

---

# Balancing the needs of children and adults in the design of technology for children

**Lettie Malan**

YouTube, Google Inc.  
901 Cherry Ave  
San Bruno, CA 94066 USA  
lettiemalan@google.com

**Catalina Naranjo-Bock**

YouTube, Google Inc.  
901 Cherry Ave  
San Bruno, CA 94066 USA  
catalinab@google.com

**Tejinder K. Judge**

Google Inc.  
1600 Amphitheater Parkway  
Mountain View, CA, USA  
tkjudge@google.com

**Abstract**

In the design of technology for children, many products hope to encourage ideal behavior. Goals or desired outcomes for children-oriented products, such as learning, exploration or self-expression, are often set by adults (e.g. parents, guardians, teachers). These adult goals are often considered alongside the goals and interests of children, but what happens when these are conflicting? It is common for technology creators to have to make choices that support or prioritize one set of goals over the other.

In this workshop, we will be discussing real world case studies, as well as theoretical approaches used by researchers, designers, and academics to design technology for children between the ages of 5 and 14. The expected outcome of the workshop will be a set of principles to consider when balancing the needs of children and adults in the design of technology for children.

**Author Keywords**

User needs, children, interaction design

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the Owner/Author.  
Copyright is held by the owner/author(s).  
IDC '15, August 09-13, 2015, Santiago, Chile  
ACM 978-1-4503-3590-4/15/06.  
<http://dx.doi.org/10.1145/2771839.2771927>

### ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

### Introduction

*Sam loves Minecraft. As a 7 year old, he is allowed one hour of tablet time on school nights and happily spends all of his time playing Minecraft or watching videos about Minecraft. He constantly asks his parents for more tablet time and this can turn into a source of conflict when his hour of tablet time is up. Sam's parents had purchased the tablet for him in hopes that he would use it for school and learning. His mom wishes that he would spend more time exploring other topics besides Minecraft.*

Technology designed for children frequently carries aspirations for ideal behavior: learning, exploration, and self-expression are a few examples. These aspirations often come from adult perspectives, many times in the context of what they consider an ideal way for children to spend time with technology. When comparing children's actual behavior against technology's potential benefits, these aspirations can turn into disappointments, as they were for Sam's mom in the scenario above.

This workshop aims to take an introspective look at the role adult perspectives should play when designing technology for children from 5 to 14 years of age. Some technology usage limits set by parents arise out of clear concerns. An example of this is the concern for physical health, discussed by Anderson et al [1], which can drive parents to set screen time limits in hopes of more active lifestyles for their children.

However, other adult aspirations are less clearly defined. From questions like "What apps count as educational?" to "How much screen time should children have?", adult perspectives vary considerably in what is considered healthy and appropriate technology use for children. Wartella et al have identified three distinct parenting approaches, from media-centric to media-light, all influenced by parents' own media consumption [4]. In addition, the Joan Ganz Cooney Center provides flexible guidelines related to appropriate screen time for children: "The bottom line is, you know your child best, and can create the best routine for your family" [3]. While this broad advice can work for certain families, technology creators must make products at scale across all three parenting approaches.

When creating technology for children, product developers often make decisions that impact families and children. However, to our knowledge, no guidelines exist to assist designers in establishing a balance between the needs of children and the needs of adults. This is important given the potential biases inherent in any product team. Team members can be parents, who can have biases based on their own family's use of technology, or young adults, who might have an idealized view of parenting and children's use of technology.

In addition to parental rules around technology use, other adult constructs can also influence the basic premise of technology made for children. For example, adults may want an app that is educational while being fun, so "children won't even notice they are learning".

This comes from a very adult perspective of considering learning as something that is not fun, when children rarely think about these distinctions. Separating adult needs from children's needs is not always straightforward.

The needs of adult and child users of a product in everyday life are different from the needs that arise in formal educational contexts. The domain of educational technology has a long history of research that looks at roles for adults and technology in helping children reach or set learning goals, but there are other possible goals in non-educational contexts. For example, leisure, socializing or playing, may or may not be considered learning, but can still be considered developmental goals that are important for children at different stages. Going back to our opening scenario, Sam has not expressed a desire to explore other topics, but should technology encourage him to do so anyway?

There exists prior research that provides insights on how to include children in the design of specific technologies [2]. However, to our knowledge, not much prior work exists around how the goals of technology for children should be negotiated, and how much influence children should have over the goals of the technology itself. For example, of all the full papers ever published at IDC (ACM SIGCHI Interaction Design and Children), less than 10% discuss balancing the needs of multiple stakeholders (and this includes all potential stakeholders: parents, teachers, doctors, etc.) [5]. Although one of the aims of design methods like codesign is to empower and involve children [2] in the design process, this involvement often happens in the context of product development, where goals are set by adults and may or may not be up for negotiation.

Technology for children is often designed for the adults in children's lives as well. We look forward to discussing the best practices around balancing these two, sometimes opposing, needs and interests.

### Topics of Discussion

The goal of this workshop is to bring together researchers, designers, and academics, who envision, design, create and study technologies for children. We would like to build a community to discuss possible approaches to take when needing to balance the (sometimes conflicting) interests of children and adults in the design of technologies for children. Within this scope, we will focus on and discuss the following issues:

- How should we design for a wide range of parent/child relationships? Should we assume that parents discuss the importance of their motivation with their children? (e.g. communicating the importance of learning and emotional development)?
- How should we empower children while keeping their best interests in mind?
- Is there inherent conflict in designing products that put children's needs at the forefront versus designing products that promote a set of adult-generated values and needs?
- Do adult goals get in the way of children's autonomy and independence when using technology?

- Should we have different guidelines for technologies that have different sets of goals? E.g. learning, exploration, self-expression, etc.

### **Workshop Outcomes**

The outcome of the workshop will be a whitepaper and potentially a journal publication with a set of principles and best practices that should be considered when making the tradeoffs between the needs of parents and children in the design of technology for children.

### **Structure of the workshop**

This half-day workshop will include activities centered on addressing the issues mentioned above. Select workshop attendees will present their research or design work focusing on the topic of the workshop and the questions of interest. This will be followed by breakout sessions for attendees to discuss the open question in small groups and share the learning with the entire group. After the breakout sessions, attendees will come together to discuss design principles and best practices for designing technologies for children.

### **References**

[1] Anderson, S. E., Economos, C. D., & Must, A. (2008). Active play and screen time in US children aged 4 to 11 years in relation to sociodemographic and weight status characteristics: a nationally representative cross-sectional analysis. *BMC Public health*, 8(1), 366.

[2] Fails, J. A., Guha, M. L., and Druin, A. Methods and Techniques for Involving Children in the Design of New Technology for Children. *Foundations and Trends in Human-Computer Interaction* 6, 2 (2013), 85-166.

[3] Joan Ganz Cooney Center. 2014. Family Time with Apps: A Guide to Using Apps with Your childrens. <http://www.joanganzcooneycenter.org/publication/family-time-with-apps>

[4] Wartella, E., Rideout, V., Lauricella, A. R., & Connell, S. (2013). Parenting in the age of digital technology. Report for the Center on Media and Human Development School of Communication Northwestern University.[5].Yarosh, S., Radu, I., Hunter, S., and Rosenbaum, E. Examining Values: An Analysis of Nine Years of IDC Research. *Proc. of IDC*, (2011), 136-144.

[5] Yarosh, S., Radu, I., Hunter, S., and Rosenbaum, E. Examining Values: An Analysis of Nine Years of IDC Research. *Proc. of IDC*, (2011), 136-144.