Intra-Family Mediated Awareness

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ABSTRACT

The research presented examines how pervasive technology can support intra-family communication, supporting existing practices and complimenting them by addressing communication needs currently unmet by current communication media like mobile phones, social networking systems, and so forth. Specifically the investigation focused on busy families, understood here to be families with two working parents and at least one child sharing the same roof. The class of technologies the authors consider are awareness systems, defined as communication systems that support individuals to maintain, with low effort, a peripheral awareness of each other's activities and whereabouts. This research combined a variety of research methods including interviews, web surveys, experience sampling, and field testing of functional prototypes of mobile awareness systems. It also involved the development of several applications, which were either seen as research tools in support of the methods applied or as prototypes of awareness systems that embody some of the envisioned characteristics of this emerging class of technologies. The contribution of this research is along two main dimensions. First in identifying intra-family communication needs that drive the adoption of awareness systems and second in providing directions for the design of such systems.

Keywords: Awareness Systems, Communication, Family Communication, Intra-Family Communication, Pervasive Computing

1. INTRODUCTION

“You twitted that you were uploading photos of the baby on your Facebook profile and SMS-ed father to let him know about it. Shall we skype tonight to tell me all about it?”

This is an excerpt of an email sent by my brother on the occasion of our new born baby. This is the type of conversation that nowadays becomes common language not just among technology enthusiasts but increasingly so by many more people. The proliferation of new communication applications over the Internet and mobile devices that support easy access to such applications has profoundly changed the way people communicate. As is often the case with technological innovations, media such as Twitter, Facebook, Skype and other similar internet based communication applications initially drew the interest of technology aficionados and office workers. By now, these media are being used increasingly so such technologies are becoming very interesting for supporting intra-family communication.

Even though modern communication media and social networking systems have been used for a variety of purposes a core motive
for their use is for sharing information about one’s activities, whereabouts, sharing experiences and moments as they happen. This kind of information can be broadly characterized as awareness information since it supports people to build and maintain awareness of each other.

Dourish and Bellotti (1992) described awareness as an understanding of the status, activities and whereabouts of connected others, that provides a context for one’s own activities. Given the contemporary shift of this research field to the study of social and leisure uses of communication media where the affective benefits of communication come to the fore, it is clear that awareness provides a context for one’s own experience (Markopoulos, 2009), providing itself affective benefits or costs (Ijsselsteijn et al., 2009).

The increasing adoption of current social communication media such as the examples mentioned above can bring clear value to people but it also requires them to actively input awareness information updating their status and posting messages. A question that arises is how people would react to applications that would automatically capture and communicate awareness information on behalf of them. Moreover, in the case of families, can such applications or systems play a role in supporting intra-family communication? Especially when family members already live together and already have a high degree of awareness of each other’s rhythms of daily life, their whereabouts and needs, is there scope for systems aiming to increase communication frequency and the shared level of awareness? What role can such systems play when families already make extensive use of mobile phones, regular phones, email and other internet based media? Even if there are benefits for families to use new communication media, do they bring any affective costs? Would there even be a chance that such systems, instead of supporting families in their communication, would actually spoil their communication?

The research presented in this paper addresses this type of questions. In 2004, when this research endeavor began, the aforementioned communication applications did not exist or were still in their infancy and concepts such as sharing of information about one’s location and activities seemed farfetched. By now some of these concepts have become commercially available and the research questions we described even more relevant.

More specifically, the research presented in this paper has two objectives. The first objective is to investigate the current communication practices of family members to stay in touch with each other. Based on this investigation it elicits requirements for new pervasive communication systems which aim to support intra-family communication. The second objective is to develop new systems based on the elicited requirements and evaluate them.

In this paper we focus on families who consist of working parents with dependent children living under the same roof. We shall call such families “busy families”. The primary interest in addressing this user group is that these families have hectic professional lives which put under pressure their personal lives and their communication with their beloved ones. In summarizing the motivation for the research work presented in this paper, one of the main questions addressed is whether there are unmet awareness needs for this particular group and if so, how can new communication systems address these needs?

The fact that this group of people already has extended daily and direct contact makes it all the more challenging to find a place for awareness systems. What role can awareness systems have in the already crowded mediascape of busy families? This critical standpoint was instrumental in the research approach taken and the early development of this work.

1.1. Pervasive Computing and Awareness Systems

Before presenting the approach we took in this work, the technological area investigated needs to be introduced in more detail. Broadly we are concerned with pervasive computing technologies (Satyanarayanan, 2001), that combine embedding into the physical and
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