# Chapter 1
# Socially Assistive Robot Use in the Classroom as Robot Assisted Interventions

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## ABSTRACT

*Socially assistive robots can play a helpful role in the classroom. The robot's ability to lead and engage students in interactive learning experiences can be used to support students who have trouble accessing the academic program. The assistive nature of the robot can make the curriculum accessible to students with special abilities. The robots are particularly helpful with students who have social challenges and can offer corrective instruction patiently and positively. These are examples of the unique abilities of robots that interact socially with students. They can mimic specific aspects of human behavior by changing their facial expressions, making specific gestures, and changing their speech. Research has shown many of the positive effects of this assistive technology. Although research in this area has been going on for over a decade it is still a very young technology. There are many opportunities for beneficial interactive activities that have yet to be developed with this growing technology. This chapter describes the basics of robot assisted interventions and their application in the classroom. Practical information about implementation is offered with a discussion of the research behind the robots and the evidence-based practices that the activities are based on.*

## INTRODUCTION

The varying needs of different students within the school system require multiple teaching tools. These tools can help bring the educational curriculum to the student. Socially Assistive Robots (SAR) offer a robust tool set that can be used to engage, educate, entertain, and even calm a student who has Intellectual and Developmental Disabilities (IDDs), particularly autism spectrum disorder (ASD). SAR have a unique set of capabilities that enable them to reach students who are not responding to traditional techniques or who find interacting with people difficult or distressing. Robots can be used in many ways to support learning and education. We will restrict our discussion to the use of robots as social actors that interact with students directly and lead them through beneficial activities. This type of interaction is defined as Robot Assisted Interventions (RAI). The robots interact with the children socially through speech and gestures, leading them through many distinct kinds of educational activities. The topics delivered by the robot should use situations that are relevant to the individual learner. These interactions offer an opportunity for social skills teaching through instruction, practice, and play. There are many excellent SAR systems available for use in the classroom today. These systems take advantage of many different technologies that give them unique capabilities.



## WHY ROBOTS?

The vast majority of children-and adults- love robots. Both typically developing individuals and those on the autism spectrum are engaged by interacting with the robots (Robins, B., Daughtenhahn, K., Dubowski, J., 2006) (Toh, L. P. E., Causo, A., Tzuo, P. W., Chen, I. M., & Yeo, S. H., 2016). Children and adults with ASD respond particularly well to the robots. The robots are animate, like people, but they

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