The user-centered design of an ambient technology

M.E. BOBILLIER CHAUMON, S. BEKKADJA, F. CROS, B. CUVILLIER. ***The user-centered design of an ambient technology for preventing falls at home.*** *Gerontechnology 2014;13(2):169;* doi:10.4017/gt.2014.13.02.090.00. **Purpose** In the context of the elderly homecare, an innovative and pervasive solution[2] that involves a camera and a microphone is being conceptualized (ANR & CNSA project). This system called CIRDO is based on a systematic analysis of the audio and visual environment of the elderly. It could detect risk situations such as falls and give emergency alerts. **Method** The design of the device is based on two levels of analysis. The first is to identify and characterize the falling process[5] in order to provide system designers with a set of behavioral (key breaks) and verbal (keywords) indicators required for setting up CIRDO. To do this, various methods have been employed: semi-structured interviews with 65 elders, analysis of daily activities conducted at senior homes, and analysis and falls' script methods (simulation, filmed incidents observations and Personas method[1]). The second level of analysis was to explore the social acceptance of this new technology into the social systems of the elderly (composed by the person themselves, their family environment, professional and personal caregivers) by interviewing a sample of 62 people (24 elderly, 19 family caregivers, and 19 professional caregivers) through semi-structured interviews, focus groups and activity analyses. **Results & Discussion** From the first set of data, 12 scripts of falls have been shown (*Figure 1*). In a second part, the social acceptance of the future device has been tackled, taking into account the experiences and positions of the various actors to the device. The reading grid offered by Engeström's system of activity[3] has shown an ambivalent positioning by these different actors: based on their experiences, their careers, and their needs, each of the elderly, professional counselors, and family members has a different view of the object of their activity (support, help, care, prevention, control), and therefore has specific expectations and fears. The function and purpose of the device may be interpreted differently by the various stakeholders (*Figure 2*): visions may be incomplete, conflicting, or partially contradictory. The difficulty in the design and implementation of CIRDO is to adjust to a psycho-socio, home embedded system that is different every time given (i) the diversity of activities at risk of the elderly, and (ii) the interests of different actors.

References

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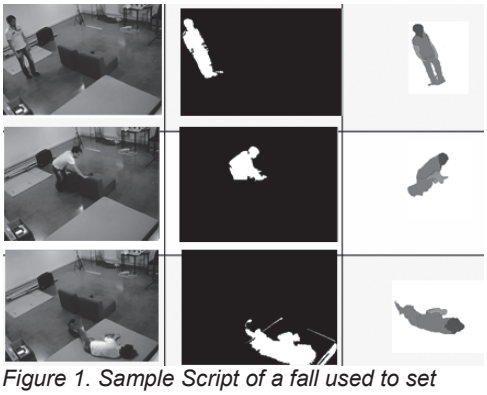

Figure 1. Sample Script of a fall used to set CIRDO

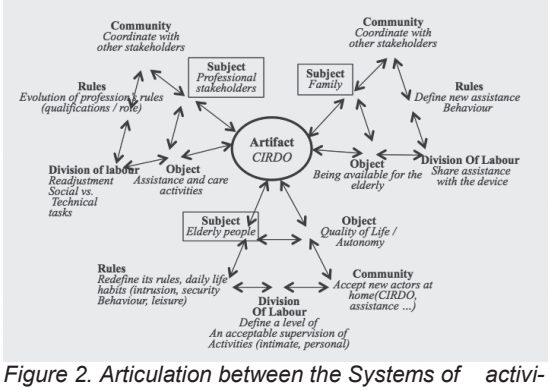

Figure 2. Articulation between the Systems of activity of actors in the home