



Past experiences, current practices and future design Ethnographic study of aging adults' everyday ICT practices – And how it could benefit public ubiquitous computing design

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ABSTRACT

This article discusses how the elderly experience their ICT usage as the aging citizens of the Finnish information society. Through reflexive ethnographic analysis the human–(non-) human boundary-making and temporalities are analyzed from the “ICT biographies” of sixteen interviewees. The perspectives of aging as lived experience and as socio-cultural phenomenon; and the socio-materiality entangled with temporal layers; are combined to understand the *intra-action* between the aging ICT users and technology. The social relations are discussed as an essential part of this *intra-action*: the interviewees perceive themselves as slow and clumsy ICT users in relation to younger “generations”, for example. In the boundary making between humans and machines, the interviewees' previous experiences on communication technologies are significant. Continuing on the path set by previous studies on ICT and aging, this article further discusses the benefits of ethnographic study on existing ICT practices for computing design. What could be learnt from these practices in relation to, for example, technology usage in private and public places, negative and positive experiences, motivations and needs of aging citizens? How could design benefit from understanding aging as situated, lived experience; and on the other hand, from investigating research process through reflexive ethnography?

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1. Background

Ethnographic methods have been used in technology design, particularly in Participatory Design (PD), since the 1980s. However, the relationship between ethnography and PD has been complicated, and many scholars have developed a combinatory approach to correspond both to the scientific standards of ethnographical methodology, and to benefit design [1–3]. Though some anthropologists have participated in multidisciplinary research programs by evaluating implementations of information and communication technology (ICT) or by practicing PD [4,5], anthropological studies have mostly focused on the appropriation of technology by

teenagers or societies without a specific focus on the aged [6–8]. On the other hand, the ways elderly citizens use and experience ICT has been scrutinized in the social sciences through various theoretical perspectives [9–16]. Through my study I aim to integrate these two branches of research firstly by analyzing the socio-material relations of aging adults and ICT; and secondly by discussing how these findings could be utilized in the design of public ubiquitous computing [17,18].

Both the use and the design of technology are embedded in their socio-cultural environment, which means that this environment affects both how people experience using technology, and how the design process is conducted [19,13]. Since my study is situated in the city of Oulu in northern Finland, which has for over three decades invested heavily on high tech industry and thus built its image as the city of high technology [20], I will consider the impacts of this socio-cultural location on the interviews of aging city dwellers. Lately, the city has also

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promoted itself as a smart city where novel ubiquitous computing infrastructure serves the city dwellers in their everyday tasks. New computing technology is deployed in downtown Oulu in the form of interactive public displays and public open-access network, for example. In our anthropological studies, we have previously scrutinized for whom the novel ubiquitous computing technologies are actually designed, taking into account that the official aim of the design has been to improve everyday lives of all citizens, including the elderly. The design of smart Oulu has, so far, been technology driven, and therefore it is important to ask, how could the needs and desires of, for example, aging citizens be considered in future designs [21–24].

The main ontological principle of cultural anthropology is the understanding of humans as socio-cultural beings. People act through the socio-cultural norms surrounding them, like the norms related to “proper” aging. However, people can sometimes resist the prevailing norms and through their practices change them. Secondly, in anthropology it is also essential to contextualize the phenomena under study. For example, culturally and personally constructed boundaries between private and public spheres together with social relations and personal histories affect how people use technologies in public [22,17,3]. Thirdly, anthropological study aims to understand the world from an insider's point of view [6], which in the case of my study means the perspective of aging city dwellers. To reach this goal, the starting point of a study must be the everyday life of people which is then carefully scrutinized through ethnographic methodology. A complete understanding of the insider's view is, however, not possible, and consequently reflecting on the relationship between researcher and people under study, is the fourth main principle of anthropology [17,25]. I will naturally follow these principles in this article.

Designers aim at changing everyday practices and environments through new technological innovations. Therefore especially the design of *ubiquitous computing technology* (‘ubicomp’), also dubbed as ambient, calm, pervasive or invisible computing, where computing technology is everywhere and in everything, but has receded into the background of daily life, requires socio-cultural sensitivity [26,27]. It is crucial to note that unlike technology design, ethnographic study as such does not aim to change people's lives. Nevertheless, it can benefit design indirectly: as Dourish and Bell write: “the domain of technology and that of everyday experience cannot be separated from each other: they are mutually constitutive.” These scholars, however, strongly question the use of ethnography only as a range of diverse methods to categorize “users” various needs, and call for more theoretical ethnography in ubicomp. Dourish and Bell also advise to neglect the common structure of design articles to finish the ethnographic analysis with a section titled “implications for design”, since it is against the principles of ethnography [17]. In this article, I will discuss the benefits which my ethnographic study could provide for ubicomp design in the smart city of Oulu; but as an ethnographer I cannot point out any direct implications my study has for design. That is for designers to discover.

2. The aim of the article

The aim of this article is to discuss how an ethnographic study of Finnish aging adults' everyday ICT practices could be

used in technology design. In order to answer this question, the ethnographic descriptive analysis is used to understand:

- 1) the relationship between social networks and ICT practices of the elderly
- 2) the generational differences and similarities related to ICT practices
- 3) the meanings of human and non-human relations in these practices

These three themes have emerged from the material through iterative ethnographic readings. In this article, ethnography is used according to its original definition; in other words, it refers to the *epistemological understanding* of the knowledge produced through the research process. Like anthropologists in general, Dourish and Bell underscore that ethnography is not just a fieldwork or data collection method, but a specific understanding of the knowledge production process that calls for reflexive analysis [17,25]. I practice ethnographic analysis in the theoretical framework of both socio-material boundary-making and temporalities because of the nature of my research material, i.e. biographical interviews. The socio-material perspective has not, thus far, been used while studying the ICT practices of aging adults, even though it offers a fruitful point of departure to comprehend the complexity of these practices. It is not just humans who interact in ICT encounters but also non-humans [28,29]. In addition, focusing on temporalities enables me to explain why aging adults experience their relationship with ICT in particular ways. By temporality I thus refer to both the ‘experience of and experience within the passage of time’ [30]. Through my study, I argue that to understand the phenomena of aging and ICT, studies should focus on 1) biographical histories related to technology usage; 2) socio-material intra-actions; as well as 3) the socio-material realities that aging adults live in.

As an anthropologist, I examine aging both as a sociocultural phenomenon and as lived experience. From an anthropological perspective, these two sides of aging are inseparable: how individuals experience and talk about their aging reflects the social discourses and cultural norms related to the issue. This notion helps the researcher – and technology designer – to understand why the elderly talk about their aging in certain ways. Aging takes place in communities, but Toni Calasanti and Kathleen Slevin [31] have argued that in western cultures aging is often referred to as an action of the individual: somebody has “aged successfully” or has “let herself/himself go”. Getting old is usually considered to be something negative, also by aging people themselves, and strategies to avoid getting old are continuously developed. However, as Calasanti and Slevin [31] claim, “societies proscribe appropriate behaviours and obligations based on age.” This means that the information society and its discourses of elderly people as “technophobic”, or on the other hand as “silver surfers”, affect the ways elderly people experience their own relationship with ICT and themselves as members of the information society. When the norm is to be a capable and willing user of new technologies, people have to come up with strategies to fit into this present definition of a good citizen [32].

After presenting the ethnographic analysis of the aging citizens' ICT practices, I will turn back to the question of designing public ubiquitous computing technologies. What can be learnt from the already existing everyday ICT practices

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