

chosen methods to study people in their everyday lives, observing their routines. We have opted to start our analysis with the categories of family communication that the families themselves use by using grounded theory [8] to inductively and systematically generate those categories in iterations between analysis and investigation.

Family Observations and Interviews

The bulk of this study consists of three to five hour observations and interviews with families, generally conducted in the evening. To date, we have conducted seven of our targeted twenty interview-observations. Families are given a \$100 American Express gift check as compensation for their time and energy.

Our initial actions are focused around building rapport with the children and their parents and finding effective ways of talking about what could be very abstract concepts with children as young as four years old. A few days before the interview, we send the parents two activities for each of their children¹ to complete on their own before we arrive: a timeline depicting a day in the child's life and a picture representing the people in the child's life. We include clip art images for the children to use if they want, but in our instructions we encourage the children to draw instead. When we arrive, we ask the children to discuss their pictures with us. This form of *elicitation* [14] allows us to discuss (sometimes quite complex) family relationships with a concrete visual aid to ground the conversation, and also allows the child to get to know and trust us. We follow this with a tour of the child's room, toys, and play spaces.



Figure 1. “The people in my life” exercise for one six-year-old boy, depicting his mother, grandparents, and counselors.

¹ Originally we were planning to focus just on the children between ages five and nine in the household, but have found that siblings outside the age range often want to participate as well and have expanded our observations to include them in the interest of studying the overall family ecology and building trust and rapport.

We request to spend some time just observing the family's “usual” routine, which for evening sessions often includes dinner (we offer to bring pizza), bedtime rituals, and other evening family activities such as playing games or checking homework. During this time, we also give the family the option of contacting a remote family member they generally keep in touch with and allowing us to observe a “typical” conversation with them. We have found that this portion of the evening is often particularly interesting, especially the ways parents coach children to operate the phone and manage a remote conversation.

We conclude each session with an in-depth interview with the parents that typically lasts 1.5 to 2 hours, though a couple have gone longer. We are aware that despite our encouragement for the family to go about business as usual, our very presence alters their actions to some extent. Sociologist Michael Burawoy notes that as this intervention is unavoidable, it should be explicitly accounted for instead [3]; thus, we talk about how our presence might have changed the family's behavior. We talk through some of the observations we made earlier and also ask them questions about their strategies for talking with their kids, spouse, and other family members; their thoughts on and values around their kids' toys; their thoughts on their kids' use of technology (which includes values and strategies for teaching); general family rules, norms, and values; and how all of these contribute (or not) to creating a sense of family.

Design Workshops

As we have conducted these investigations with families, we have synthesized and presented the results to our research team, and have used the emerging themes as inspiration in design workshops with this team. We then take the design ideas generated in these workshops back to the families we interview and incorporate a discussion of design directions into the end of the parent interview, enacting an *in situ* participatory design session. As we continue to develop the methods used in these workshops, we also plan to invite the parents in for group brainstorming and evaluation sessions, as described in participatory design.

In the workshops, we have used as a *focusing device* the idea of *play* as a topic around which to brainstorm, as play has emerged as a central family value in every family interview conducted. In our first two workshops we discussed the emergent themes of the interviews.

In the third workshop we used these themes in a game design exercise based on the Grow-A-Game tool developed by Mary Flanagan and the Values at Play group [4]. We created cards listing the games we observed in families' homes (and added some of our own favorites for brainstorming purposes), the initial value themes we had identified, and the communication patterns used by the families we had interviewed. In a series of design exercises, we drew game cards, value cards, and communication

cards, and brainstormed ways of altering the games to include new values and new modes of communication.

In the fourth workshop we expanded our brainstorming activities to toys more generally. As a focusing device this time, we asked the research team to think about the activities we observed around bedtime, and to incorporate communication with remote family members into those activities in some way.

We found that providing these focusing devices based on the results of the interviews in these design workshops kept us more closely tied to the results of the interviews and the emergent categories based on our observations, and also (paradoxically) allowed for a great deal of creativity within the bounds of the “rules” established. This latter point has been observed in game design more generally.

Representation and Social Justice

More broadly, in this study we are committed to including voices that are often underrepresented in studies such as these. In many studies that rely on convenience sampling, the demographic that is often tapped is one that is relatively technologically sophisticated, well-to-do, and otherwise privileged and in positions of power and authority.

For instance, we have found that in the San Francisco Bay Area, residents of the relatively affluent town of Palo Alto are often tapped for studies such as ours and are both familiar with the workings of these studies and trusting of the research methods employed. In contrast, the town of East Palo Alto, which was 72% Latino in the 2003 US Census and includes sizable populations of other minorities as well, is rarely tapped for such studies, despite its close proximity to Palo Alto as well as numerous research universities and Silicon Valley companies.

Feminist and STS scholar Judy Wajcman discusses the implications of such exclusion in her 2005 book *Technofeminism* [15]. Though focusing on implications of the dearth of female designers on women’s relationship with technology, she demonstrates that many technologies – even technologies for the home – have overlooked women’s needs due to the lack of women in the design process. Moreover, she discusses how the analysis of “relevant social groups” in STS often overlooks groups that are excluded, such as women and minorities.

To address these concerns, we have been recruiting families outside of the commonly-tapped demographic. This includes lower-income minority families in the Bay Area to explore values, issues, and concerns that are unique to these groups, such as managing immigration issues, overseas relatives, and language barriers, to name a few. This also includes families outside of the Bay Area (e.g. from Sacramento, Reno, and farther afield), because we have noted that the relationship residents of the Bay Area have with technologies differs from other areas of the country where technology is not as pervasive and normalized. Whether Bay Area families choose to embrace,

conditionally accept, or reject them, or even if they are excluded from use by price or lack of access, they are embedded in the Silicon Valley culture that is heavily technology-focused and cannot ignore its influence.

Thus, as part of this study, we hope to be able to comment more on what these differences are and why it is important to include these diverse voices in social inquiry and technological design.

INITIAL FINDINGS

Many families use a fluid combination of communication technologies to coordinate their busy lives, including text, emails, and instant messages. Phone calls seem to be increasingly used a last resort.

Family values

A subset of the family values are the values adults have around parenting and what is good for their children. A common theme was the tension that parents express in wanting their kids to be technically competent, yet worrying that technology use can inhibit their social development. (This was especially true of video games.) Many parents worry about their kids staying on track at school, yet are anxious that their children aren’t overwhelmed by pressure and ‘can just be kids.’ Thus various summer camps, family activities, and toys were praised for their educational value as well as how fun they were. Parents also have ideas around what they consider age-appropriate material and may limit the media content their kids see. Similarly, they influence the toys that surround their kids – either through their purchase, setting rules for gifts from others, or gently phasing toys out by hiding or removing them.

We have observed that parents often scaffold their child’s interactions with technology. We have found that they bridge both technical skills their kids lack, as well as the social skills and meaning making that they may not understand. For instance, a parent may help a child call her grandparent, both by dialing the phone number and prompting her on how to start the conversation.

Through our workshops we have immersed our team in the lives of our participants by sharing findings and raw data as soon as possible after our visits. In our design workshops, we have focused on different themes. In a Design for Values workshop, we grounded design activities using the values that had directly emerged from our research. Other design workshops have focused on Games and Play. One brainstorming session generated a number of play ideas related to bedtime routines such as a story book for remote grandparents. Overall, we have found these workshops to be a useful way to generate design ideas that can be based on the context of an actual family or particularly inspirational finding. We plan to keep our practice of conducting design workshops in tandem with our research, bringing our ideas back to families for feedback, and building on their feedback for continued design iterations.

SUMMARY AND FUTURE WORK

This research is part of a larger initiative to study family communication; here, we use a combination of family observations and interviews with design workshops to learn about family communication, technology usage, and values. We plan to produce both written documents and artifacts from this study: we will write up summaries of these findings, particularly the family values, and we will continue to iterate on our design ideas as well as our workshop methodologies. We also plan to comment on the differences between the different groups we are recruiting; as this is still in process, we have not commented on that here.

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