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Theoretical perspectives and new practices in audio-graphic conferencing for language learning

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Abstract

This article will start with the situation at the Open University, where languages are taught at a distance. Online tuition using an audio-graphic Internet-based conferencing system called Lyceum is one of the ways used to develop students' communicative skills.

Following Garrett's call for an integration of research and practice at EUROCALL 1997 (Garrett, 1998) – a call which is still valid today – the present article proposes a conceptual framework which can support the use of conferencing systems such as Lyceum in language learning and teaching. In the first part of the article, I examine several pedagogical theories supporting language learning, that is, second language acquisition and sociocultural theories, and multimodality, and apply them to the practice of audio-graphic computer-mediated communication (CMC) as used at the Open University. I also build on previous research, which, however, is still dominated by written CMC. What Erben stated in 1999 is still true: that audio-graphic technology "remains under-researched and under-theorised." (Erben, 1999:230). Firstly, I therefore examine studies on written CMC and secondly those that have been conducted on audio-graphic CMC in order to identify the benefits and challenges of these media.

Both the pedagogical theory and previous studies of CMC have informed the design and implementation of online tuition at the Open University. Thus the second part of the article reports on a research project on Lyceum, which took place in 2002. The goal of the project was to evaluate the use of audio-graphic conferencing in practice, and this in turn has instigated both improvements in the software used and in student support as well as further changes to the task design. I present some findings and discuss both the challenges of audio-graphic conferencing that were encountered and the benefits that were identified.

1 Learning languages at a distance at the Open University

1.1 Language teaching and communicative skills

The Open University has been teaching languages at a distance for almost ten years now. Currently, the languages programme comprises three languages (French, German and Spanish) with approximately 5,000 students in the UK and western continental Europe. When teaching languages at a distance, one of the main challenges is the

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development and practice of speaking skills. While the use of CDs and videos can deal with this issue to a certain extent by providing spoken language input and eliciting oral output, it does not address the need for interaction and the negotiation of meaning in a communicative situation which is paramount for second language acquisition. Nor does it provide for sociocultural learning with tutors and peers.

Until recently, these needs were met by offering face-to-face tutorials, which take place every 4–6 weeks, bridging the physical distance and allowing for interaction with a tutor and other students. Yet tutorial arrangements are neither flexible enough to cater for the needs of adult learners, nor do they provide students with enough exposure to the spoken language. There is also a growing demand for more authentic material and for practising the language in more authentic communicative settings (see Chapelle, 1999; Felix, 1999).

1.2 Audio-graphic online tuition via Lyceum

Recent developments in technology with respect to online learning have started to offer solutions other than face-to-face tutorials. One of the tools available since the 1990s is Internet-based real-time audio-graphic conferencing, which allows for synchronous voice communication over the Internet. Audio-graphic conferencing offers a way of overcoming the distance between students and giving them the opportunity to practise their oral skills and communicate easily with their tutor and with other learners in the target language.

Lyceum is just such a conferencing system. It was developed by the Knowledge Media Institute within the Open University for educational use, and is constantly being improved further to take into account the experience of its users. Lyceum includes a range of tools: audio, concept map (developed for concept mapping, but also useful for making notes or brainstorming), whiteboard (for writing and drawing and for importing and manipulating Web images), text chat, and document module (for writing, discussing and editing longer texts).[1] It has a facility to save concept maps and whiteboards, and the 2003 version offers the possibility to record audio and save text chat. Learners can use Lyceum to communicate orally and in writing, and they can share images and text and work on them collaboratively.

For group or pair work, Lyceum allows users to create additional ‘rooms’ within a conference, each with full audio-graphic capacity. There is no limit as to the number of these temporary rooms, which are accessible to all participants in a conference. Students also have their own personal rooms which they can make accessible to others if they wish to do so.

Between 1999 and 2001 Lyceum was trialled for use in French and German language tutorials, before being introduced in early 2002 in a mainstream German course at level 2 (post A-level, or school-leaving certificate), thereby supplementing the more conventional materials of the course such as course books, CDs and videos. Other courses will follow over the coming years, such as the new beginners language courses, which are starting in 2003.

1 For a more detailed technical description of audio-graphic conferencing tools, see Hampel & Baber (2003).

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2 Conceptual framework

2.1 From CALL courseware to computer-mediated communication

In the past, CALL technology only offered the possibility to individual learners of *using* a computer (following the computer-as-tutor mode), to try to improve discrete areas of language learning (mainly with the help of grammar drills). Now, however, with the advent of computer-mediated communication (CMC), they can *communicate* via the computer with other learners in local and global networks. The computer has become a tool for communication allowing groups of students to work collectively at a distance.

Until recently, CMC was restricted to written media – what used to be lacking was the availability of audio for developing communicative aural and oral skills. The arrival of Internet-based audio-graphic conferencing systems – which allow for real-time synchronous communication – has changed this. With the help of such conferencing tools, language learners now have the opportunity to go beyond written interaction and to improve their oral (and aural) skills in an online environment.

2.2 Pedagogical theories and language learning

2.2.1 Second language acquisition

There is a range of theories which can inform the development of audio-graphic conferencing. Particularly useful are principles of second language acquisition, which examine issues around input, negotiation of meaning and output. According to second language acquisition theorists, the role of comprehensible input (that is, input that is just a little beyond the learner's competence but that is nevertheless understood) is paramount to the development of a second language (see Krashen, 1981, 1985). Thus for Krashen "the major function of the second language classroom is to provide intake for acquisition" (Krashen, 1981:101). Yet if we follow Krashen's input hypothesis model, it would suffice to give individual learners written and spoken courseware (or a CALL program), which would provide them with "meaningful and communicative activities" (*Ibid*:104) and give them the input they need and qualify as intake (which Krashen defines as "that subset of linguistic input that helps the acquirer acquire language" (*Ibid*:104:101)).

This, however, fails to take into account the importance of interaction with other speakers in the acquisition of a second language, that is, interaction which allows learners to negotiate meaning (see Varonis & Gass, 1985; Gass & Varonis, 1994; Kramsch, 1986).

Swain also has shown the importance of comprehensible output, which not only helps learners to concentrate on syntactic processing, that is, to focus on form, but also provides "the opportunity for meaningful use of one's linguistic resources" (Swain, 1985:248) and makes it possible to try out different means of expression.

CMC can provide learners not only with comprehensible input (in written form only or in written and spoken form, depending on the type of conferencing system used), but also with a platform for interaction where learners can negotiate meaning with each other and possibly a tutor. It also gives them the opportunity to produce comprehensible output.

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2.2.2 *Sociocultural theories and constructivism*

Negotiation of meaning, interaction and trying out one's newly-acquired linguistic resources are all social activities, which is why sociocultural theories, which have their roots in the 1920s and 1930s, have been taken up again recently and developed further.

> "Our desire to understand what is happening when a learner or a group of learners are using a computer has been extended to involve situations where learners collaborate over distance and interact with virtual communities to accomplish creative goals. Research agendas are expanding to include issues of social computing and networked cultures and specific methodologies such as ethnography and ethnomethodology, designed to further our knowledge in this area." (Debski & Levy 1999:8)

Vygotsky was one of the first to recognize the role of social interaction in his sociocultural theory. Following an "interactionist-dialectical analysis of development" (Vygotsky 1978:124), he believes that children learn by being guided through successive 'zones of proximal development' by interaction with others, especially peers and teachers.

> We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. Once these processes are internalized, they become part of the child's independent developmental achievement. (Vygotsky, 1978:90)

Interaction with others and cooperation with peers are concepts that are used again today. Warschauer shows how Vygotsky's work has influenced recent approaches to learning, namely modelling (with the teacher providing a model for the learner) and text mediation – where texts (in the widest sense) are used as "'thinking devices' to generate new meanings collaboratively" (1997: 471). This is also applicable to language learning, where the focus recently has also been on fostering peer collaboration.

Vygotsky also addresses the fact that the tasks in which the learners engage need to be meaningful. What he states for writing, that is, "that writing should be meaningful for children, that an intrinsic need should be aroused in them, and that writing should be incorporated into a task that is necessary and relevant for life" (1978: 118), also applies to learning in general and language learning in particular. Meaningful tasks include the use of authentic materials and authentic settings. Thus Warschauer, for example, demands, that students be encouraged "to conduct actively 'meaningful tasks and solve meaningful problems in an environment that reflects their own personal interests as well as the multiple purposes to which their knowledge will be put in the future'" (1997: 487).

Another theory which combines theories from cognitive science with sociocultural principles is constructivism. The main focus is on the learner, who uses already existing knowledge and builds on it with the help of others. Knowledge is understood as something that must be constructed, not something that can be transferred. For audio conferencing this means the use of constructivist tasks which turn learning into "an active,

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creative, and socially interactive process" (Rüschoff & Ritter, 2001:223). Constructivists also stress the importance of task-based learning, using authentic materials in authentic situations (*ibid*:226).

Situated learning based on Halliday's socially oriented view of language and the fact that language has different functions should also influence our view of how language is best learned. Language is not limited to construing experience and expressing content – what Halliday calls the ideational function. It also has an interpersonal function by "enacting personal relationships" (Halliday, 1993:101), and a textual function in order to create discourse which is situationally relevant (see Kern & Warschauer, 2000).

These learning theories, which all revolve around social aspects of learning, are also applicable to CMC. Contrary to traditional CALL courseware, CMC with its focus on communication provides an excellent tool for sociocultural, situated learning.

2.3 Multimodality

The fact that with audio-graphic conferencing we are no longer limited to a single mode as in more traditional CALL courseware or written forms of CMC is also of relevance insofar as it helps us to move towards realising the "meaning potential of language" (Halliday, 1986:92). We can now offer learners a combination of different modes and combine the visual, the verbal and the written.

A theory that can help us to understand the demands made by synchronous online conferencing and other new electronic technologies and to make best use of them, is multimodality (Kress, 2000a:158). Kress & van Leeuwen explain 'multimodality' as follows:

> the use of several semiotic modes in the design of a semiotic product or event, together with the particular way in which these modes are combined – they may for instance reinforce each other […], fulfil complementary roles […] or be hierarchically ordered (2001:20).

According to Kress, this theory has been introduced in order to set "a new agenda of human semiosis in the domain of communication and representation" (2000b:183) and he describes it as "a dynamic, constantly remade and re-organised set of semiotic resources." (2000a:157).

If we apply this to audio-graphic conferencing, it means that we deal with the simultaneous existence of visual modes (graphics), verbal modes (writing, text chat), and the acoustic mode in one medium, all of which can be operated by one person (Kress & van Leeuwen, 2001:2). This allows for greater choice as users can select modes to suit the task in hand as well as catering for different learning styles. However, a multimodal system also makes greater demands on the user because of its more dynamic and unstable nature.

3 Research in CMC

3.1 Studies of written CMC

There are a number of studies which introduce and evaluate projects employing written CMC software for language learning (for use in computer-assisted class discussion

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(CACD), for example) and an even greater number of articles which express more general experiences of using CMC. The results of these studies are shown in Table 1.

Generally, the conclusion is that CMC has positive effects on students' writing ability. Thus studies of CACD show a greater number of student turns and more linguistic output compared to oral class discussions face to face (Chun, 1994; Kern, 1995; Ortega, 1997). Although this is usually found to be accompanied by a greater variety of discourse (Chun, 1994; Kern, 1995), there is one study which identifies a reduced number of interactional features compared to face-to-face interaction (Warschauer, 1996).

Studies also show that CMC "allows students to play a greater role in managing the discourse" (Chun, 1994:17) and that more students interact directly with each other, as opposed to interacting mainly with the teacher. Some researchers point to the fact that it leads to "more equal participation in computer mode" (Warschauer, 1996:7; see also Ortega, 1997) and lessens anxiety (Kern, 1995). Others, however, have identified the increased risk of limited participation with small groups of students, of unsought moderation by authority figures (Selinger & Pearson, 1999) or of the danger of some learners being uninhibited by the medium (Lecourt, 1999).

Table 1. *Results of studies of written CMC*

Benefits	**Challenges**
• improvement of writing skills	• reduced number of interactional features
• supporting second language acquisition (provides input and output and the opportunity for negotiation of meaning)	• limited participation with small groups of students
	• dominance of certain learners
• greater variety of discourse	• uninhibited participants
• more student–student interaction than student–teacher interaction	• loss of teacher control
	• less coherence/continuity in discussions
• more participation	• less attention to form
• less anxiety	• depersonalization of communication, anonymity
• development of grammatical competence	• written bias
• supporting collaborative learning	• technical expertise required
• active exploration and experience instead of passive receipt of knowledge	• too much information
	• no evaluation of information
• creativity and motivation	• technology for technology's sake
• supporting information-gap activities	
• supporting the use of authentic materials	
• empowering students	
• pedagogically grounded use of technology	

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Pellettieri also shows the development of grammatical competence through negotiation of meaning in written learner chat (Pellettieri, 2000).

Several studies have shown that in collaborative activities students can learn through active exploration and experience (Furstenberg, 1997; Levy, 1997; Felix, 1998; Zähner, Fauverge & Jong, 2000). Instead of passively receiving knowledge from the teacher, students are encouraged to construct their own knowledge, using authentic material. Yet as Warschauer points out, tasks also need to be meaningful and perceived as being tied to larger authentic goals (for example, developing academic research and writing skills, maintaining and promoting language and culture, providing a service to real organizations), and students need to be given the rhetorical means appropriate to the purpose (Warschauer, 2000). CMC can also encourage the collaborative spirit of the students and enhance their motivation for language practice (Kern, 1995) by, for example, using information-gap activities (Felix, 2002). In addition, working in an online environment can lead to a:

> high level of creativity [that] students can achieve – irrespective of their language proficiency level – if provided with an unhindered opportunity to express their personal interests in a foreign language (Debski, 1997:57).

Yet giving students more power and offering them learner-centred collaborative tasks can also have unsettling consequences for the tutor as it may lead to the loss of teacher control, less coherence and continuity in the discussion, and less attention to form (Kern, 1995).

Some research points to the possible dangers of the virtual medium depersonalizing the communication process (Lecourt, 1999) and turning what should be an inclusive activity into a socially isolating experience. "[T]he search for immersion, 3D virtual reality and interactivity, and the advent of 'cyberculture', may also signify the most profound loss of embodiment we have seen yet" (Kress & van Leeuwen, 2001:92).

The written bias of much CMC has also been scrutinized in several studies. Instead of being more equalizing, written CMC might actually discriminate because it focuses exclusively on one particular skill (Lecourt, 1999). Moreover, while written forms of CMC have been shown to improve students' written communicative skills, a possible transfer of written competence to oral communicative competence is difficult to prove (Kern, 1995). Thus written CMC shows generic idiosyncracies of electronic text, such as simplified structures.

Another challenge is the degree of technical expertise which is needed (Kelm, 1998; Selinger & Pearson, 1999) and the danger of learners being overwhelmed by information (Chun & Plass, 2000) or acquiring information without evaluating it (Lecourt, 1999). Finally, there is the question of whether there is any added value or whether technology is used solely for technology's sake – Meskill calls this the "because-we-can syndrome" (Meskill, 1999:461).

3.2 Studies of audio-graphic CMC

Studies of CMC using audio (and possibly video) conferencing tools are still relatively rare. The results of these studies are shown in Table 2. On the one hand most of those

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that exist point to similar benefits as with written CMC, that is, the provision of an interactive and collaborative environment (Erben, 1999; Chun & Plass, 2000; Zähner, Fauverge & Wong, 2000), or a change in the role of learners and tutor (Hauck & Haezewindt, 1999). On the other hand, there are certain implications of the technology that make CMC using synchronous voice communication different from written CMC. Being able to use audio in online language tuition and developing oral communicative skills is probably the most obvious advantage.

Audio-graphic conferencing, however, offers more than that by including a whole range of tools for graphics (pictures, drawing), writing, audio and possibly video. It allows us to move away from the emphasis on writing, thereby encompassing the visual and the acoustic as well. "The new technologies' emphasis on multimodality, three-dimensionality and interactivity can be seen as a return of many of the things that were lost in the transition from 'orality' to 'literacy'" (Kress & van Leeuwen, 2001:92). The wider range of tools and inclusion of different modes of communication can be used to help different learner types to exploit the medium to their advantage.

Chun and Plass also point to the multimodality of networked hypermedia environments (mirroring the developments in our digital age), environments which

> not only present learners with information in various modes (visual, audio and verbal/textual), but also require learners to engage in productive tasks and activities in a variety of modes, both synchronous and asynchronous methods of student collaboration, and they employ video, images, sound, and text for both the presentation and the negotiation of information (Chun & Plass 2000:152).

A multimodal learning environment, however, can also be a drawback if advanced technology means that learners need more technical expertise and that there may be potentially more problems with the technology.

One of the differences between synchronous CMC and face-to-face tuition is that there is no body language and thus some researchers have voiced the fear of increased anonymity and of less spontaneity in a virtual classroom. Blake, however, objects to this, believing that "the online modality makes it easier for both sides – positively encouraging them – to construct a relationship appropriate to their shared academic context and endeavour" (2000:195). Yet, Blake is not a teacher of languages and the question is whether this can also be turned into a potential benefit for online language tuition, where the emphasis is not necessarily on academic discussions – at least not at the lower levels. It is possible that the fact that students have to interact orally in foreign

Table 2. *Results of studies of CMC using synchronous audio conferencing*

Additional benefits of CMC using synchronous audio conferencing	**Additional challenges of CMC using synchronous audio conferencing**
• development of oral competence	• technical overload
• adequate to our communication/ knowledge society	• technical problems
• catering for different learning styles	• no body language
• different modes in one media	• more anonymous, less spontaneous

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language without the usual verbal and visual cues (paralinguistic features and body language) can cause increased anxiety and lower motivation in language learning.

4 Design and implementation of audio-graphic online tuition at the Open University

Both pedagogical theories and previous studies of CMC inform the design and implementation of online tuition at the Open University. The tasks used are based on sociocultural theories of learning, and we take into account the experience with online tuition encountered elsewhere. This was particularly important when Lyceum tuition was introduced for the first time into a mainstream course in 2002.

4.1 Training and the virtual learning environment

The students were provided with the Lyceum software on CD-ROM for ease of installation and they started the course with an online induction into Lyceum and its features to familiarize them with the software. Tutors were trained in six sessions over a period of six weeks. In case of technical problems, Lyceum offers an in-built help function and users are also supported by helpdesk staff who can be contacted via e-mail or phone (7 days a week, 9 am–10.30 pm).

The virtual learning environment includes a course website with course information, personal records, assessment and tutorial activities. In addition, students were able to request a FirstClass conference, that is, an asynchronous conference for additional contact. A tutor FirstClass conference was also provided for the tutors at their request for peer communication and support. In addition, both students and tutors have access to Lyceum for online meetings with others outside scheduled tutorials or for offline work with the tools.

Each student is allocated to a tutor, who is responsible for both correspondence tuition (that is, marking of the assignments) and for fortnightly group tutorials with up to 15 students. A tutorial lasts 75 minutes, usually starts with an icebreaking activity and focuses on an activity linked to the course material.

4.2 Design of online activities

The tutorials focus on tasks developed centrally by the academic course team. These tasks reflect principles of interactive, collaborative, student-centred learning based on sociocultural and constructivist theories. They encourage the students to participate in role-plays or other pre-arranged activities requiring collaborative interaction. The tutor's role is more that of a facilitator than a traditional teacher, thereby giving students more autonomy and more control of the situation. Although the activities cover all four language skills, the main focus is on speaking and listening.

The content of the activities relates closely to the content of the course books (which students study at home in their own time). The tasks call for a mixture of plenary sessions (which include joint presentations), group/pair work in class and preparation at home (in groups). They gradually introduce students to the three main graphics/writing tools of Lyceum, that is, the concept map (for concepts, words and/or short texts), the whiteboard (for images, drawings, notes and/or short texts) and the document (for

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longer texts), which students can then use in group work or for plenary presentations as they see fit – depending on the activity and their own preferences.

Although the students are encouraged to use authentic resources on the Web in order to collate information, we have tried to counteract the potential problem of information overload by offering students lists of pre-selected URLs via the course website, which are checked and updated regularly. Of course, students are free to search for additional material if they wish to do so.

5 Research project

In order to evaluate tuition via Lyceum, a research project was devised in early 2002. Its focus was to be the viability of online tuition and the experience of students and tutors. In order to gather data, I observed one of the tutorial groups throughout the tutorial part of the course (February to July). In addition, volunteers amongst the students and tutors agreed to participate in the research project. These volunteers (12 students and 6 tutors) were asked to keep logbooks reflecting on their experience with the online tutorials, and they filled in a questionnaire towards the end of the period.

Although the number of students taking part in the project was relatively small, almost a third of all tutors were involved, thus helping to evaluate audio-graphic tuition and identify important challenges and benefits. Some of the findings are in keeping with the research conducted on written and audio-graphic CMC; others, however, are new and different.

5.1 Challenges of audio-graphic conferencing with Lyceum

A number of challenges arising from the use of online tuition via synchronous audio-graphic conferencing were highlighted (see Table 3). Technical difficulties were a major issue, particularly at the beginning of the course, and it was the issue about which both students and tutors complained most. Yet at the same time it was found that students can be very reluctant to seek help when problems occur. Things improved over the course of the year as some of the problems connected with the technology were resolved by several major improvements to the system. The result was an overall improvement in audio quality and participants were also disconnected less often. Yet despite the improvements to the system, two thirds of students and tutors believed that technical issues had had a negative effect on the learning/teaching experience (students: 66.7%, tutors: 66.7%). This can at least partly be explained by persisting problems with ISPs and bandwidth, user hardware and user errors.

Another area both students and tutors commented on was the lack of body language in the virtual medium and its consequences. Although a button for raising one's hand makes turn-taking in Lyceum relatively easy, online discussions can still seem less spontaneous as no visual signals are available to help when more than one person wishes to speak. If students forget to use the hands-up button, this can result in several users starting to speak simultaneously and then stopping altogether as soon as they realize this. The result can be awkward silences. The lack of body language can also make it more difficult for shy people to participate, as one student noted; another mentioned that someone with problems may be less likely to be identified.

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Table 3. *Challenges of Lyceum-based tuition*

Student perspective	Tutor perspective
• technical difficulties, especially with the sound (audio levels, general quality of the audio) and with losing the connection	• students faced technical difficulties, especially with the sound (audio levels and general audio quality) and with losing the connection
• students felt that technical difficulties had a negative impact on the learning experience	• tutors felt that technical difficulties had a negative impact on the teaching experience
• reluctance to seek help from the helpdesk	• technical challenges plus challenge of speaking a foreign language
• lack of body language	• more practice needed
• less spontaneity	• groups were often too small for the activities to work properly and, as a consequence, activities had to be adapted
• awkward silences	• because students came to tutorials without having prepared the activities adequately, tutors then had to adapt them
• shy people were less likely to participate	
• complexity of having too many things to do (using the mouse, speaking, typing)	
• more practice needed	
• difficult to find the time to prepare for the sessions	
• groups were often too small	

Several students complained about the complexity not of the system but of having to do too many things at once (using the mouse, speaking, typing on the keyboard), and some of the tools were seen as laborious and time-consuming (especially for those students whose typing skills are not very good). As one tutor noted, the technical challenge adds to the difficulties encountered in speaking a foreign language. Some students and tutors noted the need for more practice with Lyceum – a comment which may have more to do with lack of time than lack of opportunity. The opportunity for practice is there as the system can be used any time and users can try out the tools both offline and online, on their own or with others.

Some of the other problems encountered have to do with the fact that tutorials for Open University language courses are not compulsory. This explains – at least partly – why some groups were relatively small, with sometimes as few as 2 or 3 students. Another reason for small group size was the fact that telephone tutorials were offered as a fall-back to students who did not have the technology to run Lyceum or encountered problems with the software initially. This meant that although those students who participated in tutorials had the opportunity to practise their communicative skills extensively, some activities had to be adapted to work well with a smaller number of students. In addition, because tutorials are not assessed and students can be very busy with the course work they do in self-study, those who did attend tutorials were not always well prepared for the sessions. Yet as the activities build on work done in-between sessions,

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this meant that tutors sometimes had to adapt them.

5.2 Benefits of Lyceum

Despite the difficulties, both students and tutors identified important benefits, some of which can be described as the added-value effects of Lyceum as they refer to advantages that are difficult to achieve in a face-to-face classroom situation or in a written CMC context (see Table 5). Generally, most students and tutors agreed that – despite the technical difficulties which had negatively affected the learning/teaching experience – using Lyceum had improved the students' oral communication skills (students: 83.3%, tutors: 83.3%).

More specifically, those involved in Lyceum commented on the opportunity to practise and improve their language. Both students and tutors pointed to the usefulness of online tuition for oral interaction and for authentic communication with other learners over a distance. Some noted the advantage of being able to share texts. The fact that Lyceum is very useful for work in small groups was also mentioned by several students and tutors. Tutors observed that users found Lyceum exciting and stimulating, thus increasing motivation. The result was that the students had more control over their learning situation and that the tutor's approach had generally been "more hands-off", as one tutor noted.

Another identifiable advantage of Lyceum was the multimodal nature of audiographic conferencing which is reflected in its range of tools. Several tutors were also impressed by the way students made use of the multimodal environment by employing a range of different tools, in order to make presentations, for example. When asked which tool in Lyceum they found most useful, there was great diversity in both the students' and the tutors' answers (see Table 4). Different users found different tools useful as they suited their different learning and teaching styles. One tutor, for example, commented that she found different things useful at different times.

One tutor pointed to the fact that because there is no need to travel, Lyceum enables fairly regular attendance at tutorials, and another mentioned that students can meet independently at any time they wish.

Finally, there were also a couple of comments relating to improved electronic literacy. One student commented that she now uses the Internet more to search for information

Table 4. *Perceived usefulness of tools*

	students (N = 12)	**tutors (N = 6)**
audio	16.7%	16.7%
concept map	41.7%	33.3%
whiteboard	8.3%	–
text chat	8.3%	–
document	16.7%	33.3%
none/several	8.3%	16.7%
	(none)	("I find different things useful at different times")

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when preparing assignments and another noted that the course had improved his computer literacy.

6 Consequences for future use of Lyceum

Some of the problems mentioned have already been resolved in the course of 2002. The audio quality has been improved with several updates to the system, and participants get disconnected less often. The new version of Lyceum, which was introduced at the beginning of 2003, has refined the hands-up button, making turn-taking easier. When several students raise their hands, the system now shows a record of the order in which participants wish to speak, thereby making a discussion flow more easily without the tutor having to come in constantly.

The new version also provides a direct link from each Lyceum conference to a technical support room, which is staffed by the helpdesk during tutorial times. This makes it easier for both students and tutors to seek help when there are problems. Besides receiving Lyceum training in the induction, students have also been provided with a teach-yourself tutorial for Lyceum on CD-ROM.

Alternative activities have been offered which do not cover two sessions but are free-standing in order to cater for groups who are less willing to put in extra time for preparing tutorials. We are thereby building up a larger resource bank, which eventually will also include images (with copyright clearance) for use by tutors and students.

Table 5. *Benefits of Lyceum-based tuition*

Student perspective	Tutor perspective
• improving oral communication skills	• improving students' oral communication skills
• authentic communication with other learners	• oral interaction
• bridging the distance between learners and tutors	• useful tool for group work
• sharing texts	• increased motivation of students (who found Lyceum exciting and stimulating)
• useful tool for group work	• more confidence in using the Internet
	• the tutor's approach as "more hands-off"
	• improving computer literacy
	• multimodal presentations by students, using different tools
	• using different tools for different purposes
	• fairly regular student attendance as there is no need to travel
	• students can meet independently at any time they wish

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Other plans for the future include a shared web browser in Lyceum and a different approach to organizing tutorial groups in order to guarantee larger and more viable groups. Finally, the perceived lack of body language and paralinguist features has led to discussions about the introduction of emoticons into the system.

7 Conclusion

As a conclusion I would like to point to what I think are some central issues for online learning and teaching. Online tuition should not be entered into lightly in the belief that it is a cheap and easy alternative. It needs to build on a sound pedagogic rationale, to learn from research done in the past, to take into account the potential challenges and benefits of the medium and to make sure that it has an added value over more traditional forms of teaching. It also needs more research, especially as the development of technology does not seem to be slowing down, and we need to make sure that we contribute to shaping this development. Besides considering theoretical issues in our research, we also need to listen to both students' and tutors' experiences, thereby integrating theory with practice.

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