Developing Participatory Methods to Consider the Ethics of Emerging Technologies for Children

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ABSTRACT

This SIG will provide child-computer interaction researchers and practitioners, as well as other interested CHI attendees, an opportunity to discuss topics related to developing participatory methods to consider the ethics of emerging technologies for children. While the community has extensively debated on ethical issues, we have not had ample discussion of methods to study the ethical implications of emerging technologies. Consequently, we have been largely reactive and have not made significant contributions to public discussions on these topics, leaving these largely to experts from other fields. Our community is well-placed to contribute unique perspectives by leveraging its expertise in participatory methods, combining expert views with those of stakeholders, including children.

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

1 INTRODUCTION

The increasing ubiquity of digital technology in children's lives has raised the interest of the child-computer interaction community on ethics. This increased interest has been reflected in publications (e.g., [2, 17]) and meetings, including, for example, special interest group meetings (SIG) at CHI 2017 [10] and 2018 [11], each with over 40 participants. Both SIG meetings focused their discussion on how the emergence of big data and ubiquitous technologies was affecting children and adult stakeholders, such as parents and teachers [10, 11]. During these meetings there were discussions on the tradeoffs of emerging technologies, the temporality of these tradeoffs, and the difficulty in predicting future impacts [9].

Among the open problems identified in the SIGs was the "need for (diverse) societal and family involvement in the development of any recommendations, educational initiatives, or technology developments (e.g., safety apps) that affect children." [9]. This open problem was due to the perception of the current lack of such involvement as new technologies emerge and as ethical issues surrounding them are considered.

The objective of this SIG is to provide the child-computer interaction community, together with other interested CHI attendees, an opportunity to discuss how participatory methods could be used to involve and empower stakeholders in the consideration of ethical issues with respect to emerging technologies. A related objective is how our community may translate findings from these processes into impact beyond academia, one of the identified themes for a CHI 2020 SIG that did not take place due to the pandemic [1].

2 BACKGROUND ON OTHER ETHICAL PERSPECTIVES

Basic ethical principles articulated in documents, such as the Declaration of Helsinki [3], provide basic guidance on ethics that can guide considerations for emerging technologies. When it comes to children's technologies, there have been contributions both on ethics, but also on concerns about emerging uses of technology by children, from the likes of non-profit organizations [12], professional associations outside of computing [8], individual academics [16], government policies [18], and international organization guidelines. Missing from these conversations, for the most part, are the stakeholders (including children) affected by these technologies, and the child-computer interaction community, which we believe is well-placed to give them a voice. Likewise missing is a translation of these guidelines and recommendations into a significant portion of the technology available to children and how it is used, which often involves socially isolating experiences with passive consumption of media, or activities structured by technology [15], with limited respect for children's autonomy and privacy [14].

3 THE DIFFICULTY OF EMERGING TECHNOLOGIES

Emerging technologies pose additional difficulties when it comes to ethical considerations. It is simply difficult to predict how they will be used, whether they will be widely adopted, and there may likely be unexpected and unintended uses [4, 9]. In addition, changes in how novel technologies are used may occur quickly. For example, there could be technologies that are quickly adopted by children, even if they were originally designed for adults. A recent example is what happened with smartphones and tablets, which removed the cognitive and motor skill barriers that had prevented young children from using computers. This space was quickly filled with apps of questionable benefit, with ethical considerations and studies on impacts lagging well behind [5, 7]. We need processes that can more efficiently react to similar developments.

Brey identifies several approaches to addressing the ethics of emerging technologies [4]. The first is to assess the ethics of a technology based on its features, regardless of future applications or uses, which will catch the most obvious concerns. The second tries to anticipate future uses through techniques such as future studies, or risk-benefit analyses. These can help prevent unethical uses but have the limitation of being speculative. The third is to see emerging technologies as social experiments and ask whether conducting such a social experiment is ethical. The challenge with this experimental approach is that it would be difficult to undo experiments that do not benefit society, in particular if they are financially successful. A final approach identified by Brey is the participatory methods in which we are interested, whereas stakeholders partner with experts. One advantage of this approach is that it can be combined with any of the other approaches (e.g., participatory methods combined with anticipating future uses). What remains to be better understood is how to make the best use out of these participatory methods to address quickly changing technologies, applications, users, and contexts of use, and how to apply them to technologies children may use.

3.1 Example: Extended Reality Technologies

A current example of an emerging technology is extended reality (XR). XR technologies bring up novel ethical issues, as well as potential new opportunities for children. On the one hand, they could be even more socially isolating than mobile touchscreen technologies and involve greater privacy concerns due to the amount of data

these technologies need to gather [12]. An additional concern is the degree to which parents and other caretakers would be able to know how children are using them. Concerns brought forth pertaining to biowearables are also relevant, such as those related to identity formation and the development of autonomy and agency [2]. On the other hand, the immersive qualities of virtual reality apps and the potential instructive uses of augmented reality, as well as creative uses have the potential of providing new opportunities for children.

Therefore, it is important to develop basic ethical principles for conducting research and developing XR products for children, principles that should arise from stakeholders, including children. These principles should be paired with ongoing processes of feedback from the same stakeholders, given the difficulty of predicting how technologies will be (mis)used. These foundational principles and processes must consider the interdisciplinarity of the field of child-computer interaction in addition to the diversity of views of stakeholders due to sociocultural differences and personal preferences, among others.

4 POTENTIAL OF PARTICIPATORY ETHICS PROCESSES

In this SIG, we propose to discuss a different approach to ethical considerations for emerging technologies that is compatible with research methods the child-computer interaction community knows well. Participatory methods that aim to raise the voices of stakeholders, including children, could fill a gap in current public conversations about technology and children. Not only would these methods bring forth new perspectives, but they may also enable and facilitate better communication with stakeholders by more authentically representing their values, priorities, and vocabulary. In addition, they would enable the child-computer interaction community to better contribute to the public conversation on the ethics of emerging technologies and children. Not surprisingly, others have made calls for similar approaches outside [6] and inside the human-computer interaction community [13]. However, most past experiences have been about the ethics of what is being designed rather than the ethics of products made by third parties and their uses.

What is missing and what we would like to discuss during this SIG is how to adapt participatory methods and develop processes for the purpose of examining the ethics of emerging technologies with respect to children. For example, how do we consider the broad diversity of stakeholders? How do we bring together multiple perspectives? How can we prevent biases based on who participates? What other methods should we consider in addition to participatory methods? How do we manage the dynamic nature of the adoption and development of emerging technologies?

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