

Child–Robot Interaction in Education

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Abstract

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Advances in the field of robotics in recent years have enabled the deployment of robots in a multitude of settings, and it is predicted that this will continue to increase, leading to a profound impact on society in the future. This thesis takes its starting point in educational robots; specifically the kind of robots that are designed to interact socially with children. Such robots are often modeled on humans, and made to express and/or perceive emotions, for the purpose of creating some social or emotional attachment in children. This thesis presents a research effort in which an empathic robotic tutor was developed and studied in a school setting, focusing on children’s interactions with the robot over time and across different educational scenarios. With support from the Responsible Research and Innovation Framework, this thesis furthermore sheds light on ethical dilemmas and the social desirability of implementing robots in future classrooms, seen from the eyes of teachers and students. The thesis concludes that children willingly follow instructions from a robotic tutor, and they may also develop a sense of connection with robots, treating them as social actors. However, children’s interactions with robots often break down in unconstrained classroom settings when expectations go unmet, making the potential gain of robots in education questionable. From an ethical perspective, there are many open questions regarding stakeholders’ concerns on matters of privacy, roles and responsibility, as well as unintended consequences. These issues need to be dealt with when attempting to implement autonomous robots in education on a larger scale.