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"How do you care for technology?" – Care professionals' experiences with assistive technology in care of the elderly

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ABSTRACT

The needs of elderly people and their relatives, as well as the problems they face in using assistive technology, are taken into account to some extend when such devices are designed. However, another important group is overlooked in most of the research and technical development: care professionals. They use assistive devices every day. To consider them as users and facilitators of assistive technology has become even more important, since new capacities of technology and comprehensive visions of robotics have started to change the relation between care workers and technology significantly.

In Berlin, Germany, we conducted a series of qualitative interviews with care professionals who work in care services or advise on technical aids for the elderly. Our main focus was on the experiences of the care professionals with assistive technology: on the kind of assistive technology they use, the benefits and difficulties they experience using technology, the visions they have etc. We found out that care professionals perceived technology to be in competition with important aspects of care. The results reflect the changing relation between care workers and assistive technology.

1. Introduction

The needs of the elderly and their relatives, as well as the problems they face in using assistive technology, are taken into account to some extent when such devices are designed [1,2]. However, another important group is overlooked in most of the research and technical development: care professionals who care for the elderly. They use assistive devices every day, they care for and help people who use these devices, and they give advice on assistive devices [3]. It is becoming more important to consider care professionals as users and facilitators of assistive technology, because new technological capabilities and far-reaching developments in robotics have started to change the relationship between care workers and technology significantly. These new technologies lead to shifts in care networks and the division of responsibilities. Our aim was to investigate how care workers who work in traditional face-to-face care (not in telecare centres or services) perceive these shifts and changes.

In Berlin, Germany, we conducted a series of qualitative interviews with care professionals who work in care services or advise on technical aids for the elderly. In the interviews, our main focus was on care professionals' experience with assistive technology: the kind of assistive technology they use; the way assistive devices are integrated into their care practices; and the visions they have for the future.

Many care workers report finding that the assistive devices are difficult to handle or malfunction. However, some of the interviewees describe solutions which integrate a new function into an existing system (e.g. a sensor mat that can be connected to a nurse call system in a nursing home) as helpful because such solutions reduce the workload or responsibility. As care

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professionals play a key role in the implementation and daily functioning of assistive technologies, their perception of the technology must be taken seriously. We should aim to gain a better understanding of how they interact with assistive technology in their care practice and how they care for technology.

2. Conceptual framework

In our interviews, we focus on care workers' experiences with assistive technology, because they are an important technology user group: they are in a position to transmit knowledge and know-how about assistive devices to other users, such as the elderly and their relatives [3, p 458]. In this sense, care professionals have to be considered as important catalysts. The care work they do is part of a network that encompasses the elderly and their relatives, and care workers, as well as the technological, financial and legal background against which the care is carried out.

How can we conceptualise interactions with assistive technology? From a science and technology studies (STS) perspective, we suggest focussing on the concept of *domestication*. This concept has been developed in the context of media and cultural studies to describe the ways in which (mainly media, information and communication) technologies are integrated in the user's home [4]. Haddon and Silverstone, who founded this concept in the 1990s, used it to observe the integration of the phone and the TV in the home [5]. Later on, the household use of ICTs such as personal computers or the internet was studied with the help of this concept. In the meantime, the concept of domestication has also been adopted for workplace observations, such as studies of ICT use by home office workers or in small enterprises.

The whole process of acquiring a new device, taking it home, finding a place to put it, integrating it into the daily routines of the members of the household, adapting it to the individual's needs resembles "the taming of a wild animal" [4, p 2]. Therefore, the model used to conceptualise this process is called *domestication*. We mainly consider the relationship between the user and the technology, and the concept of domestication implies that both make concessions: technology is adapted to suit the personal or social wishes and needs of the user; at the same time the user's home and routines must be changed to accommodate the new inhabitant: how often does it need care or servicing, where will it be kept, for which activities can it be used? Assistive technology that is operated by care professionals is part of their *work*; at the same time it belongs to the *home* of the elderly person who is being cared for. Tinkering as well as modifying technology to the individual's needs are also part of the process of taming the new technology. People with special needs and the people who care for them are used to pragmatically adjusting devices, equipment, care routines and the like [6].

In his phenomenological approach towards a philosophy of technology, Kaminski [7] describes technology in general as being linked to a form of expectation: expectation of familiarity (when we make a call with our mobile phone, we expect that it will work as it has always worked), expectation of new potential (through robotics or nanotechnology), expectation of trust (for example, when people argue that nuclear power is safe), or expectation of functionability (when people are convinced that in the future the intelligent home will organise itself through home automation and the "internet of things"). At different stages of their development or use, technologies can be linked to different forms of expectation. Before a technology can become familiar to users, a process must be gone through of interacting with it, getting accustomed to it, and building trust [8]. To come back to the concept introduced above: technology has to be domesticated. In the following analysis, we consider a framework for describing this process of engagement with technology with a special focus on gerontechnology and the elderly.

Peine and Neven [9] have criticised the fact that most approaches to gerontechnology imply that technical development must concentrate mainly on the special needs of the elderly. According to this perspective of "individual lag" (the authors refer to M. P. Lawton's environmental gerontology here), the elderly are characterised as a group of people who are special because they are no longer able to act as normal people do – in terms of their physical, sensory or cognitive functioning. The disabilities and needs of the elderly are assumed to be pre-existent, homogeneous and constant. Under this model, designers have to develop products that fit these needs if they want them to be appropriate devices for the elderly. By contrast, Lawton's "social structural lag" perspective shifts the emphasis from the individual's condition to the environment: it focusses on the deficiencies resulting from a (social, institutional, technical,…) environment that prevents a person from satisfying their needs for communication, autonomy, health, and so on. The environment can disable people – but it could also enable them to do what they want to do, and even to do more or to do other things on top. According to this view, a supportive environment can be a resource for an ageing person, as it can support proactive behaviour. Peine and Neven conclude that: "Assuming environmental proactivity […] would focus on a user's capacity to shape the form and meaning of new technological environments in accordance with his or her evolving needs." [9, p 133] The concept of domestication explains how engagement between technology and users can take place. Therefore, as the authors suggest, technology should to some extent allow the user to engage with it and create new ways of using it. In this approach, ageing is acknowledged to be a dynamic process of change and transformation [10].

In any consideration of social support for the elderly, one important aspect is the regulation of access to assistive technology. This varies very much from country to country in line with the different social insurance systems in place. In Germany, everyone is eligible for financial assistance to cover technical aids for rehabilitation or care through the statutory health or nursing care insurance system (cf. the German "Sozialgesetzbuch" (Code of Social Law), book V and XI).[1] The process of granting aids is quite complex: a medical practitioner prescribes the aid, and then the medical advisory service of the statutory health insurance ("Medizinischer Dienst der Krankenkassen") checks whether the person really needs the prescribed device. According to the ICF of the WHO, an assistive device is a device which is qualified to prevent, support or balance restrictions that result from a disability, and to support participation [11]. The whole approval process emphasises the individual impairment of the patient. However, this supply

[1] For people with a private health and nursing care insurance, the individual insurance policy or contract defines whether assistive devices are covered by the insurance.

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