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Toddlers and Robots? The Ethics of Supporting Young Children with Disabilities with AI Companions and the Implications for Children's Rights

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Notes From The Field

Toddlers and Robots? The Ethics of Supporting Young Children with Disabilities with AI Companions and the Implications for Children's Rights

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Abstract

Rapid advancements in Artificial Intelligence (AI) pose new ethical questions for human rights educators. This article uses Socially Assistive Robots (SARs) as a case study. SARs, also known as social robots, are AI systems designed to interact with humans. Often built to enhance human wellbeing or provide companionship, social robots are typically designed to mimic human behaviors. They may look endearing, friendly, and appealing. Well-designed models will interact with humans in ways that feel trustworthy, natural, and intuitive. As one of the fastest-growing areas of AI, social robots raise new questions for human rights specialists. When used with young children with disabilities, they raise pressing questions around surveillance, data privacy, discrimination, and the socio-emotional impact of technology on child development. This article delves into some of these ethical questions. It takes into account the unique vulnerabilities of young children with disabilities and reflects on the long-term

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societal implications of AI-assisted care. While not aiming to be comprehensive, the article explores some of the ethical implications of social robots as technologies that sit at the boundary of the human and nonhuman. What pitfalls and possibilities arise from this liminal space for children's rights?

Keywords: Artificial Intelligence, young children, disability, children's rights, technology

> *"I picture a young child, alone in a sterile hospital room, surrounded by beeping machines and unfamiliar faces. It's a scenario that no parent wants to imagine. Yet, it's a reality for many families of children with disabilities. Now I imagine that same child, smiling and engaged, playing games and learning alongside a tireless, friendly, and unfailingly patient companion. What if this companion was not a human caregiver, but a robot? Would this revelation spark wonder? Fear? Hope? Repulsion? Perhaps a mix?"*
> (Extract from my researcher journal, December 5, 2022)

What ethical questions arise from trying to meet human rights through nonhuman care? The rapid advancement of Artificial Intelligence (AI) poses new debates and challenges for human rights education (HRE). Interrogating how technology affects human rights has been deemed an urgent agenda (Risse, 2019). In turn, HRE scholarship has emphasized the need to go beyond hyperbole and sensationalism around advancements in AI and attend to its often-forgotten human dimension (Holmes et al, 2022). In tandem, ethical design specialists have called for cutting-edge technology to prioritize users' long-term wellbeing (Peters et al, 2020). In this respect, the growth of Socially Assistive Robots to support young children with disabilities raises new questions about children's rights and the rights of those with disabilities.

My previous research on nurturing young children's wellbeing has explored strategies for an ethic of care that is inclusive (Kurian, 2023) and trauma-informed (Kurian, 2022). My current research draws on Benjamin's (2019) concept of the socio-technical imaginary. The socio-technical imaginary weaves together the societal and the scientific. A new device or invention is never simply technical; technology can alter the fabric of society, sway

our emotions, and reshape our worldviews. The socio-technical imagination enables us to connect present realities and possible futures, by appreciating "the creative, even beautiful dimensions of liberatory design, as well as its risks and pitfalls" (Benjamin, 2019, p. 11).

Early Childhood Education (ECE) has not historically been at the forefront of technological innovation. A recent review of AI[1] in ECE observes that, despite the surge of interest in AI in education, there is "a lack of knowledge and discussion on the role of AI in ECE, an educational area which is usually ignored in cutting-edge research" (Su & Yang, 2022, p. 2). Yet, AI innovations for young children have been growing rapidly (Jung & Won, 2018). In particular, Socially Assistive Robots have gained increasing attention as potential companions to support the learning and development of children with disabilities.

To explain the key term used in this article: Socially Assistive Robots (SARs) are also known as social robots. Autonomous or semi-autonomous, they interact and communicate with humans, emulating human norms of behavior (Henschel et al, 2021). Social robots perhaps come closest to the popular imagination of the "walk-and-talk" robot immortalized in film and television. Their key aim is to assist humans through social interaction. Hence, they are typically designed to look, sound, and feel like a non-judgmental, non-threatening presence (Bedaf et al., 2015). They can be humanoid (human-like in appearance and behavior) or take on other forms (e.g., animatronic characters). They may have an endearing or appealing appearance to foster human-robot bonding (Shneiderman, 2022). Using this type of AI to promote human well-being is often a theme in SAR research; for example, the outbreak of the COVID-19 pandemic triggered some SAR researchers to examine how social robots could mitigate loneliness (Odekerken-Schröder et al., 2020).

[1] AI (Artificial Intelligence) essentially signifies the simulation of human intelligence processes by computer systems. These processes include learning (acquiring information and rules to use it); reasoning (using these rules to draw conclusions); and self-correction (being able to improve and learn from errors). This helps AI perform complex cognitive tasks – for example, recognizing speech, making decisions, and translating languages.

While social robots are currently too expensive for most schools and households, they are one of the fastest-growing areas of AI. They have already been used as companions for vulnerable populations such as the elderly, dementia patients, and rehabilitation therapy clients (Fosch-Villaronga & Albo-Canals, 2019). A priority in SAR engineering is to work towards low-cost models, and affordable social robots may thus become more common in the future. This poses new ethical questions. Recent reviews of AI in ECE note the surge of social robots designed for young children (Jung & Won, 2018; Toh et al., 2016). The rationale has been that social robots offer several advantages. They cannot become tired or impatient; they offer predictable and repetitive support; and they can be programmed to seem friendly and empathetic (Ishak et al., 2019). Evidence is emerging about young children finding social robots entertaining and making learning gains: for example, social robots have been found to improve toddlers' vocabulary (Movellan et al., 2009).

Disability-inclusive innovations include using a humanoid robot to teach young children with autism about emotions through games and songs (Shamsuddin et al., 2013); and help them communicate (Romero-García et al., 2021); and imitate actions, follow instructions, name objects, focus, and match colors (Ishak et al., 2019). This use of AI is certainly innovative. If such support can help combat learning disparities in early childhood, then social robots could help fulfill the right of children with disabilities to learn on par with their peers (Article 10, U.N. Convention on the Rights of Persons with Disabilities, 2006) and the right to assistive technology that promotes their independence (Article 20).

The capacity of social robots to offer patience and unstinting care is also noteworthy. Depictions of the "soulless robot" are rife in popular culture. However, simplistic dismissals of AI or quick judgements about human care being inevitably superior might overlook the fact that ECE has its own tragic stories of human-led neglect, exploitation, and abuse. It is at the hands of human carers that young children with disabilities, rendered doubly powerless by their age and their disability, have suffered disproportionately high rates of physical, emotional, and verbal abuse. Even in everyday situations, these children are at risk of encountering frustrated or impatient adults; they

cannot always access the sensitive and responsive care they deserve (Rimm-Kaufman et al., 2003). It thus seems simplistic to caricature AI as inevitably inadequate compared to human care. When considering the rights of young children with disabilities, any system designed for unwavering patience and consistent care seems worth considering.

Nevertheless, the ethical pitfalls of social robots merit careful consideration. As one review of social robots observes, "technology has a profound and alerting impact on us and our human nature" (Fosch-Villaronga & Albo-Canals, 2019, p. 77). It becomes pertinent to ask whether social robots risk infringing upon children's rights to privacy (Article 16, UN Convention on the Rights of the Child, 1989). After all, social robots are typically designed to *feel* trustworthy. A recent study found that children shared more personal information with a social robot than human interviewers (Abbasi et al., 2022). The study employed a famous humanoid robot from Japan—the Softbank Robotics NAO robot, which has an endearing, childlike demeanor. Researchers concluded that the children felt that they might get into trouble by confiding in adults, but that the robot seemed safe and non-judgmental (Abbasi et al., 2022).

The ethical implications are complex. On the one hand, social robotics explicitly acknowledges the need for children to feel comfortable and safe with AI (e.g., Ishak et al, 2019);—questions of human rights and wellbeing have not been ignored. On the other hand, concerns around data privacy when using social robots are not fully resolved (see Fosch-Villaronga & Albo-Canals, 2019). Social robots are capable of recording, processing, and storing every interaction with a child. In fact, to effectively adapt to social interaction, it is *useful* to equip social robots with high-fidelity sensors, cameras, and processors that collect behavioral data (e.g., where a child is standing, where they direct their gaze, and what words they utter). This helps the robot continually monitor and analyze their human interaction partner's behavior and adapt accordingly (Henschel et al., 2021). In other words, the capacity of social robots for constant surveillance is a feature, not a bug. A robotics engineer might reasonably point out that collecting this behavioral data is

precisely what helps a social robot *be* social—in the same way that a smartphone needs to collect location data to make its GPS function work.

However, from a human rights lens, we can question: who has access to this data? How is it being used? Can a young child truly be said to be providing informed consent to sharing their data, given that even adults and experts are struggling to work out the data privacy ramifications of social robots? (see Fosch-Villaronga & Albo-Canals, 2019). Children with disabilities may need vigilant data privacy protections, as they may be more likely than their peers to suffer social isolation and become dependent on seemingly trustworthy sources of support. For context: research suggests that these children may struggle to gain peer acceptance for a range of reasons. These include stigmas around disability, cognitive impairments that make it difficult to follow social cues, and physical impairments that hamper participation in the same peer socialization activities (e.g., sports) that other children can enjoy (Kwan et al., 2020). Consequently, young children with disabilities might become socially isolated or at risk of bullying (Rodriguez et al., 2007).

If deprived of robust social support, such children might be more likely to bond with an AI companion, especially since social robots are designed to feel safe and non-judgmental (Bedaf et al., 2019). If children feel a sense of solace as a result, then this might count as a positive well-being outcome. However, how their data is stored remains controversial, particularly if children with disabilities share highly sensitive information (e.g., a personal disclosure about their home life) or lack the knowledge to provide informed consent. It has been long acknowledged that children with disabilities are particularly vulnerable to being exploited, and the youngest children more vulnerable still. It thus becomes urgent to address the ethical challenges that social robots pose for child safeguarding.

If caregivers come to rely on robots to care for children with disabilities, then the psychological consequences of social robots for child development and wellbeing also merit consideration. Ethical design experts have stressed the need for robotics engineering to address the ambiguous ethical terrain of user wellbeing as well as questions of functionality (Peters et al, 2020). For example, if children spend time with a companion programmed

to always be agreeable, would they learn how to resolve conflicts with human peers? Would social robots provide short-term comfort but hinder long-term socialization with human peers?

Of course, AI and human support can coexist. However, the way our societal scales tip between the human and the technological reflect our values; "we shape our tools, and then our tools shape us" (Holmes, 2020, p. 21). "Caring technologies" have been problematized for changing our cultural norms around *who* is responsible for caring labor (Mackereth, 2019). If social robots are always patient and tireless, would our collective sense of obligation to support the youngest and most vulnerable citizens diminish, thereby "outsourcing" our ethic of care?

AI scholars have suggested that in order to be truly human-centered and in the interests of human welfare, AI should only be used "when it is the best solution to the problem or has something unique to offer" (Hartikainen et al., 2019, p. 7). Does funding social robots to support children with disabilities distract from the responsibility of human educators to promote and model inclusion, what Bajaj (2018) memorably calls our "transformative agency" to address the "gaps between rights and realities" (p. 16)? After all, what it means to have a disability is not simply a static biological reality. It shifts and changes with "evolving legal, political and social discourses" (Singal, 2010, p. 418). It seems important, therefore, to prioritize children's rights to "wellbeing-supportive design" (Peters et al, 2020, p. 38)—rather than coming to see AI as a means to abdicate human responsibilities.

Above all, the voices of young children themselves deserve consideration. Human rights education has consistently advocated for listening to young people. It seems crucial to fulfill their right to have their voices heard in decisions that affect them (Article 12, UN Convention on the Rights of the Child, 1989), given gaps in our knowledge about how children actually respond to social robots. Despite the rapid advancement of social robots, reviews suggest that their long-term effectiveness is not yet clear (Scoglio et al., 2019). Within education, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has pointed out the "lack of systematic studies" investigating the impact of AI on children (UNESCO, 2019, p. 9). What

we do know is that concerns and fears about robots continue to be reported in research on educators' perceptions of AI (Reich-Stiebert & Eyssel, 2016; Reich-Stiebert & Eyssel, 2015; Serholt et al., 2014, 2017).

Human rights education thus has a valuable opportunity to prioritize children's voices and build a robust, child-centred evidence base on AI. Participatory processes of seeking user input have been emphasized as key to human-centred design (Peters et al, 2020). This is especially important for children with disabilities, who are doubly at risk of being overlooked. For one, people with disabilities have historically been "made invisible" in policy and research (Singal, 2010, p. 2). For another, young children who are often perceived as unable to express their views. However, research suggests that young children may be more capable of expressing their preferences than we assume (Cremin & Slatter, 2010; Kurian, 2023), and understanding their needs, hopes, and concerns about social robots is vital for their sustainability and value.

Cutting-edge technology can thus only be enriched by recognizing "the importance of including children in the design of robots for which they are the intended users" (Obaid et al., 2015, p. 502). In the pithy words of one AI specialist, "involve the user!" (Reich-Stiebert et al, 2019).

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