

Ubiquitous Computing and the Transition in Parent-Child Relationship

John Zimmerman

Human-Computer Interaction Institute
Carnegie Mellon University
johnz@cs.cmu.edu

Jodi Forlizzi

Human-Computer Interaction Institute
Carnegie Mellon University
forlizzi@cs.cmu.edu

ABSTRACT

In this position paper we discuss the transition that takes place when elders and their adult children reverse roles and the children become the caregivers and the elders become the care-receivers. In addition we propose the ubicomp systems can play an active role in aiding the emotional conflicts that this transition creates. We identify communication of activity and presence information from both the children and the elders as an appropriate first step. Finally, we offer a brief overview of our current development of a smart lounge chair to help detect presence and activity in the home.

Author Keywords

Elders, ubicomp, smart furniture, sensors, relationship

INTRODUCTION

The relationship between elders and their adult children begins to transition as elders start to experience declines in cognitive and/or physical ability. The roles caregiver and care receiver reverse as the adult children begin to take some control of their parents lives. Often this transition is charged with conflicting emotions on both sides. Ubiquitous computing can play a valuable role by providing scaffolding for this transition. One clear application can be found in employing ubicomp to monitor and appropriately communicating both activity and presence information. While communication of this information clearly invades privacy, the benefits gained in reducing the tension of this transition may outweigh the price of this incursion. As designers, we have begun to explore this space by (i) studying the ecology of elders, (ii) developing interaction concepts and evaluating them with elders, and (iii) developing a smart lounge chair as an initial ubicomp device for an elder's home.

RELATIONSHIP IN TRANSITION

Today many adult children experience great anxiety over the safety of their elderly parents. This is especially true for children who live at a distance; something more common with the mobile workforce required today. Children worry that their parents might fall and be trapped in their home, might accidentally set their home on fire if they become distracted while cooking or smoking, or might be swindled into giving their savings away. This anxiety can damage the current relationship between the child and parent and increased tension leads to terser and reduced communication. In addition, as the anxiety increases and children begin to plan for their parents to move into care facilities and to give up power of attorney, the children experience guilt for the control they begin to exert in their parents' lives. In taking over as a caregiver, the children steal the role they have a lifetime of experience seeing their parents in.

Like their children, elders also suffer from a similar set of conflicting emotions. The transition from caregiver to care-receiver is not easy and can often lead to feelings of lost status and shame. In addition, elders can feel threatened by their children's anxiety over their safety that might push them from their homes. Many elders even begin to conceal information, such as falls in the home and small fires from cigarettes or cooking, for fear that knowledge of these events will cause their children to force them into a new home at a care facility. In both cases the transition is made more difficult by the fact that the roles each has a lifetime of experience playing must reverse.

One method of addressing this transition is by employing ubicomp technology to monitor activity and presence information and then communicate this between the parents and the children. Communication of monitoring information clearly encroaches on the elders' privacy; however, the reduction in the child's anxiety could lead to elders being allowed to remain in their homes longer. Communication of the child's activity also invades privacy, but allows the parent to demonstrate concern for their children, an aspect of parenthood that does not diminish with time. Communication of presence information allows for both the parent and the child to initiate communication at a time that is convenient for both. In addition, the activity

information can help to both jumpstart and maintain conversations.

One ubicomp research example that takes this approach is Georgia Tech's Digital Family Portrait (DFP) [2]. This picture frame placed in the adult child's home holds a picture of their elderly parent surrounded by icons that summarize the daily activity level. By glancing at this picture each day, the child can see if their parent has been more or less active than previous days.

While the DFP has aesthetic design considerations, allowing it to blend into the child's home, it does not directly address the transitioning relationship between the parent and the child. In addition, the DFP makes the invasion of privacy one-way and offers no levels for controlling the information that is shared. As a device, it appears to be either on or off. Our research leads us to believe that what elders and their children really need is an approach that allows for many different levels of invasiveness. This allows for negotiation between the parents and their children, encouraging them to talk about the issues surround the transition in their relationship. In addition, and more granular approach allows the use of the technology to change in order to match the changing relationship between the parents and the children. Over time the participants maybe able to receive more and more information as they develop better trust and more confidence in their new roles in this evolving relationship.

SMART LOUNGE CHAIR PROJECT

We have taken a design approach to studying this question by (i) studying the ecology of elders [1], (ii) generating concepts that explore these issues and sharing them with elders in a focus group setting, and (iii) designing and building a smart lounge chair. This chair senses activities that take place in the chair and also allows users to control devices in their home.

Homes are more than just a place to eat and sleep, they are a place where people care for each other. And this is especially true for elders who remain in their homes. In studying the ecology of elders we noticed the increased role the home and the favorite lounge chair begin to play as the physical world elders experience begins to shrink. In addition to worrying about their children and wanting to participate in their lives, elders also need to address (i) the legacy they leave behind (experience and knowledge they want to pass on to their children and grandchildren) (ii) the details of what happens when they die, and (iii) the details of care if an elder must move to a care facility. In many cases these are all difficult things to topics to discuss because they force both the parents and children to face the elder's mortality and the elder's cognitive and physical decline.

In order to better understand how technology from robotics to ubiquitous computing installations can begin to address the needs of elders aging in place, we generated a series of concepts and documented them as short, illustrated scenarios. We then evaluated these scenarios with a focus group of elders, using the concepts as a method of stimulating discussions about the needs of elders, the needs of their children, the status of the current relationship, and their feelings about technology in the home. This research helped us better understand the relationship elders have with the children and helped indicate the value of communicating presence information between these two groups.

The concept evaluation also helped us to focus on the favored lounge chair as a focal point. Form these chairs elder watch television, read newspapers and books, carry out craft projects, read and send mail, and talk on the telephone. This finding helped direct our research towards the development of a lounge chair that senses activity. We are currently constructing it to both monitor the behavior of elders by inferring their activities and to work as a command center, allow elders to control devices in the home and to communicate through both their telephone and to the ubicomp system. We plan to also continue generating and evaluating use scenarios. Finally, we plan to use our chair in a field study to better understand the effect monitoring has on the elder in their home.

FURTHER DISCUSSION

Going forward, we believe that communication of activity and presence information through a ubicomp system must be a two-way street if it is going to directly address the evolving relationship between elders and their adult children. This does not mean that elders need to see the same information on the children's activity as the children see about the elder. Instead, a balance that shares appropriate information, while balancing privacy and encouraging a more intimate relationship is our goal. We feel by better understanding the transition taking place we can develop a ubicomp system that dynamically adjusts its role to keep the role reversal moving forward.

REFERENCES

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