SMART HOMES AND EXTENDED FAMILIES

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ABSTRACT

Mobile and Ubiquitous technologies have the potential to strengthen and enrich geographically dispersed multi-generational family relationships and networks in ways that go well beyond existing telecommunications technologies. Smart home technologies could be developed specifically to facilitate a rich range of interactions between geographically dispersed members of multi-generational and extended families by focusing on ways in which *networks* of two or more smart homes could promote such interactions. The aim is find ways to strengthen geographically remote multi-generational family relationships and reduce the isolation of older family members. We outline the new interaction principles that can be used to simplify such interactions, and the biographical and ethnographic techniques needed to identify the factors likely to affect the acceptability and perceived value of such new facilities within family networks.

Keywords

Mobile, ubiqutious, older people, extended family, smart houses.

1. INTRODUCTION

Extended family relationships and networks have played important roles in many societies throughout human history, and continue to do so for many people. Where families of three or more generations live closely together, there are diverse opportunities for rich ways in which family members can interact and help each other.

Historically, factors such as industrialisation, the mobility of labour, and, in the UK, waves of housing policy, have led to wider geographical dispersal and smaller household sizes. In many post-industrial societies, patterns of multiple generations of blood relatives living together or close by have therefore been largely superseded by more complex and distributed living/networking arrangements

There have been some unfortunate consequences of these trends. In particular, these trends have led to increased social isolation, particularly for many older people, and arguably the dilution and inhibition of potentially enriching relationships between generations within families. A parallel increase in the value placed on personal independence has been particularly influential in gerontology, some aspects of social policy, and the provision of services to older people.

One effect of these trends has been to motivate the development of smart home applications to assist older people and people with disabilities to live independently, for longer, in their own homes[1]. Personal independence is more likely to become compromised in later life for many reasons; financial, social, and physical. Although some older people experience no serious problems, most experience some degree of physiological or psychological impairment ranging from mild to serious and limiting conditions. In many cases the effects of these conditions can be ameliorated through social and technological support.

2. IMPORTANCE OF RICH SOCIAL INTERACTION

Nevertheless, we assert that when designing domestically focused technological frameworks to support the well being of older people, it is not enough to focus solely independence and related issues. In particular, the complex webs of attachment that can be fundamental to a life of quality include frequent diverse social interactions, especially interactions with loved ones. Thus, future domestically focused technological frameworks aimed at supporting the well-being of older people should not be limited to promoting independence but should also explicitly focus on facilitating rich social interaction with remote extended family and loved ones.

When blood relatives live close by, rich social interactions can be afforded in numerous ways that are not easily afforded remotely via existing forms of telecommunication such as telephone calls, emails, SMS messages, alarms etc. However, we believe that much

richer interactions could be afforded between multi generational remote family members and loved ones by making use of the rich possibilities for inter-operation made possible between people split across two or more smart homes.

Whatever technology were to made available, rich interactions between family members in geographically remote smart homes would be workable in practice only to the extent that a) simple means could be found for people to be in control of them, b) to the extent that such interactions were felt to be valuable and c) to the extent that such systems were accepted by potential users.

In order to design candidate complex interactions between smart homes that are relatively simple to afford, control, and monitor, we propose to make use of the user interaction principle known as Direct Combination (DC)[2]. This interaction principle is well suited to reducing the mental load required by users in setting up interactions between two or more complex systems, of which a pair of smart houses are a good example. The principle does not commit to particular any specific interaction techniques or technologies, and the principle offers conventional interaction patterns as special cases, so affording a high degree of flexibility in design and use.

Using this simplifying principle we will work with multigenerational and extended families to develop scenarios, and to prototype examples of rich social interaction that can be usefully afforded by two or more smart houses.

3. METHODS

A central concern of the research will be to use, modify and develop appropriate biographical and broadly ethnological techniques to uncover factors within complex networks of family interaction that affect perceived value and acceptability of proposed new kinds of interaction. In this way, we aim to develop and validate scenarios and prototypes of interaction with high perceived value and acceptability afforded by two or more smart houses.

While the older population is extremely diverse, with succeeding generations, ever higher proportions of older people have access to developing technologies and want to use them to remain in contact. For example while the current take-up of computers and web access is relatively low among the oldest old, it is much higher among those currently moving towards retirement and they constitute a significant market for relevant developments.

However, despite this steady positive generational shift in attitudes to new technologies, it is still the case that proposed technological innovations aimed at parts of the highly diverse older population are often, in general, not well accepted, It can be hard to marry up the capabilities

of future technologies and the needs and aspirations of different segments of different generations.

In order to uncover the factors that affect acceptability in different contexts of present and developing technologies, many new broadly ethnographic and biographical techniques have been, and are being, developed. Good examples of such techniques include technical biographies[1], cultural probes[3], technology probes[4] and others [5, 6]. Rather more effectively than evaluative instruments that focus on isolated applications or technologies, biographical approaches and related methods allow researchers to look at a very wide range of factors, some not at all obvious, that may affect the development of comfort levels in potential technology users.

Participative and evaluative approaches offering this degree of breadth and sophistication are particularly useful in the case in studies that involve measuring or explaining complex networks and behaviour. One example is the description [7] of the dynamic processes by which older people actively select environmental supports via a process of option recognition. To maintain a viable level of comfort and independence as they age, people continually optimise their personal positioning within what is actually available to them. This includes both social networks and technologies.

As already noted above, a rich range of possibilities could be opened up by interaction between members of genetic and or elective families using mobile and ubiquitous technologies, as for example by the linking of two or more smart houses, and/or remote units.

The factors that affect acceptability in distributed multigenerational scenarios will be crucial to any such developments. We suggest that their effectiveness will rest not on looking just at the parameters of acceptability for individuals or those living in a single location, but at attitudes within networks of relationships and places. Knowledge of the strategies that the users employ should allow designers to develop more suitable and person-focused systems[8].

4. REFERENCES

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