Virtual professional networks between speech pathologists

Magnus Magnusson

University College of Karlstad, Handikapp & Språk/ Utbildningsvetenskap
S-651 88 Karlstad, SWEDEN

Magnus.Magnusson@hks.se

ABSTRACT

All speech pathologists in one Swedish county will develop methods for supervision, therapy and development of professional methods, using ISDN-based videotelephony and Internet. The project is the first one of its kind and has initiated follow-up projects. It is primarily based upon research developed at the University of Karlstad, the Department of Disability and Language.

1. BACKGROUND

Speech Pathology is a fairly young discipline. The medical area of phoniatrics has existed for one hundred years but the professional group of speech therapists with its different subgroups has existed for a few decades, at least based upon formal and general education. Today, most countries have colleges for academical basic and further education for speech therapists. In Sweden there are four Universities which have four year courses for speech pathologists and also a master-course. It is also possible to go on to a PhD-exam. There have also been colleges for special teachers, specializing into the field of speech pathology, However, these colleges have been postponed and at the moment there is only one professional basic education whereby you can become a speech therapist in Sweden.

In the field of speech pathology there have existed several computer-based applications for therapeutical use since the late 1960's. However, the field did not really start to develop until the beginning of the 1990's when personal computers had started to be common tools at clinics, schools and hospitals. The development in Sweden has probably been a little more rapid since several speech pathologists started to develop language training software, mainly for Aphasia therapy already in the early 1980's. Especially one program called Lexia and its earlier version Afasi very rapidly became a household word for Swedish speech therapists (Gunnilstam, 1989). By 1990, most speech therapists in Sweden had access to that program in their daily work. There were also special 5-week courses available concentrating on computer usage for speech pathologists from the college in Stockholm, By 1996 about one hundred out of the 800 of Sweden's speech pathologists had passed that course and about 10 of the Speech pathologists had established themselves as part-time programmers.

However, most of the applications were directed towards use in the individual clinic, in the everyday use with patients or clients and not over a distance. Telematical applications were very rare among the speech therapists. A few professionals tried the text-telephone and even fewer tried out electronic BBS:s in the late 80's and the early 90's. There were a few pioneering activities in Norway, Sweden and the US. For instance, the journal CUSH (Computer Users among Speech and Hearing Therapists) was published in the US for almost 10 years and included many articles on computer applications in that field and a few articles on telematics as well. The earliest mention of telematical networking for professionals was published already in 1985 (Blache, 1985). Probably due to the relatively high cost of long-distance calls in the US, usage of BBS:es and fax and that sort of technology was a local thing for a relatively long time and no real results of investigations were published until the end of the 80's and the beginning of the 90's when a few practicians published reports almost simultaneously at the ASHA-conferences or in CUSH. Most of these presentations introduced special national BBS-systems as especially suited for professional exchange (Bull, Cochran, 1987/a, 1987/b, 1988/a-c; Dean, Pickering Jr, 1989, 1991; Krupke, 1990; Bull, La Pine, 1990).

A few years later in the US a few papers on the possibilities to make diagnostics (and therapy) using telematics were published (Wertz, 1992; Wertz & al, 1992).Most of their suggestions were based on assumptions and not so much on real work. The real breakthrough in the US came when the Internet was established and quite suddenly a lot of sites have been established, concerning speech pathology, including courseware and professional information (Goldberg, 1997).

In Sweden the development has been similar in many ways although the experiments with BBS-communication have been more widespread over the country. However, the professionals have waited to use electronic telecommunication systems until Internet came into use, but not disabled users. People with communication disabilities have been using BBS-.systems regularly since the mid-80's in Sweden. Today, about 10 professionals have their own private sites outside of any general site or server and probably at least 15% of all the professionals in the country have home-pages in connection with their employer's server or site (Johansson, 1995). Most professionals also have e-mail addresses. However, there are no networks in existence in that field yet.

In Norway the development has been somewhat diferent since the company Tandberg decided to develop a special videophone. The first pieces of equipment were available in the late 1980's and some of them were used in field experiments to evaluate professional supervision and therapeutical work in the field of speech pathology and other fields (Kristiansen, 1991). Today there are at least 100 videophones in use in Norway at special schools and clinics which means that there are possibilities to establish a network for synchronous multimedia distance communication in Norway, covering the whole of the country. The very first systematic language training trials over a distance were made in Norway (Holand, 1991).

Speech pathologists as a professional group in Sweden are greatly understaffed. Certain of the more unpopulated counties of Sweden have a few speech pathologists in one or two places only. This means that the distances are great between provider and patients to be. A new computer application could then be to try and give support to the patients over a greater distance, using different types of distance communication applications. So far, trials have been made using Internet, e-mail and fax communication, in other words more or less indirect communication means for people with language disabilities (Lifvergren, Lundell, Magnusson, 1997). However, during the last few years a few trials have been made, trying to establish more direct real-time communication over a distance, using videotelephony. The preliminary results show that this medium is accepted by the users and their spouses (Johansson, Magnusson, Wallin,1997).

From these brief pioneering examples we can make the following summary. The technology for distance communicaiton which has been most in use is a technology which uses text. It is also indirect or asynchronous or used for non-interactive information retrieval. BBS, Fax and Internet offer this type of communication with the promise of pictures and sound integrated during the last few years. However, very little technology offer synchronous multimedial real-time communication. Still the most common synchronous distance communication today is the auditive telephone call. The most recent distance technology, however, is the multimodal videophone technology which in its most recent form can be used as a computer-integrated technology. This type of technology seems to offer the best possibilities to simulate a real meeting betwen people and to offer optimal multichannel forms of communication. Unfortunately, the networks which are available today offer limited resources in transmission rate so that it is impossible to offer an optimal quality in the transmission.

A few projects have been created during the very last few years to start to evalutate the new and not wholly developed technology. Several European projects have evaluated videotelephony for deaf and/or hearing-impaired people. A few European or national projects have studied the medium for language impaired people. The most wellknown Swedish project is called VITSI and studies language training and social networks for people with mental retardation or Aphasia who are using videophone technology (Magnusson, Gunnilstam, 1995; Johansson, Magnusson, Wallin, 1997; Brodin, Alemdar, 1996). This report tells about a few projects which are trying to develop professional and virtual networks for speech pathologists, using this multimodal technology.

2. GOAL

Four projects are cooperating at the moment from different parts of Sweden – TELELOG 1, TELELOG2, REGLOG & DISTANCE COURSE. A preliminary and general goal is to establish a few local or regional networks with speech pathologists who learn how to use the videophone technology as a natural tool in their everyday work. The projects have separate subgoals:

- TELELOG 1: to teach the speech pathologists from one county how to use the technology
- TELELOG 2: to evaluate the technology as texttelephones for the same group and their patients
- REGLOG: to support part of the education at the speech pathology college of Umeå with videophones
- DISTANCE COURSE: the speech pathology college at the Karolinska Institute in Stockholm will give a videophone-based course to 12 speech pathologists from all over Sweden

There are more projects in the planning but they are not presented in this context.

3. METHOD

In 1997 the county council of Värmland in the eastern part of Sweden (population 260.000 inh) started the project TELELOG 1. The project was aiming to connect the speech pathologists working in the county through a network built on desktop videoconferencing equipment. During one year the speech pathologists would be using the systems in the network to see what type of situations that could be handled using videotelephony. During the last decade the computer has become an everyday tool in the work of speech pathologists, mostly since there has been a lot of training software developed. The computer is used both at the clinic and in the home of patients and it is quite common that a patient gets a training disk to take home and install it on the private computer (Magnusson, Gunnilstam, 1995).

Building on these results, the speech pathologists of Värmland intend to learn how to use this medium during one year. After that, in the autumn of 1998, they will begin to use the medium in regular trials with patients in different places in the county and also in the country, since colleagues all over the country have expressed interest in the project. Today, ten systems are installed, including one system in the home of the project-leader. All the clinics can use 20% of their work-time for the project. They have also received basic training in the usage. This means that all speech pathology cliniques are connected with videophones. After the summer five systems will be installed in the homes or workplaces of disabled people. One of the systems has already been installed in the office of the local Aphasia Society. That will be the main content of TELELOG 2.

The common goal of the two projects is to study possible emerging new methodology within this new medium, and also the reactions from the therapists. The study will mainly be qualitative, to see whether the medium offers similar experiences to the users as the so called "real worlds" meeting, where similarities and differences can be found.

In the autumn of 1998, the project will be connecting to a distance course from the College of speech therapists at the Karolinska Institute in Stockholm. That course will be worth five academic credits and direct itself towards 12 participating speech pathologists, from all over the country. Lessons will be held, using the videophone, possibly combined with the use of videorecordings. To be able to fulfill that project, videophones have been installed in the offices of at least two of the colleges for speech pathologists.

Finally, the REGLOG project will install nine systems in each of the nine clinics that are involved in the speech pathology college of Umeå. Three of the systems are already installed and will be in use in August 1998.

All the projects are using the same type of computer system: Pentium computer 200 Mhz or more; 32 – 64 MB RAM; 2 – 8 GB HD; 17" – 19" VGA Monitor; 24 – 32 CD-ROM; 1200 dpi scanner; Colour ink-jet printer; Still picture digital camera; Headset; Loudspeakers; Windows 95; WORD 7; and Photo Plus 4. Five of the systems use Picture Tel 200 videophone card and the rest use Intel Proshare. Every system is using ISDN Duo, that is 2x64 kb/s double channel transmission rate. Most of the systems also use Internet and E-mail over ISDN.

4. RESULTS

Most of the projects are young which means that there are few analyzed data available yet. At the time for this presentation there will be interview data available about the experiences from TELELOG 1 and REGLOG. Preliminary quick interviews have indicated that the participants are aware of the positive possibilities and that in TELELOG they are cooperating between the clinics in the county in formal as well as in informal ways and that they experience the technology as fairly easy to handle. It is also evident that some of the participants are experiencing possible new methodologies which they see as a result of their usage. The University of Karlstad will analyze the results and include them in their growing knowledge base on the usage of videoteleohony in distance education and therapy

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