Music Education Online

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1. Distance learning in music

Music studies in one's own home, independent of time or distance, sounds good — too good to be true. It has certainly been possible in the past to practise an instrument at home, but what if you could get your study material via the Internet or by e-mail, or maintain contact with your teacher and other students using modern technology?

Information and communication technologies (ICT) are introducing changes to the current university model. They allow the fostering of new pedagogical methodologies and make possible new ways of learning and communication between teacher and student and between the students themselves. One important application derived from the use of ICT in higher teaching is the possibility of virtual distance teaching and learning through the Internet. This article outlines the development of ICT supported music distance learning in Finland.

1.1 Definitions

Definitions of distance learning have changed over the past ten years. The Internet was at first seen as a store of material, and distance learning as constructing knowledge from text-based web pages: "An instructional delivery system, which connects learners with educational resources."[1] The physical distance between the teacher and the student was — and still is — one starting point: "Instructional delivery that does not constrain the student to be physically present in the same location as the instructor."[2] One older and still current definition is by Prof. M.G. Moore: "Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements."[3] This definition is the framework of the present study.

Music distance learning has quite a short history. The first ICT-supported course was held at the Sibelius Academy in 1996. Nowadays, however, a number of music schools and institutes in Finland utilize distance learning in one way or another. Arranging distance music learning is a challenge (1) for the music teachers, because they have little or no experience in this new pedagogical and technological environment; (2) for universities, because

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1. <URL:http://www.cdlponline.org/dlinfo/cdlp1/distance/whatis.html>
2. <URL:http://www.dlrn.org/connections.html>
3. Moore, M. G. & Kearsley, G. 1996. *Distance Education: A Systems View.* Belmont: Wadsworth Publishing Company.

they have to learn how to administrate the combination of distance and face-to-face learning; (3) for the technology needed to mediate between music and high quality teaching; and finally (4) for the students, who have to adopt a new approach to pursuing their studies. All of these factors have to be kept in mind for music distance learning, which should act as an educational intermediary enabling musical growth despite differences of time and/or location. A music teacher must build a learning environment comprising all of the pedagogical and technical arrangements and solutions that support good quality music education regardless of the distance.
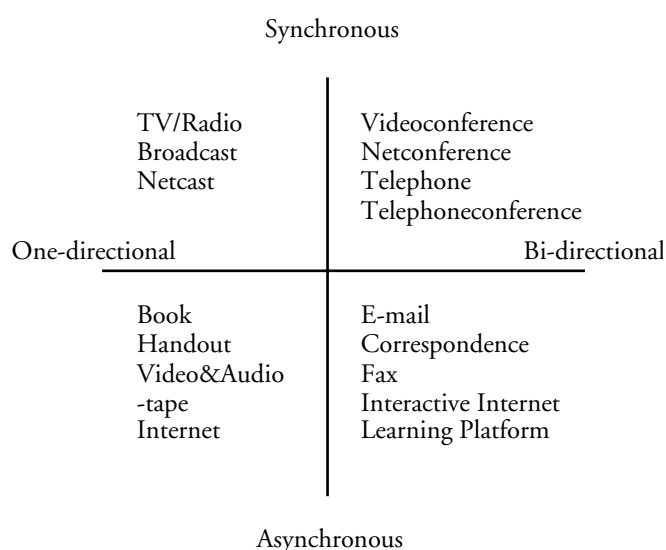
2. Starting point: the student

It would appear that distance learning has been much easier for students to adopt than for teachers, organizations or technology. The opportunity to receive instruction in specific subjects — or any instruction at all in some isolated places — and the attraction of the new technology itself can motivate pupils.

Personal computers were introduced twenty years ago; the first web pages ten years ago. Several projects have shown that young people born after the advent of the personal computer do not have a problem adapting themselves to modern learning environments and to the use of ICT.

3. Technical solutions

In our music courses we have always made use of more than one method. Web pages do not cover all of the needs. A course cannot be constructed with only e-mail or videoconferencing. It must be tailored to specific course needs. So what equipment should one use? In the following diagram I have divided available technologies into four categories.

Synchronous

One-directional		Bi-directional
TV/Radio Broadcast Netcast		Videoconference Netconference Telephone Telephoneconference
Book Handout Video&Audio -tape Internet		E-mail Correspondence Fax Interactive Internet Learning Platform

Asynchronous

Every one of these categories is important, although our own research has mainly concentrated on the upper half of the diagram: i.e. real time solutions. Listed below are a few thoughts on each of the techniques and their ease of application.

3.1 Asynchronous, one-directional

The value of books and tapes is obvious. The Net provides an excellent means for fast and flexible delivery of study materials. When the teacher publishes, for example, a note page, MIDI-, audio or video-file, students can familiarize themselves with its contents irrespective of the software they use. During our courses we have used the Internet to publish examples, exercises and their answers. Normally an own homepage for a course increased the students' motivation. They visited the site frequently. Some of them studied all of the material, others merely browsed. Since the students' level of activity varied, those who wished to learn more found additional material provided on the web pages valuable.

A very recent innovation has been the use of Internet-based video archives. Faster connections have made on-demand videos accessible, and the trend is to make a video production system available to music teachers and students so that they can exchange experience in an asynchronous mode. The Canadian MusicGrid[4] project has pioneered this system and we have been fortunate to act as partners in this endeavour.

3.2 Asynchronous, bi-directional

It is quite difficult to imagine a distance course without the use of e-mail. It is, of course, invaluable for sending messages and information, but also exercises and answers as attachments. Students are already familiar with using e-mail. For music needs it is often also useful to have notation software at hand. This has, in fact, been an assumption for several of our courses. Both teacher and students need to have studied these technologies beforehand so that they can attach notation documents to their e-mails.

Learning platforms are nowadays very popular at universities. They offer several benefits: they function as ordinary web pages on every computer connected to the Internet; they include the possibility of interaction, provided the communication is bi-directional — both teachers and students can upload study material to the Internet pages. Learning platforms are quite new to supporting music studies. Our first courses at the Sibelius Academy began semester. And, once again, music sets special requirements. The document types that are used in music may be unknown to a platform. A platform may be expected to include a text editor and perhaps a picture editor but not, for example, a notational input method. Nonetheless, our first experiences have been encouraging and we look forward to further collaboration between music educators and platform designers.

3.3 Synchronous one-directional

The Sibelius Academy Department of Music Technology began netcast seminars in 1999[5] — led by Philip Donner[6] — and they were the starting point for today's netcast production. A number of universities in Finland now deliver their lectures via netcast to those students who cannot otherwise participate.

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4. <URL:http://www.musicgrid.ca>

5. <URL:http://ilmari.siba.fi/groups/mute/program/seminar/>

6. Please find the homepages of Philip Donner from <URL:http://ilmari.siba.fi/users/pdonner/>

Netcast need not necessarily stay one-directional. At the beginning of April, MOVE arranged a symposium at the Sibelius Academy Kuopio Department for researchers in music distance education[7]. The sessions were netcasted, but at the same time a text-based return channel was in use. Philip Donner designed a chat-system based on RealText editor[8], and all those following the symposium from the netcast could send comments in real time to the chairperson.

3.4 Synchronous bi-directional

1. The telephone

The telephone as a medium in music studies might seem rather awkward, but — as discovered with various other kinds of equipment — it still has its uses. Teleconferencing is relatively expensive, if one is obliged to use a commercial telephone company's service. Luckily a modern videoconferencing unit, as used in the present project, is capable of bridging several telephone lines simultaneously. This technology is reliable and therefore appropriate, for instance, in conjunction with the net-conferencing described below.

Teleteaching demands more preparation from the teacher. In fact, this is always the case when one compares distance learning with face-to-face tuition. When teaching in a teleconferencing environment it is important to assess how well the students can successfully participate. Lecturing alone is not the best method. Students should be involved from time to time with active exercises of their own.

2. Netconferencing

Net-conferencing has faced setbacks with the increasing constraints imposed by the firewall politics of our administrative communities. Nowadays we are obliged to make special arrangements with computing administrators before we can make use of net-conferencing facilities. However, it still seems a viable option for supporting distance learning. We have used MS NetMeeting (NM), which is a free application that works with Windows. In addition to its easy availability, NM is very stable. One may contact the partner either via Internet Protocol (IP) or with a direct call. An audio connection and (if a video-camera is available) a video connection are opened automatically once communication has been established. Session members can also share text based Chat or a graphic-based whiteboard for communication. With file-sharing a participant can open a particular application from his computer and show it to the others; in collaboration-mode members may use the application together. NM is also a well-documented software platform. This meant that Philip Donner was able to write MIDICombo software specifically for music needs, which sends MIDI messages over a NetMeeting data channel. MIDI is a protocol that communicates note control information from one synthesizer to another. These control codes describe the actions of playing musical instruments in a very compact form. This approach gives a similar bit budget advantage in networking as vector images do in comparison with bitmaps. Since bandwidth congestion

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7. <URL:http://www.jyu.fi/move/symposium/symposium_english.html>
8. <URL:http://media.virtuosi.fi/chat/>

is one of the central issues of multimedia conferencing, MIDI is an attractive mode of expression.

3. Videoconferencing

Technical development over the last few years has altered attitudes towards videoconferencing. Current devices are reliable and capable of handling a large number of different set-ups[9]. We have used videoconferencing in weekly sessions of instrument training as well as in master classes[10]. We have developed (with Xenex Telecom, Inc.) a system whereby MIDI data is also transmitted during a videoconferencing session. This means that one can play and control a MIDI-instrument from a distance. For instance, two MIDI-equipped pianos in separate locations can be connected together. Sound quality will not be compromised because both pianos can be played simultaneously from either end. We have utilized this system both in concerts and in teaching.

The main improvement has been in the shifting from ISDN- to IP-connections, which means that the connection time is free (of charge). This is especially meaningful with international collaboration. We have, for more than a year, employed videoconference/ing in such international projects as seminars and conferences and also for master-classes.

4. Teacher: the enabler

The teacher is certainly the main player in distance education. Attitudes of the teaching staff towards this new technology are, in general, positive. But distance learning is very much an unknown quantity. As staff become aware of the possibilities and gain more experience, their appreciation of the potential uses of distance learning within a music educational context will also grow.

Problems of course vary depending on the technology and the combination of synchronous and asynchronous teaching that has been used. In asynchronous connections (using fax, email, Internet, etc.) the problem is that teachers do not have experience of how to give information and instructions simply and unambiguously enough for self-study. Building a web page, for example, demands additional knowledge and skills that the teacher must reserve time to acquire. Also the page structure needs a distinct profile: "What is under this button and why?" Teachers may at first be disconcerted by the extra time needed for the preparation and delivery of their teaching material.

In synchronous (telephone & VC) teaching, communication needs to be approached in a new way. Maintaining contact differs very much from the face-to-face situation. In music teaching (with VC) the teacher must learn to give more responsibility to the pupils or students than in a more traditional

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9. Please find schemes about Music Education Online symposium from <URL:http://www2.siba.fi/aluekehityshanke/materiaali/materiaali.html>

10. Please find a report of Jorma Panula's masterclass for conductors from <URL:http://www2.siba.fi/aluekehityshanke/tiedostot/raportit/panulareport.pdf> and a video from <URL:http://ilmari.siba.fi/users/pdonner/panula>.

classroom context. This actually works better than most teachers would expect. The time delay makes playing by the teacher ineffectual, except perhaps for giving cues or for first-time training. It is impossible to evaluate students while playing oneself. Furthermore, effective and informative camera handling requires experience — although, when employed successfully, the camera can focus the students attention, e.g. on the guitar's fretboard.

These interactive restrictions oblige teachers to change their teaching methods and their way of thinking. This can often be a fruitful and refreshing experience. Technology gives us a chance to illustrate and construct knowledge and skills in a brand new way. A teacher who encounters motivated students, an enabling technology and also (hopefully) supportive administrators will be encouraged to explore these possibilities further.

The first courses for the training of music teachers in ICT skills have been realized during this last year, and were based on a model from the Finnish Virtual University. Planned jointly by Matti Ruippo, MOVE and the Association of Finnish Music Schools, they involve a three-level training approach. The first level (for one 'study week' credit) covers the basic uses of a computer; the second level (three to four study weeks) gives training in the use of software needed in a music teacher's work; the third level (ten study weeks) is for training subsequent trainers. All of the courses are specially tailored for a music teacher's needs, and most of the instructors are music teachers themselves. These factors have greatly boosted motivation for both the instructors and their students — generating a natural and stimulating interplay between experience and knowledge on the one hand, and fresh thoughts and ideas on the other.

5. Administrative thoughts

Various ICT-tools are already in use for administrative purposes. Meetings, consulting, information, etc. benefit from the opportunity of being independent of time or place. Especially when a university is divided into departments separated by large geographical distances, the utilization of such technology saves both time and money.

Organizations must train their staff to administrate and plan music distance education courses. Since no previous experience exists, this can be expensive and time consuming.

The savings for ICT-supported administration are obvious. However, distance music learning is not necessarily cheaper to arrange than traditional forms of teaching; any savings mainly benefit the students. And payment for material published on the Internet is a problem with no easy solution in sight. Unless some clear monetary (as well as educational) profit can be demonstrated, it is difficult to persuade administrations to invest in these new teaching methods and technologies.

In 1999, the Finnish Ministry of Education published its National Information Society Strategy for the years 2000-2004[11]. The Ministry has a clear vision of the future in which ICT is an essential part of education in Finland and therefore a foundation of welfare. In their Information Strategy for

Education and Research 2000-2004 Implementation Plan[12], the Ministry states "One special focus for the Government is to develop certain matters underpinning the information society. These incontestably include the question of content production, notably the crucial area of learning materials. In this and in the whole strategy project, the educational and research communities play a key role." This strategy has bound the administration of the universities to the development of distance learning but also the government has earmarked funding for this purpose. The Ministry of Education has funded the MOVE-project[13] and the regional development project and they have supported this development in the field of music in Finland.

6. Conclusions

6.1 Towards an integrated system

It is not practical to build distance music studies upon a single method or medium. The teacher needs to support different learning styles and curves.

The teacher chooses a medium or a selection of media depending on the subject and on the availability of technology; and a method depending on the student and the technological framework. The teacher has at hand, not separate blocks, but a palette of possibilities to construct an integrated learning environment.
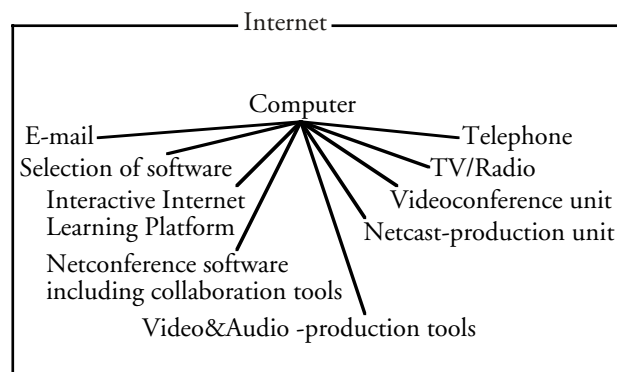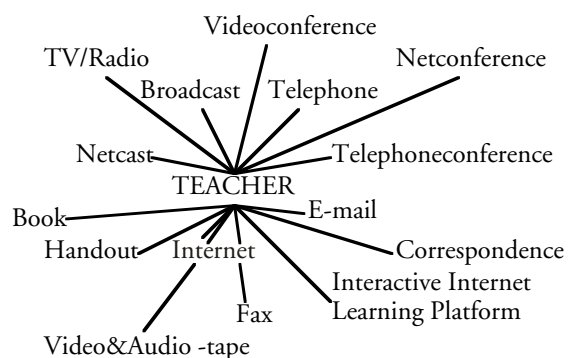
A course will utilize an integrated assembly of methods and media. The technology for course production will also be integrated. The teacher will employ a setup of software and hardware for both

11.<URL:http://www.minedu.fi/julkaisut/information/englishU/welcome.html>

12.<URL:http://www.minedu.fi/minedu/education/priorities.html>

13.Ojala, Juha. 2001. Networking Music. Construction of the Music Department of the Finnish National Virtual University. In Y. Minami & M. Shinzanoh (Eds.), Proceedings of the Third Asia-Pacific Symposium in Music Education Research & International Symposium on 'Uragoe' and Gender, Volume 1. Nagoya, Japan: Aichi University of Education.

production and teaching. All communication will be mediated through the Internet.

No one can wholly command this pedagogical and technological arsenal. Both teachers and students need training. And teachers working with universities must establish networks for the exchange of knowledge. The coordinator for the implementation of this strategy in Finland has been the Finnish Virtual University[14]. The MOVE-project is a network for the research and development of music education.

6.2 Towards an international exchange of expertise

There is, in fact, a long tradition of distance learning. The first correspondence courses began over a hundred year ago in Finland; and the Open University of England[15] has (since its establishment in 1969) opened the door to higher education for more than 2 million people of varying ages. Since, until very recently, courses have everywhere been mainly asynchronous and often wholly text-based, knowledge and experience of the kind of integrated systems described above are quite young and rare: and this goes for all educational subjects — not only for music. There is an obvious need for the international exchange of expertise. Three universities in Finland have so far played a few bars together. And they have shared a few first beats with Canada's MusicGrid, the Indiana University-Purdue University in Indianapolis, Georgia Institute of Technology, and the Manhattan School of Music. New players are bid welcome!

14.<URL:http://www.virtuaaliyliopisto.fi/>

15. <http://www.open.ac.uk/>