MEDIATING PATIENTHOOD – from an ethics *of* to an ethics *with* technology

Asle H. Kiran

Researcher | Department of Philosophy and Religious Studies, Norwegian University of Science and Technology | N-7491

Trondheim, NORWAY | email: asle.kiran@ntnu.no

1. Introduction: Technological change as an existential phenomenon

Assistive healthcare technologies transform healthcare services. There is nothing bold or controversial with this claim. Quite obviously, many changes in the healthcare sector following the introduction of new technologies are intentional: technologies alleviate heavy tasks, or enable them to be performed more precisely; they can make a practice run more efficiently; or, as often is the case, technologies are introduced to make a service less expensive. In fact, these kinds of changes are often the reason why a new technology is developed or adapted to a healthcare service in the first place.

However, there is more to technological change in healthcare than efficiency improvement and reducing expenditure: implementing a new technology into a healthcare service means introducing changes that go beyond functional change. These are changes that do not straightforwardly relate to the tasks the technology is supposed to support, but rather the context and the framework for the service; that is, the way one is *in* a practice and how healthcare services are *understood*. To be more precise, such changes concern the relations users have, and *can* have, to the social and physical environment: healthcare personnel, family and next of kin, assistive and other health technologies, medicine, other paraphernalia in the home or in the institution, and so on. Furthermore, it concerns how norms and values surrounding both relations and the use of equipment are understood and observed. And last, but not least, it concerns how users, whether they are care givers or care receivers, think of themselves, their opportunities and limits in the situation they find themselves in.

Approaching technological change in healthcare from this perspective opens up a different set of challenges that requires attention: unanticipated consequences; why technologies sometimes are met with resistance from users despite being "user friendly"; and, importantly, new ways of planning and realising strategies for implementing technologies. In this paper, I shall argue that if the huge effort that goes into implementing assistive healthcare technologies in countries like the Scandinavian ones is to be successful – for healthcare personnel, patients and family, as well as for the industry, we need to take as our starting point how the technology affects the overall daily lives of patients – the way they *are* patients, and not merely how the technology facilitates easier, faster or more precise diagnostics; supports continued communication between patient and nurse; monitors disease, and so on. It is when the technology is being used in a concrete patient life that it gains its full meaning; the technology changes the prerequisites for how care receivers are, and can be, a person and a patient.[1]

But what is taking place, on a fundamental level, when we use a technological item, whether it is advanced ICT or just some very simple equipment, such as a fork? Most people would, perhaps, be inclined to say that we need to have something done and the technology helps us accomplish that goal: we need a pen to write down notes from a lecture; the mobile to check out the movements of our friends on Instagram or Snapchat; a toaster to be able to digest slightly old bread; or an electronic medicine dispenser in order to take our medicine at the right time. In all these examples, the technologies assist us in handling concrete phenomena in the world (paper, bread, friends, medicine) according to our needs and requirements. And on the face of it, this seems to be the general *rationale* behind all kinds of technology: we set ourselves a goal and the technology helps us reach this goal in a faster or simpler way.

However, if we examine such seemingly simple and concrete uses of technology a more carefully, we will find a rather more complex and intricate account about the manner in which humans understand, relate to and act in their physical and social environment. In the above examples, we are

not merely performing (technological) actions; the technologies alter the conditions for how we conduct ourselves: how we attend classes; sustain friendships; feel hunger; and have a condition that requires medicine at regular intervals. One way of articulating this kind of change is to say that technology co-constitutes *different manners of being* in a practice. With a pen we can make notes from the lecture, and indicate items that we want to remember or look into at a later point. Without the pen (or some other writing tool) we would have had to remember everything we found relevant or interesting – not impossible, just much harder. With the pen as an integral part of the attending-class-practice, we act in and live through this practice differently. Technologies transform how we are in the world, and by that, also what kind of world we are experiencing.

This is different from saying that technologies are tools that we merely use in order to attain a given goal because it implies that the existence and availability of a technological item taps into the nature of how we plan and organise our day-to-day lives, and furthermore; for what kind of goals we are able to set for ourselves. Said differently; we could not have set for ourselves the goal "taking notes from a lecture" if there were no writing tools – we would not have known what "taking notes" would mean.[2] This is an *existential perspective* on the technologically mediated human-world relation, and it is important here because it has some quite distinct implications for how to understand what assistive healthcare technology do *in* and *to* healthcare services. And in that respect, it should provide crucial assistance when designers, policy makers and planners prepare strategies for introducing assistive healthcare technologies to healthcare services. And exactly this is the aim of this paper: can we, using the existential perspective, anticipate and deal with some of the broader, but still perceptible and substantial effects of assistive healthcare technologies on various healthcare services?

Of particular interest in this regard is how technology affects *patienthood*. If we by *personhood* refer to how persons understand and perceive themselves, and their own opportunities and limitations in the world, it can be argued that the technologies that we can access and make use of contribute to

shaping personhood (Kiran 2012). By implication, assistive healthcare technologies have a potential to contribute to the shaping and re-shaping of patienthood. Not only patienthood taken as an abstract concept, but for actual patients and care receivers. In this sense, engaging an existential perspective on assistive healthcare technology enables an entirely different approach to how patients live through and with a disease than if these technologies were assumed to be nothing more than helpful items.

One argument towards this end is that the existential dimension of assistive healthcare technology confers a *broad moral responsibility* on technology designers and developers, on politicians and other policy makers, and on healthcare personnel to take an active part in shaping what amounts to a *good patienthood* for a concrete care receiver. Assistive healthcare technologies can be *involving* – when the technology permits patients to employ the technology in order to establish and reinforce possibilities, or technologies might be *alienating* – when patients find the technology to be cumbersome and as adding extra burden to the already negative effects of the disease or frailty. To be sure, the moral responsibility manifests itself differently throughout the various stages of technology development and implementation: from problem definition and initial ides to training and actual use. Nonetheless, in order for a piece of assistive healthcare technology to support well-being and good patienthood, it is important that the entire trajectory from technology development to the concrete healthcare services has knowledge of and strategies to realise this responsibility.

In the following section, I shall present some definitions and understandings of what assistive healthcare technology is and why its implementation into healthcare services takes longer than many policy makers hope for. After that I shall go through some ethical issues and challenges concerning assistive healthcare technology, and also consider some challenges that tend to be overlooked in the ethics of technology, namely those that concern the efforts patients put into creating for her- or himself a good patienthood. This somewhat shifts the focus for ethics from the development stage to the use stage, something that makes it appropriate to talk of an *ethics with* rather than *of*

technology. This requires a framework for understanding and anticipating technologically related change in healthcare services. In the last two sections of this paper, I introduce and elaborate such a framework, revolving around the concept of the *productivity of technology*, before deducing how this affects the moral challenges facing patients, politicians, technology developers, healthcare personnel and informal. Towards the end, I will attempt to outline how the framework can be operationalised.

2. Assistive healthcare technology

2.1 Concept, types and purposes

In the Scandinavian countries, assistive healthcare technology is most often referred to as "velferdsteknologi", which usually translates as welfare technology. Considering the customary meaning of the word "welfare" (as in "to live on welfare"), I refrain from following that translation, opting instead for "assistive healthcare technology".[3]

In Scandinavia, the term broadly follows this Norwegian definition: "technological assistance that contributes to increased safety, security, social belonging, mobility and physical and cultural activities, and strengthens individuals' capabilities to master their own daily lives despite disease and impaired social, mental or physical operability" (NOU 2011, p. 99, my translation). However, there is an additional specification required, because in its usage it almost exclusively refers to ICT-based (Information and Communication Technology) solutions. The definition does not rule it out, but the terms are never (to my knowledge) used for non-ICT assistive technology. My usage therefore endorses the above definition, with an ICT requirement as a crucial addition.

One reason why ICTs have taken a front seat in various countries' assistive healthcare technology policies is because it enables primary users to stay at home while the healthcare services retain the responsibility for (and sometimes monitoring of) their condition – a responsibility that can only be enacted through ICTs. This is regarded as one of the main purposes of assistive healthcare technologies, in that they might prevent or put off the need for institutionalizing (Norwegian Directorate of Health 2012, p. 21). At least Norway is unambiguous about its political goal that

patients and care receivers should stay at home, that is, in a familiar and safe environment, as long as it is possible (Ministry of Health and Care Services 2013).

There are at least two reasons for this political goal; one society-oriented and one patient-oriented. From a societal perspective, healthcare expenditure in developed countries with public health systems needs to be reduced. Towards year 2050, the number of persons in need of care will increase significantly compared to available workforce in healthcare and tax income for public health (Texmon 2013; Norwegian Board of Technology 2009, pp. 9-10). Assistive healthcare technology, although there are also costs involved in implementing and maintaining it, is considered an important measure to counteract this discrepancy because it enables help and assistance for daily chores to be performed by technologies instead of healthcare personnel. Also, assistive healthcare technology might increase the efficiency of some healthcare services. As a result, the need for manpower in healthcare may not increase at the same rate as the percentage care receivers in a society.

Patient-wise, many elderly persons express a wish to stay at home for a long as it is safe (Leland 2001). Instead of living in an institution, which might be dreaded for its docility and inactivity, living in familiar surroundings that one control might enhance the feeling of being autonomous and independent. In turn, this might contribute to experiencing old age as positive and good (Slagvold and Sørensen 2013). Merely living at home may well provide such a feeling, but mastering assistive healthcare technology can have an additional effect. That, of course, requires that the equipment is taken up and used, and, most importantly, in a manner so that the primary users do not instead experience powerlessness and defeat. As we shall see later, this duality – that the technology might support a feeling of control or the total opposite, of alienation, is principal for the understanding of the existential dimension of assistive healthcare technology.

Some common assistive healthcare technologies are: safety alarms, GPS tracking devices, networked sensors and control mechanisms (for the stove, heating, lights, and so on), fall detectors, and smart

houses (which incorporates many of the mentioned instruments). Although the concept assistive healthcare technology is fairly recent, the technologies are not necessarily so new. For instance, an example of a smart house was exhibited at the Olympic and Paralympic games in Lillehammer I 1994.[4]

In a report from the Norwegian Directorate of Health from 2012, four categories of assistive healthcare technology are singled out.[5] Safety alarms are examples of *technologies for safety and security*. Such technologies should make sure that users feel safe living alone – in periods or the whole time – or when moving outside, using, for instance, a GPS tracking device. A stove guard represents *technologies for compensation and well-being*. Technologies of this kind support and relieve users with cognitive and/or physical impairments: Mnemonic devices of various kinds, rolling walkers and electric wheelchairs are other examples. Also automated controls over lights and heat are in this category. A third category is *social technologies*, which includes both apps and software (Skype, Facebook, etc.), and the platforms they run on (mobile phones and tablets). The last category is *technologies for treatment and care*. Primarily, this covers automated monitoring and measurement technologies for blood pressure, glucose level, heart rate and so on. Measurements sometimes require contact with healthcare personnel, in particular when the values deviate from a predefined normal range. This can then be done via the technology itself (which is the case with the COPD briefcase (Sorknæs et al., 2011)) or through some other means. An example of the latter is when an electronic medicine dispenser automatically notify the home care unit if a patient has not discharged the medicine from the dispenser in due time.[6]

These categories are not mutually exclusive – some technologies fall into more than one category. And the examples above also show us that what is labelled assistive healthcare technology engages technologies that are not developed as such (mobile phones, apps etc.). In fact, many assistive healthcare technologies are developed under the moniker Universal Design, easy solutions for every person, not only the frail and elderly.

2.2 Why are assistive healthcare technologies so slow to be taken up in healthcare services?

As we saw, several of the instruments that can be labelled assistive healthcare technology are readily available and often reasonably easy to use, even without extended knowledge of ICT. How come, then, are implementation programmes so slow to take hold, despite substantial political will and potential benefits for both society and patients? There are several practical reasons for this, such as: privacy issues;[7] lack of skills among healthcare personnel who are in charge of training primary users (Nordic Thinktank for Welfare technology 2015); concrete efforts have been scattered with little collaboration between municipalities (although efforts to counter this has been attempted, at least in Norway[8]), besides others.

However, resistance towards new technologies might be related to other considerations altogether, namely how the technologies affect such contextual aspects as the primary users' circumstances of life – the relation to spouse and family, and to life in general, which might be in need of reconstructing after a critical episode. Not everyone is prepared for the additional burden of learning to use new equipment in that phase of their life, and not everyone is able to focus on the technology as potentially beneficial, since the offer to start using it usually comes in the aftermath of a negative event or development. Whatever the reason is, in order for assistive healthcare technology to become an integral and beneficial part of a care receiver's life, a *collective effort* must be undertaken; it is not the sole responsibility of the primary user.

It is important that technological innovation requires a corresponding *innovation of services*. We cannot wait until a point in time when most primary users have a technical history that enables them to easily adapt to new ICTs. For one thing, we do not have the time for that – care receivers need satisfactorily healthcare services *now*, and besides; technology, whether it is implemented today or in 20 years, will nevertheless transform healthcare services. This requires readjustment; healthcare services need to build robust systems for implementation that approaches healthcare services and users, *and technologies*, as an interconnected whole.

A related problem is that assistive healthcare technologies in many cases are not accommodated to the requirements and the overall life of the primary users. Care receivers differ greatly in terms of technology curiosity and skills, physical condition, social network, and so on. Of course, to expect every assistive healthcare technology to be fitted to every care receiver is utopian, since it is necessary to retain a sufficiently safe level of functionality. Therefore, if a primary user finds some equipment to be unsuited to her or his circumstances and that the effort that needs to go into adapting to it is too high, the easier solution is to reject the technology. However, that is unfortunate, given that the technology most likely *do* have beneficial potential. How can that be rectified? In the very least, it requires that we communicate (to both primary users and healthcare personnel) a more comprehensive approach, emphasising that assistive healthcare technology is not merely about alleviating isolated tasks, but something that has a potential to turn around the overall daily life in a positive way.

Of course, this is already being done. One of the dominant arguments for assistive healthcare technologies – that they enable users to stay home longer – is an argument of this sort. But it is not very specific. One has to ask, for every patient and for every technology: How does *this* instrument impact on the relation to family and friends, on the activities in- and outside of the home, etc. of *that* patient? It is important to explore this question broadly and carefully. Like all technologies (Kiran 2015), assistive healthcare technologies are characterised by a duality, a *fundamental ambiguity*, in how they affect their users. This ambiguity is often resolved through contextual interpretation,[9] which implies that a user's experience of a technology (good, bad, neutral) can be different if the user *accentuates other circumstantial factors*. More on this, and how it relates to patienthood, later.

A common worry concerning current national programmes on assistive healthcare technology is that it might result in a downgrade of other means of care, as conveyed in the often mentioned dichotomy between "cold technology" and "warm hands" (Pols and Moser 2009; NOU 2011). There is a not-so subtle rhetoric in these two terms expressing that prioritizing the former before the latter is

wrong. The underlying presupposition being that if we choose one, we cannot choose the other. As already mentioned, dichotomies and ambiguities of various sorts are only to be expected when introducing new technologies. How we interpret the consequences of introducing a technology to a given practice – in this case, that care will become either cold or stay warm – is as much dependent on circumstantial aspects as it is on the technology itself.

The dichotomy between warm hands and cold technology is misleading for a number of reasons. For instance, frequently mentioned when the dichotomy is discussed, those warm hands can also easily be experienced as stifling and suffocating. Some care receivers prefer solutions that support a higher degree of independence from healthcare personnel and family. One example of this is when patients object to fall detectors automatically notifying the home care unit when they have fallen to the floor, preferring that no one was to know about the incident unless it becomes impossible to get up (Brownsell et al., 2000). As mentioned, "care receivers" is not a homogeneous group, but will vary considerably in terms of preferences and skills. Another issue is that the programmes in "cold technology" may release time for healthcare personnel to focus on "warm" tasks (Pols 2012). However, it might not be that straightforward since one of the main goals of assistive healthcare technology programmes is to cut healthcare expenditure.

More to the point, in my opinion; this dichotomy is flawed. Technologies are not *necessarily* cold (and healthcare personnel's hands are not *necessarily* warm), it depends on how the technology is implemented into a practice, how the services are organised around the technology, and how the primary users are presented with the technology. Assistive healthcare technologies change the norms and standards for how a healthcare service is being carried out. If Skype on a tablet means fewer visits from the family, that is of course, an unwanted consequence of the technology, but there is no reason to assume that it is an unavoidable consequence. The technology *enables* this consequence, but it does not determine it. In fact, Skype may just as well lead to more visits because talking more often ties the family members closer together.

Paro, the therapeutic robot seal, has been shown to have a soothing effect on patients with

dementia, a patient group that is often characterised by restlessness and anxiety. One of the reasons

for this is that Paro enables dementia patients to *deliver* care.[10] In other words, Paro alters the pre-

given classifications of who is a care giver and who is a care receiver (if only a small subset of the care

practice). Not all assistive healthcare technologies do that, of course, but Paro is certainly an example

to counter the dichotomy between "cold technology" and "warm hands".

A last aspect that impedes rapid implementation of assistive healthcare technology is that some

technologies cannot be handled by the primary user alone. In these cases, the patient is dependent

on a partner or family to assist in the use or maintenance of the technology. For a fairly

straightforward technology as the electronic medicine dispenser Pilly, refilling the dispenser,

discharging the medicine and keeping track of whether the medicine had in fact been taken

sometimes can be too difficult for the primary user alone (Kiran & Nakrem 2016). Patients who could

have good use for the equipment, then, risk not getting access to it because they live alone. What

does this tell us about assistive healthcare technologies and primary users? Technologies have a

unifying function; they constitute relations, in the sense that they shape a) who is being coupled, and

b) how they are being coupled. If one care receiver faces the task of constructing hers or his

patienthood, this can only happen through a network of healthcare personnel, family technological

possibilities and constraints, besides the care receivers own requirements and aspirations. I shall

return to this more fully in section 5.

This section has exposed the importance of approaching large-scale implementation of assistive

healthcare technology broadly and comprehensively, including service innovation and information

and training that goes beyond (but does not forget) the difficulties of actual use. To do this, it is

absolutely essential to consider non-technical reasons for resistance towards the technology, and not

merely focuses on user-friendliness. Resistance may come from how the technology impact on the

primary user's life; how it plays into – or more precisely, against – the patient's notion of *good patienthood*.

3 Assistive healthcare technology and ethics

3.1 Ethical perspectives

Resistance towards assistive healthcare technology, either in general or concrete technologies, can also grow out of ethically based hesitations. Typically, these will be judgements done prior to the implementation of a technology into a healthcare service, and therefore not made by the primary users themselves (although patient interest groups might be involved). Ethics is an important addition to policy makers, who most often deals with the general terms for healthcare – economy, infrastructure; to administrators, who tries to make the most out of the scarce resources there is; and to the industry, who is preoccupied with how to move their products. Ethical issues such as whether a technology is good or bad and the consequences the technology will have on concerns like human dignity and integrity, privacy and autonomy is rarely covered by these groups (although an issue like privacy can be covered through legislation).

The political push for assistive healthcare technology programmes is fairly recent, and there is still much insecurity about the actual effects of the technology on users and places. Granted, medical ethics is an established and solid profession, but assistive healthcare technology differ from traditional medical technology in a number of ways: "Assistive healthcare technology is used in other locations (such as the home), by others (patients and next of kin or new professions), for particular groups (elderly), for other purposes (for instance, as a social incentive), and outside traditional organizations for healthcare services" (Hofmann 2010, p. 8, my translation). Consequently, the role and content of ethics is still unclear. One ethically related change technologies (in general) may contribute to bring about is a redefinition of who is affected by or belongs to a given practice or service. In this case, assistive healthcare technology expands the target group for the healthcare services by enrolling persons living at home with minor complaints or deficiencies. Or, to put it this

way: Once a municipality starts offering assistive healthcare technologies as a part of its healthcare services, it acquires a moral (and legal) care responsibility for persons that the municipality did not formerly have a responsibility towards.

For this reason, it is important to reflect on what an ethics of assistive healthcare technology may possibly imply. In a report regarding ethical challenges, Bjørn Hofmann points to several moral consequences that programmes in assistive healthcare technology make pertinent. For instance, we need to ask who benefits from tracing devices: is it the patient (which is often claimed), or is it the healthcare personnel (such as the home care unit), or is it society that gains the most from it? (Hofmann 2010, p. 21) How is the technology "sold", rhetorically speaking? And, most importantly, is it possible (or moral) to compare the kind of benefit befalling the patient with the societal benefit? As mentioned, one of the main attractions with assistive healthcare technology is that it enables living at home, but are we so certain that that is an actual benefit? Will the home feel as safe as before, and will it support a person's sense of command, when the equipment converts the home into something resembling an outpost of the hospital? Instead of underpinning independence, the equipment may "change the relation to the home and raise concerns about reduced privacy and breach of integrity" (Hofmann 2010, p. 28, my translation). Hofmann suggests various issues that should prove valuable for ethical evaluations of assistive healthcare technologies: autonomy, integrity, dignity, confidentiality, privacy, time for human contact and relations, and new responsibilities for healthcare personnel and next of kin (Hofmann 2010, p. 2).

Another ethical issue Hofmann brings up is whether the push for assistive healthcare technology marks a turn in public healthcare towards an *instrumental rationality* (i.e. using the technology in order to reach an external goal) from a *care rationality* (i.e. well-being is a goal in itself). According to Hofmann, this is an *ideological* turn, which may happen if the challenges in healthcare are met by technology rather than human relations and institutions (Hofmann 2010, p. 20). Although this might resemble the dichotomy between "warm hands" and "cold technology" (see previous section), it is

still a very important *value laden* question that needs to be considered alongside other possible ideological transformations in both healthcare and society. In order to do that, it is necessary to follow healthcare over a number of years, which is outside the scope of this article. However, just by raising this issue, Hofmann call attention to something very important: we need to keep an open eye to the possibility that the push for assistive healthcare technology today *may* have as a consequence that the values encompassing healthcare services will change over time. New and emerging technology shapes society; it is hard to anticipate ethical and value-laden short-term consequences, and near impossible to anticipate long-term ones.

Hofmann's walk-through of the ethical challenges displays that the effect of assistive healthcare technology on healthcare and society is ambiguous. Therefore, we should only expect primary users to experience and evaluate the moral consequences of the technologies in differing and sometimes conflicting manners. As a consequence, we cannot simply evaluate the alleged "*goodness*" or "*badness*" for each technology, but we also need to consider this question for each and every care receiver (Kiran, Oudshoorn and Verbeek 2015). In section 5 I shall consider how we can make use of this ambiguity in a constructive manner, both in relation to the existential aspect, but also the ethical aspect (which cannot be disengaged from the existential).

3.2 Introducing ethics with *technology*

It is common in the ethics of technology to focus on potentially *negative* aspects of new technologies. For instance, for assistive healthcare technologies that they may lead to less physico-social contact and thus cause an experience in the care receiver of being left alone rather than empowered. Furthermore, it is customary to use a pre-given ethical vocabulary or checklist for moral dilemmas, challenges and principles – well-known from other contexts, healthcare or more theoretical ethical discourses. Concerns about privacy, an established ethical (and legal) principle, in assessing monitoring technology such as a GPS is an example of this.

Of course, this is important ethical work, both prior to the implementation of a specific technology, and before a society launches a big programme in, say, personalised medicine or assistive healthcare technology. However, assistive healthcare technologies bring along several other ethical challenges as well, and which requires a perspective specifically accommodated to this kind of healthcare service. First of all, different patients react and relate to technologies in different manners. What creates an ethical challenge for one patient does not necessarily do that for another. Because of this it may be premature to reject a new technology for a healthcare service if a technology raises privacy issues. Some electronic medicine dispensers come with an automated system for notifying the home care unit if the medicine has not been dispatched from the unit in due time. However, one can also choose a model without this feature (Kiran & Nakrem 2016). If the latter is preferred for privacy-concerns, one still retains some niceties with the technology (alarm, pre-packed multidoses etc.), but misses out on others (a follow-up call from the home care unit). The primary user can decide what is most important: privacy concerns or having the home care unit contact you in care you forget to discharge the medicine.

Another reason why we need to move beyond a standardized set of ethical topics for assistive healthcare technologies is that an ethical reasoning having been done prior to implementation only indirectly involves the primary users. A proper ethics of assistive healthcare technology needs to address the concrete ethical challenges facing each care receiver. Some of these are of a different character from those discussed in advance, and which often is from a systems perspective. Ethics from the user perspective is not only about good vs. bad technology, but also involves questions like "what makes a person the kind of person she or he is?", which in this context specifies as "what makes a patient into the kind of patient the kind of patient she or he is?". This means that ethics also needs to attend to issues of how singular persons/patients can utilise the constraints and possibilities of their lives/situation in order to attain a *good life* and, for patients; a *good patienthood*. Such questions must be handled for each care receiver and importantly, in conjunction *with* each care receiver. Since technologies are a critical factor in this effort, it is proper to talk of an ethics *with*

technology rather than an ethics *of*, in order to indicate that the focus should move beyond pre-given checklists and possible negative consequences.

Focus on possible negative consequences is only natural (*and important*) in the preparing stages of developing or implementing a technology, but *counterproductive* once the technology is a part of a healthcare service. What is required, then, by those dealing with ethical issues in relation to assistive healthcare technology is to assume a position of *methodological positivity*. If we say – quite broadly – that the task for ethics of technology is to engage a variety of considerations prior to development/implementation, the task of an 'ethic with technology' – still put quite broadly – is to contribute to the effort that each patient with specific capabilities, motivations, networks etc. go through in order to construct as good a life as possible, given the concrete physical, psychological, social and technical challenges of that patient.[11]

Shifting the focus to (or, maybe better; adding) an ethics with technology, however, does not mean that one should disregard possible negative consequences of technological innovation. For instance, as briefly mentioned already, a broad implementation of assistive healthcare technologies may bring about unforeseen changes to the catalogue of norms and values in healthcare, and in that regard there might be considerations that outweighs possible positive consequences for singular patients. Nonetheless, a narrow focus on existing moral norms and principles does not allow for how technologies also can have new moral consequences of a positive kind. A telecare technology that results in loss of physical contact between a patient and a nurse will at the same time lessen the danger of a stereotypical and prejudiced response (based on age, sex, ethnicity, subcultural belonging, body weights, etc.) (Kiran, Oudshoorn and Verbeek 2015).

Moreover, since technologies might bring about new positive norms, sticking to pre-given (and perhaps universal) ethical principles is obstructive. Besides addressing issues of how technology affects the efficiency and quality of healthcare services, ethics also needs to take into account that our understanding and judgement of *what constitutes* "good efficiency" and "good care" may well be

expanded and changed when a new technology contributes to the reorganization of a healthcare service (Kiran, Oudshoorn and Verbeek 2015). This seems to me fundamental for human comportment: we generally seek to define what constitutes a "good" way of being or acting *relative to* the actual possibilities and limitations we perceive. If these are modified, our opinion of what constitutes "the good" also changes.[12] Consequently, it is important when doing ethical reflection on the social consequences of technology to also explore possible positive changes to norms and values.

Obviously, such changes are very hard to predict (Swierstra 2015), and will be approximate, but it is also important to make an attempt. In order to anticipate the contextual and personal consequences of assistive healthcare technologies, one should: a)- generate an adequate understanding (via one's own or other empirical studies) of how technology in general influence changes to healthcare; b) wholeheartedly attempt to predict positive consequences, concerning efficiency and other organizational issues, *and* norms, values, relations and roles; and c) to ground these explorations in an understanding of the human-technology relation that frames the ethical challenges in a manner that allows for positive aspects (i.e., not based solely on a pre-given checklist of possible adverse effects).

For the remainder of this paper I shall explore c), which will provide a vocabulary and framework for the investigation of a), and a methodological catalogue to accomplishing b).

4 Technological mediation

4.1 The non-neutrality of technology 1: How technologies enable and constrain

In Don Ihde's figure for illustrating technological mediation: *human – technology – world*, technologies are positioned in-between those using the technology and that which the technologies are used on and for (Ihde 1990). But through this "in-between" something occurs, the in-between is *productive*; it transforms the relation we have to the world, and by doing that, it transforms our entire perception, experience and understanding of it. Without the technology (or a different one), we would have been positioned in a, phenomenologically speaking, different kind of world.

One example used by Ihde to illustrate this is to compare the feeling of touching a blackboard with a finger to the feeling of using a dentist's probe. Using the latter, we will be able to notice small scratches and chips in the blackboard. We might not be able to feel those with our finger, but instead we might have a totally different tactile experience of the blackboard; as having a certain temperature, as having dust from old chalks etc. (Ihde 1979, p. 9). Technologies magnifies some aspects of the world, while reducing other aspects.

Although uncomplicated, this example demonstrates the productivity of technological mediation. Even if we *merely use* a technology for a simple task, the mediation transforms how the world appears to us, and with it, how we behave in it. Seen this way, deeming technologies to be neutral aids with discrete and particular functional tasks becomes untenable. Instead we should think of technologies and the mediation they enable as something that produces an altered involvement and experience of being in a given setting.

One way of articulating this, is to say that technological mediation *configures* our relation to the world. We have already seen some examples of this: writing tools enable us to be in lecture-situations differently; social media enable us foster our friendships in specific manners; assistive healthcare technologies inflict patient responsibility on a municipality's healthcare system; electronic medicine dispensers enable a different way of organising medicine intake. Moreover, and just as important, the technological mediation not only establishes our relation to the world as being of a specific type; it also *constrains* how we relate to the world: the specific relation becomes the dominant way of being in a practice, tangled up in habits and norms, and what procedures to follow and how they should proceed. Once a technology has become an integral part of a service, it is hard to disentangle it and go back to old ways of doing things (cf. Collingridge 1980).

Another way of a concurrent enabling and constraining relates to the material and structural characteristics of technology: the dentist's probe enables detection of tiny scratches, but does not pass on the temperature of the blackboard; a door handle enables opening a door, but constrains the

manner in which this is done (up-and-down, as in Norway, or around, as in the US); a COPD briefcase enables eye-to-eye contacts, but demands that patient and nurse sits close to and in front of the screen, something a phone call does not require (but it has its own set of requirements).These examples show us how we have to adjust to, and to a certain extent submit to, a technology's constraining aspects if we are to exploit its enabling aspects. There is nothing odd about this: technologies must necessarily be operated in accordance with how they are supposed to be handled if our actions are to be successful. However, in this very trivial assumption, there are some interesting lessons about the productivity of technological mediation.

According to Madeleine Akrich, technologies are designed and developed with a set of (often implicit) assumptions about the users and the use context that emerges in what she calls the technology's *script* (Akrich 1992). This includes assumptions about how a technology will be used; about structures and relations in the practice the technology is meant for – the skills of the users, their experiences, motives and desires, networks, political opinions, and so on; and about the use context and society on the whole: science, politics, other technologies, economy, and values, etc. This implies that a technology becomes available as a material item with relatively rigid procedures for how to be operated and a set of expected social, moral, financial, and scientific consequences of its implementation.

However, in a similar manner to how a theatre script can be realized in a different way from what the author had in mind, can the realisation of the technological script diverge from what the designer had thought. Even if we have to adapt to the script in order to use the technology successfully and in accordance with how others use it, we do not need to submit uncritically. There is always room for interpretation and improvisation. When a new technology is introduced to a particular practice (whether it is an assistive healthcare technology in a healthcare service or when we buy a new mobile phone), users have to adapt the technology to their circumstances. But, just as we are not determined by the script, neither do we have total liberty in the adaptation: we have to connect with

the *possibilities that are enabled and constrained by the material and structural properties of the technology* if the use is to be successful. How a technology is actually being used, then, is the result of a *negotiation* between the material and structural properties assumed in the script and the material and structural properties of the use context (which includes political, financial, legal, institutional, ethical and other contextual aspects). Technologies do not determine, nor are they neutral.

Why is the non-neutrality important? First of all, it implies that anticipation of the changes in structure, roles and responsibilities and in the norms and values of a healthcare service need to be framed by a proper understanding of the productivity of technological mediation. Another important reason is that the non-neutrality should frame our understanding of the ethical challenges facing healthcare personnel and care receivers every day. Particularly relevant here is the fundamental dynamics between, on the one hand, enabling ways of being and action, and on the other, simultaneously constraining how these can be realised. To connect to a healthcare service structured around an assistive healthcare technology demands that the primary user adopts the technology's script, while at the same time, adapts the technology to her or his specific circumstance. Given that the overall goal of the healthcare service is to arrange for a good patienthood: What are the actual and concrete ethical challenges this particular care receiver is facing?

4.2 The non-neutrality of technology 2: How technologies shapes roles, identities, and self-image
In order to approach these ethical challenges in the best possible manner, we need to explore in a bit more depth how technologies shape identity. I have already touched upon this; by mediating our relation to the world, technologies configure the manners of our being-in in the "physical world" as well as the "social world". We have seen some examples of how technological mediation shapes the world, but more importantly, the mediation also transforms the preconditions for what we are, what we can become, and what we think about ourselves and our possibilities in the world. In a similar manner to how technologies magnify and reduce phenomena in the world, technologies impact on

our physical and mental properties, skills and capacities by activating and accentuating some and relegating others to the background. Again, this is fairly straightforward: when eating soup most of us hold the spoon with our right or left hand and not with our feet (although there are exceptions). But what is interesting in this "movement" of activating-passivating is how it impacts on our self-understanding: how we reflect on our possibilities to be and to act, and in turn, what that does to our self-image.

Technologies, by enabling us to do actions we could not have done without them, expands our *practical space*. This is applies both to able-bodied persons, and those that have had their capabilities reduced from age or illness, or are disabled. A car satnav (GPS) can transform an anxious motorist to a self-assured one in an unknown city with complex traffic. In this case, the technology expands the geographical space, and by doing that, configure a *different* chauffeur: "I am now the kind of chauffeur that can drive through complex traffic". For a person with dementia, the GPS tracking device enables unaccompanied activities outside with a certainty that she or he will be found in case the person should go missing. The person is still a person with dementia, but *how* this dementia unfolds is different with the tracking device.

In these two examples practical space expands in a literal sense. Social technologies (writing tools, telephones, Skype, etc.) expand it more figuratively: it is not so much the actions themselves (writing, calling) that expand, but the technologies enable us to stay in touch with friends and family when we are not physically close – the technologies expand our social practical space. Technologies that support our cognition also expands practical space, whether it is a calculator helping us with a hard mathematical task or an electronic medicine dispenser sending out a signal (sound, sms) when it is time to take the medicine.

Able-bodied persons are frequently defined by what they can do, while disabled and care receivers are defined by what they cannot (any longer) do. Having access to assistive healthcare technology will for this group of persons entail that certain actions will not be outside the scope of possible

actions after all, and will therefore not be defined as persons who cannot perform them. One evident consequence of this is the way assistive healthcare technologies enable living at home rather than in an institution, which means that the primary user is defined as a *user*, rather than a *patient* or *care receiver*.

Also for oneself and one's self-image is the connection to practical space vital: we understand ourselves on the basis of what we are able to do. What we *are*, in the eyes of ourselves and others are of course a result of our personal history, connections and activities. However, this self-understanding is also intertwined with a future-directed reflection, with what we might *become* and as being able to achieve (Heidegger 1962; Kiran 2012). If we regard ourselves as persons who can achieve various actions in the future – driving a car, climbing mountains, or finish a doctoral degree – it has a direct bearing on how we understand ourselves to be *now*. And vice versa, if we consider ourselves as person who *cannot* achieve certain things, it also affects our self-understanding. Elderly persons without much experience in being online will most likely be reluctant to start using internet banking. They will define themselves as someone who does not have 'internet banking' within their practical space. Of course, there might be other reasons than lack of skills that stops persons from using internet banking: maybe a lack of trust in that privacy is observed with. This reason also puts internet banking outside the person's practical space, but for other considerations than skills, namely moral ones. Choosing *not* to do something is as defining as choosing to do; it is still an identity-creating relation to technology (Kiran, Oudshoorn and Verbeek 2015).

The productivity of technological mediations is most often explored through *active* technological actions. As we have seen, what is being produced is a configuring of the human-world relation, where specific attributes in the world are connected to specific faculties in the user. However, this kind of configuring also occurs when we are *not* in an active relation to the technology. Technologies that we know of and are able to handle still have a certain *presence* also when not in use; it is their access that releases the configuring of the human-world relation. The mobile in our pocket, the

refrigerator in the kitchen, the parked car, and assistive healthcare technologies like GPS, safety

alarms, fall detectors etc.; all these technologies configure the relation each of us has to our physical

and social surroundings, even if "merely" available for use.[13]

The configuring capacity of technological mediation appears noticeably in how we plan and go about

our daily lives. In our modern lives, it seems impossible to organise and plan a normal day without

being dependent on some technology at some point. And typically, without reflecting on this

dependence: we simply take our access to various technologies for granted. From we wake up –

using an alarm clock – until we slip under the blanket – another technology – at night, we go about

by means of the technologies we have surrounded ourselves with. We *can* plan our daily chores – go

to work, withdraw money, watch TV, go to the cinema, cook, stay in touch with friends, *because* of

the technological presence in our lives. We recognise – tacitly – our own possibilities through the

technological possibilities existing in our environment. This holds for short term planning – I buy

three cartons of milk at the store because I have a refrigerator at home, and for long term planning –

I save money to travel the world in my retirement days because I know that there will be planes (or

some more eco-friendly means of travelling) in the future. In other words, we do not simply use

technologies to reach goals, but we are able to set these goals because technologies configure our

relation to the world in a manner that discloses their possibility.

Phenomenologically speaking, then, to be human means both to be shaped by and to shape

ourselves through technology. Technologies are intimately linked to what we perceive and

understand as our possibilities to be and act. This way, technologies form an existential link between

our personal history and our future – our possibilities to become. What we are; what we see

ourselves as being, *today*, is a hybrid between past and future; *we* are hybrids of experience and

potentiality. Of course, technology is not the only social condition that shapes us in this manner

(language and *memento mori* are two others), but it is vital for so many aspects of our existence, for

many professions and occupations. Our status as hybrids, then, applies to how we are pupils,

students, teachers, economists, lawyers, football players, and slackers, *and* it applies to how to be patients and care receivers.

5 How to constitute patienthood – an ethical dimension

5.1 The good life: a moral responsibility

Technological mediation's configuring of the human-world relation involves a fundamental ambiguity: the mediation discloses the world in a specific manner, but at the same it constrains how the world can be approached (Heidegger 1962, 1977). And by doing that, it also discloses us for ourselves, and it constrains ways of being and becoming. This happens whether or not we are aware of the existential dimension of technology. And it happens whether we take an active and critical role in shaping how the technology affects our lives or if we merely let technology into our lives in an undiscerningly manner. In case of the latter, the technology will still configure and disclose possibilities, but if we remain passive in how it shapes our roles and identities, we fail to take advantage of the full range of potentiality harboured in the technological possibilities. And perhaps worse, we fail to fulfil our own potentiality.

This is not limited to technology; we acquire language, cultural norms, political opinions, habits and so on from our social environment by adopting social structures of meaning. This can happen passively or we can be critical in relation to social and cultural influences and thus shape ourselves by adopting and adapting them discerningly. We find the same ambiguity here, as in technological contexts; by adopting social meanings we at the same time find the vocabulary and means to transcend the very same meanings: we can discard the previous generations unsustainable habits of transportation; we can use mobile technology to create small "spaces" that parents cannot access and do not understand; we can learn a language, a vocabulary that transcends both parents and friends. We are, then, not confined to the network of social meanings, but we need it in order to transcend it.[14] Similarly with technology, only by adopting the script can we liberate ourselves from it. This confers a moral responsibility on technology users.

Researchers, designers, technology developers and innovators, and policy makers and bureaucrats have a moral responsibility for what kind of technologies are being developed and implemented into society, but the moral responsibility does not stop there. Every person is morally responsible for her or his own life, and therefore also what technologies, and *how*, are becoming an integral and shaping part of this life. The dynamics of adoption and adaptation and the existential dimension of technologies render technology use a moral issue also for technology users. From this perspective, the main ethical question facing every technology user is: How can I take an active part in shaping my daily life so that the technology supports my conception of a *good* life? (cf. Verbeek 2011; Kiran, Oudshoorn and Verbeek 2015) As elsewhere in life, one might just "go with the flow", but actively grasping possibilities and embracing the corresponding responsibilities enhance the likelihood that one can approximate a good life.[15]

This implies that primary users of assistive healthcare technology find themselves in a position with a moral responsibility. However, there is significant dissimilarity between this moral position and the moral position "regular" technology users find themselves in. First of all, the type of choice facing a care receiver when she or he is offered an electronic medicine dispenser is quite different from the type of choice another person is facing when contemplating buying a new mobile phone or to replace the old wood-burning stove with a heat pump. Particularly so because the choice may not arrive as a genuine choice: the care receiver might feel compelled to start using a particular technology because the home care unit and/or the family request it. Secondly, and this is what I want to focus on in the following, the responsibility for educating and training the primary user in the use of the equipment, and for the use after the period of training is a *collective responsibility*. It implicates family and next of kin, healthcare personnel and health policy makers, and industry actors such as pharmacists, technology developers and technicians. Patienthood might be lived by a single individual, but it is shaped through a collective effort. In this perspective, the moral responsibility facing the primary user is not hers or his alone, but is a collective one.

This (collective) moral responsibility must begin by conveying an acceptance for that the offer of some assistive healthcare technology is not merely about learning to use and maintaining some advanced type of equipment – something many care receivers will be unenthusiastic about, but that it also is about seizing an opportunity to shape one's patient role and overall daily life. Assistive healthcare technologies do not guarantee well-being, but well-being can be created through it.[16] Maybe such a shift of emphasis will release greater motivation and willingness to learn the equipment? Or, of course, it might have the opposite effect; that focusing on existential consequences are intimidating rather than liberating. However, that is not what is important here; what rather is is that the offer to use assistive healthcare technologies releases an *active approach* towards the primary user's patienthood. To be active in this manner, though, demands that the responsible collective familiarizes itself and anticipate, as far as it is feasible, the possibilities that exists and the consequences one should expect when a particular care patient in a specific situation starts using a piece of assistive healthcare technology. It is still the actual use that is most important, of course, but *how* the primary user experience and reflect on this use is vital for both willingness and success in using the equipment.

5.2 The ethical ambiguity of assistive healthcare technologies

The moral responsibility of taking charge in the shaping of patienthood, then, consists in orienting oneself towards and manoeuvring the dynamics between the enabling and the constraining consequences of technological mediation. Consequently, it is crucial to understand both the *range* and the *ambivalence* that concrete technologies generate: What are the opportunities, and how, specifically, does the technology constrain patienthood? How strong is the push from the technology's material and structural properties, and how can a primary user shape her or his patient role and being in relation to this?

We have seen some examples of the moral ambiguity of assistive healthcare technologies already: they might facilitate living at home, but the presence of technologies may at the same time estrange

the home (Hofmann 2010, p. 30); technologies might confer more independence, but also reduce it by making the primary user more dependent on it (Hofmann 2010, p. 23), or the independence can lead to less human contact (Hofmann 2010, p. 17); tracking devices can lead to more freedom of movement, but also more surveillance (Hofmann 2010, p. 21), with subsequent issues of safe data storage (Bharucha et al 2009). A study on electronic medicine dispensers has shown that primary users, although quite happy with it, became more dependent on the domestic partner and anxious about the performance of the equipment (Kiran & Nakrem 2016). From these examples it might appear that one consequence is bad, while the other is good. In some cases, this might be the case (for instance if a technology leads to less human contact when this is unwelcome). But it is important to realise that the technology pulls in both directions: it determines neither, but opens up to both.

What is decisive for how the technology is appreciated (by a given patient) is a) service innovation – which should underpin the existential possibilities through accommodating logistics, infrastructure and services, and b) that the responsible collective close to the patient follow up, and attend to and make the most of the opportunities opened up by the technology. Consequently, it is important from the perspectives of both healthcare services and primary users to recognise ambivalences as a common aspect of any technology, and furthermore, to acknowledge that these ambivalences must be dealt with through the manners in which the technology is adapted to a concrete care receiver's circumstances.

For assistive healthcare technology and the goal of creating well-being and a good patienthood, there is one ambiguity that emerges as a particularly pertinent ethical challenge: is the technology *involving*, or is it *alienating*? If it is involving, the technology succeeds in engaging the primary user in a constructive manner: the user is activated positively (i.e. without experiencing the technology as demanding); the lessened functionality of the user is countered (without new problems being added), and so on. If the technology is alienating, it has the opposite effect: the user feels less implicated in her or his patienthood, for instance because of technical or bureaucratic demands, or

the technology is more of a burden than helpful. More generally put, involving technologies are positive because they engage primary users in shaping what they find to constitute a *good patienthood*. If the technologies are defective in that respect, they are alienating, and the shaping of patienthood is handed over to other persons, institutions and circumstances: healthcare personnel, family, technology, healthcare services, with the possible outcome that the patient's own requests are toned down. Losing control over one's own life could lead to patienthood being experienced as substandard.[17]

Most technologies, then, pull in both "directions": few are involving or alienating *in themselves*. The deciding aspect for how it is experienced is how it is introduced and used; that is, the manner in which it enters and connects to context of a care receiver's situation (from physical and mental capabilities to economy and network). The question to ask is not: *is* this equipment involving or alienating, but rather: how can this equipment come off as involving and *not* alienating for a particular care receiver?

Care receivers differ, in terms of technological capabilities, willingness and curiosity. Accordingly, one type of assistive healthcare technology will have dissimilar effects on the patienthood of two different care receivers. The general purpose behind programmes in assistive healthcare technology is involving (using my vocabulary)[18]: technologies should enable primary users to live at home longer, they should create a better daily life, and they should increase the efficiency of healthcare services, and so on. Still, some technologies have alienating effects: some inhabitants in smart houses feel controlled and dehumanized (Astell 2006); some users of fall detectors would have preferred it if no-one, not the home care unit or the family were to find out about them falling unless they were unable to get up by themselves (Brownsell et al 2000); robots that are supposed to unload tasks and burdens are perceived by some as aggressive and intrusive (Faucounau et al 2009).

So, instead of enabling and reinforcing the experience of independence, quality in care and, more generally, of a good patienthood, assistive healthcare technology can for some be experienced as the

opposite. However, although it is the technologies that trigger the negative experience, they are not to blame in themselves – the experience results from how the technologies have been framed (institutionally and personally) and how the patients value the range of possibilities in relation to constraints, and the potentially positive consequences compared to the potentially negative ones. In many ways, this might seem trivial, but on the other hand, to reflect on positive against negative existential consequences is no easy task given the situation patients find themselves in: being "compelled" to start using a piece of equipment, with a possible feeling of defeat if the training goes slow or fails.

Whether assistive healthcare technology sustenance a care receiver's view of what constitutes a good patienthood is, then, a question of how one meets the technology. Of course, many different aspects will influence this: values, beliefs, political opinions, and so forth. However, in my opinion, it is important not to disregard or play down how technologies have this potential to transform care receivers' lives with their frailty or disease. If a patient is sceptical to new items, especially those that come across as "hi-tech" (maybe because this person think of her or himself as not having "hi-tech"-actions within the practical space), assistive healthcare technologies most likely will be met as something negative and alienating. Attempting to emphasise more positive aspects, it may be helpful not to dismiss the possible negative aspects as misconceptions, reluctance and fear towards new technology, but as something legitimate that results from a focus that can be turned around. Technologies *are* ambiguous in their effects, and in itself this could be an acknowledgement that generates a different way of "meeting" the challenges of mastering a new technology.

In this way, the ethical ambiguity of technology, *involving vs. alienating*, have methodological implications. Acknowledging that this not a dichotomy, but a sliding scale, may create flexibility in how a primary user thinks of the technological element in the patienthood, and through that release a critical and active approach to adopting and adapting an assistive healthcare technology to her or his circumstance.

6 Concluding remarks: Ethics *with* assistive healthcare technology

The main message of this paper has been that in order for large-scale socio-technological reform programmes such as national initiatives on assistive healthcare technology to succeed, we need to address the *productivity of technological mediation* in an adequate manner. If not, there is a danger in underestimating the actual impact from technology on persons and on practices, which for this paper have been investigated by way of care receivers and healthcare services respectively. The concept of technological mediation serves, in this respect, as methodological framework, well-suited to disclose the existential ramifications of technology: a) as configuring the human-world relation owing to their material and structural properties, and b) as shaping identities and self-images through the possibilities and limits that this configuration discloses. Furthermore, the concept of technological mediation also has predictive potential, as a methodological tool for anticipating how particular technologies impact on particular persons, and practices and services.

What is more, the existential dimension has moral implications: we are obliged to take charge of shaping our own identity, which happens independently of our active involvement. For healthcare services this means that the *collective* that shapes patienthood ought to introduce assistive healthcare technologies in a manner that brings out and supports the patient's thoughts about and desire for a *good patient life*. In turn, this means that the collective should take active steps in exploring how a technology can contribute to this for each individual patient. The most important conceptual tool in this connection is the dynamics that lies in technology being both inviting and alienating. The ethical challenge is therefore not to assess whether a technology is good or bad, but *how it can be made good* given the circumstances of a particular patient.

The main question for further pondering is how to operationalise this ethics *with* technology? Here I would like to stress that patients and care receivers should *not* be burdened with ever more responsibility. The effort to learn to use a new technology is hard enough, and frequently follows unfortunate occurrences like a stroke or a period of illness that in itself requires a lot of change in the

patient's life. The technologies are meant to make this process easier, but may – if introduced in unfortunate, incomplete or too hastily manners – be more burdensome than beneficial. As already discussed, this is a challenge for the collective, which implies that in order for it to be operationalised we need standards, procedures and infrastructure making up healthcare services in a manner that enable this kind of ethics.

The practical value of this perspective, then, involves various efforts. First, how the technology is introduced to patients and how the training proceeds. The main approach here is focus: do not merely focus on the technology as being hard to manage and how to minimize possible negative outcomes; focus also on what a good patient life might involve and how the technology may contribute to and support this. Important measures for this to be achieved are education and post-experience courses for healthcare personnel, also information to and perhaps training of family and next of kin will be helpful here. Although ethics nowadays has a natural place in any healthcare education (at least in the Nordic countries), how new technologies bring about changes to healthcare services and the ethical challenges in the wake of this do not. However, "the existential dimension of technology" is too conceptual and most likely unfit as a key issue in the training, so the education should primarily reflect measures that recognise this conceptual framework.

Second, the practical value concerns how the technology and the services are designed, and how policy makers and bureaucrats plan and execute assistive healthcare technology initiatives. There must be technical and structural space for individual adaptation, and there must be resources so that care receivers can be followed-up in their efforts to shape their new life through and around the new technology. Too rigid scripts make for too rigid technical solutions, and the technology appears as not enough involving. Similarly, too rigid services leave too little space for individual follow-up.

References

Akrich, M. (1992) The De-scription of Technical Objects. In: Shaping Technology-Building Society: Studies in Sociotechnical Change (eds W. Bijker & J. Law) pp. 205-244. MIT Press, Cambridge

Astell, A.J. (2006) Technology and personhood in dementia care. Quality in Ageing 7(1): 15–25

Bharucha, A.J., Anand, V., Forlizzi, J., Dew, M.A., Reynolds, C.F., Stevens, S & Wactlar, H. (2009) Intelligent assistive technology applications to dementia care: current capabilities, limitations, and future challenges. The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry 17(2): 88–104

Brownsell, S.J, Bradley, D.A., Bragg, R., Catlin, P. & Carlier, J. (2000) Do community alarm users want telecare? Journal of Telemedicine and Telecare 6(4): 199–204

Collingridge, D. (1980) The Social Control of Technology. St. Martin's Press, New York

Faucounau, V, Wu, Y.H., Boulay, H., Maestrutti, M. & Rigaud, A.S. (2009) Caregivers' requirements for in-home robotic agent for supporting community-living elderly subjects with cognitive impairment. Technology and Healthcare: Official Journal of the European Society for Engineering and Medicine 17(1): 33–40

Heidegger, M. (1962) Being and Time. Basil Blackwell, Oxford

(1977) The Question Concerning Technology. In Heidegger, M. The Question Concerning Technology, and other essays, pp. 3-35. Harper & Row, New York

Hofmann, B. (2010) Etiske utfordringer med velferdsteknologi [Ethical challenges concerning assistive healthcare technology]. Memorandum, The Knowledge Centre for the Health Services

Ihde, D. (1979) Technics and Praxis. Reidel, Dordrecht

(1990) Technology and the Lifeworld. From Garden to Earth. Indiana University Press, Bloomington

(2012) Experimental Phenomenology, 2nd ed. SUNY Press, Albany

Kiran, A.H. (2012) Technological Presence. Actuality and Potentiality in Subject Constitution. Human Studies 35(1): pp. 77–93

(2015) Four dimensions of Technological Mediation. In: Postphenomenological Investigations: Essays in Human-Technology Relations (eds Rosenberger, R. & Verbeek, P.P.) pp. 123-140. Lexington Books, New York

Kiran, A.H., Oudshoorn, N.E.J., & Verbeek, P.P (2015) Beyond Checklists: Towards an Ethical-Constructive Technology Assessment. Journal of Responsible Innovation 2(1): 5-19

Kiran, A.H & Nakrem, S. (2016) Etiske perspektiver på pasientrollen [Ethical perspectives on the patient role]. In: Velferdsteknologi i praksis. Ulike perspektiver på teknologi i kommunal helse og omsorgstjeneste [Assistive Healthcare Technologies in Practice. Some Perspectives on Technology in Municipal Healthcare] (eds Nakrem, S. & Sigurjónsson, J.) [Forthcoming] Cappelen, Oslo

Leland, A. (2001) Hvor ønsker pleieavhengige eldre å bo? [Where do elderly in need of care want to live?] Unpublished masterthesis in Health Science, University of Bergen

Ministry of Health and Care Services (2013) St.meld 29: Morgendagens omsorg [The care of tomorrow]

Nordic Thinktank for Welfare Technology (2015) Making Implementation Easier. http://www.nordicwelfare.org/PageFiles/24700/THINKTANK150202.pdf [07.05.2016]

Norwegian Board of Technology (2009) Framtidas alderdom og ny teknologi [Aging in the future and new technology]. Report

Norwegian Directorate of Health (2012) Velferdsteknologi. Fagrapport om implementering av velferdsteknologi i de kommunale helse- og omsorgstjenestene 2013-2030 [Assistive healthcare technology. A report on the implementation of assistive healthcare technology in the healthcare services of the municipalities 2013-2030]. Report

NOU 2011:11 (Official Norwegian Report) (2011) Innovasjon i omsorg [Innovation in care]

Pols, J. (2012) Care at a Distance: On the Closeness of Technology. Amsterdam University Press, Amsterdam

Pols, J. & Moser, I. (2009) Cold technologies versus warm care? On affective and social relations with and through care technologies. ALTER - European Journal of Disability Research 3(2): 159-178

Slagvold, B. & Sørensen, A. (2013) Å være herre i sitt liv – svekkes følelsen av kontroll i andre halvdel av livet? [To be a master of your own life – does the experience of being in command diminish in the latter half of life?] In: Vital aldring og samhold mellom generasjoner [Vital aging and unity across the generations] (eds Daatland, S.O. & Slagsvold, B.) pp. 287-296. NOVA report

Sorknæs, A.D., Madsen, H., Hallas, J., Jest, P. & Hansen-Nord, M. (2011) Nurse tele-consultations with discharged COPD patients reduce early readmissions – an interventional study. The Clinical Respiratory Journal 5(1): 26-34

Swierstra, T. (2015) Identifying the normative challenges posed by technology's 'soft' impacts. Nordic Journal for Applied Ethics 9(1): 5–20

Texmon, I. 2013. Dagens og morgendagens eldre – en demografisk beskrivelse [The elderly of today and tomorrow – a demographic description]. In: Eldres bruk av helse- og omsorgstjenester [The elderly's use of healthcare services] (ed Ramm) pp. 27-38. Statistics Norway, report

Verbeek, P.P. (2011) Moralizing Technology. Understanding and Designing the Morality of Things. The University of Chicago Press, Chicago

¹ «Patient» is an imprecise notion when discussing assistive healthcare technologies, since primary users of these do not necessarily have a disease, but rather have slightly impaired cognitive and physical functions – effects from normal aging. However, I am still going to use it, in the broader sense of a person who receives support from the healthcare services. Sometimes, though, it is more natural to use "care receiver" or "primary user"

² Of course, it is possible to take *mental* notes, but I disregard that for now.

³ The term «velferdsteknologi» is very much related to the socio-political model we find in these countries, which is labelled "velferdsstat" (welfare state). This expression denotes the network of public social security governing healthcare and other institutions. While "velferd" has positive connotations, "welfare" has not, which is the reason I will not be using it in this paper.

⁴ http://www.forskningsradet.no/bladetforskning/Nyheter/Smarte_hus_hjelper_eldre/1250810414523 [06.05.2016]

⁵ Norwegian Directorate of Health 2012. The categories themselves are copied from NOU 2011, but are here put into a more specific discussion on assistive healthcare technologies.

⁶ http://liviathome.com/ [06.05.2016]

⁷ https://www.datatilsynet.no/Regelverk/Tilsynsrapporter/2012/Brukt-riktig-kan-velferdsteknologi-ogsa-innebare-godt-personvern/ [07.05.2016]

⁸ https://www.fylkesmannen.no/Sor-Trondelag/Helse-omsorg-og-sosialtjenester/Omsorgstjenester/Det-midtnorske-velferdsteknologiprosjektet/Det-midtnorske-velferdsteknologiprosjektet/ [07.05.2016]

⁹ Cf. the concept of "mulitistability" (Ihde 1990, 2012).

¹⁰ http://www.theguardian.com/society/2014/jul/08/paro-robot-seal-dementia-patients-nhs-japan [18.05.2016]

¹¹ Cf. Hofmann 2010, p. 16. Hofmann acknowledges the importance of broader perspectives on ethics and humans, but chooses not to explore them. The concept of an 'ethics with technology' may be seen as an attempt to frame a method for how to explore such broader perspectives in concrete discourses on and testing of assistive healthcare technology.

¹² Of course, this is very simplified. People rarely just accept changes to norms, and there will always seem to be good reasons to judge new norms as inferior to the old ones, at least as long as the old ways of doing things are still vividly remembered. On the other hand, there are no reasons to just assume that changes deemed as negative beforehand will be deemed the same way after-the-fact, at least not after a period of adjustment. Anyway, for the record, I do not suggest that we should flat out accept technologically (or other socially) induced changes.

¹³ 'Technological presence' is explored more fully in Kiran 2012.

¹⁴ This passage has been very much in line with Heidegger 1962, especially the sections on "*das Man*".

¹⁵ This might come across as a very selfish or ego-centered perspective; there is of course a great deal of moral issues of a more selfless character, especially those that concerns how we relate to technologies and the companies that manufactures them: vis-à-vis persons, concerning poverty and employment in third world countries, environmental issues, and so on. These issues belong to an ethics *of* technology, and why I have chosen to focus on "me" here will be clearer as we go along.

¹⁶ But, to be sure, not only through the technology.

¹⁷ But not automatically: patienthood may well be experienced as good in spite of not feeling in control.

¹⁸ "Every kind of welfare technology has a good goal" (Hofmann 2012, p. 3, from the English summary)