Chapter 3
Enhancing Public Sector Audit Education Through AI-Driven Simulations: A Systematic Review

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ABSTRACT

As artificial intelligence (AI) continues to revolutionize education, its integration into public sector auditing training represents a critical frontier. This chapter systematically reviews the literature on AI-driven simulations in public sector audit education, analyzing their efficacy, applications, and inherent challenges. A comprehensive screening of 871 studies from Web of Science and Scopus yielded 11 peer-reviewed articles, which were thematically analyzed to identify key findings. The review highlights the transformative potential of AI simulations in fostering critical skills, bridging theory-practice gaps, and enhancing decision-making in audit training. It also addresses barriers to adoption, including technical, financial, and institutional constraints, while underscoring the importance of ethical and cultural considerations. By offering actionable insights, this chapter contributes to advancing the discourse on AI's role in audit education, with implications for educators, policymakers, and practitioners.

DOI: 10.4018/979-8-3373-5550-4.ch003

INTRODUCTION

As public accountability demands grow, the need for skilled public sector auditors has never been greater. Yet, traditional training methods struggle to keep pace with today's complex audit environments. Could artificial intelligence (AI) be the catalyst for transforming how we prepare tomorrow's auditors? The integration of artificial intelligence in public sector audit education has emerged as a promising avenue to enhance educational outcomes and bridge the gap between theoretical knowledge and practical application. AI-driven simulations, in particular, offer an innovative approach to delivering real-world, scenario-based experiences that traditional audit education methods often lack. These tools provide opportunities for learners to engage with complex audit scenarios, fostering critical skills such as ethical sensitivity and decision-making, which are essential for navigating the contemporary public sector audit environment.

Despite their potential, the adoption of AI-driven simulations in audit education remains underexplored. Bhavani (2020) identified 92 AI-based simulations implemented in management education; however, only a small subset is tailored for audit-specific training. Among these, 62 were developed by private firms, and 30 were offered by universities globally, highlighting a significant gap in resources dedicated to audit education. This gap underscores the need for targeted investment and research to develop AI tools that address the unique challenges of public sector auditing. While existing studies affirm the potential of AI-driven simulations, many rely on limited case samples or lack longitudinal data, raising questions about the generalizability and sustained impact of their findings.

Audit committees play a pivotal role in ensuring transparency, accountability, and compliance within public sector governance (Ellwood & García-Lacalle, 2016). Preparing auditors to fulfill these roles necessitates rigorous training that combines theoretical frameworks with hands-on experiences (Aslan, 2021). Traditional pedagogical approaches often fail to replicate the nuanced decision-making and regulatory complexities encountered in public sector auditing (García-García et al., 2024; Gilbertson & Herron, 2014). AI-driven simulations offer a transformative solution by creating interactive environments that mirror real-world audit tasks, thus enabling students to develop the critical thinking and ethical reasoning skills required for professional practice. For instance, the National Audit Office (NAO) has conducted training sessions for its employees on artificial intelligence, illustrating practical applications of AI in audit work and highlighting its benefits and associated risks. In addition to academic studies, practical implementations of AI in audit education and training are emerging across professional contexts. For instance, Kingston Smith, a UK-based auditing firm, employs MindBridge's AI platform to analyze transaction data, identify risks, and flag anomalies, enhancing audit efficiency by