

**R.K.Potapova**

## **MODERN CALL SYSTEMS WITH ELEMENTS OF ACOUSTIC FEEDBACK**

Moscow State Linguistic University  
Russia, 119992 Moscow, Ostozhenka, 38  
Ph.: (095) 201-5697; fax: (095) 246-2807  
E-mail: potapova@linguanet.ru

### **Telematic Computer-Aided Learning**

Interest in telematic education stems from what it can offer, namely, deep learning. As adults learn well in social settings which promote sharing knowledge and resolving the resulting cognitive conflict, technologies which support such interactions are likely to improve adult learning. Adults often have valuable personal experiences which they can bring to their learning, they need collaborative skills at work, and they will need to develop independent learning skills with peers when their formal education is over. These are some of the reasons why telematic education has a significant part to play in education.

There are two types of learning situation that might be emulated in telematic tutoring: static lectures and interactive tutorial/seminar sessions. In order to be able to teach telematically, tools are needed which facilitate computer-supported co-operative learning (CSCL). CSCL classes may be compared with contact classes along the following dimensions:

- Synchronicity: students participate in the same session at the same time (synchronous), or in sessions at different times (asynchronous).
- Geographical distribution: learners may or may not be at a single site.
- Homogeneity: learners may or may not all be similar in kind.
- Coupling: the students may or may have to work fairly independently (loosely coupled) or in a team (tightly coupled).

Tools which support synchronous activities are generally used to realize a learning environment similar to a traditional classroom. However, this technique is not suited to situations where very large numbers of participants conduct multiway discussions across different time zones. This is a common situation on distributed web-based courses. Hence asynchronous techniques have been developed. A typical asynchronous technique uses a form of notice-board with the difference that, instead of pinning up notices, participants attach computer files which may contain text, graphics, video etc. Over a period of weeks, it is possible for participants to respond to others' files and form chains of discussions.

The key differences between more traditional knowledge-delivery education and a "student apprenticeship" style, more suited to telematic tutoring, are outlined in table. Ideally, telematic tutoring is active and discovery-based, and casts the tutor in the role of a facilitator of learning. Also the learning materials used on the Web are globally accessible. Hence it is important to keep materials up-to-date, in order to encourage maximum use of the materials at a given site. This is why authoring tools are important.

### ***Old and new forms of learning***

|                                     |                               |
|-------------------------------------|-------------------------------|
| <b>Knowledge Delivery Education</b> | <b>Student Apprenticeship</b> |
|-------------------------------------|-------------------------------|

|   |                                      |
|---|--------------------------------------|
| Lectures                                    | Discovery                            |
| Passive, solitary                           | Active, team-based                   |
| Omniscient tutor as controlling gate-keeper | Facilitative tutor as equal resource |
| Homogeneous                                 | Diverse                              |
| Stable content                              | Changing content (tools used)        |

### **Internet Technology**

The Internet is an information carrier – a medium – which links information providers to information users. We are concerned with the pedagogic potential of this medium: its strengths and weaknesses in respect to educational provision and educational requirements. Here the Internet is taken to mean both the physical hardware which interconnects millions of computers, and the software tools which can be used to enable teaching and learning to take place world-wide. Few of the tools were originally designed for pedagogic purposes (many arose from efforts to enable Computer-Supported Co-operative Work and Computer-Mediated Communication) but many have been successfully used to enable teaching and learning over the Internet.

An important character of Internet education is the potential for teaching and learning at a distance from a host institution. The consequence of this telematic teaching is that the students may well be unable to come together synchronously as a whole class (for reasons of time or distance). For such students, a key feature of the Internet is its ability to link them together into a collaborating community by means of file-based computer conferences, e-mail and the Web. They can benefit from a richer teaching and learning environment. Furthermore, its environment can include both static information and also active and interactive content in full multimedia format.

While the technology of the Internet is seductive, it is nevertheless important that the technology be used to produce well-motivated, pedagogically sound learning experiences which play to the strengths of the medium. These clearly lie in the facility with which material can be made available, maintained, updated and re-used. The sheer volume of the material available, and the social dimension of community which telematics creates, are strengths in themselves. After all, education is concerned with preparing learners to become fully-fledged participants in a given arena. Participation in education is not only a matter of acquiring knowledge, but also involves acquiring skill in presentation, communication, analysis, debate, and discussion. It is in this area that the Internet currently excels. It may not always be appropriate to publish material on the Internet when a book or a compact disc would be more practical. However, the Internet is unrivalled for bringing together scattered people in virtual communities for teaching and learning.

### **The Internet versus CD-ROM**

#### *Teaching resources that could be provided **on CD-ROM***

CD-ROMs have the advantage of much faster access speeds than the Internet, and less risk of a temporary denial of service due to network failure. There is also less of a virus threat, since the manufacture of a CD-ROM can be closely controlled. Also, sending out CD-ROMs means that the originator's computers are not at risk from unauthorised access. The following teaching functions could be successfully implemented using CD-ROMs.

- ***Intensive training in practical phonetics.*** This is a very clear case where computer-aided learning would be useful. Students require intensive practice which traditionally has been facilitated by specialist phoneticians, at great cost in staff time. Much of this practice could be done by students working with self-study modules. Staff input would be required only occasionally, to correct and check the individual student's efforts.
- ***Multidisciplinary tutorial materials.*** This is another clear case of the advantages of computer-aided learning. Tutorial materials on CD-ROM could draw together elements from several different fields which may otherwise not be easily accessible.
- ***Multimedia presentation of materials.*** While a few multidisciplinary textbooks exist, CD-ROMs have the advantage that sound and animation can be added in order to make the principles clearer to the student.

*Teaching resources for which the **Internet** is needed*

- ***Access to world experts.*** If a student (especially a postgraduate student) wishes to consult an expert about a question for which no expertise is available locally, then the Internet is the fastest (and cheapest) method of doing so.
- ***Access to fellow-students.*** For an academically isolated student, the Internet provides access to a "virtual learning community" of other students of the same subject, for mutual support.
- ***Access to native speakers.*** If a student seeks native speakers of another language for a project, then it may be possible to use the Internet to contact them, much more easily and cheaply than would be possible by traditional means. However, recording native speaker utterances over the Internet may not yield sufficiently good sound quality for phonetics experiments.
- ***Access to research on foreign languages.*** A large amount of reference material is available over the Internet. In the case of foreign languages, it may be difficult for the student to find the desired information locally, and this is where the Internet could be of use.
- ***Access to tutors.*** For students unable or unwilling to attend higher education institutions, the Internet can provide a convenient means of access to tutors.
- ***Videoconferencing and transmission of recorded lectures.*** An obvious use for the Internet is in videoconferencing between students (such as when engaging in a "virtual tutorial"), or in the multicasting of recorded lectures. At the moment the latter requires specialist high-speed connections and equipment.
- ***Access to fellow-tutors to share good practice.*** Among university teachers, the Internet can be used to share teaching materials and to disseminate good practice.

*Current bottlenecks in Internet provision*

Many of the possibilities mentioned above cannot come to full fruition until the technology matures sufficiently to implement them, or until existing technology becomes much more widespread and accessible. There is also, naturally, a question of funding, as much of the

requisite technology is expensive. Although computer-aided learning will save on staff costs in the long term, the initial costs are a barrier to full implementation in some cases. The subsections below outline some current technical barriers to provision.

- **Limited access to MBONE technology:** The MBONE is a technology for broadcasting on the Internet suitable for viewing transmitted lectures. Since it is not yet widely available, very little has actually been made of its potential.
- **Real-time audio:** This is currently available using client/server architecture and proprietary compression formats. However, the use of this technology is not yet widespread. Since whole radio programmes and lectures can be made available for listening over the Internet using this technology, it is an important building-block for the educational use of the Internet.
- **Real-time video:** There is also a need for real-time video using compression software, for use over existing connections. This technology is currently adequate for lectures etc, but possibly not for detailed phonetic demonstrations, where greater visual clarity is required.