Attitudes, perceptions and AI self-efficacy in K-12 education

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ABSTRACT

Access to AI-driven chatbots is triggering schools to transform. Easy access and questions of cheating are balanced against potential upsides of individual support, time savings, and the risk of falling behind. Therefore, insights into teachers' AI self-efficacy and attitudes towards the integration of AI-driven chatbots in education necessitate research. This study approaches teachers' readiness to use AI-driven chatbots. A survey and poll questions were administered, yielding 312 and 406 responses respectively, focusing on AI self-efficacy, attitudes, and perceived usefulness in education. Preliminary findings show that while teachers are generally positive about the potential of AI in education, their AI self-efficacy varies significantly based on prior use of the technology, perceived relevance, and the support available to them. The study highlights the need for internal support and targeted professional development interventions and offers practical insights for policymakers, educators, and curriculum developers to foster teacher readiness and competence in using AI-driven chatbots in their professional tasks, in and outside of class.

1. Introduction

The development and integration of AI into society has significantly influenced how we learn, interact, and work (Qian et al., 2024). Technological advancement has had a major impact on various societal levels, not the least in the educational sector. AI has become a pressing matter in education due to the growing accessibility and adoption of AI-driven chatbots. These chatbots are increasingly present in K-12 education and require school personnel, leaders, and teachers to adapt (Viberg et al., 2023). Chatbots present both opportunities and challenges, as they can offer individualised support and time-saving benefits, but their use also raise concerns, for example, regarding privacy, impact on student learning, and didactic challenges relating to assessment and chatbot-integrated learning designs (e.g., Labadze et al., 2023). Among the most discussed and accessible AI tools are the AI-drive chatbots, such as OpenAI's ChatGPT,[1] Google's Gemini, and Microsoft's Co-pilot, all increasingly used in educational settings (Druga et al., 2022). These chatbots can offer immediate support to both teachers and students. However, integrating AI in K-12 education should be viewed as a means to enhance and support learning across various subjects rather than as a stand-alone topic (Crompton et al., 2022). Effective integration of AI in education requires thoughtful consideration of pedagogical approaches and curriculum design (Casal-Otero et al., 2023). In addition, there are several factors influencing teachers' readiness to incorporate AI, including their confidence in technology use and its perceived relevance to their teaching practices (Brookings Institution, 2023). Teachers' attitudes towards AI are critical in determining its effectiveness in the classroom (Zawacki-Richter et al., 2019). Consequently, it is essential to provide teachers with professional development (PD) opportunities focusing on AI in education and its integration into the curriculum (Zhai et al., 2021). PD initiatives can empower teachers and school personnel and enhance their ability to utilise AI effectively as schools need to prepare their students for future job markets and societal roles. By equipping teachers with the necessary knowledge and skills, they can guide students in developing AI literacy and using AI tools appropriately for learning (Dennison et al., 2024). Providing support, resources, and training to build teachers' self-efficacy in AI education is therefore critical (Ayanwale et al., 2022). Understanding how AI self-efficacy varies across subjects and educational levels can help design targeted PD initiatives tailored to address the specific needs and challenges teachers and other school personnel face when using GAI (Chiu & Chai, 2020). Although the potential benefits of broader AI applications in education have been recognised (e.g., Bond et al., 2024; Okonkwo & Ade-Ibijola, 2021) these studies also point out that there is a scarcity of

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