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An approach to facilitate healthcare professionals' readiness to support technology use in everyday life for persons with dementia

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Abstract

Everyday technologies (ETs) like microwave ovens and automatic telephone services as well as assistive technologies (ATs) are often used in the performance of everyday activities. As a consequence, the ability to manage technology is important. This pilot study aimed to clarify the applicability of a model for knowledge translation to support healthcare professionals, to support technology use among older adults with dementia and their significant others. An additional aim was to explore the process of translating the model into practice. The applicability of the model (comprising a one-day course, including introduction and provision of tools, followed by interviews during and after a period of practice) was clarified for 11 healthcare professionals using a constant comparative approach. The content of the model gave the participants an eye-opening experience of technology use among persons with dementia. They also described how they had incorporated the model as a new way of thinking which supported and inspired new investigations and collaborations with colleagues and significant others. This study provided an applicable model of how research knowledge about technology use can be translated into clinical practice and be used by healthcare professionals to support the use of technology for persons with dementia.

Keywords: everyday technology, assistive technology, older adults, constant comparative approach, focus group interviews

Introduction

The population in the world is aging and dementia diseases are common. Even though dementia causes increasing difficulties in performing daily activities (1) most people with dementia remain in their own homes as long as they can (2). At home, everyday technologies (ETs) like TVs, computers, and automatic telephone services are increasingly needed in the performance of activities. As use of technology increases, the ability to manage it becomes more important to maintain living at home (3). The technology in everyday life does on one hand offer many advantages (4). On the other hand, for those who cannot use the technology, it can be a barrier or even a potential danger (5). Hence, balancing this dilemma can be a challenge for healthcare professionals who seek to support use of technology among disabled older adults. In this study we want to describe how knowledge about and tools to support the use of ET and assistive technology (AT) in everyday life for persons with dementia (PwDs) can be communicated to and utilized by healthcare professionals in practice. This process of translating research knowledge into clinical practice is referred to as knowledge translation (6).

It has been shown that people with dementia or mild cognitive impairment (MCI) have more difficulties using ET and perceive less ET to be relevant for them, compared to older adults without known cognitive impairment (7-9). In a previous study where ET use in a sample of older adults with and without cognitive impairment was investigated in detail, ten performance action skills that are needed when using ET were identified e.g.to *identify services and function* and *manage series of numbers*. The performance action skills were demonstrated to differ in challenge and a hierarchy of the challenge among the skills was presented (10). Such detailed information about the use of ET is most likely important when healthcare personnel are planning, performing, and evaluating interventions including use of

technology in everyday life for people with dementia. Along with the rapid development of ETs, ATs such as adapted calendars and devices that give reminders developed for PwDs to compensate for their impairments in cognitive function are common (11). Generally, there is a belief in the potential of ATs to support everyday life activities and to enhance safety (12). However, the knowledge of how to support AT use for persons with mild to moderate dementia living at home is sparse (11). The process of bringing AT into the everyday life of a person with cognitive impairment or dementia is complex and during the process difficulties can emerge (13, 14). Several generic models have been developed to describe and guide the process of deciding and matching the appropriate (assistive) technology to a specific person (15-17). However, these models concern ATs and are not intended to focus on the user's ability to use technology, both ET and AT, in the context of the specific user. Moreover, those models were developed for persons with physical impairments, not always considering the difficulties in technology use of persons with cognitive impairments due to dementia or MCI (18) Consequently, there is a need for guidelines that support a more flexible approach for healthcare professionals to support interventions such as prescription and evaluation of AT as well as use of ET and AT in everyday life for older adults, also including those with cognitive impairment.

An important issue, for all health care and medical research is the translation of knowledge into clinical practice, i.e. the translation of research findings into information that is important and meaningful to professionals (6). In contrast to evidence-based practice which presupposes the application of research within the clinical field, knowledge translation focuses on processes that are used to increase the knowledge for professionals and how they could implement research evidence in clinical practice to improve patient outcomes or healthcare services (19). The process of knowledge translation occurs in a complex interaction among

researchers and users (20). To enhance knowledge translation, the information needs to be appropriately tailored and simplified to fit the users (20, 21). As well, it is important to take into consideration that translating knowledge into practice it is not enough for health care professionals to gain new knowledge or information; a change in attitudes and behaviour is also needed. In addition, the process of translation of knowledge produced in research into practice can be hindered by barriers such as lack of motivation, patient-related factors and environmental factors (22). To guide the pedagogical issue of translating knowledge into practice, the pedagogical ideas of the American philosopher and psychologist John Dewey (23) were used in this study. According to Dewey, learning – or how people learn – needs to be connected to reality and to have a purpose. As well, continuity and interaction are emphasized (23). This means that a person who is supposed to learn something has to be active in the learning process. It is moreover important that learning builds on the interacting of individuals' experiences, which is also emphasized in the process of knowledge translation. Dewey's ideas form the basis for the view on learning in this study, i.e. how professionals can learn and translate new knowledge into practice.

The aim of this pilot study was to clarify the applicability of a model for knowledge translation with the intention of supporting healthcare professionals, within their professions, to give advice and support the use of technology among older adults with dementia. The model for knowledge translation comprises a course, including introduction and provision of tools, followed by interviews during and after a period of practice. Additionally, the aim was to explore the process of translating the knowledge and tools into practice. The following research questions were raised: (1.) What readiness to apply the knowledge do the healthcare professionals have? (2.) How do the healthcare professionals reason about the knowledge and

the tools and their applicability to their work situation? (3.) In what way do the healthcare professionals apply the knowledge and tools in their work situations, if and when they do so?

Material and methods

Design

This study is based on a constant comparative approach using the principles of Grounded Theory (24, 25) aiming to clarify the applicability of a model for knowledge translation with the intension to support healthcare professionals. The model for knowledge translation comprised a one-day course, followed by focus group interviews and individual telephone interviews, intertwined with the data collection procedures, during and after a period of practice. . The focus group interviews were chosen to provide the participants with an opportunity to discuss and process knowledge and thoughts together, while at the same time rich qualitative data was generated. The individual telephone interviews during a period of practice were used to follow the process for each participant and also to support the participants with concerns raised. One of the ethical committees in Stockholm had no objections to the study, but regarded it as quality improvement, thus not requiring an ethical approval.

Selection of participants

The participants were healthcare professionals, working clinically with PwDs and their significant others. Potential participants were identified through networks of such healthcare professionals. To get rich data, we sought variation in the participants' professions, types of healthcare area/setting, and working contexts, e.g. urban/rural. As we were interested in capturing the translation of knowledge into practice in how healthcare professionals could support the use of technology in everyday life for PwDs and their significant others, potential

participants should have the interest and possibility within their workplaces to implement such knowledge. Finally, it was also important that the participants were willing to share their reflections and experiences in group interviews as well as in individual interviews. A total of 11 professionals participated in the study, see Table 1.

Insert Table1 about here

Data collection

Procedure

All 11 participants gathered for a one-day course in 2009. The course included presentation of findings from research on how to give advice and support the use of technology among older adults with dementia, as well as the introduction of two clinical tools (described in a following section). This one-day course was led by two of the authors (xx and xx), both experienced in the area of PwDs and their use of technology in everyday life. Two assistants were present throughout the course day (the first author, xx, was one). The assistants took field notes and digitally recorded the discussions that were spontaneously raised during the day. The next day, the first focus group interviews (26) were performed. The participants were divided into two groups (1a and 1 b; see Table 2). Xx and xx led one focus group interview each, using a common guide of themes to be discussed. In both focus groups one assistant was present throughout the interview (one of them was xx, the first author). The assistants kept track of the agenda, took notes, and digitally recorded the interviews. After the one-day course and the first focus group interviews the participants agreed to consider, reflect over, and try to use the knowledge and tools during a period of approximately six weeks. The participants were contacted by telephone during these weeks once (n=2) or twice (n=9), depending on practical reasons such as time constraints. After the weeks of try-out the participants gathered again in focus group interviews (2a and 2b, see Table 2) to discuss their

experiences through concrete case reports and reflections about those. Additionally, the interviews included discussions of continued use of the knowledge and tools. Focus group interviews 2a and 2b were led by the same person (xx). For practical reasons the composition of participants differed in the first and second focus group interviews. However, these different group constellations were seen as a way of enriching the data, as the new composition also allowed new interactions among participants. After the second set of focus groups the participants were contacted for a second (n=2) or third (n=8) follow-up telephone interview. One participant declined participation in this telephone interview due to time constraints.

Insert Table 2 about here

A model for knowledge translation with the intention to support healthcare professionals in issues related to technology use and dementia.

The one-day course (including the clinical tools) and the interviews (focus groups and individual telephone interviews) constituted parts of a model for translating knowledge into practice of how to support healthcare professionals in giving advice and supporting technology use among older adults with dementia and their significant others. The model for knowledge translation is hereafter named the model. The one-day course started with information about recent findings from research in this area including definitions of ET and AT, use of technology in everyday life in the target group, the perceived meaning of the technology and how the technology could be seen as a support as well as a hindrance for persons with dementia. Conceptions of technology among persons with dementia and their significant others along with their conditions for incorporation of technology was also presented. The clinical tools, described below, were introduced and thoroughly elaborated upon and discussed in detail in the focus group interviews. Additionally, the course day

included discussions about issues like use of ET in the society, and for whom AT is prescribed. Thus the participants were directly involved in how to implement the knowledge and the tools in their work. In the focus group interviews the themes were formulated to trigger discussions reflecting the participants' views of how technology can be used by/for PwDs and their significant others in everyday life. As an important feature of the model, the participants were also encouraged to elaborate on and be actively involved and discuss how they could implement the knowledge and tools in their clinical practice. That is, the approach was non-normative, inviting the participants to exploration of eventual possibilities of translating knowledge to each one's unique situation in practice. Yet, the approach was concrete as it also included empirical research findings and tools for practice. The content in the focus group interviews was thus guided by the participants' own interests and involvement. The interviews also aimed at revealing how the participants viewed the task of giving advice and support to PwDs and their significant others in the use of technology and their possibilities to perform this task within their professions and settings. The individual telephone interviews were short, open interviews regarding how the participants' implementation of the knowledge and tools went. The participants also had the opportunity to ask questions to clarify uncertainties.

The two clinical tools; *the checklist* and *the hierarchy of performance action skills in the management of everyday technology* (hereafter called the hierarchy) will here be briefly presented; more detailed information is presented elsewhere (10, 27). *The checklist* (27) was developed to support healthcare professionals in their clinical work in facilitating ET and AT use as well as the process to prescribe and implement AT solutions among older adults with dementia and their significant others. It was based mainly upon the results from two earlier studies (14, 28). In these studies, seven different aspects regarding incorporation of

technology into everyday life for PwDs like *utility perspective on technology* and *technology as maintenance of the self-images* emerged. The seven categories constituted the basis for the checklist. The items in the checklist were not formulated as standardized questions but rather as advice to the professional such as *Note contrary needs and views between the person with dementia and his/her significant other* or *Find out what habit(s)of the person with dementia and his/her significant other the technology can be part of* (27). The *hierarchy* is based on the ten performance action skill items e.g. *choose correct button or commando* and *perform actions in logical sequence*, in the Management of Everyday Technology Assessment (META) (10). The META gathers knowledge about a person's ability to manage technology through detailed observations of ET use in natural contexts. The performance action skill items are presented in a hierarchy of challenge from more to less challenging (10).

Data analysis

All interview data were analyzed by a constant comparative approach using the principles of Grounded Theory (24, 25). During the process of data collection, digital recordings of earlier interviews were listened through before the following interviews in order to develop the questions. Memos were also continuously written throughout the analysis in order to capture reflections and to keep contextual issues in mind. When all data had been collected, the recordings of the four focus group interviews and the thirty individual telephone interviews were listened through to get an overall understanding of the data. Next, all interviews were transcribed verbatim from the recordings. The transcriptions were then inserted into the Open Code version 2.1 software program (29), in order to organize and structure the material to facilitate the analysis. Then the data from the interviews were coded with focus on the participants' use and reasoning about the knowledge and tools and the potential and applicability of the model. In the initial phase of the coding, the codes were kept close to the

data, i.e. close to the participants' own words. The codes were constantly compared to the

original data to make sure they were grounded in data. Analytical memos were kept

throughout the process; for example all codes received descriptions to define their content and

to separate codes from each other. Codes were then compared to each other to identify

resemblances and differences, and then merged into categories. During the process of coding,

new questions were continuously raised and answers to these questions were searched for in

the data. An example of such question is: In what way do the participants get to know the

knowledge and tools? The constant comparisons continued throughout the whole analysis

process. To improve the validity of the findings, codes, categories, and memos were discussed

and examined by both co-authors during the whole period of analysis.

Results

In the first category, the conditions that influenced the healthcare professionals' readiness to

support technology use among older adults with dementia are presented. In the other category,

the findings illustrate how the new knowledge and tools in the model were implemented and

used in clinical practice to support technology use. An overview of categories and

subcategories is presented in Table 3.

Insert Table 3 about here

Conditions influencing readiness to take action toward supporting technology use

The participants' readiness to take action toward supporting technology use for PwDs came to

the fore in the interviews. Different conditions were identified as the starting point for

applying the new knowledge and the tools in their work situation, as described by the

participants. The participants encountered PwDs in various ways in their work situation. The

degree to which and in what way they had direct client contact affected their readiness to

assess and support use of technology. For example, among the OT's it was described how

they often came in contact with PwDs through the home care services regarding specific

practical issues. They then felt that they only were entitled to interfere in these issues and if

those did not involve technology use they found it difficult to bring up the issue of technology

use for that client. The participants, both those meeting the PwD often and those meeting

them seldom, sometimes found it difficult to identify the problems the PwDs had in their

everyday lives. This could, according to the participants, either be due to the PwDs

themselves trying to conceal their problems and therefore not talking about them or the PwDs

being unaware of their problems. The participants explained that they therefore often needed

to be flexible to figure out the everyday problems of the PwD without insulting him or her.

They also talked about the importance of having respect for the self-images of the PwDs and

not violating their integrity. Two of the participants discussed this:

"(A) Because it's often as you say, that you don't want to talk openly about what you can't
manage. For some people it's …
(B) Yes, some people manage.
(A) There are big differences of course, but it's not unusual that you want to hide your
difficulties. Then it's like when you've seen together that it doesn't work, and then you can
keep talking about these problems. That's a good starting point, I think, when you're in
practice together. Then you avoid ending up in situations where it gets degrading."
(Discussion in focus group interview1b)

In addition to being a support in everyday activities for the PwD, the participants related how

the significant others also could influence their readiness by providing the kind of information

about the PwD that otherwise is difficult to get as a professional. In addition, the participants

expressed the importance of collaboration between different health professions around PwDs

for their readiness. For example, the importance of a unified way of working was underscored

as an advantage for the PwD, and also that knowledge and information regarding the person

was shared between all professions. One of the OTs gave an example of involving the

assistant nurses working in the home care service when introducing an AT to a PwD. She

pointed out the importance of having all professionals involved to have knowledge about

when, where, and how an AT should be used. The collaboration between OTs and assistant nurses was specifically elucidated by both parts. These two professions were considered to have different funds of knowledge about PwDs, which together could be used to support their use of ATs as well as of ETs such as microwave ovens and telephones. In contrast, collaboration between different professions could also imply difficulties. Reasons for these could be that different professions had problems understanding each other or had different views about who is responsible for solving the client's problems and this could be a hindrance for their readiness.

Incorporation of the knowledge and tools

In the analysis it was revealed that the participants reasoned about ET and AT in a variety of ways. The word technology in itself seemed to more often give the participants connotations to AT than to ET. They talked about ET as "the small stuff" and AT as "the big stuff".and described a change of their view of technology from the one-day course and interviews. This view further came to involve their ideas of how to assess and support technology by using the knowledge and tools provided, partly as a new way of thinking. In particular, they explained how the knowledge and tools had given them an eye-opening experience regarding ET.

The ambiguity of technology

When the participants voiced their ideas about technology before the one-day course they regardless of profession expressed that they had earlier generally focused more on AT than on ET. Some discussed that it is easy to become focused on ATs and see them as solutions to various problems due to the view of AT as a specialized and adapted technology and therefore something that can solve problems. Others discussed that ETs are so omnipresent in everyday life that they were not reflected over as something of which one explicitly needs to observe

the use. It was also discussed that problems in everyday life, for example difficulties getting

out of bed that could be solved with an AT, imply bigger consequences than problems due to

ET, such as not being able to watch TV. ATs were described to a greater degree as related to

basic needs and safety, and therefore more often paid attention to than were ETs. One

participant put it as follows:

"Just thinking about these smaller things that you may not have thought about before, but it's
been – do they have alarms so nothing happens? I mean these things that are a little bigger."
(Participant in focus group interview 2a)

Moreover, the analysis revealed different focuses on technology among the different

professions. The OTs, who are often those responsible for prescribing and following up AT

interventions, talked more about AT than did the other participants. Several of the other

participants did not describe themselves as working with technology use for PwDs, mostly

referring to AT. They stressed that technology is the OTs' responsibility and not theirs.

However, they explained that they would communicate problems with or need of technology

for a client with dementia to an OT. As one of the assistant nurses expressed:

"Just for these larger assistive technologies, there we need to take the occupational therapist
with us. Because I'm a licensed practical nurse, so I can only pass on the larger things [ATs]
and then we can deal with the small things [such as cribs for operating the micro wave oven]
and be observant so help arrives quickly."
(Participant in telephone interview, first occasion)

At the same time, especially the assistant nurses gave examples of how they had earlier

adapted ETs with techniques like making marks on different devices or making up

instructions with text and illustrations. Their descriptions of earlier experiences and actions

exemplified that they nonetheless perceived the support of their clients' use of technology as

part of their responsibility. Also, they claimed that knowledge of technology is important for

them too, as they could serve as a link between the PwD and the OT.

An eye-opening experience

The participants talked about ET as something they actually had not thought of in a wider sense before the course day and the interviews. Certainly, ET was not something new for the participants. However, after the one-day course and the initial focus group interviews they now had become more aware that they would need to ask about and assess ET use more in detail, and gain information about the consequences these could have on everyday activities and not just grasp what happened to come up, they said. The importance of ET use and that ET should be paid attention to by all healthcare professionals working with PwDs was pointed out. The participants talked about this as an eye-opening experience. One of the descriptions was:

"(A) You look at elevated toilet seats, bathtub, shower, and you look at thresholds. You look at all that, that's what you ask about, but I've never thought about the small stuff. I think I've gotten – ahah, right!
(Researcher) Small stuff? Can you be a little more specific?
 (A) Yes, the telephone. Can they make calls? I've never thought about that. Do you call your significant others? I've never thought of that.
(B) How many times do we ask about that or leave a telephone number? Call if anything comes up.
(A) Yes, exactly.
(B) But can they make calls? "
(Discussion in focus group interview 1 a)

Several of the participants reported that the tools and knowledge they had gained had given them ideas about assessing clients' ET use and adapting ET before trying an AT. They stated that they would try to use ET to a greater extent to solve everyday problems as ET already existed in the clients' homes. It was therefore familiar to the person while an AT would be something new which could be difficult to learn to use, and not an obvious solution to the problem. For example, one of the participants said that the alarm on the cell phone could be used instead of prescribing an AT alarm.

It was also explained how the eye-opening experience regarding ET made them realize what they earlier had missed in their work with PwDs. One participant described in the first focus group that she was "horrified" when she thought of what she earlier had missed in her work. The eye-opening experience of ET made the participants curious and they expressed that they wanted to try out the knowledge and tools with their clients. This was exemplified in the later interviews by them being more observant of ET in their clients' homes or by posing questions about ET use in a more precise way, such as "Can you use your telephone to call your children" instead of "Do you have contact with your children by telephone"?

A way of thinking

The participants discussed the knowledge and the tools as providing "a way of thinking". The tools were described by the participants as having the potential to act as a base or model for them of ways to observe and assess use of technology among their clients. They could be used as "a way of thinking" in order to get more detailed information of difficulties that their clients have in use of technology. This information could be used to plan for interventions or as a tool to communicate with significant others. To start with, the participants described that to use the knowledge and tools in practice, technology need to be defined to the PwDs. For example, they felt it can be difficult to talk about technology in general; instead technology needed to be associated with a specific activity or a specific device. Regarding the tools, the participants were generally positive to using them but several of them declared that they probably would not bring the actual paper forms when meeting clients since a paper could potentially hinder the communication. However, the checklist was thought of as a bit complicated to use in its present form in practice. Instead, the participants talked about using the tools as "a way of thinking", something to keep in mind when meeting clients. After meeting a client they could go through the checklist and/or the hierarchy and make notes.

They meant that the most realistic scenario to them would be to use only parts of it, depending on whom the client was and in which situations he/she needed to use technology. Many participants also expressed thoughts about how they would like to formulate their own questions, based on the advice in the checklist, to make the wording their own and this implied having translated the tools into one's own way of thinking. This flexibility was considered particularly important when interviewing clients with dementia, as they wanted to be prepared to adapt the level of abstraction to fit each client's stage of dementia.

" And those you just can't ask right out but at the same time I must figure out, I learn a way to think, a way of thinking too, like when I translate this into my own questions, so that but that I believe that, I'll get a really good interview guide."
(Participant in telephone interview, second occasion)

Besides discussions about how the new knowledge and tools could be used to support use of technology for PwD, the healthcare professionals, moreover, highlighted the use of the knowledge and tools as a support for collaboration and communication with others (e.g. colleagues and significant others). The applicability of the knowledge and tools for communication with others was highlighted by a majority of the participants. They described how the knowledge and tools had helped them to name things which they had worked with earlier but had not had words for, such as explaining the difficulties with technology that they had seen in a PwD to that person's significant others, or motivating for other professionals how and why an AT should be used by a PwD. To be able to voice what to do and think was seen as a confirmation and inspiration by the participants.

Discussion

The findings of this study imply that the described model (that is; the content and the pedagogical approach) seems to be an applicable way to translate knowledge produced in research into utilization when healthcare professionals are to support technology use for

persons with dementia in clinical practice. We believe that the combination of the content and the pedagogical approach contributed to the applicability. However, more knowledge is needed to further explain how the different dimensions of the model contributed to the process of learning. Our intention was not to create a generic model such as "The Human-Activity-Assistive Technology model" (15) or"The matching person and technology model" (17) but rather a flexible approach concerning how to think and act around support of technology use for persons with dementia. In the findings there are several examples of how the healthcare professionals incorporated and used the knowledge and tools to support use of technology among persons with dementia in clinical practice. However, as the healthcare professionals did not receive any specific or concrete instructions about how the knowledge and tools should be implemented within their professions, the ways in which they incorporated and used the knowledge and tools in practice is particularly interesting. According to our pedagogical ideas (23), learning is facilitated by an approach that allows such creative challenges, and the focus group format seemed to support our participants' learning process.

In the study the process of translating knowledge into clinical practice was explored. The participants themselves expressed their introduction to the knowledge and tools in the model as "an eye-opening experience". Their discussions and reflections in the focus group interviews upon their own experiences of technology use among PwD, in relation to the content of the model, seem to have increased their awareness of technology and specifically ET use among their clients. The model intended to give the participants a possibility to translate the new knowledge into clinical practice already in the focus group interviews when they were encouraged to reason about how the new knowledge and tools could be implemented by each of them in their everyday clinical practice. In their reasoning the

participants could also reflect upon their earlier experiences regarding technology use among their clients with dementia dealing with new experiences and this could, as Dewey proposes (23), support them in dealing with new experiences. Existing models for guiding the process of identifying the appropriate technology support for a specific person are not directed at the issue of how to translate knowledge into clinical practice (15-17). While they form a base for "how to think about it", the content and pedagogical approach in our model provides an example of operationalization as a complement; i.e. "how to do it". Based on the findings of this study, we suggest that our model therefore could be further utilized in practice. However, this study was a first step to describe knowledge translation using the model and, more knowledge is needed about the applicability of it when used in different contexts.

The majority of the participants, regardless of profession, gave examples of how ET, before the one-day course and focus group interviews, had been something they had not explicitly had in mind when evaluating a client's ability to perform everyday activities. Their thoughts about technology were previously mostly focused on AT but not on ET. This was exemplified in the participants' discussions where the ET was described as "the small stuff" and AT as "the big stuff". One explanation could be that AT was thought of as having greater potential to solve problems in the everyday lives of people with dementia than ET would have, and consequently they might not have tried to solve a problem with an existing ET first. Another explanation for the focus on AT could be that ATs can be prescribed and maybe therefore conventionally more legitimate to work with. The participants also mentioned that use of ET could be so obvious in everyday life that it was not thought of or observed. There could have been participants who had adapted ETs for their clients, but did not bring this up in the discussions due to thoughts of the adaption as trivial and not worth mentioning. For OTs,

prescription and evaluation of the use of ATs are formalized interventions. That may be one reason for the OT participants talking about AT more than ET. However, to include and formalize the use of ET in OT interventions is also important for the reason that competent ET use is more and more required in activities of daily living (ADL) (4, 30). Nevertheless, use of technology is seldom included in existing ADL assessment instruments (31-33). Healthcare professionals doubtlessly already work with their clients' ET use, but the findings demonstrate their need of support and education regarding ET use among PwDs.

Furthermore, the focus on AT is also apparent in research on technology use among older adults with dementia which is more often concerned with AT use than ET use, and PwDs are seldom involved as users of technology (11). In addition, problems that use of technology may plausibly bring about are rarely considered. For example, technology might make everyday activities harder or even not possible to perform as usual (34), and decreased ability to use technology might also imply safety risks (31, 35) or a risk of being excluded from participation in society (4, 36). With more knowledge and tools for how to facilitate, the ability to use technology among PwDs, e.g. the model, healthcare professionals would be able to design and plan supportive interventions for their clients in everyday activities at home and in the surroundings where technology is required. Additionally, in the findings the participants explained their integration and use of the knowledge and tools within their profession mostly as "a way of thinking". This had given the participants ways to detect, assess, and support use of technology in everyday life for PwDs. In future studies it would be of interest to examine what this "way of thinking" implies in more detail, and how knowledge is translated into "a way of thinking". In the interviews, the participants were engaged to discuss and reflect on how the knowledge and tools could be used. The reason for this was to support the participants to be active in their learning process (23). The participants' motives

for using the knowledge and tools as well as not using them were also asked for. In one way or another, the participants explained that they had used or planned to use the checklist. However, the findings demonstrated that they wanted to be flexible and use advice and questions that fitted each actual situation and client. Supporting healthcare professionals in such flexibility requires flexible approaches giving the users the possibility to make the knowledge to their own (23). A more restrictive checklist would not allow healthcare professionals to take their experiences as well as their clients' personal experiences of meaningfulness and real life situations into account (37. Finally, the participants' and comments and aspects on the checklist were used to revise the checklist to make it easier and more intuitive to use.

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As described earlier by Dahlin-Ivanoff & Hultberg (38), focus group interviews entail a dimension of learning for those participating. The focus group interviews in this study also seemed to have had an important role in the participants' translation of knowledge and tools into practice. The focus group interviews offered an interaction between the participants and they could discuss and compare ideas of implementation as well as give each other feedback. The aspects of learning with active learners and the importance of the interaction are in accordance with the ideas of Dewey (23). The participants discussed important matters and asked questions among themselves and of the researchers/group leaders during the one-day course and the focus group interviews. Also, the knowledge and tools were elaborated and discussed in detail in the one-day course as well as during the focus group interviews, which gave the participants an opportunity to be actively involved in how to implement the knowledge and how the tools could be used by them (21). However, despite the new knowledge and their positive attitude, several barriers could also affect the healthcare

professionals' readiness and implementation of it (22). Aspects such as motivation to change or enough familiarity with the knowledge and tools might be important to consider in relation to the professionals' readiness to apply the knowledge and tools (22). In addition, external barriers such as lack of support from colleagues can be a plausible barrier to implementation (39). All the participants had in one way or another informed others including colleagues and other healthcare professionals, about the new knowledge and tools to support ET use for PwDs. In this study, however, we had little information about the participants' support from their colleagues. In future studies it would therefore be interesting to include teams of different healthcare professionals and investigate their translation and use of new knowledge and tools as a team by using the model. External barriers could also be patient-related (22), but in this case there is a risk that the PwD may not perceive the interventions based on the model, as matching their needs and this is another important issue to investigate further.

Methodological considerations

It could be questioned how the findings from the sample of the eleven healthcare professionals in the study are valid for health professionals in general. There is, for example, a possibility that the selected participants were those most interested in technology and eager to develop and modify their clinical work with PwDs, and that could also have had influenced the results. Nevertheless, the aim was not to make generalizations but to explore and learn more about what occurs and how the participants think and discuss (24). However, including other groups of participants, e.g. professions could have improved the understanding of the issues studied. Furthermore, the process of translating knowledge into clinical practice takes time (6) and several of the healthcare professionals in the study suggested that a longer period of time to use the knowledge and tools would have given them further benefits. The relatively

short time from the one-day course to the last telephone interviews (mean, four months) were perceived by them as too short.

Conclusion and clinical implications

 The model for knowledge translation including a one-day course and clinical tools in combination with interviews during and after a period of clinical try-out seems to be an applicable approach to implement knowledge produced in research into utilization in clinical practice. The model seems to have given the participants a somewhat new way of thinking regarding technology use and support for PwDs. The active involvement in the learning process, as described by Dewey (23), appears to have been an important aspect. Specifically, the focus group interviews were shown to have had a particularly important role in the participants' incorporation and utilization of knowledge and tools in practice. In these interviews the participants were encouraged to elaborate on their thoughts and ideas of how the new knowledge and tools might be used in their clinical practice and this probably enhanced their learning (38) and the process of knowledge translation (21). To facilitate knowledge translation, practical applications of knowledge, like for example the checklist and the hierarchy provided in the model, are also emphasized (21). These two clinical tools might have been supportive in the acquisition of the new knowledge since they offered the healthcare professionals ways to translate new knowledge and thoughts into concrete actions.

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Legends

Table 1. Description of the participants.

Table 2. Overview of focus group interviews and individual telephone interviews.

Table 3. An overview of categories and subcategories.

Table 1

Age, years **m (range)**	47 (29-60)	
Gender	10 women 1 man	
Profession	5 occupational therapists (OTs) 4 assistant nurses 1 nurse 1 assistant officer	
Work setting	Municipality 6 County council 1 Memory investigation clinic 2 IT project 2	The participants worked in primary care, homecare services, hospitals and in a community information technology (IT) project.
Working context (some worked in several contexts)	Small town 6 Urban 5 Rural 3	
Experience of elderly care, years m (range)	15 (1.5-30)	

Table 2

Group interviews	Participants, n	Time after the one-day course	Length of discussions
Focus group 1a	6	1 day	3 h 27 min
Focus group 1b	5	1 day	3 h 24 min
Focus group 2a	6	6 weeks	3 h 22 min
Focus group 2b	5	6 weeks	3 h 12 min

Individual interviews	Interviews, n	Time after the one-day course (m)	Length of interviews (m)
Telephone interview 1	11	1-5 weeks (3)	12-32 min
Telephone interview 2	9	5-6 weeks (5.5)	7-21 min
Telephone interview 3	10	14-23 weeks (17)	8-22 min

Table 3

Conditions influencing readiness to take action toward supporting technology use

Incorporation of the knowledge and tools

The ambiguity of technology

An eye-opening experience

A way of thinking