



Ethics of Emerging Communication and Collaboration Technologies for Children

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ABSTRACT

This SIG will provide child-computer interaction researchers and practitioners, as well as other interested CSCW attendees, an opportunity to discuss topics related to the ethics of emerging communication and collaboration technologies for children. The child-computer interaction community has conducted many discussions on ethical issues, including a recent SIG at CHI 2023. However, the angle of communication and collaboration has not been a focus, even though emerging technologies could affect these aspects in significant ways. Hence, there is a need to consider emerging technologies, such as extended reality, and how they may impact the way children communicate and collaborate in face-to-face, remote, and hybrid (mixed-presence) contexts. This SIG will be an opportunity to discuss methods to consider these ethical concerns, properties of emerging technologies that may affect communication and collaboration, considerations for deployment of these emerging technologies, and future scenarios to ponder.

CCS CONCEPTS

• **Human-centered computing** → Human computer interaction (HCI); • **Social and professional topics** → User characteristics; Age; Children;

KEYWORDS

children, ethics, emerging technologies, extended reality, participatory methods

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1 INTRODUCTION

Technologies play an increasingly ubiquitous role in children's lives. This phenomenon has been well-documented through surveys, such as those by common sense media [11], with the expectation that prior trends accelerated during the COVID-19 pandemic [15]. While device use by children has mostly involved mobile touchscreen devices [11], there are emerging technologies which are beginning to see use, such as extended reality, smart speakers, and smartwatches [11]. These uses have come together with concerns and hopes about children's communication and collaboration. On the one hand, technologies have the potential of socially isolating children, taking time away from communicative, collaborative activities that could occur face-to-face, where attention is paid to the social environment surrounding the child. On the other hand, technologies have long provided ways for children to connect remotely with friends and family, enabling novel opportunities for communication and collaboration. Emerging technologies have the potential of amplifying these hopes and concerns.

Past related SIGs at other conferences have focused on other aspects of ethics, such as the impact of big data and surveillance of children [6, 7]. While closer to this topic, a recent SIG at CHI 23 focused primarily on participatory methods to consider the ethics of emerging technologies for children [4]. None of these prior meetings focused on communication and collaboration or sought to directly involve the concerns and expertise of the CSCW community.

2 INFLUENCES ON ETHICAL PERSPECTIVES

Ethical perspectives in science are typically informed by foundational documents, such as the Declaration of Helsinki [1] and the Belmont Report [12], which provide basic guidance on ethics. These, however, mostly arose out of concerns with medical research and provide high level advice, rather than specifics that could address issues related to communication and collaboration. They also do not address the quickly changing landscape presented by emerging technologies, where it is difficult to predict future uses and their consequences.

In terms of children's technologies, the public discourse on ethics has been dominated by non-profit organizations [10], professional associations outside of computing [3], individual academics [13], government policies [17], and international organization guidelines [8]. Again, these actors have often omitted from these discussions issues of communication and collaboration. Despite some efforts within the child-computer interaction community [14], its perspectives have largely not played a role in public debates about the role of emerging technologies in children's lives. Voices from the CSCW community with an interest in ethics (e.g., [16]) would also be important to these debates. What the broader human-computer interaction community can bring is a human-centered perspective that includes children and stakeholders, something that has been largely missing.

3 THE IMPORTANCE OF CONSIDERING THE ETHICS OF CHILDREN'S TECHNOLOGIES

Children are a very important population to consider with respect to ethics and technology. The reason is that development occurs very quickly during childhood (more so during early childhood) [9] and technologies are increasingly a part of children's ecosystem, regulating in part how they interact with other people and how they get to know the world. Hence, the wrong kinds of experiences with technologies could negatively impact children's development, potentially having a greater impact in their lives than the same experiences could have on an adult. We argue then that it is of utmost importance to consider the ethics of emerging technologies for children. In addition, since impacts on communication and collaboration affect how children interact with family, friends, and other people in their lives, we propose that this is one of the most relevant aspects to consider.

4 THE CHALLENGE WITH EMERGING TECHNOLOGIES

Emerging technologies pose the obvious challenge that it is very difficult to predict who will use them and how, with the high likelihood of unintended and unexpected uses [2, 5]. A further challenge is that how emerging technologies are used can change relatively quickly. These two challenges point at the need for different approaches in assessing the ethics of emerging technologies when compared to well-established technologies.

Ethicists have already thought about these challenges and provide examples of combinations of approaches to manage them. We believe Brey's list of approaches are well suited for emerging technologies [2]. These approaches include first, thoroughly examining the properties of technologies and assessing potential ethical issues based on these properties (e.g., the need of the technology to collect large amounts of data in order to function). Second, developing scenarios that anticipate a range potential future uses to enable feedback and risk-benefit analyses (e.g., elementary school children asking a system using a large language model to do their homework). Third, to think of the deployment of emerging technologies as a social experiment that should go through an ethics board review (e.g., would it have been ethical for researchers to deploy ChatGPT as part of a social experiment?). Brey's fourth and final approach is quite compatible with human-computer interaction

because it is about using participatory methods to gain insights on ethics from stakeholders. Brey is particularly positive about this approach because it can be combined with any of the other three approaches (e.g., getting feedback from stakeholders on a variety of potential future uses of a technology).

While some work has been done using some of these methods [14], much more remains to be done in order to address the many ethical concerns with respect to emerging technologies for children, including a special consideration surrounding issues related to communication and collaboration.

4.1 Example: Extended Reality Technologies

Extended reality technologies are an example of an emerging technology for children. While virtual and augmented reality have been in use by adults for some time, there is no widespread use by children (yet), and this technology is still quickly changing. It is difficult to predict the extent to which these technologies will be used by children (in particular pre-teens) and how they will be used. Extended reality technologies are also relevant to issues of communication and collaboration. Under some uses, they could potentially completely isolate children from those around them, through full immersion in a virtual reality experience. Other uses could augment face-to-face communication and collaboration (through augmented reality) or provide a much greater level of presence for remote communication and collaboration.

An application of Brey's methods would therefore include working with stakeholders (including children!) to investigate the properties of extended reality technologies (e.g., data collection, sensory requirements), potential future uses (e.g., augmented reality in the classroom), and consideration of a broad release of these technologies as a social experiment (e.g., would it be ethical to give every child in elementary school an AR/VR headset?).

5 GOALS OF THE SIG

The SIG will be an opportunity to discuss a variety of issues with respect to the SIG's topic – focusing in particular on the communication and collaborative aspects of emerging technologies, such as extended reality. These include, but are not limited to:

- Adapting participatory methods to address ethics (i.e., most of us are used to using participatory methods to design technologies)
- Considering the broad range of stakeholders (e.g., children, parents, teachers)
- The role of child development and age (e.g., preschool vs. late-elementary school children)
- The role of contexts of use (e.g., physical, social)
- Managing the dynamic nature of emerging technology (e.g., how do we adapt to quick changes).

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