

Audio-Video Conferences in the Business and Educational Environment

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Summary

In the today's world of global business economy the role of audio visual media is of high significance. There is a big difference between what was expected form the workers in the past, and what is expected from them now. What is needed today is a conglomeration of information specialists, public speakers and managers. For these specialists, as for all businessmen, the statement “time is money” is part of their everyday life. Furthermore, this can also be applied in the education where specialists in subject area can't find enough time to share their knowledge with the audience worldwide. Therefore, business and educational institutions can utilize audio/video conferences in order to save significant financial assets, since they do not have to invite specialists physically but virtually.

The authors concentrate on advantages and disadvantages of application of audio/video conferences in the business and educational environment. Furthermore, they give the results of comparative analysis of its application in the companies participating in the global economy. The results of the research conducted in the leading Croatian companies are shown.

Introduction

In the today's world of global business economy the role of audio visual media is of high significance. There is a big difference between what was expected form the workers in the past, and what is expected from them now. What is needed today is a conglomeration of information specialists, public speakers and managers. For these specialists, as for all businessmen, the statement “time is money” is part of their everyday life. Furthermore, this can also be applied in the education where specialists in subject area cannot find enough time to travel and give lectures worldwide. Therefore, business and educational institutions can utilize audio-video conferences in order to save significant financial assets, since they do not have to invite specialists physically – but virtually. Audio-video conferences can be used for many common purposes such as business meetings, briefings, education and permanent education, collaborative working (which is enhanced by the use of data transfer, shared whiteboards and shared applications), or for more specialized purposes such as telemedicine, telecommuting (working at home while communicating with the coworkers), judicial system applications, remote laboratories or even security purposes.

Brief history of audio-video conferencing (A-VC)

1964 AT&T shows Picturephone, World's Fair, New York



1982 Compression Labs begins selling \$250,000 VC system, \$1,000 per hour lines

1986 PictureTel's \$80,000 VC system, \$100 per hour lines

1991 PictureTel unveils \$20,000 black-and-white VC system, \$30 per hour lines

1991 IBM and PictureTel demonstrate videophone on PC

1992 AT&T's \$1,500 videophone for home market

1992 Sep CU-SeeMe v0.19 for Macintosh (without audio)

1994 Feb CU-SeeMe for Macintosh (with audio)

1995 Feb Vocaltec Internet Phone v1.0 for Windows (without video)

1995 Aug CU-SeeMe v0.66b1 for Windows (with audio)

1996 Aug Microsoft NetMeeting v1.0 (without video)

1996 Oct ITU (International Telecommunications Union) H.323 standard v1

1996 Dec Microsoft NetMeeting v2.0b2 (with video)

1997 First academic lecture transmitted via video-conference link in Croatia (Zagreb – Osijek)

1998 Apr CU-SeeMe v1.0 for Windows and Macintosh (with color video).¹

Teleconferencing

Teleconferencing system can be defined as a system that enables its users to communicate at distance. Users can communicate by synchronous (real-time) or asynchronous (not in real-time) interchange of audio, video or data. Audio and video conferences are forms of teleconferencing and video conferences are in most cases accompanied with audio signal. Therefore video conferencing can be defined as “the transmission of image (video) and speech (audio) back and forth between two or more

¹ *A history of video conferencing (VC) technology*, <<http://myhome.hananet.net/~soonjp/vchx.html>>, August 26 2001.

physically separate locations². The primary reasons for using video conferences are in the situations where there is a need for the enrichment of already existing distant communication, or a need to “access or communicate to a location that may or may not be nearby but is limited by situational or physical constraints”³. In this case the usage of video conferences can save time and money because the conference can be conducted with many people at different distant locations at the same time. Besides, it has been proved that video conferences are motivating participants, i.e. students or employees.

Types of audio-video conferences

Video conferences can be synchronous or asynchronous. Synchronous video conferences are conducted in real-time, i.e. participants can interact as if they were sitting together in the same room. Asynchronous video conferences are recorded and viewed later. This is the video-on-demand principle.

Communication in synchronous audio-video conferences can be:

- one-to-one,
- one-to-many,
- many-to-one, and
- many-to-many.

One-to-one audio-video conferencing is most suitable for business meetings or one-to-one training. *One-to-many* approach can be used for head of project-to-project team members or professor-to-students communication. *Many-to-one* communication is suitable e.g. when project team or students want to question an expert in a subject matter how to solve certain problems. A good example of *many-to-many* communication is when two or more team branches or two or more groups of students or professors create a video conference and discuss problems.

There are four common types of audio-video conference format:⁴

1. *Traditional lecture* – presenter talks about a topic and later people from the audience ask questions.

² *Video Conferencing Cookbook*, Video Development Initiative, June 2000, <<http://www.vide.gatech.edu/cookbook2.0/toc.html>>, August 26 2001.

³ *Video Conferencing Cookbook*, op.cit.

⁴ Cyrs, T. and F. Smith, Planning and Conducting the Videoconference, in: *Teleclass Teaching*, New Mexico State University, Las Cruces, pp. 198, 201–03.

2. *Workshop/seminar* – requires the participants to have the same amount of “basic knowledge” so that the short lecture can be followed. The audience has to do certain exercises and discuss the given problem. It is usually the longest type of conference.
3. *Panel discussion* – it is used when there is a need for a group of experts in a subject matter to present and discuss a problem before the audience.
4. *Interview* – audience can ask questions after the interview.

All these four types of video conference format can be used in the business environment and in the process of education.

Applications of audio-video conferences

Application of audio-video conferences saves time of the participants because a conference can be accessed directly from the workplace, school, university or home. This approach dramatically shortens the time needed to arrive at a distant meeting, lecture or congress tutorial or seminar whether it is held in the same city or on the other continent. Money for the trip is also saved. In the educational system audio-video conferences also offer the possibility of individual approach to learning.

Although the focus of this paper is on the application of audio-video conferences in education, their wide usage in the business sector should also be mentioned. In the most cases they are used for all kind of meetings and for permanent education. It is often that a company has branch offices in different countries. It is expensive that employees have to travel to a branch office when a meeting is called. Sometimes the same meeting has to be held in every branch, or even at the same time. Audio-video conference can solve those problems because it is possible to engage all participants from different branches in a joint discussion.

Telecommuting is already happening in the USA. Employees spend either some of their time working at the company and some of their time at home or they work full time at home. In order to stay in contact with the company and have the possibility to discuss problems at hand with the fellow employees they use audio-video conferences.

Audio-video conferences can also be used for permanent education. Permanent education or life long learning is a must today. Employees have to be informed of the developments and advances in the profession in order to broaden their knowledge and be competitive. These way employees spend less free time on the education because they can learn at work.

Initial results of the research conducted in the leading Croatian companies

Leading Croatian companies were e-mailed an initial questionnaire containing five questions concerning the usage of audio-video conferences. The research is still under way therefore we give only initial results. The companies which claimed that they are using audio-video conferences have branch offices outside Croatia. The results obtained so far show that audio and audio-video conferences are equally used, they are used on the daily or weekly basis, and mostly for the business and educational purposes. Audio or audio-video conferences are used either only by managers or by all employees who need them for their daily work. The following two answers summarize all opinions on the question of the usefulness of audio-video conferences:

“Absolutely useful, because it enables meetings of the distant team members. Communication costs force people to prepare the meetings in a more effective way which is usually not the case with the regular meetings. We are also using Internet for collaborative working (workrooms) and education (Lotus Notes-Domino based applications).” (IBM Croatia)

“Very useful, saves money (e.g. Ericsson often organizes conferences for several hundred people at the same time), fast etc.” (Ericsson/Nikola Tesla)

Applications of audio-video conferences in the educational system

Although the educational usage of audio-video conferences and all sorts of distant learning is extensively used in Australia because it is not evenly populated, the majority of countries need one or other form of distant education. Population density, demographic circumstances, traffic infrastructure, gross national income etc., encouraged us to consider new, cheaper methods of learning. The biggest problem is in the disparity of the information resources development. This is the reason why it should be known more about audio-video conferences as a part of educational system.

Audio-video conferences can be viewed from many different aspects. This paper will consider their application in the university education from the aspect of participants.

1. *Guest lecturer or expert.* In most cases students can learn about certain topics only from the professor teaching that subject. The professor also gives them the list of books or articles they need to read. There are two main reasons why it is usually not possible to invite eminent speakers or experts. Firstly, it would be expensive to cover

all the expenditures, and secondly the speaker would need to spend some time for travel. Audio-video conferences offer tempting solution. When the equipment is once installed it can be used many times and will certainly prove profitable. Students will be able to listen and talk to the well-known experts, ask questions, see how the theory works when it is applied to the real-world problems, see how are the things done in the different countries or different universities, etc.

2. *Remote instructor or professor.* Audio-video conferences can be used to aid students that are unable to physically attend a lecture for various reasons or as a form of distant learning. Professor can also offer lectures in the form of video-on-demand so that the students can access them whenever they want to. The advantages of this approach are that students can watch certain parts or whole lecture several times, they can also skip the parts they already heard or pause the lecture in order to write down the notes. Audio-video conferences can also be used as a form of consultations. It is especially important if a professor offers lectures in the video-on-demand form because it is an asynchronous form of communication and lacks the possibility of asking questions or having discussion.

3. *Attendee or student.* By having the possibility to attend lectures which are not held on the same faculty or university but are organized in the form of audio-video conference, student becomes the so called remote student. In this way student can study at the distant university and does not have to travel there. Audio-video conferencing is also useful for the students participating in international projects.

Audio-video conferences in the educational system in Croatia

The first audio-video conference in the educational system in Croatia was held in 1997 between the Faculty of Electrical Engineering and Computing in Zagreb and Faculty of Electrical Engineering in Osijek. Both faculties equipped a teleconference room and it can be used by all members of the academic community. It should also be mentioned that the tutorials and workshops of the CUC 2000 were transmitted via audio-video conference line to several other Croatian academic centers so that the students and professors who were not able to physically attend the conference were given a chance to attend it virtually.

Most of the primary and secondary schools are still not well enough equipped to be able to organize audio-video conferences. Nevertheless it is worth to mention certain private initiatives like a private agency "F" from Cres on the island of Cres which

organizes courses for learning foreign languages. Ms Ana Boca-Velcic, professor of English language established cooperation with a school from Great Britain called “Net Learn Languages”. She gives lectures of Croatian language to the English speaking students and pupils. She uses audio-video conferences for distant learning. Virtual classroom was created and students “enter” the classroom at the prearranged time, i.e. they signal the professor that they are ready and then the 60 minutes class begins. Student can see and hear the professor and see the shared whiteboard which is used for exercising and assignments. If there are several students at the same time the professor can give the same exercise or assignment to every student or she can approach them on the individual basis. This means that the professor can communicate with this virtual classroom using one-to-many or one-to-one approach which requires higher concentration on both sides but gives quicker and better results.



Application of audio-video conferences on the Faculty of philosophy in Zagreb

At the Faculty of philosophy, Department of information sciences an experimental phase of distant learning was initiated. The experiment started in the summer semester of the academic year 2000/2001 with the group of 8 students attending elective course

“School libraries”. Lectures were organized as distant learning lectures, i.e. as the text-based conferences. Students were given their assignments via e-mail. They sent them back not only to the professor, but also to the other participating students. At the end of the semester the students were asked to give their opinions about the distant learning approach to the teaching. They were very pleased because they did not have to attend the lectures and they could choose the time for doing the assignments and studying the literature.

Since students proved to be interested in this kind of teaching we decided to make one step forward and offer audio-video conferences. It will be possible to access them later in the form of video-on-demand. We think that this approach is the right one because it will improve studying conditions, and will make it easier and more interesting. We must be aware that students are studying today in order to get a job tomorrow and it is a necessity to introduce students to the new technology which they will be able to use easily later in their everyday tasks.

Conclusion

This paper emphasizes the importance of audio-video conferences in business and educational environments. Although the technology is not new and so far was not extensively used in the educational purposes, nowadays it comes to focus. In the time of globalization the business sector has recognized its value and tries to make most out of it. The fact that Croatia has many islands and many small villages its educational system should grasp the potential of audio-video conferences in order to provide better education for the people living there. Although some faculties are already using audio-video conferences their full potential is still not reached. Students should be given a chance to listen and talk to the subject experts and professors from other universities. In order to learn something from the past we give an example of how was the “new technology” considered when it appeared.

“This ‘telephone’ has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.” – Western Union internal memo, 1876.

We should be able to do better than that!

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