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Robot-Assisted Intervention for Autistic Children: Enhancing Social Interaction and Communication Skills in the UAE

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Abstract

A major criterion for diagnosis in children with autism spectrum disorder (ASD) is deficits in social interaction and social communication. Educational robotics (ER) has been proven an effective strategy that can foster the development of social communication and social interaction skills for children with ASD. Specifically, interventions using ER can assist children with ASD in positively improving social interaction and communication skills such as teamwork, collaboration, turn taking, sharing, and join attention. The efficacy of ER-focused interventions for children with ASD remains under-researched within the specific cultural and educational landscape of the United Arab Emirates (UAE), leaving a significant gap in the local literature. This study sets out to investigate the impact of a Robot-Assisted intervention for children with ASD in improving social interaction and communication skills. A mixed-methods explanatory sequential design will be implemented. The study participants consist of six autistic children aged between the ages of 5 and 7 years old. The intervention will be delivered by an expert therapist in individual sessions twice a week for 12 weeks, using an existing AI-powered educational robot. Pre- and post- intervention data will be collected using the following standardized assessments: 1. Gilliam Autism Rating Scale, 3rd Edition (GARS-3; Gilliam, 2013), 2. Motor Behavior Checklist (MBC, Estratopoulou, 2024). All instruments were validated in Arabic, within the context of the Gulf States. The findings aim to explore if robot-assisted therapy is a promising field of application for intelligent social robots, especially to support autistic children in achieving their therapeutic and educational objectives.

Keywords: Autism Spectrum Disorder (ASD); Educational Robotics (ER); Robot-Assisted Intervention; Social Communication; Social Interaction