Team Roboto
Kristy Chen, Laura Dickinson, Kelly Xu, and Stephanie Yu
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As we found in our investigation of social robots assisting children in learning appropriate behaviors, robots like Milo have many benefits to supporting children’s learning in ways that were not attainable before. However, there are also many questions that are raised with the introduction of this technology in our lives. Though social robots provide new kinds of treatments, we question the effectiveness in terms of replacing human interaction with robots. We are also concerned with the level of control that robots have in our lives, as they are now teaching us behaviors. Overall, we think there are many advantages to social robots like Milo but we have concerns about the future trajectories of this technology if there is not careful use and understanding of the implications of such robots.

Social robots like Milo are able to connect with children with autism through the strategic implementation of exaggerated facial expressions, playful gestures, and a screen with flashing videos. Often times, children with autism have issues with staying focused and maintaining conversation. Milo solves this problem through the integration of sophisticated technology targeted to keep children engaged. Even the friendly and childlike appearance of Milo appeals to children, helping them engage with Milo as if the robot was a friend. In this way, technology like Milo benefits children immensely to help children interact and learn social behaviors while staying engaged but also having a fun time. We should continue designing for diverse audiences to help understand how they learn rather than forcing them to learn through one traditional way. There are many benefits to using new technology like Milo in understanding how we can help cater education and therapy to specific individuals for more success and depth.

Even though we have discovered many benefits of therapeutic robots in our research, we also found lots of social and ethical concerns. Two main ethical issues we have focused on are loss of human contact and level of autonomy and control. As technology advances, our society is facing a huge topic of people losing quality human interaction. We have heavily relied on social medias, smartphones, and even more, artificial intelligence robots but essentially, humans are built for relationships and social interactions. We are concerned that dependence on technologies, specifically on robots, will result in losing social contacts. Therapeutic robots are designed and developed to be responsible for daily life activities and dull tasks to ease the burden of therapists and caregivers. Undoubtedly, using robots to take over the tasks are beneficial and convenient. Yet, these boring task actually provide a valuable opportunity for human interaction. The more children rely on robots, the more they lose real human contact. This is definitely an issue that cannot be neglected. The point of using robots to teach children with autism is to encourage them to recognize facial expressions and communicate. The therapies help them to
gradually adapt to the real world to speak out. However, as children have become accustomed to only communicating with robots, they are losing real social interactions and we are uncertain if children can function as well in the real world as they do with robots or in a virtual world.

The issue of how much autonomy and control a robot should have is a concern for the public because there are consistent concerns of how human a robot should become. Throughout history, we have always programmed robots to do what they were told and to only obey the rules that were implanted into them but as the development of robots and their capabilities intensify, there’s a question of how much control will they have. In terms of Milo and other therapeutic robots, the robot is teaching people how to behave like humans. This concept flips the story of how we tend to view robots and the concept that they can become smarter than us and think on their own is scary. At this moment, if we were to give robots full control of their own autonomy, there is no telling what will occur. They would not have their own emotions, making their decision making process only based on logic, which can be better or worse than human judgement. But in the end it is unpredictable what what types of logic they will react off of.

With therapeutic robotic treatment being such a new field, more research needs to be done on its effectiveness and if there are any unforeseen future consequences because of it. Specifically, researchers should focus on longitudinal studies. Researchers should also repeat studies that have already been conducted to confirm existing findings.

One of the biggest unknowns moving forward are the physical appearance of the robot. The less humanoid the robot is, the easier it is for someone with autism to feel comfortable approaching and interacting with it. However, the more humanoid the robot appears, the higher the chance the patient will generalize lessons to real social situations. One of the most interesting solutions to this dilemma is a robot that would have interchangeable design attributes. As the patient progresses in their therapy, their robot would become more realistic. This way, the therapists do not have to decide whether they want to risk approachability or generalizability.

Since Milo has been proven to help children, especially those who have troubles interacting with therapists, such robots may likely be used in the future in more realistic ways to continue breaking barriers with children with many other disabilities. Our team believes robots should not replace human interaction but should be used as a supplement, so we advocate in the future for careful use and awareness of the effects that social robots will have on our society moving forward.