Postprint

This is the accepted version of a paper published in *Informatics for Health and Social Care*. This paper has been peer-reviewed but does not include the final publisher proof-corrections or journal pagination.

Access to the published version may require subscription.

N.B. When citing this work, cite the original published paper.

Framing the Implementation Process of Video Conferencing in Discharge Planning – According to Staff Experience

Authors:

Malin Hofflander RN, MSc, doctoral student. **(Corresponding author)**
Department of Health, Blekinge Institute of Technology, SE-371 79 Karlskrona, Sweden. Tel: +46 (0)761-83 80 90 Fax: +46 (0)455-38 50 57. E-mail: malin.hofflander@bth.se
Lina Nilsson MSc, doctoral student.
Department of Health, Blekinge Institute of Technology
Sara Eriksén Professor.
Department of Creative Technologies, Blekinge Institute of Technology
Christel Borg RN**,** PhD, Senior Lecturer.
Department of Health, Blekinge Institute of Technology

Abstract

Challenges of improving discharge planning have been an area of concern for many years, including problems related to lack of time for professionals to participate. In a county in South East Sweden, video conferencing was implemented in discharge planning sessions to enable distance participation of the professionals. To examine the implementation process, interviews were conducted with the implementers, who were project leaders, discharge planning coordinators in the hospital, and in home-care. The interviews were analysed qualitatively, using directed content analysis with a deductive approach to a theoretical framework that was composed from theories about implementation processes to be suitable for the healthcare sector, consisting of the factors: implementation objects; implementation actions; actors; users; inner context and outer context. The results of this study are consistent with the framework but with the addition of a new dimension – time, i.e. time to prepare; time to understand; time to run through and time to reflect. It is suggested that implementation frameworks are useful when IT is introduced in healthcare. Framing the implementation process supports the exposure of factors and highlights relationships and states of dependence between those factors which may affect implementation.

Introduction

In comprehensive discharge planning both healthcare professionals' and managers' experience that calls for participation at short notice, along with long driving distance by car to the hospital for the professionals working in home-care, are a problem. Therefor the use of video conferencing in comprehensive discharge planning sessions was introduced in the studied healthcare organisation in 2009. However, the video conferencing system in 2014 is not yet fully implemented and in use, in spite of affirmative decisions about implementation taken by managers and financial help with equipment. In this context the term *comprehensive discharge planning* should be seen as a common arena for stakeholders to participate in the planning of how to attend to a patient's future need of care following discharge from hospital [1]. It is a way to reach agreement between the professionals representing the care provided in hospital and the professionals representing further care after discharge, in order to make further care safe and suitable for the patient after discharge [2]. In addition to the patient, professionals from hospital and home-care, such as occupational therapist; nurse; physiotherapist; physician and social worker, and, if possible, also the next of kin, should participate in discharge planning [3, 4]. Although planning for patients' further care after discharge from hospital is a regulated procedure in Sweden [3], lack of time frequently prevents participation by the professionals who ought to participate [1, 5]. This means that even if discharge planning ought to take place, many discharge planning sessions fail to materialise because of time constraints [1, 6]. An interview study made as a first part of this study about the implementation process using video conferencing in comprehensive discharge planning mentions a lack of respect, between the professionals and for each other's competence, as a factor that has a negative impact on discharge planning [5]. Also difficulty addressing communication between professions involved in the planning session is described as a problem in a survey study from Sweden [7], as well as in a comparative study based on data from Sweden and the UK [6]. Qualitative studies from Hong Kong, the UK and Ireland also describe communication problems as a barrier to improving the discharge planning process [8-10], along with lack of co-ordination of the

discharge process, resources and time [9, 10]. The need to improve overall discharge planning is thus a cause for concern in many countries, and has been so for more than 20 years [6]. Earlier research on video conferencing as a new tool to enable professionals in Sweden to participate in discharge planning, highlights certain technical problems but does not detract from the beneficial experience of the time saving achieved through reduced travel and the opportunity for participation by more staff categories [11]. Another study from Sweden, which evaluates the use of videoconferencing in the planning session, states that the main reason for testing the use of video conferencing was the efficiency aspect – saving time [12]. The same study also describes the existence of technical problems as well as the negative effect on communication related to lack of eye contact between the participants [12]. Even a qualitative study on teleconferencing highlights technical difficulties related to awareness issues and coordination in video-mediated communication [13]. On the other hand, literature describes that a discharge planning tool in the electronic health record may improve interdisciplinary communication [14], and that the use of IT-based systems is a success factor in ensuring and improving communication between different stakeholders [15, 16]. Organizations that encourage knowledge sharing as well as reflections and observation are described to be more successful at innovations and implementation [17]. At the same time, a comparative study dealing with organizational change projects on a more general level reports that implementation and changing to new working routines fails in an estimated 60% of the organizations [18]. This could, according to a systematic review study focusing on the healthcare domain, indicate the need for understanding the healthcare professionals' behaviour and the wide range of factors that can influence their clinical practice [19]. Also a Canadian study in telehealth describes barriers to successful implementation, not only as technical, but also related to issues of culture and trust in that the desired outcomes will be achieved [20]. According to a study of evidence-based policy and practice, certain difficulties in the implementation of new working routines depend to some extent on the overall centralization of guidelines and strategies instead of allowing the guidelines to be developed by the organization itself [21]. This centralization of

the development of guidelines and their use should be seen as a shift towards a more top-down perspective of implementation [21]. Earlier research also points out the difficulty for professionals in the healthcare sector to actually accept and apply new working routines if the routines are prepared centrally [22]. Thus, it appears that this systematization of knowledge in connection with implementation of new working routines in the healthcare sector has become a major research field, where previous research in implementation science attempts to define certain overall factors for success [23]. There has subsequently been an openness for exploring the significance of these overall factors, especially concerning the various and shifting contexts in which implementation occurs [23, 24]. The meaning of the word *context* has become particularly significant in implementation science and this makes it difficult to sanction certain general advice on how implementation ought to take place [25]. In an attempt to elucidate and describe the various factors that affect the implementation process in the healthcare sector, a framework was developed by Nilsen et al. (Figure 1) [26]. The framework is inspired by classifications of explanatory factors presented by Rogers [27], Greenhalgh et al. [28], Grol & Wensing [29] and Nutley et al. [30]. The framework describes six components with underlying descriptions that should be ranked and estimated separately from each other.

Component	Description
Implementation object	Attributes of the implementation object with significance for the outcome of the implementation process
Implementation activities	Strategies for influencing potential users to change their practices in accordance with guidelines and best knowledge. The efforts of users and other actors to implement the improved practice
Implementation actors	Actors of importance to the outcome of the implementation process, e.g. patients and decision-makers on different levels
Users	Attributes of the potential and actual users can be understood. Could be individual users and/or groups of users
Inner context	Circumstances and conditions, which affect the outcome of the implementation process, in the operation or organization where the implementation takes place
Outer context	Outer context refers to conditions in society, which affect the implementation process. E. g. Laws, regulations, social norms and demographical circumstances

The framework is a compilation of several models and it should be seen as a way to sample different factors that influence the implementation process. It is an attempt to systematize possible affecting factors to the implementation process, and thus improve the possibility to analyse and understand the implementation process and the outcome of the implementation. There is no ranking between the described factors or any grading of which the factor ought to be the most significant. The framework also shows that specific success factors are difficult to identify due to the fact that some aspects seem to be possible to influence although they can be surrounded by structures that limit aspects that are responsive. The framework could be helpful as a platform, to reflect upon and reason about implementation processes in healthcare [26].

In 2014, i.e. more than five years after the start-up, the video conferencing system has not yet been fully implemented. The project leaders and the discharge coordinators in hospital and in home-care consider their personal experience of this quite extended implementation process to be of considerable benefit in acquiring knowledge and understanding of the use of an IT system in discharge planning. In order to evaluate the implementation of video conferencing in the discharge planning session, the framework by Nilsen et al. [26] was used for acquiring knowledge of the process as well as knowledge and understanding of overall implementation processes in the healthcare sector. In the study we also investigated if, according to the framework by Nilsen et al. [26], there are any "unknown" factors in the implementation process that do not fit within the given theoretical framework but would be of interest to elucidate.

Aim

The aim of this study was to gain knowledge and understanding of how the different factors in a framework developed by Nilsen et al. match involved staff's experiences of the implementation process when video conferencing was introduced in the discharge planning

session. A further aim was to determine whether, in relation to the applied framework, there were any unknown additional factors that influenced the implementation process.

Research design and methods

The implementation of the video conferencing system was run jointly by the County Council and the Municipalities in the region, and was part of a larger IT-project in the region with focus on developing and testing new solutions to improve healthcare. The leaders of the project were individuals with skills in nursing, IT and project management. Before implementation started, the audio and visual quality of the system was tested. A checklist of how to run a video conference was developed, including a dialogue structure and deciding which participants ought to lead the discussion. When the project leaders felt that the above conditions were fulfilled and the system was ready for use, discharge planning sessions – using the video conferencing system – were run on a pilot ward. When the pilot ward was up and running, all the other wards had the opportunity to follow suit by contacting the project leaders or by the project leaders contacting the persons responsible on the wards. In total there were 2 project leaders, 16 discharge planning coordinators working in hospital and 5 discharge planning coordinators working with home-care, involved in the implementation process. The project leaders were responsible for the overall implementation of the technical solution, and for supporting the work places during the implementation process. The discharge planning coordinators in hospital and in home-care were responsible for the implementation at their own work place, and for the ongoing contact and communication between them and the project leaders.

Data collection

The approach of this study was qualitative and data was collected by means of interviews with 11 participants about their experiences of the implementation process. In total there were 23 implementers, and to achieve a manageable amount of data that also was sufficient enough, we decided to interview half of them. The number should also include at least two from each group of the project leaders, discharge coordinators working in hospital and discharge coordinators

working in home-care. The 11 participants were randomly sampled, and all of them chose to participate voluntary and gave their informed consent for the study. Two of the participants in the study were project leaders (Respondent 1 and 2), six were discharge coordinators working in hospital (Respondent 3-8), and three were discharge planning coordinators working with home-care (Respondent 9-11). Each interview lasted 25-70 minutes and took the form of a dialogue, using an interview guide combined with open questions, about their experience of the process of implementation when a video conferencing system was used in the planning session. The interview guide was used to ensure the questions highlighted the content of the framework developed by Nilsen et al [26], and thus focused on the six components described above and their underlying descriptions (Figure 1). The main question in the guideline was: Could you tell me about your experience of the implementation process of using video conferences in discharge planning sessions? The supporting questions were as an example: Can you tell me more about this? The supporting questions were used to help the informants gain a grasp of their narrations.

Data analysis

The interviews were recorded and transcribed verbatim. The text was then analysed using qualitative, directed content analysis with a deductive approach [31], with the purpose of evaluating and theory testing [32] the already existing framework developed by Nilsen et al. [26]. The analysis process proceeded by identifying key concepts and variables (Table 1) as initial coding categories [33], to enable understanding of the signification according to the applied framework. Every part of the text in the transcribed interviews was validated to be a part of the framework or to present findings that were new and unknown, as the deductive approach is based on an earlier theory or model and moves from the general to the specific [32]. The findings from directed content analysis offer supporting and non-supporting evidence of a theory [31], which means that data that could not be coded was identified and considered to be either a new key concept, a new variable of a key concept, or a new dimension. During the

analysis process a new dimension surfaced that we could not tie in with the other six key concepts and variables in the framework by Nilsen et al. [26].

Table I. Key concepts and variables according to the framework developed by Nilsen et al.

Key concepts	Variables
1.Implementation object	1a.Has its benefits and is a better alternative
	1b.Corresponds to needs and values
	1c.The innovation is sufficiently understandable to implement
	1d.It is possible to conduct tests concerning work/involvement/ money
	1e.The benefits are significant or visible
2.Implementation activities	2a.Training and clarifying guidelines and policies
	2b.Strategies to influence norms and values
	2c.Strategies for relations and interchange between people
	2d.Influence practitioners through rewards and incentives
	2e.Strengthen with feedback and reminders
	2f.Technical, organizational and emotional support
3.Implementation actors	3a.Change actors and change leaders of importance
	3b.Opinion leaders with a considered position and a large network
	3c.Influence by being a precursor and role model
	3d.'Gatekeepers' provide their colleagues with information
4.Users	4a.Innovators
	4b.Early adopters
	4c.Early majority
	4d.Late majority
	4e.Laggards
5.Inner context	5a.Organizational culture and work routines
	5b.Organizational structure and size of the organisation
6.Outer context	6a.Circumstances in society that affect the innovativeness

Ethical considerations

To guarantee confidentiality, no names, either real or fictitious, are revealed in this article. The participants gave their informed consent before the study was conducted. Permission for the study was granted by the Ethics Committee in South East Sweden (*Etikprövningskommittén i Sydost*) and no further application was necessary.

Main outcomes and results

On the whole, the findings from the analysis supported the framework by Nilsen et al. [26] and the new dimension *time* brought another dimension to the framework, which ought to be compared and analysed further for in-depth evaluation. This new dimension *time* was seen as an overall aspect that influenced all of the six key concepts in the framework, rather than representing an additional key concept or variable. To demonstrate the dimension *time* as an aspect that affects the outcome of the implementation process, this aspect has been added to the framework developed by Nilsen et al. [26], as is illustrated in Figure 2.
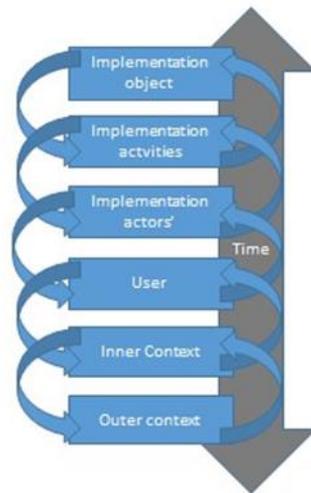

Figure 2. Model for framing the implementation of video conferencing as a tool to improve discharge planning in healthcare. Elaborated from the framework by Nilsen et al.

The results from the analysis are presented in the text with quotations to consolidate the findings.

Implementation object

The attributes of the object discharge planning using videoconferencing, which is a new working routine using an IT system, affect interpersonal meetings in many directions. When the meeting takes place in a virtual way instead of in the hospital, the way of communication is an issue of concern that affects the adoption of videoconferencing, according to the respondents.

They state that the communication seems to be more structured and take less time for the discharge planning session, when using videoconferencing.

"There is a great difference in the gain of time… and the meeting, the actual meeting does not take as long as usual, and becomes more structured… that's the way it is!" (Respondent 7)

With its relevance for use in everyday work, as a way to save time, videoconferencing has an attribute that is of significance for its adoption by the professionals.

"According to social workers, when a discharge planning session takes place at a distance, the session could be held earlier because their schedules often are full." (Respondent 1, implying that discharge planning at a distance saves so much time for those involved that it is easier to find and agree on a time for a distance session in people´s busy schedules than it is for finding time for a traditional "live" discharge planning session at the hospital.)

Another valuable attribute that affects the adoption of videoconferencing seems to be the ability to make it understandable and possible to manage. The respondents verified that the use of a video conferencing system seems to be a better approach for discharge planning, following suitable testing, and that it will probably be used even more in future.

"We should manage as many as possible this way…because we can avoid delays when home-care staff don't manage to come [*to "live" discharge planning sessions at hospital*] *and thus avoid making patients bed-blockers."* (Respondent 4)

Implementation activities

Implementation activities involving information and preparation with the aim of professionals acquiring a greater understanding of video conferencing were of value in the process. The project leaders organized information meetings at different times, for the professionals to ask questions about the videoconferencing system and the use of it. Developing strategies to enhance relationships, communication and the sharing of information, as well as promoting cooperation between professionals, were also stated to be of importance. The respondents

experienced the need for common information, and also the need for ongoing support from the responsible persons at those work places which were already up and running with the use of videoconferencing.

"It's not just about introducing [video conferencing]…there's so much more… educating [those involved], creating a good feeling and promoting the whole project." (Respondent 2)

Providing the professionals with technical, organizational and emotional support was a further factor in the implementation process, stated to be needed, by the respondents. The project leaders highlighted the importance of influencing those who acted as role models, thus affecting the norms and values that prevailed at the workplace.

"The discharge planning coordinator, at the time, on the ward was the one who really wanted us to adopt it… a project leader was here to show her the system… perhaps we, the others, were a bit frightened in the beginning…" (Respondent 5)

Implementation actors

The term *implementation actors* refers to decision-makers and leaders on different levels who affect the implementation and adoption of video conferencing in the discharge planning session. All of the respondents in our study had the role of implementation actors, as they were designated to implement the new working tool at their work place. Even the identification of those who actually present their positive opinion about video conferencing, so-called *role models,* seems to have been of value according to the respondents. The respondents stated that the attitudes of the involved professionals were crucial if the videoconferencing system should succeed in being implemented successfully at a work place.

"It was crucial what kind of person you met… the attitudes of the contacts are so important."

(Respondent 1)

The so-called gatekeepers seem to be important in the identification process, as they could keep abreast of new developments and mediate selected information about the system to their

colleagues. Gatekeepers are of great importance for promoting innovations to patients, the healthcare system and society.

"It was one of the project leaders that showed me the system… and we were on track immediately. I think we were early [adopters]… it was so obvious for me to start it out!" (Respondent 4)

Users

Users in this study are the nurses, physiotherapists and occupational therapists in both home-care and hospital as well as care managers from the municipalities in the region, who become users of the new video conferencing system in their daily work, not only as users in the sense of attitudes and knowledge about the video conferencing system but also as adopters of a new innovation, which is reflected in their change in behaviour. There are five types of users described in the framework by Nilsen et al. and they are all identified by the implementers in our study. First there are innovators, who are active and risk takers as well as enterprising. They are characterized by their willingness to try out new ideas, and their positive approach to trying the use of video conferencing.

"Our manager was very positive about the system, and all of us were involved… we often try out new ideas here at our work place…" (Respondent 10)

Early adopters are characterized as being respected opinion formers that show early interest in the videoconferencing system, and easily adopt the new working tool, while the early majority makes carefully considered decisions and interacts with others, before they adopt the videoconferencing system.

"When they saw the benefit [of using the video conferencing system] they became representatives [for it], or whatever you might call it…they became my contacts. And that's when it became possible to push it through." (Respondent 2)

The late majority are sceptical towards innovations and adopt the videoconferencing system as it becomes the social norm, a common and obvious tool in the planning session. Finally, there are laggards, who are more socially isolated and are suspicious about innovations and only adopt when there is no other option than using the videoconferencing system in their daily work.

Inner context

Inner context involves relationships and attributes within and between the work places that were affected by the use of videoconferencing. This inner context was divided into soft and hard aspects, where soft aspects include which organizational culture prevails in the work place and also what kind of attitudes the professionals have towards adopting new working routines. Also their attitude towards knowledge influences the implementation process.

"It was much easier to implement the system…The managers' attitudes definitely influenced the professionals' attitudes! The way you act in response to changes and new ideas…I have that feeling for sure." (Respondent 2)

"We had an open attitude and discussed what we really thought about the video conferencing" (Respondent 8)

Hard aspects include quantifiable things, such as organizational structure in the clinics and sizes of the work places. Implementers working in small work places describe possibilities to act in different ways than those working in larger ones, concerning information meetings, education and start-up phase.

"There are so many colleagues in our work place… the start-up has been tough and we aren't really managing it well yet." (Respondent 9)

The inner context can also be seen from different levels in an organization, such as the sociologically defined levels of practice referred to as *micro*, *meso* and *macro,* where the *macro* level is the political level, the *meso* level is the management level and the *micro* level in this case is the everyday work practice level of the implementers. These levels affect and are

affected by the implementation process in various and sometimes contradictory ways, depending on the culture and the attitudes within and between these levels in the organization. Communication not only within but also between the different levels is important for the implementation process, according to one of the project leaders:

"Every manager within the different levels is very important…because if it [the implementation process] causes trouble somewhere in between these levels, then how will the operational manager know what to do?" (Respondent 2)

Outer context

The term *outer context* is used here in the sense of the particular rules that control responsibilities and which are valid for healthcare and welfare in the regulations governing transmission of information in discharge planning situations. The implementers describe the need of consensus between the involved stakeholders concerning the implementation and use of videoconferencing in the comprehensive discharge planning session and clear mandate pursuant to the responsibility to accomplish the mission.

"If this was a collaboration project where all the local authorities and the county council were participants, the conditions would have been different…with a different mandate to actually carry it through…so to speak" (Respondent 1)

Nowadays, the whole of society uses IT systems. Using video conferencing for discharge planning sessions ought to be accepted and expected as a natural part of on-going organizational change and innovation. However, the fast technological development nowadays in relation to the standards that prevail in health and welfare, can cause video conferencing in discharge planning to be seen as either useful or threatening. The implementers describe the need for shared innovation processes between stakeholders to achieve a new working routine, which is accepted and possible to implement and use by the involved professionals. This ought to be built on common interest and mutual conditions where the liability ratio is investigated and determined.

"One of the Municipalities demanded that we use the video conference system in all the discharge planning sessions, because they wanted it this way!... But we must develop this together…" (Respondent 3)

A new dimension – Time

During the analysis, another dimension surfaced that we could not tie in with the other six components in the framework by Nilsen et al. This was the concept of *time*. The dimension time was further divided into four variables and time to prepare implementation properly, and the understanding that implementation takes time to prepare and carry through, was central for the implementers. The lack of understanding and acknowledgement from management concerning the necessary time required for the implementation process mostly emerged as a feeling from the implementers themselves. None of the implementers talked about this as comments from other colleagues or managers, but rather as an own feeling they had experienced.

"It's like this the whole time… my work took so long …You think that…God, have you worked on this for a year and a half without getting any further?...Hell no, when you have to set aside a whole week just to persuade people to allow you to pay a visit…to attend a meeting…no wonder it takes time." (Respondent 1)

When everything was done in a hurry, there was no time to understand either the process itself or the technology and the new routines. The implementers spoke about the various functions of their role as implementers and that every part of the process took time. Their role was dual in the implementation process, involving both directly enabling the technology to be tested and put to use in the work places, and supporting the users and making them feel secure with the new technology and routines in a more psychological way.

"There has to be a person who works with the process… full time… because it's not only the introduction…there is so much that follows [after that] …training, cultivating and sustaining good moods and so on…it takes so much time." (Respondent 2)

The implementers also talked about lack of time for testing the new video conferencing system. They had a feeling that individual circumstances were hard to take into account and cater to, even if the work places in fact were starting from very different levels and contexts, and in some cases would have needed more time to actually understand the system and the supposed benefits of it. The possibility to plan and direct the process together was described as valuable, even if it took time.

"First, we were quite negative about the video conferencing system… but after we had tested it in our own way together with the project leader, we changed our minds… It took a while…" (Respondent 11)

Neither was there time for reflection concerning what the use of new technology in the discharge planning sessions might implicate in the way of need for support and additional knowledge about using the equipment, nor was there enough time for evaluation and reformulation of existing work routines and communication processes or to manage a completely new way of working.

"In the beginning I was so nervous that the equipment wouldn't work … but now one has become more… confident… I felt more confident after a while, because it took time to get used to it" (Respondent 6)

Discussion

This study showed that the framework developed by Nilsen et al. [26] covering factors that influence the implementation process may be of assistance in analyzing and gaining a better understanding of the rather lengthy process of implementing video conferencing as a tool to facilitate discharge planning in Swedish healthcare. The framework highlights important factors that influence the implementation process, from the start to the outcome of the implementation, which could contribute to a richer understanding about what is needed in order for a new tool to actually be adopted in everyday work practice and to function in an everyday work context.

The results of the study indicate that it is of importance that these factors are taken into account when Swedish healthcare introduces a new way of performing well-known tasks in everyday work. The framework by Nilsen et al. [26] is just one model which could be used when examining and gaining a better understanding of the implementation process. There are other theories and models that could have been interesting to use in this kind of study, as well. One example is the normalization process model, which is a model developed by May et al. [34], that focuses on the ways that the implementation of complex interventions is shaped by problems of workability and integration.

This study indicated that there were different kinds of users when video conferencing was implemented, and that they could be categorized depending on the users' ability to adopt innovations. When users saw the advantages of the new tool, such as saving time when the meetings were more effective than those held in a traditional way, and that the communication seemed to be more structured, it was easier for them to adopt the use of the video conferencing system. At the same time, entire local authorities totally rejected the new video conferencing tool, and refused to even consider to adopt the working tool, or to participate at all. Nilsen et al. [26] point out that there are different kinds of users in the implementation process, including for example early majority and laggards. According to Rogers [27], the early majority has close contact with earlier adopter categories while laggards are isolated from other adopter categories and emphasize tradition in the way things are made and done. Pinch [35] and Nilsson et al. [36] indicate that tradition in a social context is important to understand and respect when technology is implemented within that context. If a whole local authority is included in an adopter category, discharge planning could be a task in everyday work that is associated with traditions and habits, as well as culture [20], regarding how the task ought to be performed. Even if video conferencing, in respect to the technology itself, is a very good tool and easy to use, the tradition of how the professionals are used to managing the discharge planning sessions affects the implementation process and the adoption of the innovation. Hence, in order to make video conferencing a tool that is used by everyone, implementation processes need to take the social

context of tradition and culture into account, as is recommended and exemplified in the implementation framework developed by Nilsen et al.[26].

Inner context also influenced the outcome of the implementation of video conferencing. In this study, the soft side of inner context [28] is explicit with regard to how attitudes to each other and to other work places affect the implementation process. Greenhalgh [28] and Bang [37] describe the organization as a platform for how knowledge is maintained, shared and incorporated into tasks in everyday work. The way an organization deals with knowledge will thus influence the implementation process [15]. In this study, this plays out in the way that the attitudes of managers and co-workers to video conferencing are an important source of guidance regarding the outcome of the implementation process. The way managers discuss the use and implementation of the video conferencing system with their staff might affect the adoption process at their work place. Also the way managers are having a dialogue with other managers about the use and implementation of the video conferencing system can affect the overall implementation process. Even the fact that some kind of rivalry arises between the work places, when there is a massive ongoing process, implementing video conferencing in the discharge planning session, could have a negative effect on implementation and need to be taken into account. When there is rivalry, the sharing and use of relevant knowledge could be ignored, delayed or perhaps even evaded altogether.

The aim of this study was also to explore if there are any unknown aspects, i.e. factors not included in the framework by Nilsen et al. [26] but which we have succeeded in identifying in our interview material, that have influenced (or have been perceived to influence) the implementation process. The dimension *time* was discovered to be an important aspect that affected the outcome of the implementation process, according to our respondents. When a new tool, such as video conferencing in discharge planning, is to be implemented, individuals need time to prepare themselves in order to understand the advantages of the tool. They also need time to test the tool in everyday work and reflect on how it might interplay with existing routines and tasks. In the light of a stressed implementation process and given the vision that information

technology (IT) will immediately render healthcare more effective [38], realistic timetables that include time for reflection and rethinking of work practice are considered a success factor in the implementation process, although this is not always taken into account [39]. To demonstrate the importance of the dimension *time* that will inevitably affect the outcome of the implementation process, this aspect has been added to the framework developed by Nilsen et al. [26] (Figure 2). *Time* influences all the other factors in certain ways and ought to be seen as an aspect that needs to be consistently present in discussions on the outcomes of the implementation process. The model describes the major factors that influence the implementation process. It takes in to account that each factor affects the others in different ways, but the different factors are not graded or prioritized vis-à-vis each other. This interrelationship between the implementation factors is represented by the arrows linking the factors, while the broad arrow indicating the dimension *time* is to be seen as an overall aspect that permeates all of the other factors. This study indicates that individuals need time to prepare and understand the implementation object and the implementation activities. Implementation actors also need time to go through the implementation of new tools on every level of the organization in order to maintain the organization as a knowledge platform. Users need time to reflect on and incorporate the new tool into the inner context along with the regulations of the outer context, such as differences in social norms and the lack of balance between the pace of IT implementation in Swedish healthcare and the laws that regulate implementation. Forsner et al. [17] state that organizations that encourage the staff to reflect on their everyday work are more successful when it comes to implementation of new innovations. Reflection as a concept is known to be one of the most valuable elements when it comes to both individual [40] and organizational learning processes [41]. Schön [42] argues that 'reflective practice' can be an important tool in professional learning, where individuals learn from their own professional experiences, which can be seen as the most important source of personal professional development and improvement.

Concerning the aspect of time, it also seems to be important for other levels in the organization to be prepared and informed about the process (which takes time), when a new working routine is to be implemented. In a report from a Canadian study, Balka [43] describes the importance of linking micro, meso and macro aspects together, by discussing micro-level problems in relation to macro contexts, such as provincial policy developments. If there is knowledge and understanding on the political (macro) level of the organization about which factors may influence the implementation of for instance a video conferencing system in the organization, and if this level also understands and acts upon the importance of communicating with the management (meso) level, as well as with the implementers (the micro level), the implementation process could have a better chance to succeed. This understanding and communication should be cultivated in both directions between levels. To achieve this, the everyday leadership on each and every level ought to be of considerable importance. Holmberg & Tyrstrup describe the characteristics of everyday leadership on each level to be based on different parts of the managerial work, as well as the perceived lack of understanding of how managerial work relates to the organizations' overall working processes. Thus, everyday leadership mostly consists of sets of activities; interpretations, constant adjustments and formulations of temporary solutions, instead of dealing with the overall processes [44]. This means that the more integrated job of managing, which is to understand and lead organizations in challenging processes of change,[45, 46] seems to be of subordinate significance. But without leaders with the knowledge, ambitions and willingness to see this "bigger picture" of the process, implementations of innovations, whether technical or not, will probably have difficulties to succeed in Swedish healthcare.

Methodological considerations

Content analysis is a widely used qualitative research technique. It has three approaches that should be seen as separate distinct approaches, rather than being a single method [31]. In this study, directed content analysis was used with a deductive approach. The use of this method was chosen to validate, and, if possible, conceptually extend an existing theoretical framework [31]. Directed content analysis is a more structured process than the one used in the

conventional approach [47]. The method guides the findings towards already existing codes and categories [31]. In qualitative research trustworthiness, described by Lincoln & Guba [48], is highlighted as an important factor. By using directed content analysis, trustworthiness can be achieved, as the interviews are compared with a theoretical framework, which in turn has gone through several reviews and publication processes. This together with the systematic way of working with the analysis, strengthens the trustworthiness [48]. Besides this, we as authors and colleagues analyse and discuss the different parts of the study, which both Mishler [49] and Burnard [50] state is important in order to achieve trustworthiness. Participation in the study was voluntary and all of the participants recruited for the study were involved in the implementation process where a video conference system was intended to be used in the planning sessions. The use of quotes and the consistency between the answers from various respondents in our study can be seen as a way of demonstrating the reliability of the study results [48].

Conclusion and implications for practice

This study has important implications for the implementation process, when video conferencing is implemented in discharge planning. Implementation frameworks, such as the one developed by Nilsen et al., need to be regarded as useful guidelines when IT is introduced in healthcare contexts. Not only do they expose important factors which may affect the outcome of implementation, they also highlight that there are relationships and states of dependence between those factors which need to be considered. In this study, the influence of time (as in "*lack of time*") in the implementation process kept surfacing in ways which were closely linked with all the factors in the applied framework. Finally, the issue of time became so ubiquitous in the empirical material that we decided to visualize it as a backbone in an adapted version of the framework model (Figure 2). In order to achieve efficient workflows and well-functioning work practices with IT and effective implementation strategies, the time aspect *always* needs to be considered. It takes time to save time, especially in healthcare contexts where new tools in

everyday work need to be meticulously tested, corrected and approved, not least for ethical reasons.

Future research

The study we have presented was carried out as a way to document and analyse experiences from implementers and thus gain a better understanding of an extended implementation process of a video conferencing system in discharge planning in a Swedish healthcare context, an implementation process that after five years is still on-going. In future research it could be of interest to study a similar implementation process in relation to the framework by Nilsen et al. [26] and compare this framework to other existing models, such as the normalization process model by May et al. [34], to evaluate and elaborate the understanding of implementation processes in healthcare.

In our study, we found that time - an "unknown factor" in the applied framework by Nilsen et al. [26] – was an issue that kept surfacing in its very absence ("*lack of time*" in the interviews, and invisibility of time as an important factor in the implementation evaluation framework). It could be of interest to explore further what the implementers' perception of time, or lack of time, really stands for. According to the implementers, the time aspect played a crucial role when video conferencing was being implemented. However, lack of time could be seen as an excuse for not accepting the change and the adoption of a new working tool. It could be a handy excuse, because it is hard to measure and evaluate, and is based on the implementer's personal opinion. Further research could also focus on leadership and how time is managed on different levels in the organization, during the implementation process of IT in healthcare, because the leaders and their perception of how to manage time, influence the meaning of time as it materializes in work practice for the actors in the implementation process and between the managers and leaders on different levels of the organisation as well.

Deeper reflection on the meaning and goals of discharge planning and ways in which video conferencing may improve this activity ought to be incorporated into future research, as well. Patients' and next of kin's reflections on video conferencing as a tool in discharge planning also need to be included in future research. At present, there is reason to presume that healthcare staff takes for granted that patients would prefer a traditional meeting and not to participate in discharge planning sessions using video conference. This assumption needs to be challenged and examined further to create broader understandings among all participants in a discharge planning session and to be able to make use of technology in ways that are supportive and enabling for all who are involved in this context.

Declaration of interest

The authors report no conflicts of interest

References

[1] Larsson K. Call for Discharge planning - How did it go? Stockholm: The National Board of Health and Welfare; 2007.

[2] The National Board of Health and Welfare: Rules about handling information and records in medical care 2008:14.

[3] The National Board of Health and Welfare: Social interaction at entry and discharge of patients in closed care. AFFAIRS 2005:27.

[4] Law of Health and Medical Services 1982:763.

[5] Hofflander M, Nilsson L, Eriksén S, Borg C. Discharge planning: Narrated by nursing staff in primary healthcare and their concerns about using video conferencing in the planning session – An interview study. Journal of Nursing Education and Practice. 2013;3:88-98.

[6] Lundh U, Williams S. The challenges of improving discharge planning in Sweden and the UK: different but the same. J Clin Nurs. 1997;6:435-42.

[7] Nordmark S, Soderberg S, Skar L. Information exchange between registered nurses and district nurses during the discharge planning process: cross-sectional analysis of survey data. Inform Health Soc Care. 2014.

[8] Wong E, Yam C, Cheung A, Leung M, Chan F, Wong F, et al. Barriers to effective discharge planning: a qualitative study investigating the perspectives of frontline healthcare professionals. Bmc Health Serv Res. 2011;11:242.

[9] Dunnion ME, Kelly B. Discharge of the older person from the emergency department - the perceptions of health professionals. Int J Older People Nurs. 2007;2:102-10.

[10] Cannaby A-M, Parker SG, Cheater F, Baker R. Identifying barriers to improving the process of discharging patients from hospital. Primary Health Care Research & Development. 2003;4:49-56.

[11] Helgesson A, Johansson U-B, Walther-Stenmark K, Eriksson J, Strömgren M, Karlsson R. Coordinated care planning for elderly patients using videoconferencing. Journal of Telemedicine and Telecare. 2005;11:85-92.

[12] Grundén K. Evaluation of the use of videoconferences for healthcare planning. Health Informatics Journal. 2001;7:71-80.

[13] Kane B, Luz S. Multidisciplinary Medical Team Meetings: An Analysis of Collaborative Working with Special Attention to Timing and Teleconferencing. Comput Supported Coop Work. 2006;15:501-35.

[14] Tyler A, Boyer A, Martin S, Neiman J, Bakel LA, Brittan M. Development of a discharge readiness report within the electronic health record—A discharge planning tool. Journal of Hospital Medicine. 2014;9:533-9.

[15] Robinson A, Street A. Improving networks between acute care nurses and an aged care assessment team. Journal of Clinical Nursing. 2004;13:486-96.

[16] Hunchak C, Tannenbaum D, Roberts M, Shah T, Tisma P, Ovens H, et al. Closing the circle of care: implementation of a web-based communication tool to improve emergency department discharge communication with family physicians. CJEM. 2014;16:1-8.

[17] Forsner T, Wistedt A, Brommels M, Janszky I, de Leon A, Forsell Y. Supported local implementation of clinical guidelines in psychiatry: a two-year follow-up. Implementation Science. 2010;5:4.

[18] Burnes B. Emergent change and planned change – competitors or allies?: The case of XYZ construction. International Journal of Operations & Production Management. 2004;24:886 - 902.

[19] Godin G, Belanger-Gravel A, Eccles M, Grimshaw J. Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. Implementation Science. 2008;3:36.

[20] Peddle K. Telehealth in Context: Socio-technical Barriers to Telehealth use in Labrador, Canada. Comput Supported Coop Work. 2007;16:595-614.

[21] Davies H, Nutley S. Healthcare: evidence to the fore. What works. 2000:43-67.

[22] Grimshaw J, Russell I. Achieving health gain through clinical guidelines. I: Developing scientifically valid guidelines. Quality in health care. 1993;2:243.

[23] Grimshaw JM, Eccles MP. Is evidence-based implementation of evidence-based care possible? Medical Journal of Australia. 2004;180:S50.

[24] Damschroder L, Aron D, Keith R, Kirsh S, Alexander J, Lowery J. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Science. 2009;4:50.

[25] Eccles MP, Armstrong D, Baker R, Cleary K, Davies H, Davies S, et al. An implementation research agenda. Implementation Science. 2009;4:18.

[26] Nilsen P. Implementation, theory and application in health and welfare. 1:st ed. Lund: Studentlitteratur; 2010. p. 71-87.

[27] Rogers EM. Diffusion of Innovations. Fifth ed. New York: Free Press; 2003.

[28] Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in health service organisations : a systematic literature review. Malden, Mass.: Blackwell; 2005.

[29] Grol R. Improving patient care : the implementation of change in health care. 2nd ed. Chichester, West Sussex: Wiley Blackwell; 2013.

[30] Nutley SM, Walter I, Davies HTO. Using evidence : how research can inform public services. Bristol, U.K.: Policy Press; 2007.

[31] Hsieh H-F, Shannon SE. Three Approaches to Qualitative Content Analysis. Qualitative Health Research. 2005;15:1277-88.

[32] Elo S, Kyngäs H. The qualitative content analysis process. Journal of Advanced Nursing. 2008;62:107-15.

[33] Potter WJ, Levine-Donnerstein D. Rethinking validity and reliability in content analysis. Journal of Applied Communication Research. 1999;27:258-84.

[34] May CR, Mair FS, Dowrick CF, Finch TL. Process evaluation for complex interventions in primary care: understanding trials using the normalization process model. BMC Family Practice. 2007;8:42.

[35] Pinch TJ, Bijker WE. The Social Construction of Facts and Artefacts: or How the Sociology of Science and the Sociology of Technology might Benefit Each Other. Social Studies of Science. 1984;14:399-441.

[36] Nilsson L, Hofflander M, Eriksen S, Borg C. The importance of interaction in the implementation of information technology in health care: A symbolic interactionism study on the meaning of accessibility. Inform Health Soc Care. 2012;37:277-90.

[37] Bang H. Organizational Culture. Lund: Studentlitteratur; 1999.

[38] Schoen C, Osborn R, Huynh PT, Doty M, Peugh J, Zapert K. On the front lines of care: primary care doctors' office systems, experiences, and views in seven countries. Health affairs (Project Hope). 2006;25:w555-71.

[39] Øvretveit J, Scott T, Rundall TG, Shortell SM, Brommels M. Improving quality through effective implementation of information technology in healthcare. International Journal for Quality in Health Care. 2007;19:259-66.

[40] Fejes A. Governing nursing through reflection: a discourse analysis of reflective practices. Journal of Advanced Nursing. 2008;64:243-50.

[41] van Woerkom M. Critical Reflection as a Rationalistic Ideal. Adult Education Quarterly. 2010;60:339-56.

[42] Schön D. The reflective practitioner: how professionals think in action. Repr. Adlershot: Ashgate; 2003.

[43] Balka E. Getting the big picture: the macro-politics of information system development (and failure) in a Canadian hospital. Methods of information in medicine. 2003;42:324-30.

[44] Holmberg I, Tyrstrup M. Well then - What now? An everyday approach to managerial leadership. Leadership. 2010;6:353-72.

[45] Bolman LG, Deal TE. New Perspectives on Organization and Leadership. Lund: Studentlitteratur; 2005.

[46] Mintzberg H. Rounding out the manager's job. Sloan Management Review. 1994;36:11-26.

[47] Hickey G, Kipping C. A multi-stage approach to the coding of data from open-ended questions. Nurse Researcher. 1996;4:81-91.

[48] Lincoln YS, Guba EG. Naturalistic Inquiry. Newbury Park, London: Sage Publications Inc.; 1985.

[49] Mishler EG. Validation in inquiry-guided research: The role of exemplars in narrative studies. Harvard educational review. 1990;60:415-43.

[50] Burnard P. Writing a qualitative research report. Nurse education today. 2004;24:174-9.