chapter. However, to understand its impact, it is necessary to answer key questions: what is artificial intelligence? How can it be defined? What types exist and what are its main benefits in the educational context? What factors affect the pedagogical training of teachers to use AI in the classroom with students? These questions invite us to explore more deeply one of the most promising and revolutionary technologies of our time, which we will delve into below.

There are many definitions of AI. The term AI can be defined as "a system's ability to interpret external data correctly, to learn from such data, and to use those

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Cássia Liandra Carvalho, Belem Barbosaand Claudia Amaral Santos (2024). *Research Anthology on Business Law, Policy, and Social Responsibility (pp. 866-891).*

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