

**Abstract (confidential draft)**

This paper presents an exploratory study describing the adoption of video-based services for in-home rehabilitation and occupational therapy groups targeted on older adults. The paper focuses on the subjectively experienced value of the new service from the perspectives of health care professionals and older users. The service was evaluated in a ten-month field trial. The qualitative data analysis findings suggest that video-based services can be used successfully in establishing open and closed occupational therapy groups, and that the therapeutic goals can also be achieved through video-based group sessions. However, some limitations should be considered in the design of video-mediated group sessions, so, based on this study, a set of recommendations are presented for establishing video-based group work.

**Keywords**

Healthcare, qualitative analysis, functional group work

**Introduction**

Video-based services are becoming more common in healthcare, because they can bridge geographic distance, and, for example, help doctors share their knowledge regardless of physical location. Wade, Karnon, Elshaug and Hiller (2010) presented a review indicating that real-time video communication is cost-effective for home care and for access to on-call hospital specialists. It is expected that, with the help of video-based services, distant caregivers such as close relatives living further away can be included in the care process and daily lives of older people. Compared with voice-only communication methods such as a telephone, video-based communication can provide a richer communication experience because of the real-time video and group communication possibilities.

Studies of video-based services with older people have ranged from remote consultations by, and support from, healthcare professionals for older people residing in their own homes

(Arnaert & Delesie, 2001) to the use of video-communication technology to support and enhance communication between older people and their family members (Demiris et al. 2008; Hensel, Parker-Oliver & Demiris, 2007). Findings by e.g. Hensel et al. (2007) suggest that the addition of visual nonverbal cues (such as facial expressions, gestures, and posture) on a videophone as compared to traditional telephone communication enhances perceptions of social presence and contributes greatly to affective communication. The added visual component in the video communication allows users to better evaluate how the other is doing and also facilitates a nursing home quality assurance function for the family member (Hensel et al. 2007). The use of information and communication technology (ICT) applications in a situation where communication with an older adult is otherwise difficult to maintain has been identified as offering the possibility for a carer to be involved in the life of an individual older person (Sävenstedt, Sandman & Zingmark, 2006). In addition, video call meetings have been identified as being especially useful in Nordic countries during the cold winter months, when weather conditions may prevent older people from leaving their home (Savolainen, Hanson, Magnusson & Gustavsson, 2008).

Several studies have shown positive outcomes when using videoconferencing in rehabilitation (Russel, 2007). As an example, video-based services have been evaluated in in-home rehabilitation of mobility-impaired older people (Sanford et al. 2007) and with children with autism spectrum disorders (Gibbs & Toth-Cohen, 2011). Both of the studies show the potential for using one-to-one video communication as a tool for providing online therapy sessions (Gibbs & Toth-Cohen, 2011) in diagnosing problems, prescribing interventions or implementing solutions (Sanford et al. 2007).

According to the Canadian Model of Occupational Performance and Engagement (CMOP-E), a human being is in contact with his/her environment, and their occupation occurs in this interaction (Townsend & Polatajko, 2007). All environmental factors will influence the

client-therapist relationship. They can be classified into four aspects: 1) physical; natural and built environment, technology, etc., 2) social; social networks and events, societal resources, etc., 3) cultural; gender, age, habits, cultural expectations, etc., and 4) institutional; public-sector funding, social and health care services, society systems, etc. With video-assisted rehabilitation, it is possible to break the barriers of physical space and introduce totally new environmental elements to the situation. The first goal of this study was to analyse the benefits and limitations of video communication in the framework of different environmental aspects.

Occupational therapy is a co-operative process between the therapist and the client, aimed at improving an engagement in meaningful activities. Benefits of group-based approaches are acknowledged e.g. in fall prevention, where studies have shown both that group exercise can prevent falls and maintain the physical functioning of older people (Lord et al. 2003) and that cognitive-behavioural learning in a small group environment can reduce falls (Clemson et al. 2004). Groups can have a positive influence at many levels – they can enhance the use of occupations to help people function independently, and they also can satisfy individual needs and social demands through discussion and activities (Howe & Schwartzberg, 2001). The functional group model by Howe and Schwartzberg (2001) is a commonly used model of group work in occupational therapy. It aims to show how group work can be used as a therapeutic procedure instead of focusing on maintaining and recovering the health of individuals. It is a practical model and describes a set of explicit assumptions, comprehensive principles, concepts, and strategies. It is based on earlier research and theories in five areas: group dynamics, effectance, needs hierarchy, purposeful activity and adaptation. The goal of the functional group is to promote health or adaptation through purposeful, self-initiated, spontaneous and group-centred action. The action is purposeful if it is congruent with an individual's needs and goals. The goals can be achieved only if the individual has personally

chosen to participate in the group, i.e. the action is self-initiated. A group setting provides a supportive environment to induce a spontaneous, or here-and-now, type of action by experimental learning. A group-centred action through consensus and interaction of all its members has an important effect on a member's sense of individual and group identity, and is a major distinguishing feature of the functional group.

Video communication enables group communication, so it may provide an opportune tool to be used in group-based approaches to rehabilitation and occupational therapy. However, it is not easy to find prior studies on how video communication has been used in this kind of group-based approach. There is not much experience of how group work can be established via video connection or how these kinds of group activities should be organised. Nor have there been many attempts to report real-life experiences of using video-assisted group-based rehabilitation. The second goal of this study was to determine whether the achievement of functional group actions is enabled by video communication.

This paper presents an exploratory study describing experiences of the adoption of a video-based service to facilitate group-based rehabilitation of older people. Rehabilitation is seen as a core enabler for tackling problems related to loneliness and isolation, as it can address problems in all areas in engaging different activities of daily living. The paper focuses on the perspectives of health care professionals and the older people participating in the group activities. Through learning from our experiences we will present the following:

- an analysis of the benefits and limitations of video communication in open and closed group work in the framework of environmental aspects
- an analysis of the use of video communication in implementing functional group work
- recommendations on how group work can be established via a video connection.

## **Service description**

The proposed service concept uses computers suitable for video communication. With this technology, clients who had difficulties in physically participating in group activities such as religious events, group singing activities or group exercising were able to participate in these activities from their homes. Some of the events were also broadcast to the different housing units of the service provider, enabling older adults living in other locations to participate in the activities. In addition, closed group activities were offered to the members of two occupational therapy groups.

## **Technology**

Technology used in the service concept is based on PC computers with video cameras and microphones, associated video encoding software and an internet connection. It enables one-to-one or group communication, and video broadcasting. The service provider has several housing units for older adults, and a Vidyo HD-50 broadcasting unit was installed at one of the service provider's premises. It consisted of a standard laptop computer, video camera, microphones and internet connection. Instead of a laptop computer, the other care facilities used a Vidyo HD-50 videoconferencing device, which was attached to a television to receive broadcasts, and the home clients had touch screen computers with easy-to-use interfaces. The events taking place at the broadcasting site were received in real time through a video communication channel.

## **Research setting**

### **Participants**

One occupational therapist working with the service provider was nominated to be responsible for the project on their side (the 5<sup>th</sup> author). She contacted five families who were existing clients of the service provider, having received a variety of services such as

rehabilitation and home care services, and asked them to participate in the study. Their background was known to her and they were considered able to participate in the study. Four of the families participated in the activities as home users. One family decided to use the video communication only to communicate with their distant family members, and chose not to participate in activities analysed here. Open group activities were available to the home users and all the clients in the different facilities of the care service provider. Three of the home users were also invited to participate in closed group activities, and there were two clients participating in the closed group activities from the service provider's premises. The list of home users and closed group participants is presented in Table 1.

[Insert Table 1. about here]

### *Open group activities*

In open group activities, the idea was that the programme was broadcast from one place, and that the older people can participate either from their homes or from other care facilities. There were also older people participating in the event at the broadcasting site. Even though the programme was planned as a broadcast activity, the presence of distant participants was also visible to all the participants through video images shared with different sites. The distant participants followed the audio stream from the broadcasting site, but the audio streams from distant participants were not shared, although the system would have allowed this. Every week, three main activities were broadcast in real time from the service provider's premises: 30 minutes of chair exercise, 45 minutes of group singing event and 30 minutes of joint coffee discussion. In addition, there were occasional additional broadcasts, such as religious singing events, a juke box jury, morning gymnastics, a poetry group, an older people's weekly programme, a Father's Day programme, a brass band concert, and various Christmas events. Over 70 broadcasts were organised during the study, and the number of participants varied from 1 to 60. Participants were informed about the programme using a

paper leaflet delivered to their homes and also via a programme guide function available through the system. In other care facilities, the personnel informed the clients about the programme.

### *Closed group activities*

Two closed occupational therapy groups were facilitated during the field trial. They were called “Do you remember?” and “Men’s news”. The group activities were facilitated by an occupational therapy student. This student had a special interest in visual communication and a background in photography from her previous occupation. It may be assumed that her background in visual communication had an effect on her skills in understanding the benefits and limitations of video communication in group work, and her enthusiasm and interest in adopting new techniques for her work. The student worked under the supervision and guidance of the occupational therapist (5<sup>th</sup> author). The group size was set at three participants in order to keep the situation more controlled. Before starting the group work, the student assessed the individual potential, abilities and needs of every group member and interviewed them on their willingness to participate. The student used the Functional Group Model as a framework for planning and working with the group (Howe & Schwartzberg, 2001).

The “Do you remember?” group was organised for people with memory problems. Two women and one man participated in this group (n=3). All of them had a diagnosed memory condition. There were five therapy sessions, and the general goal was to support the social interaction between the participants and to support and maintain their cognitive skills using remembrance methods. Participants took part from three different locations: one participant had a video communication home unit, one participated from the service provider’s other care facility and one used a broadcasting unit at the service provider’s premises together with the group leader. The intervention plan is described in more detail in Table 2.

Three older men who were in an informal care situation, i.e. they were living at home and were being cared for by their spouses, participated in the “Men’s news” group (n=3). All the participants had illnesses that influenced their cognitive skills (Alzheimer’s Disease, Parkinson’s Disease, stroke). There were six therapy sessions. The primary goal was to support and strengthen the communication between the participants and enable peer support using video-mediated occupational therapy. All the participants had video communication home units, which they used to communicate with the others. The group leader used a broadcasting unit at the service provider’s premises. Thus, participants were scattered in four different locations. A more detailed intervention plan can be found in Table 2.

[Insert Table 2. about here]

### *Schedule*

The service was adopted in the following phases:

- since February 2011 it has become possible to use the service in one-to-one video communication in care facilities
- since April 2011 it has become possible to use the service in one-to-one video communication when at home
- since May 2011 it has become possible to attend service broadcasts, both open group activities and closed group activities
- since October 2011 it has become possible to attend service broadcasts from other care facilities of the same service provider

The first family entered the study in March 2011 and the other families joined the study between April and August 2011.



### *Data collection*

The research method chosen was a case study, because the research questions required collecting empirical evidence from the field. According to Yin (2009), a case study is an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. In a case study there can be many variables of interest; it relies on multiple sources of evidence and it benefits from the prior development of technological propositions to guide data collection and analysis (Yin, 2009). All three data collection methods identified by Patton (1990) were used: 1) in-depth, open-ended interviews, 2) direct observation, and 3) written documents. Observations took place in real-life settings, and people were interviewed using open-ended questions in places and under conditions familiar to them and in which they felt comfortable (Patton, 1990). Two researchers (2<sup>nd</sup> and 4<sup>th</sup> author) interviewed the home users, group activity leaders and service provider's employees. In addition, they participated in three different open group activities – a chair exercise and two singing events – to make observations of the situation. Furthermore, the service provider's employees kept a diary during the trial in order to gather hands-on experience, and the occupational therapy group plans and notes from the group leader are considered as written documents. Video communication use log data was also collected and analysed after the trial period. The following chapters explain in more detail how data was collected in different situations. All data collection instruments are available from the authors on request.

### *Home participants*

In order to gather information about how the service was received by the home participants, the researchers visited them at least twice during the study. During the first visit, the participants were introduced to the technology by means of a hands-on demonstration. This was arranged with a test call either from a technical support person or from their relative.

Two researchers observed the learning process and the capabilities of the users to use the system independently or with the help of their spouses. At the same visit, or a week or two later if the participant was too tired already, the participant was interviewed about their background information, expectations, social networks, attitudes toward respite care, wellbeing and loneliness. Well-being was measured by the well-being module from the European Social Survey, ESS, and perceived loneliness by a loneliness questionnaire based on Hughes, Waite, Hawkley and Cacioppo, (2004). Because many participants had difficulties with their cognitive skills, questionnaire data was also collected using the interview method. The loneliness and wellbeing data was used only to support qualitative analysis, as the user group is too small for quantitative analysis.

At the end of the study, an end-of-trial interview was arranged. The participants were asked open-ended questions about their experiences, communication events, social network characteristics, the usability of the technology used, well-being and perceived loneliness.

The care service provider received feedback and practical questions from the older participants through everyday interactions, including face-to-face discussions and phone calls. The service provider's personnel were instructed to collect all feedback and information shared by the participants. These were then forwarded to researchers at project meetings.

#### *Professional participants*

In order to evaluate the service adoption from the viewpoint of the service provider, two researchers (2<sup>nd</sup> and 4<sup>th</sup> author) visited all four care facilities of the care service provider. They observed the service use and customers' comments and reactions in situ. Field notes were written to capture the researchers' observations. The occupational therapist responsible for the project (5<sup>th</sup> author) collected information captured by her colleagues, and reported those with her direct observations regularly in a diary. Her role was that of a participant

observer who engaged personally in the research activities (Patton, 1990). The student who facilitated the closed group activities wrote a therapy plan for both groups and reported her experiences in a study report.

Five interviews were conducted after the trial. Two of these were group interviews. The first group interview was organized in connection with the open chair exercise group activity. A nurse and two occupational therapists (the other one was the 5<sup>th</sup> author) were interviewed by two researchers (2<sup>nd</sup> and 4<sup>th</sup> author) after they all observed the chair exercise event. At the end of the field tests, a second group interview was conducted by two researchers (2<sup>nd</sup> and 4<sup>th</sup> author) and attended by two occupational therapists (the other one was the 5<sup>th</sup> author) and a student studying occupational therapy (leader of the closed group activities). This group interview was recorded and professionally transcribed verbatim. In addition, there were one-to-one interviews with the open group activity leaders, a physiotherapist, practical nurse and the occupational therapist (5<sup>th</sup> author), who also participated in the group interviews.

### *Data analysis*

The data was analysed using qualitative content analysis (Elo & Kyngäs, 2008). It is a method that can be used to analyse qualitative data in an inductive or deductive way and has three main phases: 1) preparation, 2) organizing, and 3) reporting. In inductive analysis the concepts are derived from the data, whereas in deductive analysis the structure of the analysis is operationalized on the basis of previous knowledge. In this study, deductive content analysis was chosen as a method, because the study aimed to understand how the video communication influences the environmental factors and implementation of functional group model in occupational therapy. All the data collected is used for analysing the benefits and limitations of video communication in the framework of environmental aspects; physical, social, cultural and institutional environment. Secondly, the interviews with closed group participants and the occupational therapists involved are analysed to discover whether video

communication enables therapeutic activity in a functional occupational therapy group. The findings were coded under the four goals of the functional group model: purposeful action, self-initiated action, spontaneous action and group-centred action (Howe & Schwartzberg, 2001).

To ensure the rigor and trustworthiness of the study, the data was analysed by two separate researchers (1<sup>st</sup> and 2<sup>nd</sup> author). In addition, in order to minimize the influence of pre-understanding the data collected, the first author taking part in the qualitative content analysis process was not involved in the data collection phase. The occupational therapist (5<sup>th</sup> author) and the other two authors (3<sup>rd</sup> and 4<sup>th</sup> author) validated the analysis frameworks used and the results obtained. During the process, an open dialogue was encouraged and maintained (Graneheim & Lundman, 2004).

## **Results**

### *Benefits of using video communication technology in group activities*

According to the findings from the data, the video-based services were found to have several benefits. They can provide an easier access to services by bridging barriers related to physical distance, when leaving home is difficult due to physical or psychosocial problems. They provide an opportunity of participating in specific activities when the older person is unable to travel. On the other hand, they enable real time interaction with a satisfying feeling of being present. The occupational therapy student also saw the advantage of the video-supported communication in enabling the use of supplementary material, such as pictures, and other objects from the environments of the participants and the group leader in therapy situations. It is also possible to connect the video communication device to a computer and share images and other documents. All the participants evaluated the system as easy to use.

For older people who have physical disabilities or other restrictions related to physical mobility, video-based services can expand their social environment, since it enables participation in social activities such as singing and music events that it is not otherwise possible for them to attend. Although there were more participants in the on-the-spot location of the singing events than in remote locations, the possibility of being able to attend anyway was experienced as important. One can meet other people, acquire new social contacts and catch up with others. Support for creating new social contacts was seen as important, since social contacts sometimes decrease with age and also due to disability or disease. Some participants were even proud of being involved in this “new thing”. One care facility employee said that “It is good that this (video-based event) brings us all together”, not just within one care facility, but between different units of the care service provider. The employees also emphasized the benefit of increased interaction on a daily basis between the employees working at different physical sites of the care facility. The care personnel said that this decreases loneliness, increases communality, enables peer support and is refreshing and enjoyable for the participants.

The introduction of new services has an influence on the institutional environment. Care personnel said the video-based services save costs, since the need for transferring people from one location to another is reduced and more people can participate in the events at the same time. Overall the staff received the service well. They said it was a positive and good experience and it was not seen as a disadvantage in their work. Although video communication cannot fully replace face-to-face situations, care personnel said it would be a good addition to the existing health and wellness services, as it complements current activities. The occupational therapy student put forward the idea that setting up an occupational therapy studio using video technology could be beneficial.

*Limitations on using video communication technology in group activities*

We experienced some technical problems during the trial – there were disconnections from the network, breaks in the audio and video streams, and some users expressed difficulties in keeping their physical device setup in order, mainly in the form of disconnected power or internet cables. Sometimes the voice quality was felt to be inadequate; this occurred especially during the singing events.

The system brings changes in the customary physical environment. When placed at home, the big touchscreen is very visible and some people experienced difficulties in the placement of the screen – it was felt to be bulky and ugly, or hindered cleaning of the apartment. Some of the devices were placed in the homes of the participants, and some participated from supported care facilities. In both cases, sometimes people not involved and passers-by caused distraction during the events. This was also challenging for the group leader, who had to help the participants to maintain focus in the activity at hand, as they did not always see who else was present in the other rooms.

Since the older people participating in the service trial were not familiar with video-based communication prior to the trial, and participating in video-enhanced group activities introduced a new cultural aspect to them. Some of the care personnel commented that they were uncomfortable at seeing themselves on the screen, and the singing event leader also said some participants had been more nervous about “being filmed for TV”. Communicating through video brings a different type of interaction from what they are used to. There are also individual differences in attitudes to and the courage to try out new technology. Some people were afraid for doing something wrong or getting confused. In addition, the people who have very few social contacts can be difficult to reach in order to introduce these services to them.

Adopting the video-based services imposes some requirements at the institutional level. Resources are needed for content provision and planning the sessions. Extra work is also required in the technology adoption phase for setting up the system, and process definitions are needed to fit the service into the existing ones. Also, providing adequate technical support and usage instructions was seen as important. Management commitment and staff attitude was viewed as important in introducing new services. The introduction of the field trial was more fluent in the care unit, where the staff was most enthusiastic about trying the new technology.

Not all the customers were willing to pay a lot of money for the service by themselves. Some customers, for example, considered that the service did not provide enough versatile and frequent service broadcasts for them to be ready to pay for it. A summary of the benefits and limitations of video communication in group activities reflected in the environmental aspects of CMOP-E can be found in Table 3.

[Insert Table 3. about here]

### *Video communication in functional group work*

The group therapy aimed at supporting and improving the communication skills of the participants. The analysis of subjective evaluation shows that this goal was achieved. According to the analysis of the group facilitator and supervising occupational therapists, in the “Men’s news” group the speech production of one participant clearly improved during the therapy sessions. Other participants also reported positive effects. The participants described the group therapy as a refreshing experience. The facilitator and supervising occupational therapists considered that the experience was empowering the participants.

The occupational therapists observed that in order to realize a purposeful action, the group size should be small enough. In this case three persons in a group was small enough to make

the group work efficient. The goal setting depends on the functional capacity of the group members. The occupational therapist stated that participation in video-mediated therapy requires a comprehension of the situation on the part of the participants. This indicates that, if the participant is not able to comprehend the concept of video communication, it is not feasible to use it for group therapy.

Analysis of group members' participation in discussion and sharing their stories shows that the goal of self-initiated action was achieved in the trials. Participants even shared sensitive and confidential thoughts, which was surprising for the leader. This may indicate that participating in group activity from a safe and familiar environment (home) may encourage the participants to engage and share their private thoughts. The group leader was able to support the group members in taking different roles in the group, e.g. one person was more in the background at the beginning and became more active towards the end. Part of the self-initiated action is transferring learned skills into everyday life after the therapy. Although group members were willing to continue using the services and the devices were available after the group therapy, they did not continue to interact as a group after organized activity without the support of the facilitator. This emphasizes that the facilitator has a crucial role in group activity.

The occupational therapists considered that the role of group facilitator was emphasised in the spontaneous here-and-now action of a functional group when using video-communication. It was seen to be important that the facilitator had a plan for the discussion, and took care to ensure everyone took turns and that all the participants had equal opportunities to express their opinions, especially at the beginning. The facilitator had noted that the discussion via video takes more time than in a face-to-face situation. This was caused by fact that the facilitator clearly needed to indicate the start and finish of the allocated time for each participant to express their opinions, as speaking simultaneously and spontaneously



taking turns in talking did not work as well as in a face-to-face discussion. Also, more repetition of instructions and discussion items is needed. The participants quickly got used to the technology, and the discussion felt natural and spontaneous as soon as during the second session, as the members shared their opinions resulting from the topics of discussion and gave positive feedback and encouragement to each other. At the end of the trial, all the participants expressed feelings of disappointment because the opportunity to participate in the group activity via video-assisted communication ended. One participant expressed this by saying “There should be more of this kind of discussion group”.

Group cohesion and peer support indicate a group-centred action that was achieved in the trial groups. Members of the “Men’s news” group in particular became friends. All the participants expressed feelings of happiness when seeing each other. One participant said he could clearly notice the progress in speech production of the other group member and also gave positive feedback to him. The participants especially valued peer support provided by the other group members. At the end of the group therapy period, the participants created a keepsake together in a face-to-face meeting. It was a horseshoe memory token on which the participants were able to attach a photograph important to them. They all valued this keepsake very highly, and everyone wanted to show it to researchers when discussing the experiences related to group activity during end of trial interview. The data findings collected from two occupational therapy groups are summarized in Table 4.

[Insert Table 4. about here]

### *Planning video-based group activities*

The experience highlighted some important issues that should be taken into account when planning video-based open or closed group activities. The room should be properly lit and adequate acoustics should be ensured. Microphones should be arranged so that they capture

the voices of all the participants. The camera should be placed at a uniform distance from all the participants and it should be at eye level so that the participants can “look each other in the eye”. The TV screen should be big enough, especially in physical exercise sessions. If supplementary material is needed, such as lyrics during the singing events, a separate document camera can be useful.

It was realized that the event leader’s role is emphasized in video-mediated group activities. Facilitation skills were especially required in mutual acknowledgement of the group on-the-spot and the others participating remotely. For example, in the exercising event, if a nurse was not present and the older adults followed the broadcast without any facilitator on site, people tended just to watch the exercise and not exercise themselves.

### *Recommendations for using video communication in group work*

Based on our findings, we identified recommendations for establishing group work via video communication.

It is necessary for the group leaders to be trained specifically for leading group activities via video communication. They should create a safe atmosphere and pay attention to giving each participant time to participate in discussion and to contribute through allocating turns to speak. They also have to adapt activities according to the fact that people are participating from different locations. They should also be prepared for unexpected situations such as technical problems at home or on site. Detailed plans for technology adoption, resource allocation and technical support are needed from the institutional side. Technical problems cannot be avoided, so support needs to be available whenever needed, both at home and on site.

Video communication has many requirements for the local environment. The devices should be placed so that they do not distract the daily life at home or at the care facilities. This is

important both for making the adoption easier, and to ensure privacy during group sessions. The location of the device should be selected carefully in order to minimize disturbance by other people during group sessions. Microphones and cameras should be placed so that they catch the video and audio of every participant from the same angle and distance. It is preferred that the cameras are placed at eye level to support the experience of eye contact during group sessions. Also, lighting and acoustics should be adequate. The TV screens should be large enough to display enough detail, for example, for exercise instructions. Finally, network connection without disruptive breaks should be ensured.

### **Discussion and conclusions**

The aim of this study has been to investigate the use of video communication in open and closed group activities from the perspectives of health care professionals and older people. The overall feedback was positive towards video-supported services, and the goals of the group activities were achieved.

Our results show that the use of video communication can have benefits in all the environmental aspects of the CMOP-E (Townsend & Polatajko, 2007). Physical barriers can be removed, as video communication offers an easier access to the services, which is in line with previous studies (e.g. Savolainen, Hanson, Magnusson & Gustavsson, 2008). Video-based services can help in creating new social contacts and increase communality, which creates benefits especially for people who are at risk of social isolation and a shrinking social network because of ageing and disabilities. As also stated in (Ryu, Kim & Lee, 2009), we noted that especially older people might not be very familiar with video technology. This will, however, probably change in the future, as people growing old are becoming more accustomed to using technical devices, which presumably relieves some of the fears of the new technology today. It must be noted that video communication cannot replace all face-to-

face therapy situations, but it can create new opportunities for providing rehabilitation services for people who otherwise would not be able to participate due to physical or psychosocial problems. As Wade, Karnon, Elshaug and Hiller (2010) stated, real time video communication is cost-effective for home care and for providing an access to on-call hospital specialists, and the health care professionals interviewed in this study expressed a similar opinion, although detailed cost effects were not studied here. The technical problems, such as occasional poor voice quality and network disconnections caused some problems during the trial. Our experience shows that with attention to error situation management and providing users with help and assistance in problem situations, technical problems do not set barriers for using and adopting video-based technology for this kind of service delivery.

This study gives encouraging results on the use of video-communication in an occupational therapy group, which was planned and evaluated according to the functional group model by Howe and Schwartzberg (2001). However, it should be noted that, to actually measure the outcome of the therapy, a standardized measure of occupational performance should be applied to those people receiving therapy. In the study reported here, our focus was primarily on subjective experiences, not on measuring the impact of the therapy. In addition, our findings are based on a relatively short period of therapy, five to six sessions, and might not be applicable to longer term therapy.

### **Declaration of Interest**

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