

The Use of Robots for Children and Young People on the Autism Spectrum: A Systematic Review

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Abstract : Existing research highlights the effect of employing robots in sessions with children and young people on the autism spectrum to develop and practice skills important to independent and functional living. The systematic review aimed to explore the way robots has been used with children and young people on the autism spectrum and the effect of using robots as a therapeutic interface. An electronic bibliographic database search using a combination of expressions was conducted. Data were extracted in relation to robot types, session characteristics, and outcomes and analysed using narrative synthesis. Forty studies were selected in the review. Humanoid robots were predominantly used to practice a range of social and communication skills. On average, children and young people on the autism spectrum had five sessions, twice a week, for approximately half an hour. Having sessions with a robot was commonly equal to or more effective than 'traditional' interventions delivered by a human therapist or having no therapy. The review reported encouraging outcomes to practice and develop a range of skills with children and young people on the autism spectrum. These findings suggest that some form of intervention is favourable over no intervention. However, there is little evidence for the relative effectiveness of the robot-based intervention as an innovative alternative option. Many of the studies had methodological weaknesses that make them vulnerable to bias. There is a need for further research that adheres to strict scientific methods making direct comparisons between different treatment options.

Keywords : autism, children, robots, outcomes

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