

Videotelephone Services for Elderly and Mobility Impaired People

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Abstract: Videotelephony offers potential benefits for users who are homebased or dependent on institutional support. This study shows the technical feasibility of a videophone in providing services for elderly and mobility impaired people. It also shows, that acceptance of novel advanced communications technology is possible, if the application is made easy enough to use. Videotelephone-based services are surely one solution to enable homebased users to live in their own home longer.

INTRODUCTION

Proportion of elderly people in Finland is growing. Thus there is a considerable risk of a care crisis in social welfare and health care sectors during future decades. One way to avoid or at least diminish the care crisis is to develop new service provision solutions based on advanced communications technology, e.g. for home care.

The key issue in this context is to enable the elderly people to live in their own home longer than in the current situation. Advanced communications technology can provide sophisticated solutions, like videotelephony, to delay institutionalisation.

The aim of the study was to demonstrate videotelephony and provision of videotelephone-based services to elderly and mobility impaired people, who require support to live more independent life in their own home.

SYSTEM DESCRIPTION

Two test sites were built to bring out different aspects of the broadband communications (IBC). One system was built in Tampere on a fixed analogue broadband network and the other was built in Vantaa on the ISDN.

The both test systems allow the clients to make a videophone call to a service centre. Vice versa, the service centre worker, the servicer, is able to make a videophone call to the client. Inter-client calls were not supported due to technical restrictions.

The clients see the videophone picture on their TV screen and hear the sound from the TV loudspeakers. The video camera and the microphone are fixed on top of the set. The TV set is also used to receive normal TV programmes. Although the network interfaces are different, the client equipment looks very similar in both test systems.

The servicer's graphical interfaces on the service centre PC are also very similar in these two systems. The videophone picture is seen on the PC screen, as well as the system control interface. The interface is mouse-controlled. To ensure the privacy of the conversation the servicer uses a telephone-style handset.

On both test sites the clients were grouped in few groups sharing external network connections. This was necessary in order to keep the equipment costs reasonable.

SERVICES

The primary aim of the videophone services was to support the independent living of the clients in their own home, thus avoiding or at least delaying institutionalisation. Another aim of the services was to help the service staff to carry out the service provision more rationally and effectively.

Use of the conventional support services, e.g. meals-on-wheels, together with the videophone-based services was expected to prolong the independent living of the clients in their own home, thus providing savings to the community.

The services provided in the study are safety service, advice and guidance service, training service, health care service, and servicer-servicer communication.

EXPERIMENTS

The clients participating the field experiments were elderly and mobility impaired people living either in their own home or in a service house. The services were provided by the already existing service staff consisting of home care workers, home health care workers, workers and experts of safety services, health care and rehabilitation.



Photo: J. Perälä

Fig. 1 Videophone user in her home

The operation of the Tampere experiment was started in March 1994 and completed in March 1995, thus giving the total runtime of 12 months. Altogether 44 clients and 7 servicers participated this experiment. The clients were divided in two categories: nine of them had a videophone for their private use in their own home, and the rest 35 clients had access to one of the four public videophone units.

The Vantaa experiment was carried out between January 1995 and June 1995, giving the effective runtime of 6 months. Ten clients and five servicers participated the experiment.

The evaluation of the experiments was mainly qualitative, based on user interviews and observations. All videophone sessions were recorded on videotapes, that enabled more detailed analysis of the sessions. Also some quantitative data was collected automatically by the system (caller identity, call time, call duration, etc.).

RESULTS

The technical feasibility of a videophone for the elderly and mobility impaired people was shown in the experiment. The two test systems represented different aspects of the IBC network - broad bandwidth (high quality) and switchability.

The experimental systems were still far from an industrial product - the technology was not yet mature. The key factor to make the videophone finally suitable to everyday service is the availability of low-price network connections, including codecs or equivalent. Home equipment should be made as compact as possible; integration of the equipment into a TV set-top box is one way to accomplish this.

The picture quality in the experiments was not as good as the standard TV picture. This did not seem to hinder people utilising the picture, actually there was no major complaints put forward about the quality of the picture. In addition to picture the sound quality was also discovered to be important. The bandwidth may not be very critical, but a full-duplex connection with low delay is required.

The discussion and interaction between the clients and servicers was surprisingly natural and fluent both ways. The challenge to the interaction brought from the voice and picture quality were easily overcome and did not seem to influence the communication. To see the person you are talking to only on a distance became a natural part of the discussion, that nobody paid special attention to. The picture became a matter of fact.

The clients are very much looking forward to the time, when they can contact their friends and relatives through the videophone. In the future the videophone can thus work as one aid for elderly people to keep their social networks active. Also the servicers were convinced the videophone could be an efficient help and support in providing home care, home help and safety services. They eagerly wait for the time, when the videophone can be installed to anyone and the connection can be to several places.

The study showed, that it is easy for elderly people to accept the new technology as long as it is made easy enough to use. The participants of the experiments acted natural with the new type of communication and interaction, where the person you see and talk to are on a distance.

The biggest benefit from a system like this would probably be to a lonely person, living not too close to the services and with decreased mobility or otherwise poor health. It is difficult though, to motivate this type of persons to take part in an experiment. Taking part in this type of experiment requires at least some extra energy and a certain excising level of feeling of security and self conscience.

Putting effort into development of new technologies is not enough - effort needs to be put into the development of new services or the modification of old ones. Otherwise the developed technology will not be in efficient and useful use. The existence of new technology alone does not guarantee better service provision or new services.

FUTURE PLANS

After the completion of the experiment on Tampere site, the service provider organisations, the City Mission of Tampere and the City of Tampere, have agreed to continue the videophone service as one of their routine services. In Vantaa the service provider organisation, the City of Vantaa, was not able to continue the service provision due to financial reasons.

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