Chapter 8
Teaching the Past With the Future:
AI-Supported Lesson Design for Pre-Service History Teachers

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ABSTRACT

This chapter explores the integration of generative artificial intelligence (GenAI) tools into history education, focusing on a pedagogical module developed for pre-service teachers at a public university in Turkey. It examines how GenAI can enhance teaching practices by supporting lesson planning, creating differentiated assessments, and fostering historical thinking through interactive simulations and content generation. The chapter outlines the design and implementation of a four-session teaching module, highlights participants' reflections, and discusses the potential of AI-supported educational platforms like ChatGPT, Diffit, Humy.ai, and Canva AI. It also presents empirical findings from qualitative feedback and analyzes concerns related to ethics, data privacy, accessibility, and critical thinking. The study concludes with practical recommendations for teacher educators and policymakers, emphasizing the need for inclusive access, ethical integration, and ongoing professional development to effectively embed GenAI in history classrooms.

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INTRODUCTION

Generative Artificial Intelligence and Its Use in History Education

The 21st century has initiated an era of unprecedented technological advancement that has transformed every aspect of our lives, including education. The teaching and learning processes have significantly diverged from traditional methods used in the past, with the adoption of technological tools in our country and many countries worldwide in recent years, ranging from interactive whiteboards to personalized learning platforms. Generative Artificial Intelligence (Gen AI), which has become very popular quickly, is one of these developments. Before delving into generative artificial intelligence, examining the earlier steps taken in developing artificial intelligence is helpful. As with many technologies today, the step-by-step journey of artificial intelligence (AI), from conceptual theories to practical applications, has significantly affected various sectors, especially education. The term "artificial intelligence" was first introduced during the Dartmouth Conference in 1956, marking the official beginning of artificial intelligence as a field of study (McCarthy et al., 1955). Early developments, such as the invention of the perceptron in 1958, laid the groundwork for machine learning and neural networks (Rosenblatt, 1958). At that time, a debate initiated by Alan Turing's question "Can machines think?" also found resonance in Turkey and was addressed by mathematician Cahit Arf in his 1959 lecture titled "Can Machines Think and How Do They Think?" (Arf, 1959). Arf stated that machines could approach human thought with their ability to use language, perform calculations, draw analogies, and eliminate options. However, he also drew attention to the challenges of imitating human-specific qualities such as aesthetic consciousness by machines (Sarı, 2021). Since then, artificial intelligence has evolved into more comprehensive systems.

Generative artificial intelligence is a technology that collects, analyzes, and generates human-like outputs using its algorithms. One of the earliest examples of this technology that can create new content ranging from text and images to audio and code, 'ChatGPT' has been widely adopted in many sectors since its free release in 2022 (Gökçearslan et al., 2024, p. 1). This breakthrough, which is interesting for many sectors, has continued with various companies' launch of more advanced models. To exemplify, applications such as 'Gemini,' 'Bing AI,' 'Microsoft Copilot,' 'DeepSeek' and 'Grok' have started to be used by many people. These tools, which have been used in many areas with their paid and free versions, have also been actively used in education. Although these tools present both advantages and challenges, especially in education, it has been indicated in the reports that they have quickly become an effective and significant resource in this field (UNESCO, 2024, p. 7).