Chapter 10
Enhancing Special Education Through Artificial Intelligence: Study in a UAE Autism Rehabilitation Center

Shamsa Ali Almarzooqi
https://orcid.org/0009-0000-9444-5403
Al Ain Autism Center, Zayed Higher Organisation, Al Ain City, UAE

Ahmed Hamdan
https://orcid.org/0000-0002-8225-2310
United Arab Emirates University, UAE

Nada Obaid
United Arab Emirates University, UAE

ABSTRACT

This study explored how special education teachers in an autism rehabilitation center in the United Arab Emirates integrate artificial intelligence (AI) tools into their professional practice, highlighting benefits and challenges. A qualitative descriptive design was employed, combining pre-and post-workshop questionnaires (N=56) with in-depth interviews of 12 teachers selected for their active use of AI. Findings revealed that teachers utilize AI for lesson planning, behavior management, administrative tasks, and creative instructional strategies, substantially reducing preparation time. Despite these advantages, participants voiced concerns regarding privacy, data security, cost, and limited accuracy of AI-generated content. They stressed the necessity of combining AI outputs with professional judgment. The

DOI: 10.4018/979-8-3373-0573-8.ch010

study underscores the importance of structured professional development, robust data protection policies, and equitable access to AI technologies.

INTRODUCTION

Artificial Intelligence (AI) has gained momentum worldwide as many governments are adopting AI applications in various fields such as healthcare, energy, transport, education, and finance. In the United Arab Emirates (UAE), the National Strategy for AI shed light on the strategic objectives and the main sectors that the UAE will focus on in the upcoming years to achieve the millstone set by the leaders of the country to become the AI world's leader by 2031 (UAE National Strategy for Artificial Intelligence 2031, 2018). The education sector is one of the fields that will have tremendous advancements in utilizing AI applications to revolutionize the current educational technologies in schools and universities.

Moreover, the role of AI in transforming education has gained substantial attention in recent years, particularly in its potential to support inclusive education practices. The increasing integration of AI into educational practices transforms how educators deliver instruction and manage their responsibilities (Hashem et al., 2023; Lin & Schmidt, 2023). As educational systems strive to meet the needs of increasingly diverse student populations, using AI to support teachers and students with disabilities has emerged as a critical area of research and development (Mondal et al., 2023; Rakap, 2024). Special education teachers frequently encounter challenges in crafting individualized learning plans, managing student behavior, nurturing social-emotional development, and promoting inclusivity in the classroom (McGuire & Meadan, 2022; Mullen & Hunt, 2022; Rashid & Wong, 2022; Smith et al., 2018). This study explored AI's role in supporting special education teachers working in rehabilitation centers in the UAE, focusing on how AI tools and strategies can enhance their effectiveness in meeting diverse learning needs.

AI applications imitate human behavior and use computer programs to perform complex human tasks such as learning, analyzing, adapting, and synthesizing (Popenici & Kerr, 2017). AI incorporates problem-solving skills with Science, Technology, Engineering, and Mathematics (STEAM). It amalgamates knowledge of various disciplines and technologies, making it expedient in educational contexts (Gabriel, 2024).

The importance of AI in education is prevalent because it allows educators to explore their students' potential through personalized learning. AI personalization features will enable educators to tailor educational content according to their students' needs and strengths (Hopcan et al., 2023). In addition, AI can enhance teaching and learning activities, classroom exercises, and homework and improve