

Chapter 4

ESL 4.0

A Practical Guide to Benefits, Challenges, and Best Practices for AI-Enhanced Learning

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ABSTRACT

The interest of implementing cutting-edge technology has always been potent in education. Artificial intelligence (AI) has the potential of being a ubiquitous powerful tool that promises personalized learning, adaptive curriculum, and enhanced engagement. This chapter investigates the growing attention for integrating AI in education, with a specific focus on its application in the English as a second language (ESL) classroom. Therefore, through the lens of established ESL pedagogical principles, the authors explore the potential benefits and inherent challenges of implementing AI tools into ESL classrooms, offering practical strategies and activities that highlight AI's strengths while mitigating its limitations.

INTRODUCTION: AI IN THE FIELD OF EDUCATION

This paper starts with the historical development of Artificial Intelligence (AI) in the context of education and learning technologies with major milestones achieved over the years. The origins of AI in education can be dated back to the middle of

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the twentieth century when the use of the term Artificial Intelligence was initially presented during a workshop in Dartmouth College in 1956, which may be considered as the starting point of AI in education development (Williamson & Eynon, 2020). AI's early development was concerned with emulating the ability to reason and build systems that could duplicate the procedures of human decisions, guided by an embedded knowledge base (Williamson & Eynon, 2020).

In the 1960s, a worthwhile fundamental step toward the integration of AI into education was marked by the emergence of Intelligent Tutoring Systems (ITS) as concepts for teaching that was designed to meet the individual requirements of students (Niu et al., 2022). This period also marked the use of computer-assisted instruction, that is, use of early computing technologies to support instruction (Chen et al., 2020). Nonetheless, it encountered a few problems in the past, which are called "AI winters," when its funding and popularity declined because of the unsatisfied expectations and devices' capabilities (Williamson & Eynon, 2020).

The revival of AI in education started around the year 2010 most probably due to the availability of better and more advanced machine learning models and big data. This period transitioned from simple expert systems to complex AI or artificial intelligence systems with learning capabilities and data predictive value (Williamson & Eynon, 2020). The introduction of more advanced tools such as chatbots and automated grading systems have continued to revolutionize the ways that the education procedures in tackling administrative procedures and delivering individualized learner support (Chen et al., 2020; Kamalov et al., 2023).

The current state of AI in education is filled with hope yet skepticism. Though AI is accepted by many educators as a positive force, which can foster students' learning experiences and help with the bureaucratic chores, the issues of ethics, reliability, and technology dependency are still factors to consider (Costello, 2023; Ahmad et al., 2021). For example, some studies indicate that, although AI can contribute to content design and its assessment, there is a fear among educators that it may undermine their roles or lead to a decline in teaching skills (Liu, 2023; Humble, 2023).

In addition, the integration of AI in education raises questions about equity and access, as disparities in technology availability can affect student outcomes (Ahmad et al., 2021). As AI continues to evolve, it is crucial for educators and policymakers to navigate these challenges thoughtfully, ensuring that the benefits of AI are realized while safeguarding the core values of education (Sallam, 2024).

The evolution of AI in education reflects a complex interplay of technological advancements and pedagogical innovations. Understanding this historical context is essential for framing the current discourse on AI's role in shaping the future of education.

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