Transformative Technologies for Children: Going beyond 'Good'

Dan Fitton
University of Central Lancashire
UK
m.m.bekker@tue.nl

Janet C Read
University of Central Lancashire
UK
jcread@uclan.ac.uk

Eva Eriksson
Aarhus University
Denmark
evae@cc.au.dk

Elizabeth Bonsignore
University of Maryland
USA
ebonsign@umd.edu

Netta Iivari
University of Oulu
Finland
netta.iivari@oulu.fi

Heidi Hartikainen
University of Oulu
Finland
heidi.hartikainen@oulu.fi

Rhona Anne Dick
Lingokids
USA
rhona.anne.dick@lingokids.com

ABSTRACT

Against the backdrop of growing screen time, rising mental health issues, increasing loneliness, and general ill effects from technology use, it is time for the CHI community to consider how technology for children can be better than 'good'. There are many examples of good technologies across research and commercial products, for technology to be more than 'good' it needs to have a transformative effect on children's lives that lasts beyond a monetary positive experience. Such technology could, for example, build resilience, encourage compassion, promote inclusive behaviors, and improve overall happiness. This workshop will explore what better than 'good' technology may look like and create a manifesto for the CHI community to support Transformative Technologies for children in our work.

CCS CONCEPTS

• **Human-centered computing → HCI theory, concepts and models**.

KEYWORDS

CCI, Child-computer Interaction, transformative technologies

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1 MOTIVATION

It is already understood that the COVID pandemic triggered increased depression, anxiety and psychological distress for children and young people [15]. However, even more recent studies, such as the 2023 'Good Childhood Report' [22], have highlighted growth in the number of children that are unhappy, have low wellbeing and are worried about the future. Similarly, bodies such as the CDC in the US are unambiguous that for children aged 6-17 years "Depression and anxiety have increased over time" [3]. There are many prevailing negative factors that link closely with technology usage such as increasing childhood loneliness (e.g. [27]), problematic impacts from social media use (e.g. [1]), and impacts from increasing screen time (e.g. [16]). Against this general backdrop of negativity around childhood it is time for the CHI community to consider how technology for children can be better than 'good' in a more focused way. Academics within the CHI community have already sought to improve the lives of children through their work, this is evident in the work in publications of organizers of this workshop. For example, this has included work to empower children through design [10, 12], tackle bullying in schools [25, 26], develop online safety [6, 9], understand the problem of deceptive design [7, 8], consider the specific ethical issues of working with children in HCI research [19, 24], and creating design methods which enable children participate in technology design [4, 5, 21]. The goal of improving lives of users is not exclusive to those considering younger technology users, children are of course just one of the many user groups the CHI community considers, and even those considering technology use in a more general sense have much to contribute to the topic of this workshop. One particularly relevant example is the Responsible design process framework shown in Figure 1 which forefronts user wellbeing and arose from consideration of ethical design practice in the context of AI [17].

The CHI community has long reflected on what constitutes good design. As early as 2006, the idea of positive HCI is introduced as being around the creation of outstanding quality experiences rather than just the prevention of usability problems [11]. A main theme of the critique by Bødker and Kyng [2] is for HCI design to work harder to bring about real impact against dramatic, potentially negative

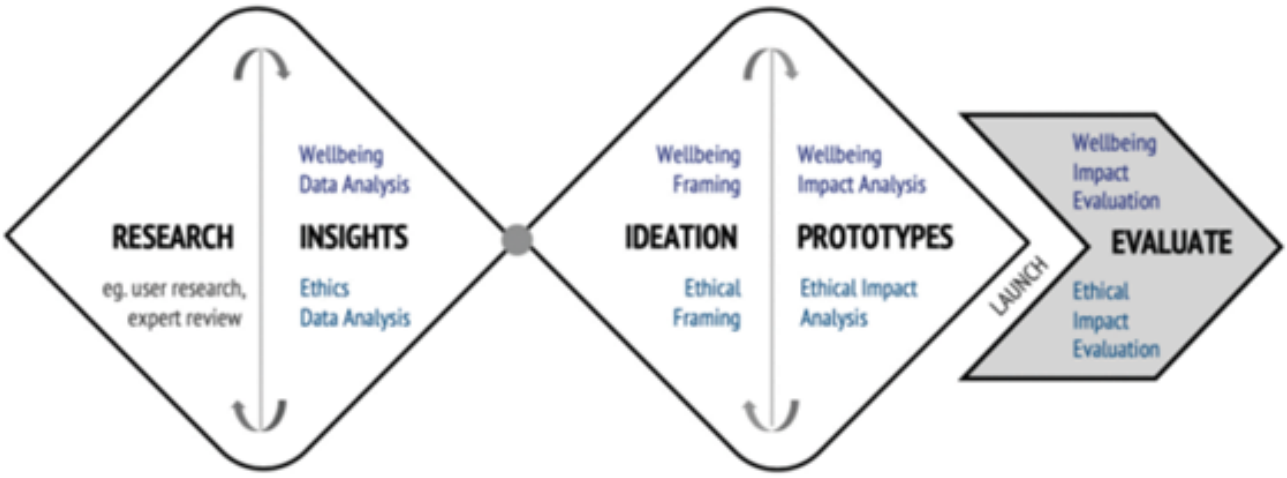

Figure 1: Responsible design process framework from Peters et al.[17].

changes; if children are suffering from decreasing happiness, this sounds like a space for such impact. Change is not always dramatic, some things change over time and the work on slow technologies [18], that emphasizes designs that support mindfulness and less hectic lifestyles may give some ideas for solutions. Slow design, is in direct opposition to the mindset, prevalent in HCI of what Irvine[14] describes as 'the problem with presentism', where time horizons shrink and we only see the 'here and now'. This mindset, especially when we think about children's technology, will not enable us to take not enough account of the future, even the near present future; so change in thinking, as well as direction, might be needed. The IDC (Interaction Design and Children) community has not been silent in these considerations, a recent paper challenged the community to take on a more mature approach to its research [23] and the framing of CCI, albeit written several years ago, implored us to design for the rapidly growing and changing child rather than for the child only in the moment [20]. These provide a valuable foundation for this workshop in terms of how to define a research community focused on designing technology for children and how to move forwards effectively within that community.

This workshop aims to explore what better than 'good' technology may look like by encouraging participants to bring their work on transformative designs, theoretical positions, measurement and evaluation tools, design techniques, lived experiences to contribute to this timely and important debate. Two key outputs will be constructed through the workshop 1) a manifesto for the CHI community to support the creation of Transformative Technologies for Children, 2) a roadmap for future research work to explore and develop this space. Resources created and used at the workshop will also be shared (via the workshop web site) to enable other to understand the discussion which took place at the workshop and join us in our mission.

2 ORGANIZERS

- Dan Fitton is a Reader (Associate Professor) in User-Experience Design and works within the Child-Computer Interaction (CHiCI) research group at the University of Central Lancashire in the UK. He is particularly interested in techniques for involving children and teenagers in the co-design of new and novel interactive technologies, and in understanding how to create technology for younger users. His recent work has focused on understanding the deceptive design practices that young people encounter in their mobile apps and games (e.g. [7, 8]). He has led the organization and delivery of many successful workshops at ACM conferences in the past.
- Janet C Read is a Professor of Child Computer Interaction at UCLan, Preston where she founded and directs the ChiCI group (www.chici.org). Recent work has focused on the ethics of including children in HCI research. A recent RAEng funded study highlighted to her the complex difficulties associated with the modern childhood and it is this perspective that she brings to this workshop.
- Eva Eriksson, PhD, Associate professor in Interaction design at Aarhus University in Denmark. Eva specializes in developing technologies through participatory design in the field of child-computer interaction with a focus on public learning institutions. She has led several research projects focusing on scaffolding collaboration in children in special education.
- Elizabeth ("Beth") Bonsignore is an assistant research professor at the University of Maryland's College of Information Studies and Human-Computer Interaction Lab (HCIL). Her research explores the design of interactive play and social experiences that promote new media literacies, arts-integrated science learning, and participatory culture. She co-designs and advocates with youth, families, and local communities with the goal of including and empowering youth historically underrepresented in STEM/computing to advance in these fields. Her recent collaborations with amazing graduate

students have explored the challenges (and conundrum) of making participatory design as inclusive as possible through asset-based design and funds of identity (e.g., [4, 5, 13]).
- Prof. Netta Iivari's research interest concerns understanding and strengthening children's participation in shaping and making their digital futures. Particularly she has addressed the topic of empowerment of children in and through design and making. Recently, she has specifically focused on critical design and making in collaboration with children, exploring a variety of critical, participatory, empowering, speculative design approaches, such as design fiction, design activism and theatre of the oppressed. She has collaborated with children to tackle the problem of bullying at school. She is interested in ethical, value-laden, and power and politics related aspects as intermingled with design.
- Heidi Hartikainen is a postdoctoral researcher in Child-Computer Interaction. She is interested in the themes of activism and empowerment through technology design, especially concerning youth safety and security online. She draws from critical and participatory methods when engaging youth to critically examine emerging technologies and envision our technological futures.
- Rhona Anne Dick currently is the Lead Education and Child Development at Lingokids. She has worked in the field of education for 14 years with a diverse range of nationalities and ages between 2 to 99 years old. She has held various positions from being teacher, Head of Department, teacher-trainer, course content developer, university course designer, curriculum designer through to educational game designer. Some of her qualifications include: Bachelor's degree in Modern Languages, Postgraduate degree in Education with specialization in Language Learning, Master's in Instructional Design and Technology and Minor qualifications in Early Years Education and ESL Education. She has published articles in top Spanish and Mexican newspapers and magazines such as El Pais, ABC, Hola and Ser Padres on a broad range of educational topics and has served as an expert on Spain's popular radio stations, Cadena Ser and Onda Cero. The curriculum she designed at Lingokids has lead to several awards such as Good Housekeeping Parenting Award (2023), Kidscreen Awards for Best Learning App (2002) and (2003), Ed Tech Breakthrough Awards for Best Language Learning App (2023) and voted by Apple as the number one app for teachers.

3 PLANS TO PUBLISH WORKSHOP PROCEEDINGS

Submissions to the workshop from attendees will be published as short papers via https://ceur-ws.org and we will request submissions be in the CEURART style in order to facilitate this.

4 IN-PERSON, OR HYBRID

This will be a hybrid half-day workshop, attendees will be able to participate remotely using Zoom (or similar) in order to present their work and engage in discussion. The technical requirements will be the same as a typical hybrid conference session; Zoom account, appropriate PC/Mac with camera and microphone, projector/screen, room audio. In the discussion parts of the workshop we will breakout into multiple smaller groups (with groups being in-situ or remote), every group regardless of participation type will be facilitated by one of the workshop organizers, and each group will report back their findings to the entire workshop for further discussion. Smaller groups are necessary to ensure discussion can progress rapidly. We will make use of Slack to enable discussion between workshop attendees before, during and after the workshop. Remote attendees will interact with in-situ participants and vice versa via Zoom during the Panel Discussion activities in the workshop (which will be facilitated by the workshop organizers as appropriate) and via Slack. We hope to use the Zoom live transcription service to help support inclusion.

5 ASYNCHRONOUS ENGAGEMENT

To support asynchronous engagement we will request that participants share video presentations (up to 10 minutes in length) from their workshop submissions prior to the workshop; we will request attendees to watch these, where possible, in advance of the workshop. During the event those attending synchronously will have the opportunity to present a short 2-minute summary to act as a reminder of their submission prior to group discussions, asynchronous attendees will also be able to send a shorter video which we will play back in the workshop. We will encourage interactions with asynchronous participants (questions, feedback etc.) via Slack before, during and after the workshop. We will record all presentations and panel discussions for the benefit of asynchronous attendees. The activities planned for the workshop will be circulated prior to the workshop, allowing asynchronous attendees to share their ideas and discussion points which will be read out, by the facilitators, at the appropriate points in the workshop.

6 POST-WORKSHOP PLANS

From the workshop will deliver an IJCCI (Elsevier International Journal of Child-Compute Interaction) edition to showcase both the design ideas and research contributions from this workshop; workshop participants will be encouraged to extend and submit their contributions to this special issue. Post-workshop, the organizers will finalize the manifesto for the CHI community for supporting Transformative Technologies for Children, this will be published via https://ceur-ws.org (along with the other workshop contributions) and the organizers will seek dialog with relevant leaders within the CHI community around how we can take this agenda forward. The Roadmap for future work will also be finalized by the workshop organizers and shared on the workshop web site along with all the resources gathered during the workshop.

7 CALL FOR PARTICIPATION

Against the backdrop of growing screen time, rising mental health issues, increasing loneliness, and general ill effects from technology use, it is time for the CHI community to consider how technology for children can be better than 'good'. There are many examples of good technologies across research and commercial products, for technology to be more than 'good' it needs to have a transformative effect on children's lives that lasts beyond a monetary positive

Duration (minutes)	Title	Type of activity	Description
10	Introduction	Presentation	Organizers introduce the workshop and explain the schedule
15	Framing the Problem	Presentation	Guest speaker (online) "Childhood in 2023" Explaining the key challenges that young people face
20	The Transformed Child	Panel Discussion	Building on the key points from the previous presentation, participants answer the question What are the characteristics of a transformed child?
40	Sharing Contributions	Individual Presentations	Participants give 2-minute summaries of their papers/videos
30	Designing a Manifesto	Group Discussions	Groups will explore the question "What does the technology have to do to be transformative?"
15	Defining a Manifesto	Panel Discussion	Groups come together to share, elucidate and prioritize issues identified through their discussion which contribute to a draft manifesto
30	RoadMap 1	Group Discussions	Groups focus on topics identified previously and explore the question Where we are now and where we need to go?'
30	RoadMap 2	Group Discussions	Groups and topics rotate
30	Plenary	Panel Discussion	Outputs from group discussion are shared, key areas are identified, and a roadmap for future work in this area is agreed.

Figure 2: Outline of the plan for the workshop activities.

experience. Such technology could, for example, build resilience, encourage compassion, promote inclusive behaviors, and improve overall happiness. This workshop will explore what better than 'good' technology may look like and create a manifesto for the CHI community to support Transformative Technologies for children in our work.

To join our half-day hybrid workshop please submit your transformative designs, theoretical positions, measurement and evaluation tools, design techniques, lived experiences, and other work relevant to the workshop in a short paper (up to five pages CEUR-ART format). Please email your submission as a pdf directly to dbfitton@uclan.ac.uk (please see workshop web site for further details about submitting and attending). Accepted papers will be published via https://ceur-ws.org/ after the workshop, authors will also be invited to submit to a special issue of the International Journal of Child-Computer Interaction. At least one author of each accepted submission must attend the workshop and all workshop participants must register for both the workshop and for at least one day of the conference. Full details of the workshop can be found at www.chici.org/TTWorkshop.

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