

Chapter 1

Becoming AI Literate Preparing Future Educators for the Use of AI

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ABSTRACT

The introduction of artificial intelligence (AI) has become a transformative force. And the integration of AI into K-12 classrooms has the potential for being a transformative force, although that has yet to be determined. Within a short amount of time, the emergence of AI programs and tools has redefined the boundaries of teaching and learning in the digital era, and thus, future educators enrolled in teacher preparation programs need to be familiar with and understand how to use and integrate AI tools within the instructional environment. Examining how and when to utilize AI with teacher preparation candidates is explored through unpacking and providing an overview of what AI looks like in K-12 education; exploring the pedagogical shifts that are needed to utilize AI; examining the inclusion of AI tools in one specific course for early childhood/elementary education majors, as well as, the themes that emerged; and providing recommendations for the reasons that AI should be incorporated into pre-service teacher preparation programs.

INTRODUCTION

In the field of shifting educational technology, tools, and instructional strategies, teachers made the shift to online instruction due to a necessity at the start of the pandemic. This shift to online instruction happened overnight, and thus, created an immediate need to embrace online instruction (Baidoo-Anu & Ansah, 2023). The digital tools that emerged were game changers. Artificial intelligence has the

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potential to be even more impactful than online instruction in the field of education. While the use of AI in a person's daily life already ranges from chatbots to virtual assistants like Siri or Alexa, to facial recognition, and to algorithms that provide targeted ads, the emergence of generative AI in the education world is relatively new to a large part of the teaching population (van den Berg & du Plessis, 2023).

Over the past year and a half, the rise of AI programs and tools has redrawn the boundaries of teaching and learning in the digital age (van den Berg & du Plessis, 2023). As AI continues to gain traction, it is imperative for future educators to not only comprehend this new tool and its functionality but also to learn how to effectively integrate it into the classroom environment. This necessity for adaptation presents an exciting opportunity for educators to expand their skill set and enhance their teaching methods (Köprülü et al., 2023).

Generative AI's capabilities extend far beyond previously mentioned uses. Today, AI offers innovative approaches to designing lessons that can provide options for variations on lesson plan design and create activities that may engage students. Furthermore, AI may be used to develop prompts or questions that may serve as assessments and enhance critical thinking skills across diverse learning communities, which may broaden a student's future (Köprülü et al., 2023; World Economic Forum, 2023a). The use of the word "may" in the above narrative is intentional in that educators still need to know how to use these technological tools for a meaningful purpose.

Ready or not, the integration of artificial intelligence (AI) into K-12 classrooms has become a transformative force and will increase as the future unfolds (Staton & Murgia, 2023). As such, teacher preparation courses must evolve to include an introduction to and knowledge about AI applications, enabling future teachers to navigate and implement AI-driven pedagogies knowledgeably, purposefully, and confidently.

Being AI literate entails a technical understanding of AI tools and a pedagogical understanding of instructional design. This chapter seeks to:

- provide an overview of what AI might look like in K-12 education.
- explore how AI, pedagogical shifts that utilize AI, and the impact of AI as an educational tool can be incorporated into teacher preparation courses.
- examine a specific course example that integrated AI tools for early childhood/elementary educators.
- provide recommendations on how incorporating AI into preservice teacher preparation programs helps to prepare future educators to leverage this technology.

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