Chapter 10
Iterative User Involvement in Ambient Assisted Living Research and Development Processes:
Does It Really Make a Difference?

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ABSTRACT

This chapter is based on results from the European research project SOPRANO which is developing supportive environments for older people based on the concept of Ambient Assisted Living (AAL).

The project adapts and applies Experience and Application Research (E&AR) methods involving active participation of older users throughout an iterative development and design process. Innovative participatory methods enable developers to thoroughly focus on the users when defining the system requirements, generating design solutions and evaluating these design solutions in both lab and real life settings.

The example chosen to best demonstrate how the character and detail of user ideas changed in the different stages of the R&D process is the development of an exercise support system applying an avatar showing the exercises on the TV in the home of an older person.

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INTRODUCTION

For the analysis and processing of user ideas a conceptual framework was developed that was applied in each of the development cycles in the project after the requirements elicitation process. This was crucial as every cycle of user interaction involved older end users in four countries (Germany, Spain, the Netherlands and United Kingdom), generating a large amount of feedback that could be contradictory in nature as well as providing consistent themes.

The chapter reviews of the importance of user involvement during the development process of AAL systems in general and exercise support in particular. After an introduction to the topic the chapter outlines results from the first phase of user involvement, where users significantly contributed to the requirements collection for the system. The conceptual framework that was applied during the system development process together with older people is then described. Results are presented from two user involvement cycles regarding the development of an exercise support system. The process by which ideas changed in each stage of the cycle, and how user ideas were processed and analysed in the development of the system is discussed. The chapter concludes with a critical review and next steps.

BACKGROUND: FROM INDEPENDENCE TO USER INVOLVEMENT

The SOPRANO (Service-oriented Programmable Smart Environments for Older Europeans) project is an EU project funded under the 6th Framework Programme developing supportive environments for older people based on the concept of "AAL", using pervasive ICTs to enable older people to live independently in their own homes.

The concept of "independent living" is very much at the core of the research and development carried out in SOPRANO and in similar projects in the field of AAL. The concept is increasingly used in policy addressing demographic ageing, social integration of older people as well as health and social care provision, reflecting the desire of older people to live independently in their own homes (Sixsmith, 1986; Gattuso, 1996; Moore, 2000). Despite its experiential and policy significance, it should be noted that the term "independent living" in itself is a high-level concept or an aggregation of a multitude of factors reaching down to the level of the individual and related to a fundamental question: "What is important for me to lead a good life (in old age)?" There is also evidence that this concept, particularly in relation to older people, is understood rather poorly today (Sixsmith, 1986; Secker et al, 2003). Few have asked what the term means, or what its constituent parts are. Some deconstruction of the term is therefore in order to better understand the role of user involvement in SOPRANO.

"Independent living" can be understood as the desire to lead one's life and at the same time avoid dependence. Such dependence can take different forms according to the area of life that is concerned. For the purpose of this deconstruction, we assume four such areas:

- **Social Interaction:** maintaining social contacts without becoming a burden on others, including family members, friends and neighbours.
- **Economic Welfare:** bearing the expenses of daily living (rent, shopping, travelling etc.) alone or together with a partner.
- **Mental Wellbeing:** possessing the necessary mental capabilities to carry out activities such as planning a holiday, remembering appointments and phone numbers, orientating oneself in the streets etc.
- **Bodily Wellbeing:** possessing the necessary physical capabilities to carry out activities such as shopping, washing, cleaning etc.