Artificial Intelligence in Nigeria and Kazakhstan Educational Systems: Transforming Teaching or Replacing Teachers?

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ABSTRACT

This comparative study examines AI adoption in Nigerian and Kazakhstani educational systems and answers the question of if AI is revolutionizing teaching practices or a threat to supplant teachers. The Diffusion of Innovation (DOI) theory and Unified Theory of Acceptance and Use of Technology (UTAUT) theoretical frameworks were adopted. The finding reveals significant disparities between the two contexts. Nigeria's AI integration remains emerging, constrained by infrastructure deficits including limited internet connectivity, high student-device ratios, and an unreliable electricity supply. Kazakhstan demonstrates more advanced adoption, supported by government initiatives like Digital Kazakhstan, superior infrastructure, and established regulatory frameworks. The study concluded that AI presents considerable potential, such as customized learning experiences, administrative efficiency, and improved access to educational materials, potentially reducing educational equity gaps, and that AI should be considered as a tool that complements rather than replaces instructors.

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1. INTRODUCTION

Artificial intelligence (AI) has the potential to dramatically transform education, but it is unlikely to replace teachers. AI automates administrative processes like grading, freeing up instructors' time to focus on more tailored and interesting lessons. Also, it helps instructors and students learn better by providing real-time feedback, allowing the strudents to comprehend ideas and identify areas for improvement (Ayanwale, Adelana & Odufuwa, 2024). It is instructive to note that the integration of Artificial Intelligence (AI) into the educational system has sparked significant discussion among education scholars, with the question often emerged whether AI will revolutionise pedagogical methods or expose education to the risk of supplanting teachers (Nwafor, 2022). This discourse has been bolstered by a growing body of research that reveals the numerous benefits of implementing AI technology in learning contexts, as well as concerns regarding teacher displacement.

Consequently, studies such as Adedoyin and Soykan (2020), Kakenov and Kuspayeva (2019), and Ayanwale et al. (2024) have demonstrated the value of AI in the teaching-learning process, serving as a catalyst for change and providing innovative approaches that can improve learning experiences, customise teaching methods, and optimise administrative functions in the educational sector. Further research has proven that AI can develop adaptable learning environments, allowing for personalised educational experiences tailored to each student's specific needs (Rashimi, 2023). Onesi-Ozigagun (2024) argues that AI can assist teachers in personalising their training to match the requirements of individual students by analysing data on student performance, learning styles, and interests. This can result in more effective and efficient learning, as well as a more tailored and interesting educational experience. In addition, the integration of Artificial Intelligence (AI) in education has emerged as a transformational force across the world, altering teaching methodologies and learning outcomes (Nwafor, 2022). This integration necessitates a shift in teaching practices, from a one-size-fits-all approach to a more personalised and student-centred approach (UNESCO, 2021).

This comparative analysis focuses on Nigeria and Kazakhstan, two nations at different stages of educational development and technological adoption. While Kazakhstan has made tremendous strides in adopting AI into its educational system, Nigeria faces challenges related to infrastructure, access, and policy implementation (OECD, 2019). The central issue lies in understanding whether AI serves as a tool to improve teaching methods or as a potential replacement for traditional teaching positions.

Despite the potential benefits of artificial intelligence in education, educators, policymakers, and other stakeholders remain unaware of its capabilities and limitations. This has resulted in a slow adoption rate of AI technology in education, limiting its potential impact on student learning outcomes (UNESCO, 2021). Although there are concerns about the ethical use of AI in education, such as the risk of algorithm bias, data privacy, and the potential of instructors' job displacement (OECD, 2019). However, AI cannot replace the emotional and social aspects of education, such as building relationships with students, fostering a happy learning environment, and offering advice and support outside of academics (Eden et al., 2024). Instructors play a critical role in these areas, and technology cannot replace the personal touch and connection that instructors bring to the classroom. This level of personalisation is essential since it accommodates various learning styles and speeds, which may contribute to enhanced student performance (Owan et al., 2023).

In Nigeria, where educational resources are low, there is concern that AI would further marginalise educators, resulting in job displacement. It is also necessary to ensure that AI technologies are accessible and affordable to all students, regardless of socioeconomic status. Conversely, in Kazakhstan, AI