

# Chapter 12

## GenAI and Robots in Autism Spectrum Disorder: A New Frontier in the Age of Human–AI Interaction

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### ABSTRACT

*The rapid advancement of Generative Artificial Intelligence (GenAI) and social robotics presents exciting possibilities, particularly in the education of children with Autism Spectrum Disorder (ASD). ASD is a complex neurodevelopmental condition*

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*that impacts communication, behavior, and social interactions, and traditional educational methods often struggle to meet the unique needs of these individuals. GenAI-powered robots offer innovative solutions by creating personalized learning experiences, adapting to each child's pace and style, and fostering social and emotional skills. These robots can also serve as social companions, enhancing engagement in ways that traditional methods may not. While the integration of GenAI and social robots in ASD education holds great promise, it also raises ethical and privacy concerns. Ensuring these technologies are inclusive and respectful of all learners' needs is crucial. In conclusion, GenAI-powered robots represent a groundbreaking step in special education, offering significant potential to support children with ASD.*

## **INTRODUCTION**

Technology is no longer just a tool; it has become an element that shapes human life and is in constant interaction with it. In particular, technologies such as generative artificial intelligence (GenAI) and social robots are no longer just systems that provide information, but are becoming structures that directly influence the human emotional world, ways of thinking, and social relationships (Turkle, 2011). When evaluated in the context of human-machine interaction, this transformation is not merely a technical advancement; it is also a philosophical turning point that requires us to reexamine our assumptions about what it means to be human (Verbeek, 2005; Ihde, 1990).

The relationship between humans and machines has been defined for many years in terms of human thinking abilities. Descartes' statement, "I think, therefore I am," emphasized that reason was the fundamental quality that distinguished humans from machines. However, today's artificial intelligence systems are not merely calculating machines; they are systems that learn, adapt to their environment, and respond to it. This has fundamentally altered the nature of the interaction between humans and technology (Bozkurt, 2023a; Dumas et al., 2009; Garcia et al., 2025a).

Philosopher Peter-Paul Verbeek (2005) emphasizes that technological objects are not merely tools used by humans, but also "actors" that play a role in shaping human actions. This perspective removes technological objects from passivity and gives them meaning within a cultural and ethical context. Don Ihde (1990), on the other hand, approaches the human-technology relationship from a phenomenological perspective, interpreting this interaction as a sensory and experiential unity. For example, making eye contact with a robot or chatting with an artificial intelligence is not merely a mechanical experience but one that is rich in meaning (Turkle, 2011).

One area where this transformation in education has found a particular resonance is special education. GenAI and social robots provide solutions to individual needs

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