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Abstract. This paper reports on observations and discussions conducted through a weekly technology support service at a residential care facility for senior citizens. The intention with the fieldwork was to get a better understanding of the knowledge and relations seniors, living in smart homes, have with modern digital technologies. The findings are presented in the form of two vignettes and analysed through the lens of actor-network theory. The analysis shows how the use of technology is immersed in a web of socio-technical relations. It also shows that these relations contribute to dynamically enable or disable actors in a variety of ways. The contribution of this work is to give some reflections on how socio-technical structures affect the character of ability and disability, and the implications this has for the design of welfare technology.

1 Introduction

There is increasing interest in the development and use of welfare technology to meet future demographic challenges. The Norwegian Directorate of Health lists eight main reasons for investing in research and development of welfare technology: (1) to help individuals manage their own life and health, on their own terms; (2) to allow people with needs for health and care services to stay longer in their own homes before moving into care homes; (3) to contribute to the goal of a universally accessible society by 2025; (4) to improve the quality and flexibility of care services, and increase job satisfaction; (5) to contribute to innovation within health and care services and create new areas for cooperation; (6) to contribute to innovation and better cooperation between public and private welfare providers and actors; (7) to generate public and private value and develop domestic and export-oriented industries; and (8) to generate positive socio-economic effects (The Norwegian Directorate of Health, 2012).

This paper reports on some initial exploratory fieldwork into senior citizens' knowledge and use of modern digital technologies (e.g. computers, mobile phones, tablets, email, internet, etc.). A weekly technology support (hereafter TS) service for senior citizens has been organized, with the intention of learning more about seniors' experiences with technologies currently available to them. This provided an opportunity to observe seniors using, or attempting to use, existing digital technologies, and to talk with them about their understandings and perspectives on the use of those technologies. The fieldwork has been ethnographic in nature and informs further research related to the design of welfare technology for senior citizens. This paper reports on some of the experiences gained through

this fieldwork and uses Actor-Network Theory (ANT) as an analytical lens for discussing how different socio-technical arrangements can affect the agency of senior citizens.

ANT provides a range of different concepts and perspectives that are well suited for analysis of socio-technical relations. It is a powerful tool for those who want to explore the interplay between society, technology, and design (Storni et al., 2014). In Storni (2009), ANT perspectives are used to explore the user/designer relationship in terms of open and closed product designs. It is argued that the design of artefacts, through multiple socio-technical entanglements, becomes an act of defining and reconfiguring individual and collective agencies. Similarly, Woodhouse and Patton (2004) argue that professional designers, despite being in control of their own design work, are entangled in larger social contexts and incentive structures that, although being far removed from the design process, may have a significant effect on the materiality and agency of the designed artefact. Thus, the designer is not the sole master and creator the designed artefact: "social norms, values, and assumptions are reproduced - often unintentionally - in the products of design" (Woodhouse and Patton, 2004, p.2). The *A.Telier* group, in their book *Design Things,* reflects on the socio-technical relations that influence the design process and its outcomes (Telier et al., 2011). In their view, humans and artefacts are all design materials that in different ways are negotiated, aligned, and incorporated into design projects, and thus have an impact on the outcome of the design process (MIT Press, 2011). Aanestad (2003) uses ANT to show that the introduction of telemedicine technology into surgery becomes a process of alignment and negotiation of diverse and conflicting interests. She argues that the camera becomes an actor that, through its socio-technical presence, affects and reconfigures the existing work practices. Finally, Law and Moser (1999) uses ANT to show how the specificities of the different networks of materials that actors are engaged with in their everyday lives contribute to dynamically enable and disable them in a variety of ways. This paper draws on Law and Moser's conception of dis/ability to explore how socio-technical materials and structures can contribute to translate senior citizens as incompetent, or even disabled, despite the fact that they are still fully capable of living their lives as they have always done. It concludes with some reflections regarding how we approach the project of providing welfare for senior citizens through technology design.

2 Case and method

2.1 Case

Care+ facility. Care+ is a new service concept offered by Oslo Municipality in an attempt to develop technology-assisted and less labour-intensive models for elderly care. It is aimed at seniors who are largely able to take care of themselves, but who have a need for more safety, activity, and social interaction in their daily lives. The main aim is to enable the residents to maintain or re-establish normal self-care activities within the confines of their own homes and local communities (Kirkens Bymisjon, 2014).

Kampen Care+ provides the setting for the empirical work described in this paper. It is an independent living facility with 91 apartments and communal areas where seniors can live

their normal lives. The facility provides a range of services, such as different kinds of cultural and social activities, a library, a gym, and a café. The facility is taking part in a two-year pilot project on welfare technology, and all apartments are equipped with a pre-selected collection of welfare- and smart house technologies that are meant to provide comfort and security for its residents. The technologies include motion-activated lights, electronic stove guards, personal alarms, and personal tablet computers for each resident. The tablets provide different communication services, activity calendars, photo browser, and other service functions. Additionally, there are six computers located in the library, which the residents are free to use. The facility is minimally staffed (1-3 people) 24 hours a day, seven days a week, providing an added level of safety and availability of human assistance when needed.

Motivation. There were two main motivations for conducting a tech support service for the residents at Kampen Care+. First, it was motivated by a simple curiosity about how seniors relate to and use common digital technologies. The second motivation is more complex but was based on the idea that seniors, on an individual level, are not particularly interested in using technologies for 'old people'. Seniors are individuals like everyone else, and they want the freedom to choose technologies that make sense to their lives and allow them to be who they want to be. And unless the technologies do so, they simply will not be used.

The manager of the facility was thrilled to hear about the idea of conducting a TS service for the residents. She said that the staff was repeatedly getting requests for help with different kinds of technology, which they neither had the time nor the necessary competence to deal with. She was happy to distribute information about the service to the residents

2.2 Method

Participants. The TS service was set up as a voluntary service for the residents at the facility. Once a week, a volunteer researcher was available to help with any questions or problems the residents had with different kinds of technology. However, the nature of this service precluded acquiring informed consent from the residents to take part in research activities. It would not be fair to exclude residents from the TS service simply because they were unwilling to take part in research. Thus, it was decided that the service would not be conducted as a normal research activity. Instead, all participants were informed of and accepted the researcher's intentions of learning more about their knowledge and use of digital technologies. However, because they were not required to give informed consent to take part in research, the researcher would not be allowed to take notes pertaining to individuals. Nevertheless, permission was given to make general observations about participants' knowledge and use of technology. This was clarified and approved by the national authority on privacy and data protection in research involving human subjects: Norsk Sammfunsvitenskapelig Datatjeneste (NSD).

Observation. The participants of the TS service have been observed while using, or attempting to use, different technologies and devices. They have been questioned in order to understand the problems or challenges they experience, and to find appropriate solutions. In many cases, the researcher has also been invited into the homes of the participants in order to address their problems. This has led to informal conversations about their use of technology,

as well as other everyday experiences and practices, contact with friends and relatives, and any other subjects the residents may have wanted to talk about. Given the personal nature of these sessions and the lack of informed consent, it has not been possible to take notes during these sessions. Instead, the focus has been on being present and attentive in the conversations with the residents. After the sessions, some general notes have been made without tying them to specific residents.

Ethnographic vignettes. Given the restrictions on data collection relating to individual residents, it is not possible to relay actual user stories in this paper. Instead, ethnographic vignettes are used in order to illustrate the experiences that the residents have, and the challenges they face, when trying to use digital technologies. Ethnographic vignettes are short narratives that "are used as a way of distilling the results of ethnographic fieldwork" (Wright and McCarthy, 2008, p.642). They describe a person, doing something, in a certain setting, and are meant to give the reader a first-hand feel for the given experience (McCarthy and Wright, 2005).

3   Theoretical lens

Actor-Network Theory is used as a theoretical lens for analysing the interactions and relations the elderly residents have with technology. ANT is concerned with socio-technical power relations and mechanisms that determine the nature of specific social orders (Law, 1992). Central questions include: How is it that the current state of affairs came to be? How is it maintained? How, and by what mechanisms does it change?

One of the defining features of ANT is its understanding of agency and actors / agents. Agency is not seen as something that is inherent to the actor, but rather as an effect caused by the sum of influences that are brought to bear on the actor by the environment and society at any given moment (Law, 1992). Thus, agency is seen as dynamic and in a constant state of flux, always contingent on both external and internal processes, and never final. It manifests itself through the interaction with networks of heterogeneous materials, such as people, organizations, ideas, and 'things'. An actor is who s/he is as a result of the interaction between his/her body and the society s/he lives in.

Furthermore, agency is not a privilege reserved for humans. Things, ideas, organizations, and all the materials of our physical and metaphysical existence are also produced and reproduced through the interaction with networks of heterogeneous materials (Latour, 2007; Law, 1992). A box can be a container, a pedestal, an altar, a coffin, and so on, and it is its relation to, and interaction with, other materials that define its identity and purpose. The physical characteristics of a box may allow it to contain things, but it does not become a container before there exists external objects that it can contain. Likewise, the box does not become an altar until it is decorated with religious symbols and artefacts and incorporated into religious practice through worship and prayer. In both cases, the box is given an identity through its relation to other materials and practices, and, reciprocally, this relational identity also imbues the box with an agency to redefine or rearrange the socio-technical structure that it is a part of.

The concept of *translation* is closely related to the notion of agency in actor-network theory. Translation refers to the ordering forces and strategies of networks of heterogeneous materials, and the power struggles and resistances to change that are continually and recursively generating and reproducing order and structure in society (Law, 1992). Actors are given social existence through their relation to, and interaction with, their surroundings. This is not to say that their identity is predetermined by the environment, but rather that there is a constant struggle to interpret and structure the agent according to the forces and strategies existing internally in the actor and externally in the environment. For example, an African-American expatriate living in Paris admits to experiencing new dimensions and perspectives regarding race and identity after living in Paris for a while:

> I'm not sure what it is. All I know is that it feels very different to be around French white people than American white people. […] I feel much more comfortable. I feel that I'm not a black object. […] It's not just that we feel free of the burden of race, because we are still black. I still experience myself as black. It's just that that's not like the centre of my identity. It's not the first thing people relate to when I meet them here. (Glass, 2000)

So the networks of materials and social relations that she encounters in France contribute to translating her identity, as well as white people into something else than what she is used to in the US. Furthermore, it gives her an understanding that what she has learnt about race and identity through her distinctly American upbringing is not universal. It is a situated and local translation of racial relations. There are vast arrays of contingencies that have contributed to the status quo of race relations in USA, as well as in France, and their diverging coexistence highlights the fact that it could have been otherwise. From an ANT perspective it is interesting to explore how the specificities of the networks of materials contribute to the instantiate specific, local translations of actors.

Law and Moser (1999) focuses on how material specificities of objects and entities define and affect the character of *dis/ability* (the term *dis/ability* is used to denote both ability and disability, underlining the dynamic and inter-relating nature of the two terms). They argue that dis/ability is not a property or characteristic inherent in individuals, but rather an emergent effect of the interaction between the material specificities of their bodies and their surroundings. Thus, individuals are dynamically abled and disabled in millions of ways, depending on the specificities of the networks of heterogeneous materials they are engaged in (Law and Moser, 1999).

The following section presents two cases that illustrate some of the relations and interactions the elderly residents at Kampen Care+ have with technology. Next, concepts of agency, networks of heterogeneous materials, translation, and specificities are used to analyse and explore some enabling and disabling effects of socio-technical relations involving elderly people. The analysis shows that technologies in themselves do not enable or disable people but that their interaction with other heterogeneous materials in local contexts will determine their (dis)abling effects.

4 Vignettes

The following two vignettes describe situations where residents are being assisted in the use of different digital technologies by a volunteering researcher named Peter. The first takes place in the library, where Peter assists Kari in logging into her email account on one of the computers. The second vignette is set in Ola's bedroom, where his computer and printer are set up on his desk.

4.1 Computers in the library

Kari is an 87-year-old retired nurse. She suffers from mild arthritis and struggles a little with fine-tuned hand movements, but is otherwise healthy. She used computers daily in her job as an accountant before she retired, but she has not owned a computer herself and has not been able to keep up with the development over the last 20 years. She does have an email account that her grandson has set up for her, but she rarely uses it.

Kari wants to check her email to see if she has received some pictures of her new-born great-grandson, which her grandson has sent. She sits down by one of the computers in the library and carefully surveys the equipment in front of her. Peter is standing beside her, observing. The computer monitor is black and does not give any indication of how to get it started. Kari tries to press a button on the keyboard, but nothing happens. She tries to wiggle the mouse, but still no response. There is a button in the bottom right corner of the monitor, with a yellow light beside it. Kari hesitantly presses the button. The light turns green and the monitor seems to wake to life. However, after a few seconds, the monitor displays a message, in English, indicating that the monitor has not detected any input signal. Kari does not understand what this means and worries that she might have broken the computer. She looks around in bewilderment, trying to figure out what she has done wrong. There is a sticker on the frame of the monitor with a computer name (e.g. COM06) and a login password (e.g. PASSwrd06). She tries to enter the password on the keyboard, but nothing happens. Finally, she asks Peter for help. To him, the source of the problem is quite obvious. The computer, standing beside the monitor, is not turned on.

After the computer has been started, it displays a login screen prompting the user to enter a computer name and a password. Kari tries to enter the computer name from the sticker on the monitor, but no text is appearing in the computer name field. Peter instructs her to use the mouse to activate the computer name field by clicking on it. As Kari puts her hand on the mouse and starts to move it, the mouse pointer appears and quickly darts across the screen before she can shift her attention from the mouse to the screen. Looking bewildered at the screen, Kari struggles to understand what to do. Peter explains that she needs to move the mouse while looking at the screen to see where the mouse pointer is. After some trial and error, she finally manages to coerce the pointer to hover over the computer name input field. She is instructed to press the left mouse button to activate the field. Kari looks at the mouse, moves her index finger over the left mouse button, and clicks it. As she does so, the mouse moves slightly, and the pointer jerks away from the input field before the click is registered. She tries to move the pointer back over the input field, but the mouse is so sensitive that the slightest movement makes the pointer jump across the screen. Nevertheless, Kari persists and

manages to get the pointer in the right spot. Again, in order to click the button, Kari turns her attention to the mouse. She moves her finger over the button, but accidentally touches the mouse before pressing the button, and the pointer moves away from the input field.

This process repeats several times before she finally manages to activate the input field. She then turns her attention to the keyboard and starts to enter "co" before Peter stops her and points out that she is entering lower-case letters. He shows her how to enter uppercase letters by holding down the "shift"-button. Following the instructions, Kari enters "COMO&". Again, Peter stops her and explains that she must release the "shift"-button when entering the numbers, and that the second "circle" in the computer name is the number "0" (zero), not the letter "O". Finally, she manages to enter "COM06". She now has to activate the password input field with the mouse. Kari again struggles to control the mouse, but after several attempts she succeeds and turns her attention back to the keyboard. She enters "PPASSWRD06" and looks at the input field to verify that the input was correct. However, the entry is displayed as a series of dots (as passwords always are), making it impossible for her to see that she has entered one "P" too much, and that the letters "wrd" were entered in uppercase instead of the correct lowercase. Fortunately, Peter saw the mistakes and instructs her to try again. Finally, she manages to enter the correct password. She presses the enter key, the screen reloads, and she is immediately confronted with the same input fields, with her entries removed, and a message saying that the computer was unable to log on.

Kari and Peter have by now spent more than 15 minutes trying to log on to the computer, to no avail. They go through the process once more, taking extra care to ensure that all entries are correct. Nevertheless, the computer returns the same message. Finally, Peter tries to do it himself in order to be absolutely sure that the entries are correct, but the computer refuses to log on, without giving any indication of what is wrong.

As it turns out, the computers are not running local operating systems. Instead, they are serving access to virtual machines (VMs) that are running remotely on the organization's servers. This system is serving virtual machines to the entire organization, at multiple sites across the city, and is used both by staff and residents. The system has a limited number of virtual machines available for residents at any time, and if all allocated VMs are in use, it becomes impossible to start additional ones. However, the system has no way of indicating to the user if there are any available machines, thus making it impossible for the users to know if their inability to log on is caused by their own erroneous entries, or if it is simply due to the fact that there are no available VMs. Furthermore, it is practically impossible to explain this situation to the residents as their knowledge of and interest in computers simply is not sufficient to grasp the concept of virtual machines running on remote servers.

4.2 Personal devices

Ola is an 85-year-old retired carpenter. He has amputated his left leg at the hip and uses a wheelchair. He is not very familiar with modern technologies but does have a smartphone, a laptop, and a printer, that he mostly uses to pay bills and print pictures. He also has an email account that he rarely uses.

Ola likes to work with his hands and his hobby is wood carving. He uses his smartphone to take pictures that he can use as inspirational templates for his carvings. His granddaughter has helped him establish a cloud storage account that he can use to sync pictures between his smartphone and his computer, and then print the pictures on his printer. But the pictures he has taken recently do not show up in his synced folder on the computer. He asks for help to figure out what the problem is. Peter opens the cloud service app on his smartphone, select the *settings* icon, and quickly identify the problem: The *camera upload* option is set to *off*. Peter explains this to him and turns it back on. They now turn their attention to the computer to see if the latest pictures show up in the folder on the computer. After a short while, the pictures start showing up. Ola is delighted. He now has an effortless system for transferring and printing pictures from his smartphone. He thanks Peter for the help and underlines that he would not have been able to figure this out on his own.

The following section discusses how Kari and Ola's stories, in light of actor-network theory, illustrate the (dis)abling effects of socio-technical structures and materials.

5   Discussion

It should be quite clear from the stories in the previous section that technology use is entangled in a web of social and material structures and strategies.

In Kari's case, her ability to access the pictures of her great-grandson is influenced and regulated by a wide variety of actors. First of all, Kari's need to use the computer is determined by her grandson's decision to send her the pictures by email. After all, he could have ordered physical prints of the pictures from a print shop and sent them to her by mail, which has been the de facto way of sharing pictures for most of Kari's life. If he had done so, Kari would have no problem in accessing the pictures. She would be able and competent. However, this solution would demand more time, money, and effort from her grandson. And, to be fair to him, hardly anyone produces physical prints of their pictures anymore. The normal way of sharing pictures today is through some kind of digital media. So, already before the pictures have been sent, Kari's ability to access them is influenced by socio-technical norms dictating how pictures are normally shared.

Second, Kari's access to the computers in the library is enabled by her status as a resident at Kampen Care+. It is her relationship to the building, and the organization and community within it, that defines her as a legitimate user of the computers. She is able, in the sense that she can access the computers, and is allowed to use them.

Third, the computer is in itself a network of socio-technical materials. It is comprised of a monitor screen, a keyboard, a mouse, and the computer itself. It also has an internet connection, which connects it to a vast range of other socio-technical arrangements and materials that completely transforms the significance of what it means to have access to a computer. As such, it is an enabling and transformative technology; a provider of agency. By attempting to use the computer, Kari is also attempting to maintain an image of herself as competent and able. It is a strategy of translation and empowerment. However, the material specificities of the networks of heterogeneous materials resists the translation that Kari is attempting: Her fine motor skills struggle with the sensitivity of the mouse; the layout of the

keyboard and the interactional conventions and practices inscribed in it confuses her; the visual representations on-screen, and concepts like *account*, *username*, *password*, *login*, *window*, etc. are foreign to her. Nevertheless, despite the resistances, she manages to perform all the necessary tasks to log into the computer. Admittedly, Kari probably would not have gotten all the steps right without Peter's guidance, but this only highlights the fact that he is now a part of the socio-technical landscape that Kari is attempting to navigate.

Finally, it is the resources, strategies and practices of the organization that owns and runs the facility that prevents Kari to log in. The configuration and administration of the IT resources, and its use within the larger organization, weaves a web of socio-technical relations that invisibly affects Kari's agency and ability, and indeed Peter's agency to use the computers. They are both translated as incompetent and unable. They are both disabled by networks of heterogeneous materials.

Ola's story also illustrates the (dis)abling effects of networks of heterogeneous materials. His granddaughter represents a technology savvy generation with a range of different socio-technical practices and norms, and it is Ola's relation to her that has resulted in the configurations of technological materials that make up Ola's system.

The different devices he uses are all commercial products. They are widely used in society at large, both in private and professional contexts, and most people are familiar with how to use them. Thus, although Ola himself is not very familiar with these technologies, he has access to friends, relatives, and volunteers like Peter, who have the necessary competencies to help Ola. Moreover, there is a vast trove of knowledge and resources on the internet regarding the use of these products. Although Ola is not able to take full advantage of these resources himself, he still benefits from access to them through his relation to other technology-competent individuals.

Furthermore, Ola is the owner of the devices he is using, and this puts him in a position to decide and control how they are configured. In computer jargon, he has *administrator privileges*. In themselves, these privileges are of no use to Ola, because he does not know how to take advantage of them. However, combined with his relations to his granddaughter, Peter, and many other computer-literate people, Ola is given agency to control how the devices are configured. Unlike Kari, whose agency was at the mercy of the strategies and practices of the organization that runs the facility, Ola has absolute powers over the technologies (at least insofar as the devices allow user configuration). The networks of heterogeneous materials combine to give him agency and ability to configure the technologies according to his needs.

Finally, once the system has been configured, very little effort is needed from Ola in order to produce templates for his wood carvings. The pictures are automatically transferred to the computer, and it only takes a few operations with the mouse to send them to the printer. Thus, the interplay between Ola, his relatives, friends, and acquaintances, and the technologies that comprise his system, combine to translate Ola as competent and able.

The vignettes also show that Peter's ability to help Kari and Ola is similarly affected by the same networks of heterogeneous materials. In Kari's case, Peter was able to help Kari understand how to turn on the computer, and to guide her in how to use the different input and output devices. These are all common technologies that Peter has extensive experience with, and he is more than qualified to help Kari log into her email account. Nevertheless, like Kari, Peter is disabled by the invisible organisational strategies and practices. He is powerless to

help Kari accomplish her goal. In Ola's case, on the other hand, Peter is fully able to help with his problem. He is familiar with the technologies Ola is using, and he has full access to make adjustments to Ola´s system because Ola has administrator privileges.

5.1 (Dis)abling powers of technology

In the Norwegian Directorate of Health's list of reasons for investing in research and development of welfare technology (see Introduction), the two first reasons are concerned with helping individuals manage their own life and health, on their own terms, and allowing people with needs for care services to stay in their own homes for longer. These reasons have a strong focus on agency, ability and mastery, and seek to empower individuals through the use of technology. However, as we can see from Kari's story, technology is not inherently enabling and does not provide agency or welfare on its own. Technology use is entangled in a web of actors, materials and practices. It is how the technology fits within this larger network that determines its enabling or disabling effects. The decision to provide the residents at Kampen Care+ with access to internet-connected computers was based on a conviction that this would be beneficial for them. However, it is difficult to see how the computer system has provided a benefit to Kari. If anything, her experiences with the system have reinforced her fears and insecurities regarding computers, and may actually have contributed to reducing her motivation to use them in the future.

The computers were clearly not set up with Kari's, or any other residents' needs in mind. The sensitivity of the mouse makes it very difficult to manipulate for anyone with reduced hand-dexterity; there are no explanations or guides for how to log on and use the system; there are no organized initiatives to teach the residents to use the computers; and there are no IT-department or support personnel available to provide assistance or answer any questions the residents may have. The computers are just there, available, but not enabling the residents in any way.

In Ola's case, on the other hand, his system was set up for him personally by someone who knows him well and has an intimate understanding of his needs and abilities. It was designed with the specific purpose of enabling him to practice his wood carving hobby, and hardly requires Ola to interact with it at all.

5.2 Human assistance

Another insight that has crystallized through this fieldwork has been the importance of human assistance. Ola's system was set up by a person in his immediate family, who knew what mattered to him, using off-the-shelf technology. Many seniors are curious and want to learn how to use modern technologies, but they do not have enough confidence in their own knowledge and abilities to start using unfamiliar technologies. Having access to someone who can guide and assist makes the task less daunting. Furthermore, technologies break down or behave unexpectedly at times, and unless there are competent people available to answer questions and solve technical problems, trust and confidence in the technology will quickly erode and users will stop using it. As a case in point, the computers in the library at Kampen Care+ are, at the time of this writing, collecting dust. Hardly any of the residents use them

because their previous experiences have been so frustrating, and they do not have access to anyone who can solve the problem. To be clear, the IT-department has been made aware of the situation and has promised to find an agreeable solution to the problem. Nevertheless, this situation highlights how important it is to have access to competent human assistance in order for the technology to be of any practical benefit. At Kampen Care+, the residents do not have access to the IT-department and must ask the staff for help. The staff does not have the time or the skills to help, and unless they get a good description of the problem from the residents they cannot describe the problem to the IT-department. Thus, problems often remain unaddressed.

Furthermore, a person providing assistance needs to have the necessary knowledge and administrator privileges to alter the configuration according to the user's preferences. Peter was not in a position to help Kari because he was not familiar with how the underlying system was configured, nor did he have access to make even slight local adjustments (e.g. reduce the sensitivity of the mouse). In Ola's case, this was not a problem because he was the owner of the technologies he used and was thus in a position to enable Peter to help him.

6   Conclusion

This paper reported on ethnographically inspired fieldwork related to a technology support service for senior citizens. The motivation for the fieldwork, on one hand, was to investigate how senior citizens relate to and use common digital technologies. On the other hand, it was to inform further research into the design of welfare technology for senior citizens. Two ethnographic vignettes have been used to illustrate and highlight some of the observations and experiences gained through this fieldwork. The vignettes have been analysed through the lens of Actor-Network Theory, and the analysis explicates how technology use is immersed in a web of socio-technical relations that dynamically affect the agency and ability of the actors involved.

Given the increasing interest in research and development of welfare technology for the growing elderly population, it is crucial to understand the enabling and disabling effects of technology use in real world contexts. It is also very important to critically examine our assumptions and predictions regarding the enabling power of technology.

The technologies used by Kari and Ola are not welfare technologies. They are common technologies that are used in society at large. Nevertheless, the vignettes illustrate two important lessons that are relevant for the design of welfare technology for senior citizens: First, the enabling power of technology lies in its appropriate introduction into an existing network of socio-technical materials and practices. The determining factor for successful introduction of technology lies in how it enables people to do what they want to do and be who they want to be. Second, senior citizens are relatively unfamiliar with modern digital technologies and many need guidance in order to find the technologies that are useful and meaningful to them. They also need to learn how to use different technologies, and to know what to do when they break down. It is crucial that we, as a society, in our quest to develop new welfare technologies for seniors, do not forget to provide the necessary human help and support to ensure that the efforts are successful.

Acknowledgment

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