

In this forum we celebrate research that helps to successfully bring the benefits of computing technologies to children, older adults, people with disabilities, and other populations that are often ignored in the design of mass-marketed products.

Juan Pablo Hourcade, Editor

Anatomy of a Design Session

Greg Walsh

University of Baltimore | gwalsh@ubalt.edu

You have probably read or heard about designing with children in any number of ACM publications or conferences. Whether we researchers and designers ask the opinions of children about technology or work with them in the design of new technologies, the literature is ripe with discussions of methods used and new techniques developed for working with children. Unfortunately, the more “pedestrian” concepts of organizing a design session and the logistics of working with a group of children are often mentioned in passing, as the main contribution of the work, methods and techniques, rarely go into much detail beyond what is necessary to extol the new contribution’s virtues. I know I am guilty of this.

What I have found most interesting is the number of people who are interested in the concepts of organizing a design session to work with children. Here, I will discuss the overarching format that the University of Maryland’s intergenerational design team, Kidsteam, follows during a typical design session and why that format works. I was lucky enough to have the opportunity to step out of my typical role as design researcher and tried, as objectively as possible, to look at the parts of a design session and understand their larger role in years of successful design research.

As you may know, children have been involved in various aspects

of the design process. They have been users, testers, informants [1], and design partners [2]. These roles enable children to participate at various stages throughout the design process or even throughout the whole process. At the same time, these roles have enabled design researchers to elicit feedback from children or work with them as full partners.

In the design method *cooperative inquiry*, children and adults work together as design partners to design new technologies for

children [3]. The instantiation of this method is Kidsteam. In Kidsteam, children and adults collaboratively and iteratively build low-tech prototypes at different points in a design’s life-cycle in order to elicit requirements and provide new directions for the designs to explore.

Children who join Kidsteam are recruited from suburban Washington, DC. Although the researchers do not place quotas on membership, these children have been culturally, racially, physi-



cally, mentally, and economically diverse throughout Kidsteam's history. The children volunteer Tuesdays and Thursdays after school for one school year.

There are no requirements for joining Kidsteam except that partners are between the ages of seven and 11. No technical skills are required, nor are any social skills particularly necessary as children learn how to be design partners during their tenure.

As part of a larger research project, I stepped away from the role of research participant and spent one session observing the in-person, collocated intergenerational design time as a non-participant. I have reviewed the process of collocated cooperative inquiry before [4] but never as an observer. The design session took place one afternoon in late November at the Human-Computer Interaction Lab at the University of Maryland, beginning

at 4 p.m. An outside design partner, the U.S. National Park Service (NPS), had asked Kidsteam to work on a particular problem. I would say that this session was indicative of a typical co-design session based on my four years of experience as a participant researcher. I tried to not engage with the rest of the design team and instead attempted to remain an outsider during the design session. Due to extensive personal interactions and previous connections with the group, this was harder to achieve than I had anticipated.

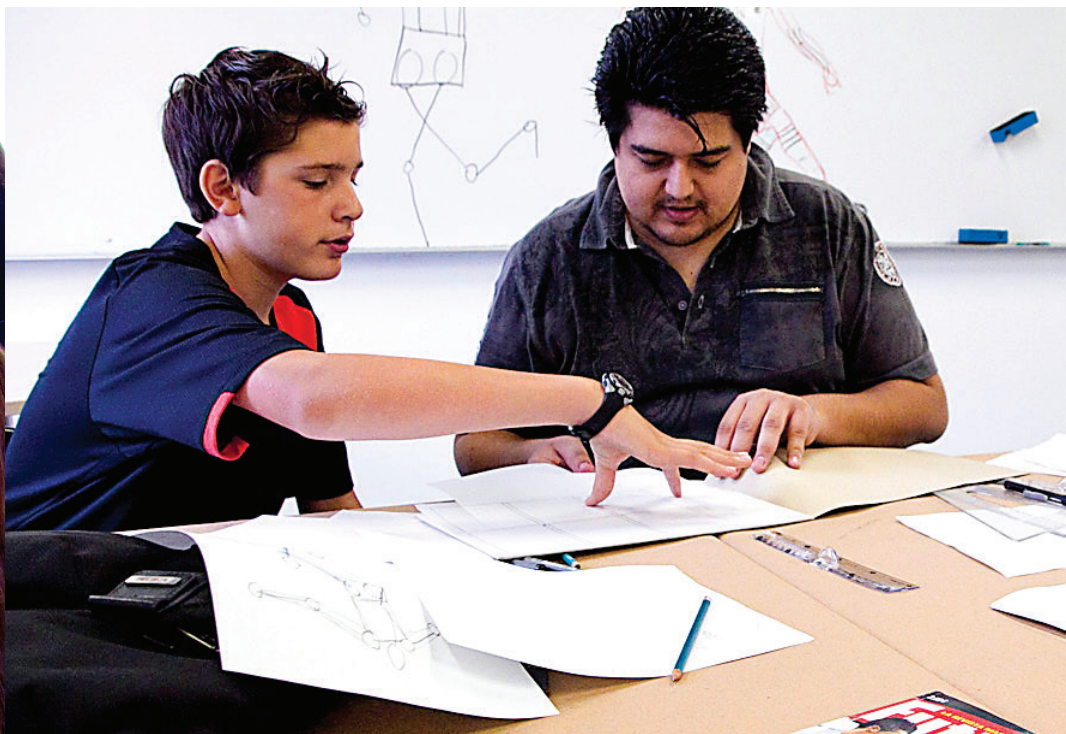
The Design Session

A typical design session begins before the children arrive. Ten minutes before their expected arrival time, two adult researchers go to the drop-off point and wait for the child participants. After all of the children arrive, they are escorted to the lab.

That day, as with every Kidsteam design session, the activity began with a snack. The original reason for "snack time" was to keep the participants (children and adults) from getting too tired in the afternoons. However, snack time has evolved from being about food to being a way for the children and adults to bond and adjust to the new power dynamics, or lack thereof, that will continue to be in effect as the design session gets under way. This equalization in the power dynamic is what helps the group work together as partners.

Snack time took approximately 20 minutes. There were multiple topics discussed during snack time including pie, glass cleaner, my presence as an observer, a lost toy, and Mickey Mouse. There was very little talk of what we would be designing that day. In fact, most of the discussions were the kinds that people would have

All photographs by Edith Valle



with their friends and not necessarily indicative of conversations between kids and adults.

The traditional power dynamic of adult and child did emerge during the snack time when one child participant lost her toy. In that case, one adult participant immediately took on the role of nurturing authority to help settle the girl down. This was the exception during my observation, as the rest of the conversations were intergenerational, unstructured, and equal. Snack time may have been created for a very practical purpose, nutrition, but it has evolved into a very social and team-building activity that allows the group to feel comfortable and safe in their design ideas.

After snack time, the group moved from the large conference table in the lab to the floor for “circle time,” where a “question of the day” is asked to the whole

group. Design participants take turns introducing themselves by telling their name, their age, and how long they have been with Kidsteam, and then answering the question of the day. Disclosing ages is another way that children and adults can eliminate the traditional power structure that is present in most of society.

The question of the day is usually a general question about the day’s design focus and is used as a way to get the group thinking about a particular topic. On this day, the question was *What do you think about when you think about the wilderness?* This question was directly related to the later design session.

An important part of circle time is that it is conversational, as opposed to one person talking to the group. After someone introduces himself or herself, another participant may ask a clarifying question about the answers. The

protocol of raising hands is not used in circle time; instead, the participants are encouraged to talk and discuss. After everyone shared, two adult members who were facilitating the session led a discussion about the wilderness and the definition of *wilderness* by tying it back to what people had said in the circle and involving all in the conversation. They began to set the stage for the day’s later design session.

The third part of the session was “design time.” Now that the larger group knew what the day’s domain was from circle time and had been focused through circle time, the design partners were ready to tackle the problem *how to show children the wilderness if they can’t get to the wilderness themselves* through the development of low-fidelity prototypes. The larger group was divided into three smaller groups: one group comprising boy participants and two groups each with a pair of girls. At least two adults were assigned to each of the smaller groups, and the art supplies for building were distributed to the three groups. This part took approximately 25 minutes.

The final portion of this design session is the group debriefing, also known as the “big ideas” session. After the larger group reassembled in the discussion area, the facilitator asked each group to present their ideas to the group. As each group presented the designs, the facilitator wrote the groups’ individual ideas on the white board. In all of the groups, the children did the presenting with some kind of help from the adults either as a co-presenter or just via occasional clarifying comments. After all of the groups presented, the facilitator identified similarities among the ideas as well as each group’s unique ideas. Other adults offered their observation of similarities. When



the big ideas session was over, the children were able to have free time on the computers in the lab before they had to leave at 5:30 p.m.

After the children left, the adults briefly met about the day's design session. Several of the adults made references to previous projects the group had worked on and compared the ideas. This concluded the design session. From start to finish, it was approximately two hours long.

What can we learn from all of this? As I previously mentioned, Kidsteam is the in-person instantiation of cooperative inquiry that achieves the following goals: eliminates traditional power dynamics, nurtures a safe space through social interaction, focuses the conversation, enables creative expression, captures ideas, and facilitates creative discourse by segmenting the larger design session into smaller periods of time. Based on this day's session and several years of design sessions like this, I offer the following suggestions for implementing these periods during your design sessions, regardless of the design method you choose.

Snack time. It seems silly to include food as a part of designing with children; however, for two reasons, it is one of the most important components. First, children have been shown to be more creative after eating a healthy meal [5] and may "think and behave better" after eating [6]. Second, the relationships formed by eating together can help a regularly meeting team form bonds that lead to trust and teamwork in the design periods of the session. *If you are going to work with children either regularly or infrequently, providing a healthy snack can create a better experience for everyone.*

Circle time. The circle time is the part of the design session

that begins to focus the team on the day's activities. The use of a question of the day focuses the discussion and puts the participants in the mind-set of the design session's domain. Circle time's semi-structured nature helps the design partners start to think about the design session's domain.

Some might feel as though some of these benefits could be achieved during the previously mentioned snack time, but that isn't so. *There needs to be a clear delineation of when the social discussions wind down and the design process begins.* The act of physically moving to sit down creates a buffer zone between arriving and designing. It also encourages the group to openly discuss a topic that is, at least for the design session, meaningful for the design team and could improve the communications that need to occur during the later periods.

Design time. The design activities are where participants can spend most of the session's time. The events of design time are often the elements discussed in the research literature, and there are a number of techniques that you can utilize to work with children. It is during this period that you can explore new ways for children to express their ideas to the larger group.

If you choose to try new design techniques during this time, remember to be patient and flexible. In fact, my experience has been that *few new techniques enable expression and communication exactly as envisioned the first time implemented and need to be refined over several design sessions in order to be most effective.*

Big ideas. The big ideas section is most critical in projects that approach the design of children's technologies as iterative. Even though the design portion of the session is where the majority of

ideas come from, I firmly believe that it is not nearly as valuable without the presentations of ideas at the end of the session. *The presentations capture the essential ideas of each design and begin to make connections between the groups to identify what is important to the designers.* The low-fidelity prototypes—in fact any artifacts created during design time—are useless without the rich description that occurs during these group presentations because the features of the designed technology or the subtle differences between groups may not be apparent. The presentations do need to be accomplished in the same session as the one in which the prototypes are developed. The good news is that as long as the raw ideas are captured through audio, video, or text, the big ideas portion (the organizing of ideas) can be done at a later time.

ENDNOTES:

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ABOUT THE AUTHOR

Greg Walsh is an assistant professor at the University of Baltimore. His research focuses on ways to include more children in the design process.