Telecollaboration in multimodal environments: the impact on task design and learner interaction

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Telecollaboration in multimodal environments: the impact on task design and learner interaction

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Abstract

With the development of new digital technologies and their gradual introduction into the language classroom, the Internet enables students to reach out beyond the confines of traditional teaching and learning settings, allowing previously non-existent access to foreign languages and cultures. In telecollaborative exchanges, for example, language students use online tools to establish contact with other learners of the target language and native speakers. The learning environments for such encounters are becoming increasingly more powerful, often combining different modes of communication in one single medium, the learners' PC.

In 2005, students of French at Carnegie Mellon University, US and French learners at the Open University, UK worked synchronously and asynchronously in online environments with native francophone students enrolled on a masters program in distance education at the Université de Franche Comté, France. Completing a set of three collaborative tasks, synchronous meetings took place over 10 weeks in the Open University's Internet-based audio-graphic tuition environment *Lyceum*, which provides multiple synchronous audio channels as well as synchronous text chat and several shared graphical interfaces. The project output, a shared reflection on cultural similarities and differences, took the form of several collaborative, asynchronous blogs.

This contribution draws on data from pre- and post- treatment questionnaires, recordings of the online interactions, work published by the students in the blogs and discussions among learner and tutor participants exploring aspects of online partnership learning such as learning environment-specific affordances and their impact on task design as well as learner interaction .

1 Introduction

1.1 Computer assisted language learning and computer mediated communication

In the wake of technological advances, computer-assisted language learning (CALL) – task design for online environments in particular - has undergone quite dramatic changes in pedagogical paradigms. Since its beginnings in the 1960s, the use of computers in language learning and teaching has moved from the initial computer-as-tutor approach – based on a behaviorist learning model and reflected in a repetitive drills – to communication via the computer, that is computer-mediated communication (CMC)[1]. While CALL programs thus model aspects of the tutor role (such as providing input and feedback), in CMC the computer is used as a tool,

[1] For a more detailed history of CALL, see Warschauer & Healy 1998; or the more recent article by Bax 2003.

allowing the learner to interact with other learners and the tutor. CALL was primarily informed by a more cognitive, instructivist approach to language learning, whereas CMC reflects socio-cultural theories, with a strong focus on language learning *in* interaction (see Warschauer & Kern 2000). Today's ubiquitous connectivity among learners[2] has facilitated the move to "an integrative, socio-cognitive approach combining traditional language skills such as listening, speaking, reading, and writing with electronic literacy skills such as learning to interact with others through the use of a variety of technological tools as an integral part of language teaching" (Hauck & Stickler 2006: 464). Yet, getting together and working collectively was initially restricted to CMC in written environments. Not surprisingly, then, the majority of published research in this field has to date been dominated by investigations of CALL and written CMC (see, for example, Warschauer 1997; Chapelle 1998; Debski & Levy 1999; Felix 1999; Rüschoff & Ritter 2001; Weininger & Shield 2003; Shield & Weininger 2004). This is also true for work in task-based instruction (see, for example, Cameron 1999a, 1999b, Debski & Levy 1999, Felix 2001).

In the late 1990s, however, with the increasing robustness of the Internet, Internet-based audio-graphic conferencing applications[3] became available and have offered new ways of developing communicative oral and aural skills. Nevertheless, investigations into the use of audio-graphic technology remain scarce (see, for example, Erben 1999; Shield, Hauck & Hewer 2001; Hampel 2003; Felix 2004; Hampel, Felix, Hauck & Coleman 2005, Chanier & Vetter 2006), particularly with regard to task design for language learning and teaching facilitated by such applications (Hampel & Baber 2003; Hampel & Hauck 2004; Hauck & Hampel 2005; Rosell-Aguilar 2005). Research into audio-graphic technologies often combines various modes of communication in one single multimodal environment – for example, synchronous voice conferencing, one or more shared graphic interfaces, and text chat – allowing language learners to go beyond written interaction and to practice their speaking and listening skills online. Multimodality has been defined by Kress & van Leeuwen (2001: 20) as "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 […], fulfill complementary roles […] or be hierarchically ordered." As a result we not only have a greater variety of media available, offering different modes for making meaning, but the computer also allows us to combine these modes more easily in an "orchestration of meaning" (Kress, Jewitt, Osborne & Tsatsarelis 2001). With regard to task-based instruction Skehan (2003: 403) summarizes the advantages offered by developments in technology as follows:

> "What is really exciting about the use of technology is its potential as a *source* of language learning materials and input. […] In addition to these opportunities to receive input, there are many opportunities to engage in interaction. A few years ago, this was restricted to typed communication, whether synchronous or asynchronous. Now it is likely that groups of learners can engage in real-time communication, so that the feasibility of exchange arrangements will grow exponentially, and "twinning" of learners and native speakers will become common place."

[2] We would like to stress though that this is true only for the northern hemisphere. For a recent discussion of the digital divide, see van Dijk, 2005.
[3] For

Today such “twinning” or “telecollaboration” is considered one of the main pillars of online language learning (Thorne 2005).

1.2 Telecollaboration

As a result of the developments in networked communication technologies, foreign language learners have the opportunity to break down the confines of traditional face-to-face classroom settings and to gain access to target languages and cultures in ever more varied ways. While the world-wide-web is a valuable, if unregulated, source of cultural information and authentic language resources, the Internet has become increasingly important as a dynamic arena for intercultural communication between individuals from different language and cultural backgrounds, also referred to as “telecollaborative language learning” (see, e.g., Belz 2002) or “telecollaboration” (see, e.g., Warschauer 1996; Belz 2003; O’Dowd 2005). In telecollaborative partnerships, “internationally-dispersed learners in parallel language classes use Internet communication tools such as e-mail, synchronous chat, threaded discussion, and MOOs (as well as other forms of electronically mediated communication), in order to support social interaction, dialogue, debate, and intercultural exchange” (Belz 2003: 1). Together with the linguistic benefit, the potential increase in the participants’ intercultural communicative competence (Byram 1997) is thus generally seen as the main attraction of such projects (see, e.g., O’Dowd and Ritter 2006).

Investigations into online language learning in general and telecollaboration in particular come mainly from dedicated practitioners engaging in action research and motivated by a desire to improve practice in their field (see, for example, Hauck & Lewis *in press*). This is also the backdrop for the present chapter which is based on an “Internet-mediated intercultural foreign language exchange” (Thorne 2005) among students from three different corners of the world: Learners of French from the Open University (UK) and Carnegie Mellon University (USA) and French native speakers from the Université de Franche Comté (France).

First, in section 2, we will present the framework of the project and the participants, and briefly summarize our methodological approach. In section 3, we will look at the main features of the multimodal online environments chosen for this telecollaborative exchange – a synchronous audio-graphic conferencing system and an asynchronous blogging tool – and highlight their respective affordances, that is, their specific potentials and limitations for representation, meaning making and communication in general (Hampel & Hauck 2006) and intercultural communication in particular (Hauck 2007). This is followed by an exploration of how these affordances influenced task design and execution (section 4) as well as participant interaction (section 5) during the project. The chapter draws to a conclusion with a summary of the main findings and their implications for online learning of languages and cultures and showing further the need for the design of tasks specific to CMC environments.

2 Project description: framework, methodological approach, and participants

2.1 Framework

Over a period of ten weeks between October and December 2004, seven tutor-researchers and 25 students took part in a structured telecollaborative exchange working together online from their respective homes/universities in the UK, the US and France. Following the principle of Tandem language learning (Little & Brammerts, 1996) where the same amount of time is dedicated to each of the languages involved, participants were expected to use French and English 50% of the time in both environments. Pedagogically, the aim of the project was to break away from the standard pattern of bipartite intercultural exchange, which can lead to confrontation between participating groups and to a hardening of stereotypes. With a more complex mix of participants we wanted to attempt a more dynamic approach to intercultural encounter (Hauck & Lewis *in press*). There were three main phases:

Familiarization phase: weeks 1-2

Two initial tutor-led meetings in the synchronous environment were organized at each of the three institutions focusing on technical training in order to give all participants the opportunity to 'play' with the various tools in the audio-graphic conferencing system chosen for the exchange and to get a 'feel' for their affordances (Hampel et al. 2005). The particular relevance of tools/modes and affordances in this context is discussed in more detail in section 3 of this chapter. Concurrently, learners were allocated to 10 groups, initially consisting of two or three telecollaborative partners[4] . Password-protected blogs were instituted for each of those groups, using a freely-available application (www.blogger.com). All students were encouraged to use their blogs in order to get to know each other and to familiarize themselves with this asynchronous environment.

Main phase: weeks 3-9

During the main project phase, the learners carried out a series of collaborative tasks based on comparisons of their immediate (room/apartment/house/street) and wider (town, places for leisure activities, etc.) physical environment, using the synchronous learning environment for five scheduled sessions once a fortnight (as well as some informal meetings) and the blogs to prepare and further negotiate their tasks or simply to engage in exchanges of a more social nature in between the official meetings. The task design incorporated further familiarization with the affordances of the environments and is described in more detail in section 4.

Project evaluation phase: week 10

In the last week of the project, the participants were invited to post a brief evaluation of their experience to their project blogs. A final, synchronous session was scheduled for a debriefing during which the evaluations were discussed.

2.2 Methodological approach

The study based on this project follows the notion of action research as defined by Pring (2002). It combines quantitative and qualitative methods of analysis in order to investigate the impact of synchronous and asynchronous multimodal environments on task design and participant interaction in telecollaboration. We were specifically interested in answers to the following questions:

[4] Halfway into the project, the project team decided to merge some groups to reduce the number of blogs and to ensure that – at least in the asynchronous environment – more active participants met similarly-minded counterparts and to compensate for the smaller number of UK partners.

How does the fact that communication is mediated via the computer influence

a. the content and structure of tasks for telecollaboration?
b. the way learners make meaning and communicate with each other?

Our approach combined quantitative and qualitative methods of data gathering:

- pre- and post-treatment questionnaires
- screen data capture (synchronous environment, using CAMTASIA software)
- audio recordings (synchronous environment)
- learner production (blogs, using screen prints)

In the present chapter, findings are based on the evaluation of the questionnaires, the interviews and student productions in the blogs.

2.2 Participants

The project participants came from various ethnic backgrounds and belonged to one of the following four groups:

- seven tutor-researchers from all three institutions, three of whom are native French speakers and four are non-native speakers of French
- five UK students, all volunteers, advanced learners of French who were in the gap period between two Open University courses
- ten American students enrolled in an advanced beginners' French course at Carnegie Mellon University, Pittsburgh
- ten French native speakers studying at the Université de Franche Comté, Besançon, to become distance education tutors[5]

Six of the seven tutor-researchers facilitated the scheduled online sessions in the synchronous environment as well as some more informal 'water-cooler encounters' among participants in *Lyceums* virtual hallways in between the scheduled events.

The pre-questionnaire (n=25) provided useful bio-data, information about the students' familiarity with ICT, and an initial impression of what they hoped to gain from participating in the project. Most respondents wanted primarily to enhance their speaking (12) and/or listening skills (10) rather than reading, writing or grammar. The data revealed the age disparity among learners (18-69)[6] and revealed that most were confident or at least quite confident ICT users. However, their experience with specific ICT tools such as audio-conferencing and blogs was varied. While the UK learners were already familiar with audio-graphic conferencing via *Lyceum* (their 'natural' tuition environment at the Open University), the French and American students had to be trained in the use of this application. However, more than half of the participants (3 from the UK, 4 from the US, and 7 from France) had already created and managed a blog or at least contributed to one.

[5] Master FOAD : Formation Ouverte et A Distance
[6] Most Open University students are mature learners who take distance courses on a part-time basis

In the next section, we will briefly explore the relevance of modes and affordances for meaning making and communication focusing on the CMC applications used during the project.

3 Audio-graphic conferencing and blogging: modes and affordances

Today, new media offer us the possibility of drawing on a number of different modes in the making of texts[7] such as writing, speaking and the visual and, at first sight, it seems that the resources at learners' and tutors' disposal online replicate those available in more traditional face-to-face classrooms settings. This is a misapprehension, however, as the fact that communication is mediated by the computer has to be taken into account. Thus, the modes and affordances that the computer offers have to be factored in and the issue *how* meaning is made in new multimodal environments such as, for example, audio-graphic conferencing and blogs needs to be addressed.
The conferencing system used in this telecollaborative exchange, *Lyceum,* was developed by the Open University UK's Knowledge Media Institute as an Internet-based application for tutorials combining shared graphics with real-time, online, audio discussion. Its features therefore lend themselves to language tutorials which require high levels of student-student and tutor-student spoken interaction across time zones, geographical space and individual differences. The screenshot in Appendix A shows the voice conferencing facility, the onscreen Whiteboard and the text-chat embedded in the application.

For our project, the use of *Lyceum* was complemented by blogging, a form of micro-publishing, which Williams and Jacobs (2004: 1) describe as follows:

> "Based on the reverse chronological posting of news items, invariably containing hyperlinks to third party sites, and an opportunity for readers to enter personal responses to articles, this otherwise quite organic and unstructured format of delivering information via the World Wide Web (WWW) came to be known as 'blogging', after 'web log' was abbreviated to 'blog'."

The blogging phenomenon started in the late 90s and was originally associated with the publication of simple online personal diaries, hence its immediate popularity among teenagers. From there, it has evolved to the "killer app" (see, e.g., Hiler 2002) that has the capacity to engage people in collaborative activity, knowledge sharing and debate. The screenshot in Appendix B shows an extract from one of the blogs used in the project.

Using an asynchronous environment alongside a synchronous application was based on the idea that a tool, such as a blog, facilitates self-publishing of project work and encourages ownership and responsibility on the part of the participants, who – as Godwin-Jones (2003: 13) points out – are more likely to "be more thoughtful (in content and structure) if they know they are writing for a real audience."

[7] The word 'text' is used here in the wider sense of any artifact produced with the help of representational resources.

In order fully to understand the meaning-making potentials of the modes available in these environments, then, Kress (2003: 32) contends that "we need to attend to […] the *material stuff* that we use for making meaning." While conventional face-to-face instruction happens in classrooms, the "material stuff" in CMC-based learning and teaching is the computer (hardware and software) with its new possibilities for representation and communication and, at times, its limitations. Kress et al. (2001) explain why it is crucial to take "materiality" into account:

> "[E]ach meaning-making system – *mode* – provides different communicative potentials. In other words, each mode is culturally shaped around the constraints and affordances of its medium – its *materiality*."
> (Kress et al. 2001: 15)

Kress' theory of multimodal meaning making can help us understand the constraints and potentials of CMC environments with regard to language teaching and learning in general and telecollaboration in particular. The main affordances of the modes available in *Lyceum* and a blog created and managed within www.blogger.com can be summarized as follows (for a more detailed description of the modes in *Lyceum* see Hampel et al. 2005):

Lyceum

- individual and joint production and manipulation of text and images
- uploading and downloading (from the World Wide Web) of images and texts
- saving of images and text created by learners
- real-time dialogue supported by paralinguistic features such as intonation, pitch, volume and/or pace, a 'raised hand' and an 'away' icon as well as a voting button (yes/no) and a 'gather' button
- simultaneity of audio and text (shared documents and/or chat)
- plenary conference + sub-conferences for pair and group work activities

Blogs

- individual publishing and editing of text and feedback/comment
- publishing of images + text + comment
- posting of text from a word processing application directly to the blog
- posting of feedback/comment
- sending of audio messages (transformed into MP3 files) from telephone to blog or linking to audio and/or video files archived on a server
- archiving of published text (s), comment(s), images and sound files

These environment-specific modes and their affordances determine how such applications can be used for online teaching and learning of languages and cultures, and thus also have an immediate impact on task design for telecollaboration.

In section 4 we illustrate how the activities the learners engaged with in the present telecollaboration project encounter took account of the fact that in terms of materiality the computer medium differs considerably from the resources available in face-to-face classroom contexts.

4. Telecollaboration in multimodal environments: the impact on task design

Until recently, a principled approach to materials design for language learning in multimodal CMC environments remained a desideratum. However, the question as to how tutors and materials developers can optimally use such settings to exploit communication opportunities and foster second language acquisition (SLA) remained largely unanswered (Hampel & Hauck 2004, Hampel et al. 2005, Rosell-Aguilar 2005). Moreover, most of the numerous CMC studies concerned with the examination of written forms of communication and collaboration (see, for example, Cameron 1999a, 1999b, Debski & Levy 1999, Felix 2001) mention task design only in passing and seem to be based on instances where activities trialed and tested in face-to-face classrooms were simply transferred to online contexts. Svenson (2004, quoted in Hampel 2006) calls this the "you do what you did before" approach where traditional classrooms are often virtualized, with their 'old' structures". This leads Chapelle (2003: 135) to the conclusion that the scope of this basic approach to task theory – developed directly from face-to-face tasks in classrooms – needs to be expanded "beyond the types of tasks that have been examined in the past to the types of CALL [sic] tasks of interest to teachers and learners today." Of significance, Doughty and Long (2003) consider the affordances of different media and identify exemplary CALL applications for the realization of a number of methodological principles underpinning task-based language teaching. Yet their observations touch only marginally on CMC and are also limited to its written forms such as, for example, text chat.

In contrast, other researchers take into account explicitly the tutorial environment-specific modes and their affordances, for example, Rossell-Aguilar's (2005) considerations on task design for oral interaction in distance language learning focusing on beginners, Felix's (2005) contribution on "multiplying modalities" for online learners, Hampel and Hauck's (2006) investigations of the demands made on tutors and learners in CMC environments and of ways in which arising pedagogical challenges can be met through task design, and Hampel's (2006) research on task design for intermediate and advanced distance learners of German. In line with Furstenberg (1997), Hampel (2006: 111) stresses that tasks need to be appropriate to the medium and that therefore "an easy (and cheap) transposition of face-to-face tasks to virtual environments is not possible". She also reminds us that we cannot simply assume that learners are familiar with the new media, aware of the affordances and able to use them constructively. Similarly Salaberry (2000: 28) warns that "materials designers need to assess critically the effects of the technological capabilities of […] CMC as well as the features that characterize a potentially new type of literacy" and posits that "[s]uch a critical assessment will have to be based on the analysis of how specific pedagogical objectives are achieved through the design and implementation of instructional activities in CMC environments." Hampel (2006) and Hampel & Hauck (2006) have followed the suggested approach by

a. examining closely the modes and affordances of audio-graphic conferencing – thus critically assessing its "technological capabilities" – (Hampel & Hauck 2006) and by
b. applying the insights gained to task design in the aforementioned distance language learning context (Hampel 2006).

As a result Hampel (2006) provides a comprehensive framework for using tasks in synchronous CMC environments which can be applied to the activities carried out during our project. The following two sections (4.1 and 4.2) illustrate this in more detail before we report in sections 4.3. some of the learner reactions to both the online environments used in the exchange (4.4.1) and to the tasks (4.4.2).

4.1 The tasks: framework and structure

Our specific pedagogical objective was to facilitate and foster student interaction through a series of structured tasks in order to enhance the development of the participants' intercultural communicative competence – comprising skills, attitudes, knowledge, and critical cultural awareness as established by Byram (1997).

The overriding focus of the tasks was on meaning; especially given the varying skill levels among the participants. Tasks moved from closed to open sub-tasks, evolved around "human/ethical topics" (Ellis 2000), were communicative and did not include any focus-on-form oriented activities. They thus reflected most of the features identified by Ellis (2000: 200) as having a positive effect "on the quantity of meaning negotiation likely to take place" such as, for example, "information exchange required" and "two-way information gap" while at the same time encouraging learners to use "narrative discourse" during their interactions.

The tasks also followed a number of criteria for CALL and CMC summarized by Chapelle (2000) such as meaning focus, language learning potential through beneficial focus on form, learner fit, authenticity, positive impact on participants and practicality (i.e. adequacy of resources):

- *Meaning focus*: Communication centered upon intercultural similarities and differences and based on negotiation of meaning needed for language development.
- *Beneficial focus on form*: Although the tasks did not feature especially designed form-focused activities, participants were expected to find out how their partners wanted to be assisted in their language learning and to help them with constructive suggestions and corrections. This approach was based on the Tandem principle of "reciprocal dependence and mutual support" (Little & Brammerts, 1996; see section 2.1).
- *Learner fit and authenticity*: The topics of the tasks were closely related to the syllabus of the course followed by the US students, an elementary French II (second semester) course including cultural background studies. The French participants were a group of teachers primarily interested in investigating the educational potential of online interaction at a meta-level (see section 2.2), and the British learners envisaged the telecollaboration essentially as a means of authentic language practice.
- *Positive impact on participants*: In order to complete the tasks, blog partners had to work together to build on their existing intercultural communicative competence and/or on cultural knowledge they had already acquired either within their course (American and British students) or outside their official studies (French participants).
- *Practicality (adequacy of resources to support use of activity)*: The blog partners drew mainly on personal digital resources such as images (imported)

and drawings (created in *Lyceum* whiteboard) and on material downloaded from the World Wide Web.

Participants had to find, present and evaluate material, providing each other with feedback, asking for cultural clarifications and exchanging ideas. Thus, the tasks promoted collaboration among learners and – to a lesser extent – among learners and tutors who mainly saw themselves as facilitators or managers of the scheduled synchronous sessions, making sure that everybody got their fare share of 'airtime' in *Lyceum* but otherwise taking a hands-off approach whenever possible (Hauck & Hampel, 2005).

The tasks took also account of the affordances of the different modes available in *Lyceum* and the blogs insofar as certain modes were used for certain purposes (see following section).

4.2 Task execution

The task execution incorporated further step-by-step familiarization with the modes in both environments. This applies to the synchronous audio-graphic conferencing application in particular – beyond the initial training sessions (see section 2.1) – in order to foster a systematic increase in the learners "multimodal communicative competence" as defined by Royce (2002: 92) that is, "the ability to understand the combined potential of various modes for making meaning." It was hoped that in this way the project participants would not only develop an awareness of the communicative potential of different modes and of their individual or shared modal preferences as learners (Hampel & Hauck 2006) but that they would also be enabled to make a gradually more informed choice of certain modes for specific intercultural communication purposes. To this end, the preparations for presentations in the scheduled *Lyceum* sessions as well as the execution of the presentations encouraged them to use either separately or jointly

- imported images (*Lyceum* whiteboard/blog) and drawings (*Lyceum* whiteboard) to illustrate spoken input (*Lyceum* audio), captions or shorter written texts (*Lyceum* whiteboard/ *Lyceum* text chat/blog)
- bulleted texts to capture the outcome of brainstorming activities, to take notes and/or to summarize information (*Lyceum* concept map/blog)
- shorter texts to query or comment on issues (*Lyceum* text chat /blog comment)
- longer texts to provide more extended background information on a topic or a specific aspect of a topic (*Lyceum* shared document/blog)

This approach should have allowed project partners to become increasingly versed in multimodality, that is, able "to choose, not merely with full competence within one mode […] but with full awareness of the affordances of many modes and of the media and their sites of appearance" (Kress 2003: 49) and to also experience comparatively higher levels of intercultural knowledge gain through telecollaboration than those unaware of communication modes and their potential for meaning making.

For a variety of reasons, however, only a few students managed to rise to this challenge in the context of the present project. Some explanations are provided in section 4.3.

4.3 Learner reactions to the multimodal online environments and to the task

4.3.1 Reactions to the multimodal environments

The majority of respondents (16) to the pre-treatment questionnaire (n=25) had agreed that 'awareness of the learning environment (i.e. finding out what you can do with tools such as websites, blogs, chat rooms, audio-conferencing, etc.)' was *very important*, if not *essential* when learning a language online and had attributed similar importance to 'support in achieving such awareness (i.e. initial training in the use of the available tools)' and 'choice of tools in online language learning'. Screen recordings of the synchronous sessions show, however, that only a minority of participants were able to make an increasingly informed use of the modes available in *Lyceum* as the exchange was progressing.
One of the French participants – who by virtue of the masters program they were enrolled in, were the group familiar with most online communication tools available today (see section 2.2) – summarizes how she created a sophisticated presentation of her living space including photos and captions, a floor plan of her apartment (drawn in the whiteboard in *Lyceum*), and an accompanying document describing special features – all of which she subsequently also published in her project blog:

[Blog] I'm going to show you my living room: I'm using three different pictures hoping that the comments or the questions will come together in every possible way. (translation)
[Lyceum] I'm putting together a plan of this room on the Lyceum whiteboard and I'm adding to it with photos taken from my apartment (you can see the 'old city' of Besançon in one of the pictures. (translation)
[Blog] I am posting a message in order to present myself briefly. I would prefer to have a longer exchange in Lyceum. (translation)

Most, however, who like this French student contributed to the blogs on a regular basis became confident users of this asynchronous CMC tool. The blogs enjoyed overall greater popularity among the project partners. Yet, the majority had initially expressed a greater interest in practicing their speaking skills (see section 2.2). The UK participants emerged as the most active members in the asynchronous environment with three out of five posting not only to their own but also to other project blogs. This was unexpected as they had originally been closer to *Lyceum* than their counterparts (see section 2.2). Table 1 shows the number of messages sent by UK students overall.

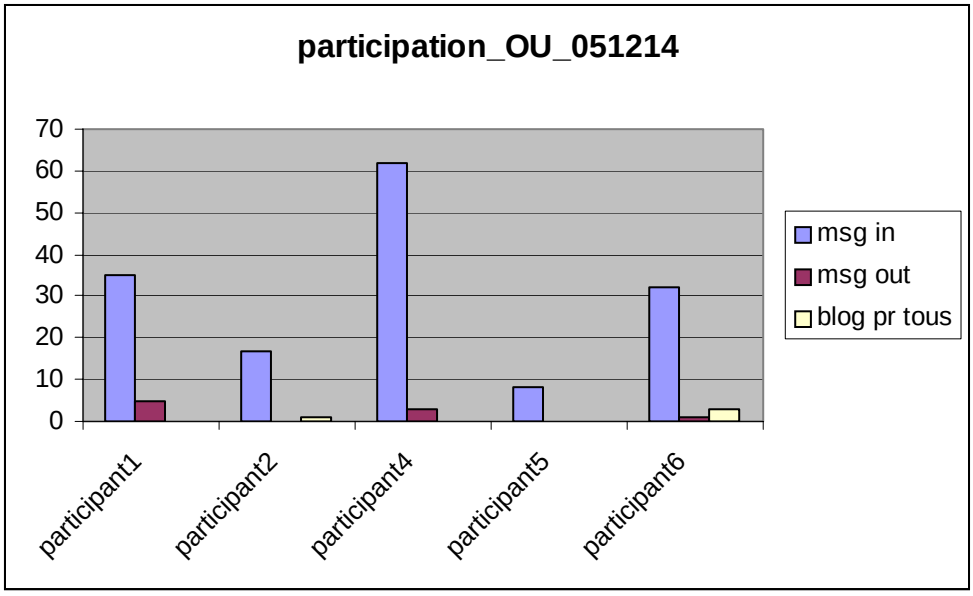

Table 1: Number of messages posted to own blog (blue) and other blogs (purple) by Open University students[8] (Audras and Chanier 2006)[9]

Within *Lyceum*, the text chat which is embedded in the system was most popular among those who responded to the post-questionnaire (n=15) with all learners finding it *useful* and *easy to use*. At first sight, this does seem to indicate advanced levels of multimodal competence as the efficient use of this tool requires learners to read and write text while at the same time concentrating on audio input and/or potentially looking at what is displayed on one of the graphic interfaces (e.g., the online whiteboard). Yet, a closer look at the screen capture recordings verifies that text chat in audio-graphic conferencing is often 'off the topic' and tends to be used by learners for private conversations among themselves 'at the back of a class'. While this can – on the one hand – be interpreted as a sign of growing community spirit among learners, it can – on the other hand – also be distracting and undermine confidence and sense of community and points to the fact that the "success of this type of learning clearly depends on all participants' awareness of the potential uses and abuses of the special affordances available to everyone" (Hampel et al. 2005: 22).

The following quotations illustrate that linguistically less able learners often use text chat in the context of audio-graphic conferencing to compensate for a perceived lack of fluency and that it is a welcome backup when problems with the audio connection occur:
I only used the text chat if somebody else was talking or I couldn't explain something verbally.
US participant

[8] Initially 6 OU students took part in the exchange. One, however, dropped out two weeks into the project.
[9] The 'blog pr tous'/'blog for all' was created during the last project week for those who wanted to continue the online exchange beyond the 'confines' of the task-based work. UK participant 6 was among those who took advantage of this opportunity to continue the exchange with his learning partners.

I had some problems with my audio, so I found it very useful to explain things sometimes.
US participant

However, extensive use of text chat as described above might also indicate that there is a problem with the pedagogical approach underlying the scheduled sessions or with the activities. The latter are explored next.

4.3.2 Reactions to the tasks

The majority (14) of respondents to the post-treatment questionnaire (n=15) found it useful to have a concrete outcome to work towards. Yet, task-specific feedback was less unanimous:

I found them [the tasks] very interesting. Most of the time, we would start out talking about that and end up talking about a completely different topic. For instance, once we started on I think maybe rooms and we ended up talking about grammar in both English and French. It was really neat though to have that base to grow from.
US participant

I found the themes to be not too original and they didn't really offer the opportunity to negotiate, reformulate, to defend ideas.
French participant (translation)

I enjoyed it. I did not find the tasks boring because you could make them as simple or complex as you wanted. People's contributions were interesting and the differences in cultures and lifestyles were fascinating. I found it rewarding.
UK participant

The divergent learner opinions regarding the tasks – reflected in the first two comments in particular – might originate in un/met participant expectations in terms of linguistic progress during the project and corroborate potential weaknesses in the use of technology in language learning and teaching pointed out by Skehan (2003: 404): "If availability of input and also interaction opportunities were sufficient to drive forward language development, the world would increasingly contain dramatically more successful language learners." Referring to the "focus-on-form" literature (Doughty & Williams 1998b; Long & Robinson 1998) Skehan claims that exposure to language is not sufficient. Thus learners might well be devising ways of working with input and engage in communication, but will not necessarily engage their "interlanguage system" (Skehan 1998). He concludes that "learners may, in the interests of task fulfillment, proceduralise strategies of communication in such a way that these strategies become inflexible and make continued progress more difficult […]." (Skehan 2003: 392)

Asked to name up to three new facts they had discovered about their partners' culture(s) in the course of the project, over half of the respondents (9) agreed on having learned more about their partners as individuals rather than about their respective cultures.

The following is a representative selection of answers from those who did name up to three new cultural facts they had learned:

The architecture and home planning is different (open kitchen.… courtyards). School systems are different.
US participant

The respect between age groups is larger than in the states, the fact that she actually was interested in getting to know an American (when I was there the people were awfully mean).
US participant

Eating habits –Life is calmer: a very strong relationship with nature and sports – Very open and curious people.
French participant (translation)

The English are in tune with the world: their familiarity with culture is not limited to their own. – The English admire French culture quite a lot.
French participant (translation)

Two respondents felt that participating in the project had changed their view of their partners' culture(s). One replied:

Yes, for example, I had thought that the English were rather 'reserved', but after the discussions with my partners, I found it to be quite the opposite!
French participant (translation)

Another respondent felt that the project had confirmed her previous impressions about their partners' culture giving the following example:

Their inclination toward sports in the big universities, for example.
French participant (translation)

Asked about the most surprising thing they learned about their partners' culture(s) one student made the following comments:

It really surprised me how similar it was to the US. They have shopping malls outside of the cities as we do here, and they also need cars to get around since there are also some suburbs, much like here.
US participant

Some of these replies left the tutor-researchers with the impression that due to the content of the tasks the project belonged to those cases of Internet-mediated intercultural foreign language education where "exposure and awareness of difference seem to reinforce, rather than bridge, feelings of difference" (Kern 2000: 256) and where – as a consequence of online exchanges which remain superficial – the

outcome is mainly a confirmation of stereotypes (O'Dowd & Ritter 2006). The following translation of a project evaluation published by a French student in her project blog hints at this dilemma linking it to group size in synchronous plenary sessions as well as to time constraints:

> *In the beginning, I thought that the activities were exciting and motivating, especially combined with the discovery of a rich synchronic environment like Lyceum, offering the opportunity to discuss, share experiences with people, some of whom were on the other side of the world. Everything was new, everything was terrific. Then, after the second plenary session [in Lyceum], I had the feeling that we had access to a superb tool, but that it wasn't perhaps being exploited to its maximum potential. Really all that we did was present some aspect of our blog documents and sometimes there were too many presentations (although it is true that the Lyceum's whiteboard allowed us to import pictures and create beautiful presentations). The interactions and ideas couldn't be fully developed because of the time limitations. This led to my feeling of superficiality not only in the plenary sessions but also in the interactions themselves, linked as they were to the mode of communication which led to silences while we were getting used to using the tool. On the other hand, smaller sessions with two to three people [as opposed to the plenary sessions which included seven to eight people] worked great. We had really useful conversations, rich in terms of learning and also in that we were able to be more collaborative using the platform's tools.*

Her observations highlight the impact of the lack of body language in *Lyceum* on immediacy and turn-taking among learners. Although 'yes/no' buttons (signaling agreement/disagreement), the 'raised hand' button (signaling readiness to speak), the 'away' button (signaling that one has left the computer) and 'text chat' for interjections compensate at least partially for the disembodiment, only a few participants were able to use these functions confidently to the intended end. However, this French student does end the summary of her experience on a more positive note, praising the advantage of synchronous online sessions where a smaller number of partners take part and which allow for learner interaction and collaboration in line with the criteria for task design and execution mentioned earlier (see section 4.3). Learner interaction and how it was influenced by the online setting as well as other factors such as learner motivation and emotional stress (Nunan 1999) are the focus of section 5.

5. Telecollaboration in multimodal environments: the impact on learner interaction

Vygotsky's (1978: 88) landmark finding that "human learning presupposes a specific social nature" has been extremely influential for understanding learning processes. That learning arises not *through* interaction but *in* interaction, is a particularly important fact in language teaching, where the linguistic medium is at the same time the learning goal (Wang 2004; Anderson 2003). The development of ICT and the introduction of CMC have radically changed the nature of language learning. As we have seen, learners now have access to multimodal environments that do not only allow for written communication but also include audio and visual elements, creating new learning formats (Hauck & Stickler 2006). Yet, as technologies have been developing faster than pedagogical and methodological reflection, published research

has fallen behind and is mostly limited to non-language contexts (e.g., Augar, Raitman & Zhou 2004).

In a recent study, Heins, Stickler, Batstone & Duensing (forthcoming) have compared the nature and level of interpersonal interaction taking place in face-to-face and online tutorials at the British Open University and proposed a coding system. They identify the use of L1 and L2 and the degree of control and focus with regard to the teaching discourse as key differences in the dynamics of the two learning environments. Some of their findings can help us to understand the interactions which took place in the two online environments used for our telecollaborative exchange (see section 5.1).

Their starting point is Wagner's (1994) concept of interaction which emerged in the context of Open and Distance Learning and comprises the central elements of interaction (reciprocity and mutual influence) without limiting it to specific environments or types of interaction:

> "[R]eciprocal events that require at least two objects and two actions. Interaction occurs when these objects and events mutually influence each other." (Wagner 1994: 8; quoted in Heins et al. forthcoming)

Over the ten weeks of our project such interaction took place asynchronously in smaller groups, i.e. among the partners sharing a blog, and synchronously in the scheduled plenary sessions in *Lyceum* where members of at least two blogs met online. The structure of the tasks also encouraged blog partners, i.e. smaller groups to use the audio-graphic conferencing application for gatherings outside the scheduled events. The main factors influencing success and failure of the exchanges that took place are examined next.

5.1 Critical success factors: Individual learner differences, task design, affective variables and electronic literacy

Over half of all participants responded negatively to the question whether they felt that they were or had become part of an online community during the project. This reaction suggests that combining an asynchronous and a synchronous CMC tool in order to foster interaction among learners and the development of a sense of community did not contribute significantly to achieving the intended pedagogical aim. Lack of time to organize and/or to participate more frequently in informal synchronous gatherings and the comparatively small number of scheduled, tutor-led sessions as well as the age gap among partners seem to have played a role in this regard:

I just don't think there were enough sessions to make me feel like I was part of a community. Also, I didn't have as much time to put towards the meetings as some of the other members did because of my other classes. Since some of them were in their 50's and had a good amount of time to spend I always felt like I wasn't doing enough. I think if we had had more meetings I would have felt more like part of a group.

Table 2 shows that only a few blog partners took the opportunity to use the audio-conferencing system for informal 'coffee house' or 'virtual pub' type of meetings:

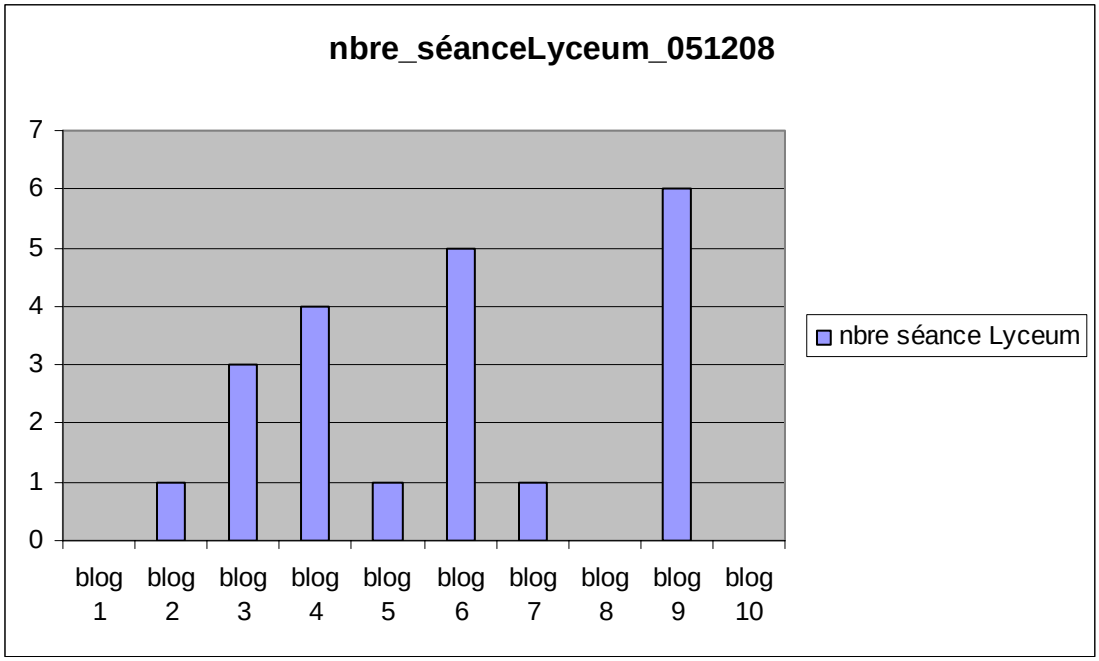

Table 2: Number of informal *Lyceum* sessions per blog (Audras and Chanier 2006)

Those who met never or only once on an informal basis in *Lyceum* mentioned lack of motivation as a result of either lack of interest in the actual tasks or lack of familiarity with the online environment and technical difficulties (see sections 4.3.1 and 4.3.2) as the main reasons. These reactions underpin Hampel's (2006: 112) observations emphasizing the need for tasks that foster a certain type of electronic literacy, i.e. one that "not only includes the technical use of the tools but also certain approaches to learning." She concludes that learners who are used to "more hierarchical and instructivist learning contexts need to be encouraged to make the most of the democratic and learner-centered features that are inherent in many online environments." Yet, her investigations of task design and implementation in synchronous online environments reveal that although activities and learning context might be conducive to students being in charge, there will always be some learners who dominate the interactions. She found more advanced typing skills and technical knowledge and/or greater linguistic competence to be the main reasons for such behavior. The first two of these reasons are clearly linked to the nature of the online environment.

Hampel's observations support those of Jones and Youngs (2006: 276) who indicate that "collaborative aspects, including asynchronous response to classmates' postings on discussion boards and synchronous chat in pairs or small groups with rotating partners, are more effective [for language learning], in that they involve creative and active language use". The fact that – from most participants' point of view – there were too many students involved in the scheduled *Lyceum* sessions and that the learners preferred asynchronous methods of collaboration and idea exchanges, all lead to the same conclusions as those noted by the project participants themselves: unless there are well-constructed tasks, simply participating in a synchronous oral/aural

exchanges does not necessarily lead to effective and motivated language and intercultural learning.

In their post-treatment interviews, the US participants did, in fact, report feelings of inferiority and language anxiety as the main reasons for their diminishing motivation during the project. It has to be noted though that – from the outset of the project – the Americans were different from the French and English students in two significant ways:

- They were at a lower level of competency in French than the British participants (although they were – just like them – native informant experts in English).
- They were much younger than the other learners (on average 20 years old).

These findings highlight the relevance of adequate learner matching procedures in telecollaboration (O'Dowd & Ritter 2006). They also point to the importance of affective variables such as emotional stress and/or "techno-stress" and bear out claims from Hampel et al. (2005: 11) in terms of "the shortcomings of those studies of CMC in language learning which focus exclusively on interactional analysis and cognitive factors."

However, those students who managed to arrange informal synchronous meetings reported that they did feel part of a community. Representative feedback to that effect reads:

I think that the meetings were successful in that we were all able to produce something together. The blog kept the running tally of all of our work. In addition, we had some Lyceum meetings just for the fun of it outside of the regular plenary sessions. The online sessions helped us establish relationships with the other learners. This is why we had a feeling of community.

French participant (translation)

Half of the respondents to the post-questionnaire found 'not seeing or not being seen by the other learners' to be neither a positive nor a negative experience and some (5) even found it to be an outright positive factor. Representative feedback from the latter group is consistent with the fact that the French partners manifested higher confidence levels throughout the exchange:

I've never used an electronic environment with video. But I think that video wouldn't have changed much and would have perhaps led to less verbal interaction. Video can also limit interaction especially where shy people are concerned.

French participant translation

The benefits drawn from working in an asynchronous environment are summarized by participants as follows:

It allowed us to form a sort of relationship which was very conducive to learning. UK participant

I was glad to be able to communicate regularly with the same people. What's more, the fact that we were so few in numbers helped us connect to each other. It's easier to open up, to talk about you, when there's a certain intimacy (that I found in the blog).
French participant (translation)

Some learners found it more difficult to experience such "intimacy" in the synchronous sessions – at least in those that were officially scheduled – which seems to contradict feedback indicating that not seeing but hearing each other can have a positive effect on online student interactions (see above). Yet, findings by Heins et al. (forthcoming) indicate that there tends to be more tutor talk in synchronous online tutorials than in face-to-face settings and that a significant part of it is dedicated to the management of the virtual classroom. This is confirmed by Hampel (2006) who found that audio-graphic conferencing sessions with very small student numbers become more easily tutor-centered. Moreover the lack of body language in such CMC environments makes instructions, turn-taking and feedback more time-consuming. On the other hand, the onus for interaction seems to shift more promptly to the learners when – due to difficulties with the technology – the tutor simply cannot "connect" with the students in the virtual classroom:

Discussion with X1 [student], X2 [student], X3 [student] and X4 [student]. We had to improvise at the beginning of the meeting because the tutor had problems connecting [via Lyceum]. X2 started the meeting and talked about his beehives. I felt free to ask him questions (commerciality, insect stings…) why? Did we take the initiative because the tutor was absent? We talked a lot about movies which led to some pleasant and interesting conversations.
French participant (translation)

The conclusions that can be drawn from the challenges faced by those who took part in this telecollaborative encounter are summarized in the final section of this chapter. Yet, they are only indicative of areas that warrant further rigorous investigations based on a reduced number of uncontrolled variables (see, for example, section 2.2 for the differences characterizing the participating learner groups) and larger target populations.

6. Conclusions

The following list reflects issues to be considered when designing a telecollaborative exchange in terms of the online learning environments used and the potential impact of their respective modes and affordances on task design and learner interaction:

- Success or failure in telecollaboration depends on a variety of interconnected factors, some of which are – as we have seen – related to the learners whereas others are specific to the task and the learning context. Those involved in such exchanges therefore have to take partial interaction failure or even "failed communication" (O'Dowd & Ritter 2006; Hauck, 2007) into account. The latter are telecollaborative encounters which are characterized by low levels of participation and often end in indifference if not tension between participants (O'Dowd & Ritter 2006).

- Although the inherent technological distance imposed by the mediating technology is common to all types of CMC, their individual affordances create distinct learning environments allowing for different "levels of interaction" (Anderson & Elloumi, 2004). Findings deriving from the educational use of written CMC can thus not simply be applied to other types of CMC such as, for example, audio-graphic conferencing.

- The extent to which telecollaborative partners can benefit from an exchange partly depends on their current level of multimodal communicative competence, that is, their ability to make efficient use of the modes for meaning making available to them online in order to engage in interculturally rich interaction.

- Tutors will need to be trained in the design of tasks that systematically develop the learners' electronic literacy skills. Such tasks will make efficient use of multiple modalities so that there is a need for the learners to stretch, change, adapt and modify the means of representation, communication and interaction available to them (Hampel & Hauck 2006; Hauck & Stickler 2006).

- Beyond meaning-based explorations and interactions, task design should also allow participants "to notice features of language, and then develop and consolidate features of language" (Skehan 2003: 404) and thus to focus on form so that they can capitalize on the potential linguistic benefits to be drawn from telecollaborative encounters.

It is true though that a comprehensive pedagogic framework for internet-mediated intercultural foreign language education is still to be created. A dilemma which Thorne (2005) summarizes as follows:

> "[T]he outstanding problem is how conditions for developing a capacity, and perhaps even hunger, for the challenges presented by intercultural communication can be inculcated in instructed FL settings." (Thorne 2005: 4)

A similarly outstanding issue is how a "capacity, and perhaps even a hunger", for the challenges presented by *multimodal* intercultural communication can be inculcated in instructed FL settings.

Thus, increasingly questions of pedagogy and – included in those – issues related to task-based instruction for online learning of language and cultures particularly in synchronous CMC contexts are coming to the fore. They will need to assume even greater – and more sustained – importance, if online language learning is ever going to overcome the stigma of being 'second best' to face-to-face learning and lose the peripheral status which it still seems to have for many researchers (Coleman 2005).

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References

Anderson, T. (2003). Modes of Interaction in Distance Education: Recent developments and Research Questions. In: Moore, M. & Anderson, W. (eds.), Handbook of Distance Education. Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc., 129-144.

Anderson, T. & Elloumi, F. (2004). Theory and Practice of Online Learning. Athabasca: Athabasca University.

Audras, I., & Chanier, T. (2006). Tridem et interaction à l'oral et à l'écrit dans une formation à distance en langue. "Technologies de l'Information et de la Communication pour l'Enseignement supérieur et l'Entreprise 2006". Toulouse : [OAI : oai : archive-edutice.ccsd.cnrs.fr/edutice-00087737_v1]
http://archive-edutice.ccsd.cnrs.fr/edutice-00087737

Augar, N., Raitman, R. & Zhou, W. (2004). Teaching and learning online with wikis. In: Atkinson, R., Mc Neath, C., Jonas-Dwyer, D. & Phillips, R. (eds.), Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference, Perth, 95-104.

Bax, S. (2003). CALL – Past, present and future. System 31 (1), 13-28.

Belz, J. A. (2002). Social Dimensions of Telecollaborative Foreign Language Study. Language Learning & Technology 6 (1), 60-81.

Belz, J. A. (2003). Telecollaboration. Language Learning & Technology 7 (2), 2-5.

Cameron, K. (1999a). CALL & The Learning Community. Exeter: Elm Bank Publications.

Cameron, K. (1999b). Computer Assisted Language Learning (CALL): media, design and applications. Lisse: Swets & Zeitlinger.

Chapelle, C. A. (1998) Multimedia CALL: Lessons to be learned from research on instructed SLA. Language Learning & Technology 2 (1), 22-34.

Chapelle, C. A. (2000). Innovative language learning: achieving the vision. ReCALL 13 (1), 3-14.

Chapelle, C. A. (2003). English Language Learning and Technology. Amsterdam/Philadelphia: John Benjamins.

Coleman, J. A. (2005). CALL from the margins: effective dissemination of CALL research and good practices. ReCALL 17 (1), 18-31.

Debski, R. & Levy, M., eds., (1999). WorldCALL: Global Perspectives on Computer Assisted Language Learning. Lisse: Swets & Zeitlinger.

Doughty, C. & Long, M. (2003). Optimal psycholinguistic environments for distance foreign language learning. Language Learning & Technology 7 (3), 50-80.

Doughty, C. & Williams, J. (1998a). Focus on form in classroom second language acquisition. Cambridge: Cambridge University Press.

Doughty, C. & Williams, J. (1998b). Pedagogic choices in focus on form. In: Doughty, C. & Williams, J. (eds.) Focus on form in classroom second language acquisition. Cambridge: Cambridge University Press.

Ellis, R. (2000). Task-based research and language pedagogy. Language teaching Research 4 (3), 193-220.

Erben, T. (1999) Constructing Learning in Virtual Immersion Batch: LOTE Teacher Education through Audiographics. In: Debski, R. & Levy, M. (eds.), WorldCALL: Global Perspectives on Computer Assisted Language Learning. Lisse: Swets & Zeitlinger, 229-248.

Felix, U. (1999). Web-Based Language Learning: A Window to the Authentic World. In: Debski, R. & Levy, M. (eds.), WorldCALL: Global Perspectives on Computer Assisted Language Learning. Lisse: Swets & Zeitlinger, 85-98.

Felix, U. (2001). Beyond Babel: language learning online. Melbourne: Language Australia Ltd.

Felix, U. (2004). Performing beyond the comfort zone: Giving a voice to online communication. In: Atkinson, R., Mc Neath, C., Jonas-Dwyer, D. & Phillips, R. (eds.), Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference, Perth, 284-293.

Felix, U. (2005). Multiplying Modalities: Opening up the Fourth Dimension to the online learner, JALT CALL Journal 1 (3), 17-32.

Furstenberg, G. (1997). Teaching with Technology: What Is at Stake? ADFL Bulletin 28 (3), 21-25.

Gass, S. (2003). Input and Interaction. In: Doughty, C. & Long, M. (eds.), The Handbook of Second Language Acquisition. Oxford: Blackwell, 239-240.

Gass, S. & Varonis, E. M. (1994). Input, interaction, and second language production. Studies in Second Language Acquisition 16, 283-302.

Godwin-Jones, R. (2003). Emerging Technologies. Blogs and Wikis: Environments for Online Collaboration. Language Learning & Technology 7 (2), 12-16.

Hampel, R. (2003). Theoretical perspectives and new practices in audio-graphic conferencing for language learning. ReCALL 15 (1), 21–35.

Hampel, R. (2006). Rethinking task design for the digital age. ReCALL 18 (1), 105-121.

Hampel, R. & Hauck, M. (2006). Computer-mediated language learning: Making meaning in multimodal virtual learning spaces. JALT CALL Journal 2 (2), 3-18.

Hampel, R. & Baber, E. (2003). Using internet-based audio-graphic and video conferencing for language teaching and learning. In: Felix, U. (ed.), Language Learning Online: Towards Best Practice. Lisse: Swets & Zeitlinger, 171-191.

Harasim, L. (1990). Online education: Perspectives on a new environment. New York: Praeger.

Hauck, M. (2007). Critical success factors in a TRIDEM exchange. ReCALL 19 (2), 202-223.

Hauck, M. & Hampel, R. (2005). The challenges of implementing online tuition in distance language courses: Task design and tutor role. In: Holmberg, B., Shelley, M. A. & White, C. (eds.), Languages and Distance Education: evolution and change, Clevedon, Multilingual Matters, 258-277.

Hauck, M. & Lewis, T. (in press). The Tridem project. In: O'Dowd, R. (ed.), On-line Intercultural Exchange: A Practical Introduction for Foreign Language Teachers. Clevedon: Multilingual Matters.

Hauck, M. & Stickler, U. (2006). What does it take to teach online? CALICO Journal 23 (3), 463-475.

Heins, B., Stickler, U. Batstone, C. A. & Duensing, A. (forthcoming). Spoken Interaction in Online and Face-to-face Language Tutorials.

Hiler, J. (2002). Blogs as disruptive tech: How weblogs are flying under the radar of content management giants. [Retrieved 26 September 2006] http://www.webcrimson.com/ourstories/blogsdisruptivetech.htm

Jones, C. M. & Youngs, B.L. (2006). Teacher Preparation for Online Language Instruction. In: Hubbard, P. & Levy, M. (eds.), Teacher Education in CALL, John Benjamins: Amsterdam, 267-280.

Kern, R. (2000). Literacy and Language Teaching. Oxford: Oxford University Press.

Kress, G. (2003). Literacy in the New Media Age. London: Routledge.

Kress, G. & van Leeuwen, T. (2001). Multimodal Discourse: The modes and media of contemporary communication. London: Arnold.

Kress, G., Jewitt, C., Osborne, J., & Tsatsarelis, C. (2001). Multimodal teaching and learning: The Rhetorics of the Science Classroom. London and New York: Continuum.

Little, D. & Brammerts, H. (1996). A Guide to Language learning in Tandem via the Internet. Dublin: Trinity College, Centre for Language and Communication Studies.

Lamy, M.-N. & Goodfellow, R. (1999). Reflective Conversation in the Virtual Language Classroom. Language Learning & Technology 2 (2), 43-61.

Long, M. & Robinson, P. (1998). Focus on Form: Theory, research, and practice. In: Doughty, C. & Williams, J. (eds.), Focus on form in classroom second language acquisition. Cambridge: Cambridge University Press, 15-41.

Nunan, D. (1999). Second Language Teaching and Learning. London: Newbury House.

O'Dowd, R. (2005). Negotiating sociocultural and institutional contexts: The case of Spanish-American telecollaboration. Language and Intercultural Communication 5 (1), 40-56.

O'Dowd, R. and Ritter, M. (2006). Understanding and Working with 'Failed Communication' in Telecollaborative Exchanges. CALICO Journal 23 (3), 623-642.

Pring, R. (2002). Action research and the development of practice. In Pollard, A. (ed.), Readings for reflective teaching, London & New York: Continuum, 33-35.

Rosell-Aguilar, F. (2006). Online tutorial support in distance learning through audio-graphic SCMC: Tutor impressions. JALT CALL Journal 2 (2), 37 – 52.

Rosell-Aguilar, F. (2005). Task design for audiographic conferencing: promoting beginner oral interaction in distance language learning. Computer Assisted Language Learning 18 (5), 417-442

Royce, T. (2002). Multimodality in the TESOL Classroom: Exploring Visual-Verbal Synergy. TESOL Quarterly 36 (2), 191–205.

Rüschoff, B. & Ritter, M. (2001). Technology-Enhanced Language Learning: Construction of Knowledge and Template-Based Learning in the Foreign Language Classroom. Computer Assisted Language Learning (Special Issue: Theory and Practice: The German Perspective) 14 (3-4), 219-232.

Salaberry, M. R. (2000). Pedagogical Design of Computer Mediated Communication Tasks: Learning Objectives and Technological Capabilities. The Modern Language Journal 84 (i), 28–37.

Shield, L., Hauck, M. & Hewer, S. (2001) Talking to strangers – the role of the tutor in developing target language speaking skills at a distance. In: Kazeroni, A. (ed.) Proceedings of UNTELE 2000, Volume II, Technological University of Compiègne, 75-84.

Shield, L. & Weininger, M. J. (2004) Log files revisited: a qualitative analysis of online discourse as a tool for teachers. TEL & CAL Magazine 2, 6-12.

Skehan, P. (2003). Focus on Form, Tasks, and Technology. CALL Journal 16 (5), 391-411.

Skehan, P. (1998). A cognitive approach to language learning. Oxford: oxford University Press.

Svensson, P. (2004). Dispelling the Myth of the Real in Educational Technology. Paper presented at the Open University, Milton Keynes, UK.

Thorne, S. (2005). Internet-mediated Intercultural Foreign Language Education: Approaches, Pedagogy, and Research. CALPER Working Paper Series No. 6. The Pennsylvania State University, Center for Advanced Language Proficiency Education and Research.

van Dijk, J. (2005). The deepening divide: Inequality in the information society. London: Sage.

Vetter, A. & Chanier, T. (2006). Supporting oral production for professional purposes in synchronous communication with heterogenous learners. ReCALL 18 (1), 5-24.

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge/MA: Harvard University press.

Wang, Y. (2004). Distance Language Learning: Interactive Fourth-generation Internet-based Videoconferencing. CALICO Journal 21 (2), 373-395.

Warschauer, M. (1996). Telecollaboration in Foreign Language Learning. *Proceedings of the Hawai'i Symposium.* Honolulu, HI: University of Hawai'i, Second Language Teaching and Curriculum Center.

Warschauer, M. (1997). Computer-Mediated Collaborative Learning: Theory and Practice. The Modern Language Journal 81 (4), 470-481.

Warschauer, R. & Healy, D. (1998). Computers and language learning: An overview. Language Teaching 31, 57-71.

Warschauer, M. & Kern, R. (2000) (eds.). Network-based Language Teaching: Concepts and Practice. New York: Cambridge University Press.

Weininger, M. J. & Shield, L. (2003). Promoting Oral Production in a written channel: an investigation of learner language in MOO. Computer Assisted Language Learning 16 (4), 329-349.

Williams, J. B. and Jacobs, J. (2004). Exploring the use of blogs as learning spaces in the higher education sector. Australasian Journal of Education Technology 20 (2), 232-247.