Audiographics as a tutoring instrument and learning environment at the Open University of the Netherlands

Fred de Vries & Martin Valcke
Open University of the Netherlands , Educational Technology Expertise Centre

© 1997

Abstract
What is audiographics
Field studies for three law courses
Example of a session
Results
Conclusions and future perspectives

Download demo programmes

Abstract

An audiographics facility was used as a support provision for the design of an innovative form of tutoring/support at a distance. Through a computer network connection, mediated by an audiographics package (Farsite, Databeam Inc.) individual students or student groups could exchange and process workbooks. This interaction was enriched by an audio conference system, based on analogical phone links. Field tests in which audiographics is applied, have been set up for three law courses: Goederenrecht (Law of Goods), Rechtsgeschiedenis (History of Law), and Volkenrecht 1 & 2 (International Law 1 & 2). The three research set-ups were different as to their structure:

- group use versus individual use;
- type of course (declarative versus problem-based course designs);
- approach and preparation of the session;
- type of conference chairman; learning objectives of the sessions.

Based on student inquiry forms, administered after each session, research data have been collected. The results of the research indicate the positive impact of audiographics as a tutoring/support tool. But these results also clearly indicate that the positive impact depends on the level of integration in the course design. In the third research (Volkenrecht [International Law]) the provision was completely integrated and affected the course design. As a consequence the student opinions, reactions and statements were much more positive.

The research also revealed the importance to attach to certain variables to promote a successful use:

- The use of audiographics within education must be designed and planned (e.g., based on a storybook/script).
- Reliable facilities (computers, adequate software and connections) are essential.
- Work stations must be installed especially for this purpose (at the study centres).
- Audiographics is not to be used to give presentations or to lecture at a distance. However, it is adequate to support interaction based learning strategies such as discussions, case studies, role play, ...
- The results from the research show that large groups must be dealt with in a careful way. Participants are almost automatically placed in a passive and receptive role because of large group sizes. When larger groups cannot be avoided, a computer display, a keyboard and a mouse should actually be made available to every two participants in order to provide sufficient interaction facilities.
- The use of audiographics can be easily combined with the use of Internet techology in the form of e-mail, discussion groups, or face to face meetings.

As a result of the three researches concrete plans have been elaborated to adopt audiographics as a support tool at a larger scale at the Dutch open University.

This project has been executed within a co-operation between the Open University and the Dutch PTT Telecom.

What is audiographics

Considering the functions supported by the software packages, audiographics may be described as a group session, in which several locations with one or more participants are connected with each other by means of telecommunication lines.

In its technical sense, it usually means that a separate telephone conference is set up allowing people to communicate with each other at different locations, as well as a data conference via modems and telephone lines interconnecting computers at all locations. These computers help to make, operate, check and process all kinds of documents, written texts, and highly advanced computer applications by different participants.

The following illustration reflects the different audio and data connections applied by students at home, making use of telephone conferences and data connections over the Internet.
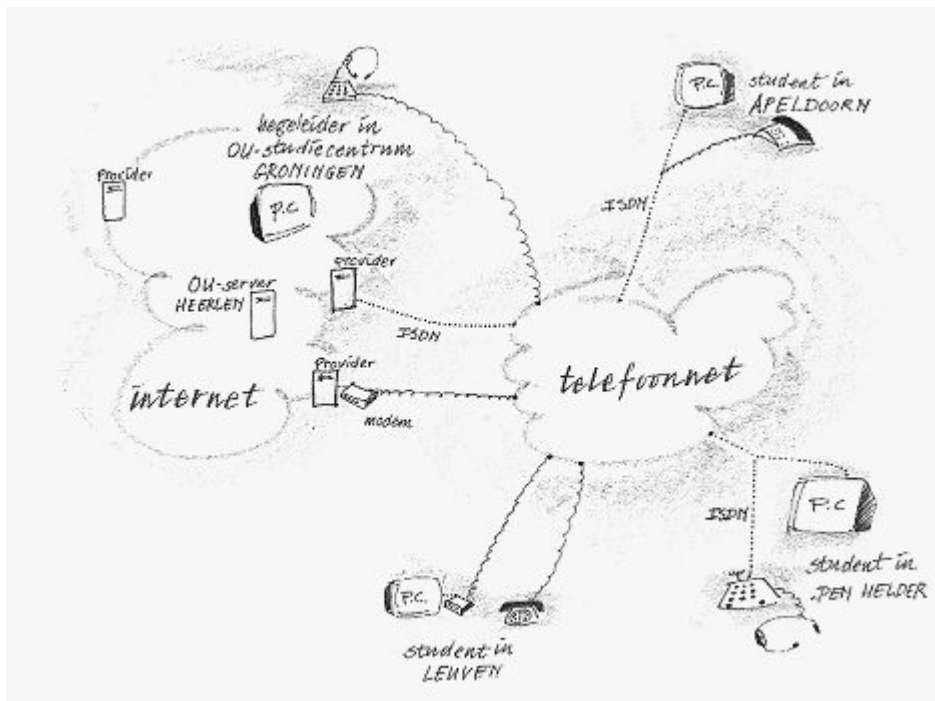
The technology organising audiographics is experiencing a mushroom growth: connections may also be made through other networks such as the Internet, voice and data may be sent as a signal, and the band width may increase by - among other things - the application of ISDN. The basic idea to this - students being allowed to simultaneously participating in the same group session at different locations, varying from their homes to a room at the Open University, without having to travel to another place - however, will not be influenced by this.

Field studies involving three law courses

Three field studies with audiographics were set up. For that purpose, the following questions were asked:

- What is the effectivity, efficiency and level if satisfaction of tutoring sessions based on the use of audiographics provisions?
- What are the contextual requirements that help to guarantee an optimal use of audiographics to tutor students?

Audiographics may be applied in many different ways. As a result, the three researches are very dissimilar as to their set-up. The following table helps to describe these differences:

	Goederenrecht Law of Goods	Rechtsgeschiedenis History of Law	Volkenrecht International Law
group/individual use	groups	groups	individual use
location	4 regional study centres	4 regional study centres	at home
who chairs the sessions	course expert	tutor	course expert

In three studies, students were recruited as volunteers.

For the courses Goederenrecht and Rechtsgeschiedenis, groups in 4 study centres were formed. They

participated as a group in sessions that were coordinated by a chairman located in one study centre or at home. For these two courses the audiograhics sessions were additional tutorial meetings next to the regular meetings already planned.

With regard to the course Volkenrecht, individual students took part that worked at home. For these students the tutoring sessions in the study were the only way to get in touch with the tutor and with the other sessions. The complete design of the course was based upon the work done in preparation of, during and after the audiographics sessions. The following section describes a typical session in the Volkenrecht set-up.

The following picture show a course expert chairing a session from his study room at home (Paul Janssens, Volkenrecht)

The use of audiographics as a support provision necessitates a very specific preparation by the chairmen of the sessions. To support their work and also as a base of their initial training a script book was prepared by the researchers . This scriptbook included guidelines, examples of sessions, and detailed step-by-step instructions to prepare materials and to chair the sessions. The script book was based on and inspired by information gathered from experiences elsewhere and from the research literature.

Example of a session

Prior to each session, each student sends in his assignment and case that is to be discussed by putting their elaboration in a private discussion group. The next picture shows a screendump of the discussion environment used by the students to send in and archive their work:

If you have downloaded the demo files, you may open the file *Agent.exe* and view it as a stand-alone application. It contains both the Lotus Screencam software and the data-file. The video-clip shows how a students browses in the discussion groups and finds the planning of meetings, finds the tasks/cases to be elaborated and opens his own student discussion group were he did save his own elaborations as a preparation for the session.

A few minutes before the session begins, all participants are called by the PTT Telecom telephone conference centre.

All students access the Internet via a link through a local Internet provider. Using Farsite, the net.120 conference server (both Databeam products), which is located in Heerlen, is contacted. As soon as all participants are connected, the session can start:
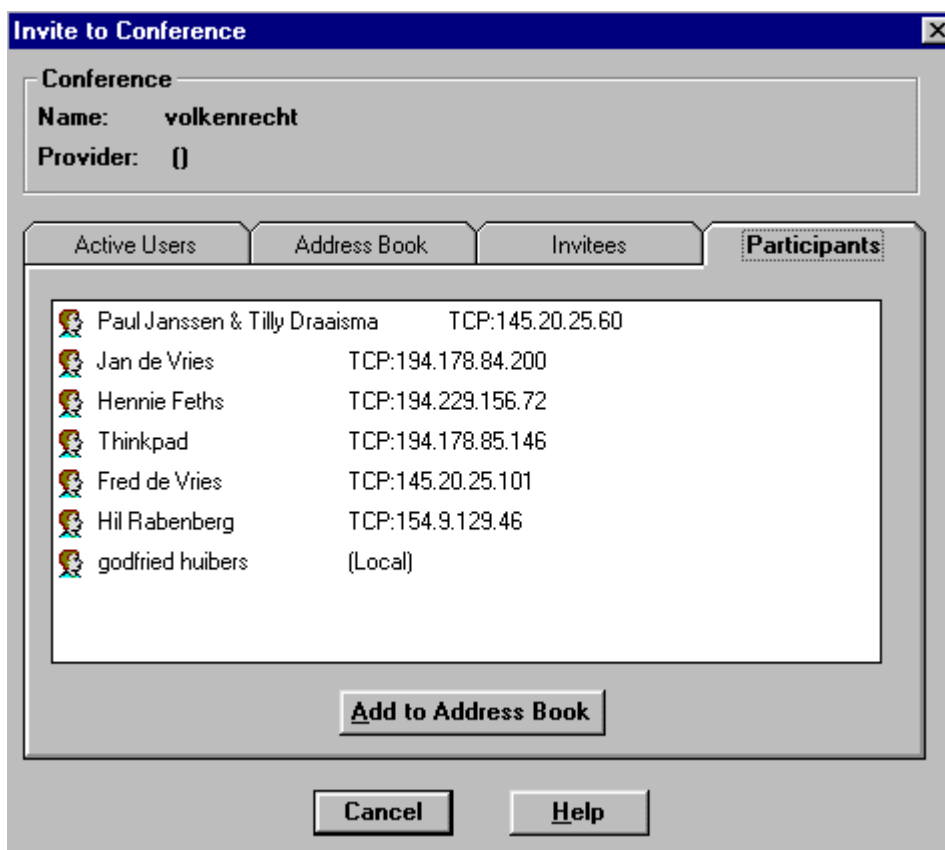
The picture shows the students participating in the audiographics conference.

During a two-hour meeting, questions are answered by the tutors attending, a particular student presents a case on behalf of his/her group, and individual assignments are discussed. Furthermore, half an hour is allotted for a discussion of which the subject is announced on the spot. At the end of each session, all exercise books are saved, and the new assignments are placed in the discussion groups again.

The following picture shows how the text for the discussion in an audiographics session is presented together with the remarks written down by the students.
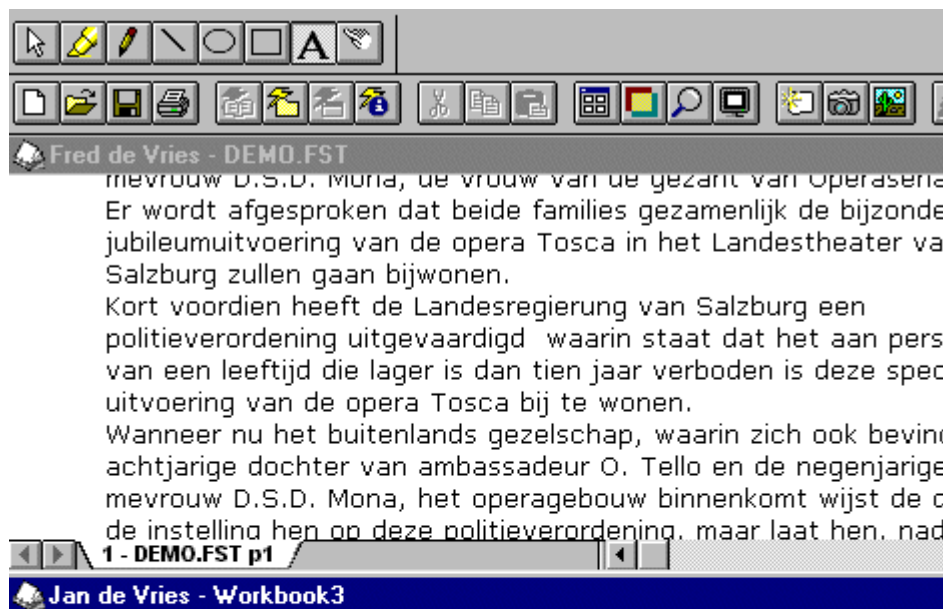
The two files *Farsite.exe* and *Farsite2.exe* can be downloaded and viewed as stand-alone applications. They include both the Lotus Screencam software and the data-file. The first clip shows how an expert tutor discusses the "Barcelona Traction, a controversial case in International Law. The second file shows the pages of the workbook used in a "Law of Goods" session. Pay attention to the very structured outline and the very strict time schedule.

Results

We present first some general results and next focus upon more specific results that reflect the specific nature of the three different researches.

General findings:

- The time necessary for learning how to work according to the new approach is very short for both tutors and students; however, some experience with computers and/or Windows is required.
- Adjustment of the training design to the various options provided by the audiographics facility determines the degree of success. In this view, the difference between the subject of history of law and international law is very striking.
- The conference leader's role is decisive here; with this, the question of training/professionalisation is raised.
- The audio component appears to be essential for the course of a session. If the computer connection is suddenly broken, the session can usually be finished after some adjustments have taken place. Again, the nature of the subject is relevant here; with regard to natural sciences, for example, the computer component may be more important to realise 'application sharing' than for other trainings (application sharing is 'sharing' a computer application with all session participants, while everybody sees the application on the screen).
- The modems used should be more stable (the use of ISDN might offer a more solid connection).

Specific to the group sessions in the study centres:

- The nature of the discipline is essential (a problem-formulating nature versus a descriptive one).
- The choice of didactic working methods is critical: not giving a linear presentation, but stimulating interaction and discussion, using assignments/cases as a starting point, etc.
- Send on information and materials in advance.
- Logistic factors in the study centres partly determine the succes of the session. It is important that the following issues are taken care of:
  - a separate room;

- a separate - permanent - installation of the equipment;
- sufficient light;
- a printer in order to fastly print exercise books;
- additional displays in case large student groups are formed;
- an adequate size of the groups (maximum 8 participants)

Specific to individual students at home:

- Adjust the educational design completely: material, testing, tutoring.
- Let students work together when preparing the sessions.
- Set up a combination of off-line and on-line facilities.
- If an ISDN-connection or 2 telephone lines are necessary for use, this may have a negative effect on accessibility.

Conclusions and future perspectives

Given the research results of the three field studies regarding audiographics facilities, it may be stated that the overall experience has been very positive. Student appreciation for tutoring with audiographics is high, and taking into account the pros and cons, audiographics is considered as an effecetiver/efficient tool. But as has been mentioned before, some prior conditons have to be met to realize the full potential:

- The use of audiographics within education must be designed and planned.
- Reliable facilities (computers, adequate software and connections) are essential.
- Work stations must be installed especially for this purpose (at the study centres).
- Audiographics is not to be used to give presentations or to lecture at a distance. However, it is adequate to support interaction based learning strategies such as discussions, case studies, role play, ...
- The results from the research show that large groups must be dealt with in a careful way. Participants are almost automatically placed in a passive and receptive role because of large group sizes. When larger groups cannot be avoided, a computer display, a keyboard and a mouse should actually be made available to every two participants in order to provide sufficient interaction facilities.
- The use of audiographics can be easily combined with the use of Internet techology in the form of e-mail, discussion groups, or face to face meetings.
- The fact that students still need a second telephone line or an ISDN-connection for real on-line / interactive use, is a problem.

Several departments within the Open University have already developed an interest in the future application of audiographics for:

- training and internet communication between employees in the central office and the regional study centres;
- supporting students in courses in the Faculties of Social Sciences, Natural Sciences, and Law, and
- providing study centres with extra audiographics facilities.

At this moment large scale plans are in preparation that clearly suggest that audiographics is ready to be integrated in the toolkit of the Dutch Open University to support its students at a distance. More information about the project can be dowloaded from the OU-internet site.