

# Implementation of Video-telephone in Health care setting

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*Haimuumaa and VIDEO-telephone were long distance education implementation projects (2003-2006). Video telephone technology was used as a tool to bring social and health care education to personnel of municipality funded traditional organisations at Hailuoto island. Additionally we made trials to implement video telephone as a normal day tool to a relatively new private concept of health care, Hospital at Home. The projects were well aimed to study acceptance of technology and to include personnel in video telephone implementation and planning in order to increase use and enhance usability of information and communication technology.*

*Healthcare, video telephone, hospital-at-home, implementation*

## 1 Introduction

Haimuumaa and VIDEO telephone were long distance education and information and communication technology (ICT) implementation projects (2003-2006). We used video telephone (VT) technology as a tool to bring social and health care education to personnel of elderly home and health clinic at Hailuoto island. Additionally we made trials to implement VT as a normal day tool to Hospital at Home (H-A-H) in the Deaconess Institute at Oulu. The projects were well aimed to study acceptance of technology and to include personnel in VT implementation and planning via strong participatory method in order to increase use and enhance usability of information and communication technology (Autio et. al. 2006).

The researchers came from two separate institutions and they had their own focus areas in the projects while pursuing toward a shared goal, successful implementation. Researchers from University of Oulu, Work Science Unit, focused on usability, implementation and acceptance of technology while researchers from Oulu University of applied sciences, School of health and social care, studied the client processes between health care professionals and their customers in target organisations. Furthermore School of health and social care provided the education and training and also studied teacher experience related to use of VT (Figure 1) (Autio 2004; Pietiläinen et.al. 2006).

Target organisations in Hailuoto island, elderly home of Saarenkartano and health clinic were municipality funded traditional organisations with relatively aged personnel and with traditional working methods. Hospital at Home in the Deaconess institute at Oulu is a relatively new private concept of health care in which some hospital level care is

provided at the patient's home by physicians, nurses and care facilities for a certain period (Papazissis 2003). Personnel there were relatively young and the new concept is still finding its form.

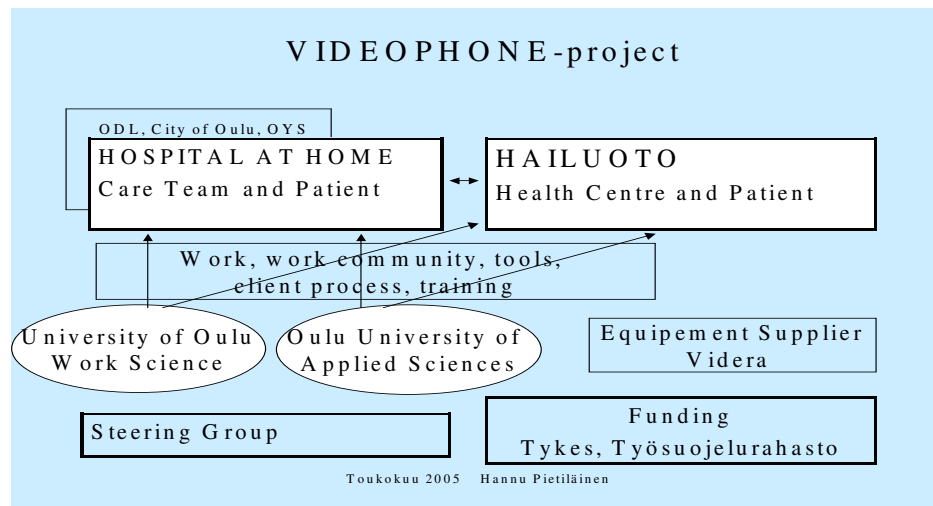


Figure 1. Participants and their relations in VIDEOtelephone project

## 2 Objectives

The projects set out to implement new technology and new ways of teaching in such a way that needs and context of work of the staff were respected and taken into account. We were also interested in finding new models or ways to renew work by changing the tools (Väyrynen & Autio 2004). On the level of work organisation the goal was to familiarize with new technology, so the staff was included in project planning and given a real opportunity to make choices in matters that affect their work and education (Autio 2004).

## 3 Methods

In these projects a participatory method was strongly utilised. Researchers, nurses, patients and teachers were working together developing new ways to apply high technology into health care as Kirvesoja et. al 1999 suggested. In the very beginning of the project all the nurses and doctors were interviewed considering the acceptance of technology and successful implementation. The same interviews were concluded in the end of the project in order to gather information of possible changes considering attitude and acceptance and finding ways to make implementation as smooth as possible.

Considering both aspects of our projects, video telephone supported home care and long distance education, various user trials were arranged. The main method used in the study was data and method triangulation (Patton 2002). In other words, we used multiple methods to gather sufficient data as the number of participants in our target organisations were relatively small. Methods used were observations, interviews (both individual and focus group) and different types of questionnaires, including diaries, Likert-type scales and open-ended questions.



Figure 2. Long distance education lecture via video telephone

A participatory approach was utilised in the projects thoroughly. In the long distance education part of our projects at Hailuoto island, one goal was to respond the actual needs of the target organisation personnel (figure 2). Therefore we did extensive query of education needs and teachers from the school of social and health care and provided those lecturing via video telephone technology. In the video telephone supported home care at the H-A-H environment we implemented VT technology to patients' homes and to the H-A-H office. We were able to use VT with real patients and actual care situations instead of laboratory simulations.

#### 4 Results

Health care professionals saw VT as a good method to receive supplemental professional education especially in remote areas. The majority appreciated VT as a valid tool of improving skills and only a small part of personnel opposed it. At Hailuoto VT first arose uncertainty and suspicions, which then dissolved with time and use. VT was accepted and it was considered to be easy to use. It can be said that with time technology became more 'transparent' as users became familiar with it. In these projects this was easily seen from the vivid conversation, which increased in time and subsequent VT sessions. Also the lecturers found video telephony promising and interesting channel of teaching (Autio 2004; Autio et. al. 2006).

The results proved that videophones fit very well for everyday use in the H-A-H. Seeing not only the patient but also his/her care situations and surroundings provides much more information than only-voice phone call. Nurses were very satisfied with the VT contacts with their patients. Technical problems sometimes disturbed the communication but live connection itself was a big help to nurses' work. Also the H-A-H patients saw VT as an easy way to communicate with nurses and doctors and they thought VT can be a useful tool for that area of healthcare (Pietiläinen et. al 2006). Saving the costs (time, driving a car, fuel, car service, insurances, etc.) is inevitable but not the key point in developing new communication technologies (Jääskeläinen 2004). The quality of care is not diminished when using VT. On the contrary, high standard of care is possible to achieve, and, what is meaningful, it can be structured from patients needs.

The personnel of all target organisations thought that the project was successful and that they had a chance to participate in planning and carrying out the project. Slow proceeding in the beginning of the projects and the sufficient presentation and familiarisation of the VT before actual use and the strong participative approach of developing was fruitful. Benefits of chosen methods were obvious from the way the suspicions and resistance of the personnel dissolved with time. The video telephone was accepted and it was considered to be easy to use. Negative feedback was related to occasional problems with quality of voice and picture (Autio 2004; Autio et. al. 2006).

The results from the project indicate that social and health care professionals are capable and willing to use newest information and communication technology as a tool if it is indeed beneficial to the personnel and to their clients. Our findings are in line with previous studies of the subject (Allen et. al. 2002; Fahey et. al. 2003).

## **5 Discussion**

The information age has provided new approaches compared to traditional ways in health care which has been a pioneer in customizing software to manage many routine operations (monitoring, patient records, etc.). The development of technology is fast and new broadband networks and easy communication systems are opening possibilities that may drastically change the traditions e.g. in health care organizations and in care delivery practices. The importance of developing and applying new technology into health care is based on the fact that nowadays there are few areas of production, engineering, education or public services that do not include ICT as an integral component. A far more complex question is how to manage the distance in every day care situations as the patient is at home.

As Syväjärvi (2005) in his dissertation points out, various dimensions (structural, cognitive, human capacity, interaction) affecting new practices show how hard it is to take all these into account when developing new models of work in traditionally constructed organizations. But changing needs of people are followed by new social and organizational innovations supported by hi-tech applications. These may open totally new practices in health care organizations.

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