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Oral conversations online: Redefining oral competence in synchronous environments

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Abstract

In this article the focus is on methodology for analysing learner-learner oral conversations mediated by computers. With the increasing availability of synchronous voice-based groupware and the additional facilities offered by audio-graphic tools, language learners have opportunities for collaborating on oral tasks, supported by visual and textual stimuli via computer-conferencing. Used synchronously with real-time voice-based work, these tools present learners with the challenge of learning a new type of oral interaction, and researchers with the need for developing methodologies for redefining L2 oral competence in these environments. In this paper we address the latter. We examine approaches from the interactionist branch of Second Language Acquisition research, and we question the ability of this model of language learning to fully account for the processes that take place when learners are interacting with machines while talking to each other. To complement the socio-cognitive insights of that school, we look to interactional linguistics and to social semiotics. Building on findings from these fields, we offer a qualitative discussion of the discourses evidenced in conversational data from two distance-learning projects that use synchronous voice in conjunction with other stimuli, in an intermediate French programme at the UK Open University. We then present detailed conclusions about the methodological challenges involved in analysing the oral competence of students who use these tools.

1 Introduction

The objective of this paper is to set out parameters for addressing the question: what is oral competence on line? The literature on language-learning and synchronous Computer Mediated Communication (CMC) has until now concentrated mainly on written communication. For example in a recent paper Hampel (2003: 28) reviewed 16 studies of written CMC, yielding 14 major findings about benefits to language learners, as against five studies on synchronous audio yielding only four findings associated with learning in this mode.

Some researchers have compared CMC with the 'real thing', i.e. a face-to-face conversation in the target language. Others have been more interested in comparing asynchronous and synchronous CMC. Much less attention has been devoted to the specificity and the materiality of the tool itself. To the best of our knowledge, recognition of the fact that synchronous CMC users sit in front of a screen, that they

click, type or drag a mouse, and an understanding of the consequences of this for the processes of the interactive productive skills are under-represented in the literature.

Perhaps because it feels 'real' to hear a voice and to be heard in real time, and because of widespread familiarity with ways of communicating on the telephone, there is a temptation for users of voice-based synchronous CMC to approach these tools with expectations based on those familiar experiences. As Parks, Huot, Hamers and Lemonnier (2003: 29) note: "far from revolutionising existing practices, [the tools are often used] by the teacher to fit in with the habitual ways of doing things". The focus of our study will be on voice-based synchronous CMC as a specific mode supporting conversations that are both different from face-to-face ones, and influenced in significant ways by the interactions of learners with each other, i.e. "human-machine-human" interaction (Hutchby, 2001: 8), through graphical interfaces. For the purpose of this study we will define a graphical interface as a set of graphic symbols on the screen, which users click and manipulate with their mouse, triggering certain actions that facilitate or enable their interaction with the rest of the group.

We will consider some empirical studies in both written and spoken CMC and synchronous CMC in language-learning contexts, and argue that with very few exceptions, they fail to consider the totality of the meaning-generating experience of learners operating in synchronous CMC. We will offer an approach to analysing meaning-making in these environments, with a view to identifying specific competences that conversationalists deploy when using synchronous CMC as part of a language-learning programme. To this end we will look for support to interactional linguistics and social semiotics (and its offshoot, multimodality research). We will illustrate our points with learner data from two voice-based conferencing settings at the UK Open University.

2 Analysing conversations in technological settings

2.1 Conversational analysis

Studies of discourse are based on a number of theoretical traditions and discourse encompasses phenomena ranging from silence to a single utterance (such as "OK") to a novel, a set of newspaper articles or a conversation. Conversational analysis (CA) refers to a type of discourse analysis that takes conversations as its object. Prior to the advent of CMC, CA research used material collected in classrooms, 'natural' domestic conversations or mediated conversations such as those occurring in the semi-formal environment of a recording studio. In the Hallidayan tradition, conversations were analysed in terms of coherence from topic to topic or conversational 'floors' (Halliday & Hasan, 1976). Schegloff (1979) worked towards a formalist grammar of interaction using conversational turns, i.e. instances of a speaker taking his or her turn to talk, as the unit of analysis. For those researchers who started studying the language-learning benefits of CMC in the mid-nineties, conversational turns and formal properties of conversations provided methodological reference points.

2.2 Interactional second language acquisition and written CMC

Below, we will review the work of several Interactionist Second Language Acquisition

(SLA) researchers who used CA-derived methods to evaluate the socio-cognitive processes underlying L2 learning in asynchronous learning management environments and more recently in chat rooms, MOOs and MUDs, with a view to discovering whether there were language-learning benefits to be had by asking learners to work within these environments.

Chun (1994) was an early attempt at making sense of CMC learner behaviour, taking the conversational turn as her minimal unit of analysis. One of her conclusions was that in online exchanges learners take on a greater part of the class-management discourse than in face-to-face communication. Although the 'fading out' of the dominant tutor and the emergence of the initiative-taking learner (as by-products of going on line) were not news to the CMC research community, Chun was the first writer to show that learners were taking on these more managerial roles in the L2 also. Chun's learners produced the type of discourse that the institution had asked them to engage in (i.e. 'talk' about the task), but also other types, for example 'group-management' and 'task-management' discourses. But from Chun's data it was not possible to tell to what extent the 'management' discourse was transferred from familiar socio-educative practices, such as small-group work in student-centered classrooms, (where learners take more responsibility for managing the process than in plenaries), and to what extent it was specific to the CMC environment. This is an important question, as the findings of Chun were based on the work of students at a campus university who had frequent face-to-face encounters.

Pellettieri (2000) concentrated on finding – within her CMC learners' discourse – indications that they were negotiating meaning. She found that her learners were seeking confirmation, checking comprehension, requesting clarification, reformulating and paraphrasing. She did not, however, indicate to what extent these negotiations were part of task-related discourses or part of other types of discourses (such as off-task chatter or exchanges related to help with the technology).

Blake (2000) examined the role played by task design on the quality of interactions in a chat programme with a whiteboard. He showed which type of tasks were more successful (i.e. more conducive to learner-learner interaction) than others. He also showed that learners shared insights with each other about lexical matters, though not so much about grammar, and that they were involved in much non-task-related chat. Thus Blake clarified the relationship between the learners and the content, but he did not address the question of whether the successful tasks were those that involved more learner-machine interaction, or less, or whether there was any connection at all between task-type and learner-machine interaction.

Negretti (1999) analysed data from a Webchat interaction between native and non-native speakers. Her objective was to find out "whether Webchat implies a reduction of the range in interactional practices, actions performance, sense making, and meaning negotiation, thus affecting the SLA process" (p. 75). To this end, she examined recurrent linguistic structures (such as introductions, greetings, conclusions and turn design), but also paralinguistic and pragmatic features, such as the use of upper case, punctuation, onomatopoeia and emoticons. In the terms of our present study (identifying those discursive practices that develop as a function of the tool), the attention accorded to those devices is a step forward.

Studies such as Sotillo (2000), Tudini (2003) and Noet-Morand (2003) are showing an interest in the material effects of the tool on discourse, but as they are investigating

written synchrony, the tools used are relatively simple and their discussion of technological features is not extensive. Sotillo studied syntactic complexity in online written discourse and only noted the effect of one material constraint on learner interaction: message size. Tudini looked at markers of interactive discourse such as questions and feedback tokens in chat room conversations, and noted that the dynamic quality of the interaction was high, but wondered whether this might be related to the small size of her groups (3–4 students), leaving open the question of what forms the discourse might take in the case of attendance by the higher numbers that the technology of chat rooms could support. Noet-Morand shows the translation into keyboard practices of cultural practices such as kissing on meeting (widespread in Latin cultures), pointing out that Anglo-American students have to learn not only to recognise that "xoxoxoxoxo" means "kiss-kiss!" (as in "Salut Karinne, xoxoxoxox"), but must also learn to remember to "xoxoxoxox" when they meet a familiar name in a chat room.

2.3 Interactional linguistics

Mondada (2001: 8), working in a non-educational setting, pointed out the fragility of the conversational turn as a unit of analysis as soon as the domain of analysis is widened to include the non-verbal aspects of conversations, i.e. body language, looks, and the "material, spatial and technological environments" within which they are situated. Those, she says, have a "structuring impact" on the collective conversational output. Seeking to establish the founding principles of an 'interactional linguistics' which would take account of the real situations that preside over linguistic exchanges, Mondada studied a televised political debate. Her analysis involved the linguistic material of the debate, but also a grammar of presentational devices (such as split screens and camera movements), whereby meaning is created for the viewer. She claimed that "whenever the screen image is available to studio participants while they are debating – which is often the case in political programmes – it has a retroactive effect on their behaviour, in the sense that the behaviour is not only a response to actions by interlocutors but also a response to how the behaviour itself is framed by the camera" (2001: 9). In other words interacting means exercising competence not only in matters of language but also over all the tools brought into play in the particular communication context.

We can transfer Mondada's television example to a context closer to ours, e.g synchronous CMC for L2 learning. For example, an instructor wishing to paste an image to a whiteboard will need to be aware of the download constraints on students who may be connecting from home with old equipment, and of the visual changes that the picture may undergo once viewed on different browsers. The following example from our own data will illustrate how meaning-making behaviours can be shaped by technological constraints.

A group of UK-based learners of French was engaged in a collaborative task via a computer conference involving voice and whiteboard: they had to decide on the best accommodation for a particular family, based on a group discussion of six photographs of accommodation in a French seaside town. One student's browser displayed one of the images in such an unclear way that she 'saw' it as a multi-storey car park, whereas the others could 'see' a block of high-rise seaside flats. This gave rise to a debate about architectural differences between British and continental European coastal resorts, and

whether continental preferences for 'soulless high-rise' made you feel as though you were vacationing in a multi-storey car park or not. This conversation took up the time that the instructor had intended to devote to the role-play. Authentic intercultural learning outcomes were created and although the fact that they were unplanned or 'contingent' (van Lier,1996: 175–178) might have led the tutor to discount them as peripheral to the learning programme that she was hoping to deliver, they were nevertheless an instance of social meaning-making.

Taking into account the wider context of social practices – as in the television debate and the seaside resort examples – "has as its immediate consequence a challenging of the pertinence of the classical units of analysis, such as the conversational turn" (Mondada, 2001:5, our translation). This interest in a wider context is supported by authors working on language-learning contexts, as well as by those in what is sometimes called the field of 'new literacies'.

2.4 Social semiotics and multimodality

Batstone (2002) re-examined the SLA-derived concepts of 'intake', 'noticing' and 'pushed output' in the light of a refined notion of context. What is of interest in the terms of our study is the attention granted to the external context and to what Batstone calls 'discourse' but which for reasons of clarity we shall call 'setting'. Batstone examined settings in which the language is used for communication and those in which it is used for learning and found that in a learning setting "internal cognitive resources and the external context interact in ways quite distinct from the communicative norm", and that "the learners' orientation to language and to context is transformed. Rather than engaging with language as a resource in reference to context, the learner engages with context as a resource in reference to language" (2002: 23). Thus when hearing someone call for '*la carta*' in a restaurant, participants in a learning setting "would be in a position to make sense of '*la carta*' (and to infer its meaning: the menu) if they are prepared to heed the context as it is played out before them, accessing their relevant schematic knowledge (about what typically happens in restaurants) and drawing the requisite inference from context to (in this case) a novel lexical item." Extending Batstone's observations to users of computer conferencing systems involving technologies not yet in general use, it is relevant to ask whether their relevant schematic knowledge is reduced, and in what way this affects their oral production.

Jewitt *et al.* (2001) have worked with face-to-face science classrooms on the principle that instances of meaning-making in classrooms are much more complex processes than socio-linguists had assumed. They stress the mutliple nature of communication, critiquing the dominance accorded to linguistic communication, to the detriment of visual and 'actional' communication: "occasions of communication always draw on a multiplicity of modes of communication at the same time. When we speak we also make facial expressions, we gesture, stand at a certain distance and so on, all of which make meaning together. This ensemble of modes we regard as the normal condition of communication and we refer to that as multimodal communication or as multimodality" (2001: 6). The concept of multimodality is particularly relevant to the learning settings examined in this paper, since they combine audio channels with visual ones (i.e. graphical interfaces), and involve 'actional' ones (i.e. manipulating the computer environment).

3 Hypotheses and research questions

The central aim of this paper is inspired by the assumption that if interactional linguisticians and social semioticians are right, there must be a need for learners to have combined competences in receptive and productive skills in several modes of meaning-making. We start from assumptions that:

- engagement of the learner with the linguistic and other objects available within the learning environment influences the quality of the learning by triggering learning adjustments;
- discourses and other artefacts (such as logs, user-created or automatic) produced by learners in the learning environment are the traces of those learning adjustments.

We therefore need to understand what discourse and other artefacts can be found in synchronous CMC via voice-enabled systems, and to understand how the learning adjustments, singly and together, affect learning outcomes.

To summarise, in order to define oral competence in a multimodal learning environment we must include accounts of the discourse that is produced by the interactants (as in traditional interactional SLA), to which we must also add accounts of:

- the materiality of the tool involved (interface and hardware);
- the pedagogical philosophies that underpinned the design of the tool (if it was locally created) or that guided its selection (if the institution leased or bought it);
- the social relationships between the interactants (e.g. of power, exerted within the institution where the learning is taking place);
- the materiality of the learning situation (e.g. in a language lab or in the participant's office, or home).

This is what we will address in the rest of this paper but firstly we will make a brief mention of the work of one L2 researcher who studied a voice-enabled synchronous CMC environment, and who in our view begins to address these requirements: Erben (1999).

4 An example of an analysis of voice-based synchronous CMC

Erben conducted an experiment using audio-graphics with trainee teachers of languages in an immersion learning setting. As these student-teachers would be called upon to teach a widely dispersed population (of Central Queensland pupils), it was imperative that they should understand how to teach on line. Erben asked how interaction occurs in an audio-graphic environment, and what constraints or facilitations are available to learners as the result of the features of the technology. His descriptive metaphor is that of 'amplification' or 'reduction' of interactive practices. 'Amplification' refers to those classroom discursive practices which, because of the nature of the mediated interaction at a distance, participants need to modify – in terms of increasing the production, frequency and/or intensity of cues, signs and behaviours – in order to achieve the same desired effect as if the same cue, sign or behaviour was produced in a face-to-face

classroom. By 'reduction', Erben means the converse, i.e. a diminution of frequency or intensity of discursive practices. Table 1 is an illustration, based on a selection of his examples (Erben, 1999: 237–238).

According to Erben, the main events happening during the learning process can be described as 'discontinuities' that occur in the management of conversations. "The nature of these discontinuities, rather than inhibiting or reducing the opportunity to learn, often 'worked' strategically and effectively to enhance professional development opportunities" (1999: 244). To interpret this claim, we could say that the modified practices in the right hand column push learners into modifying their output (remembering that 'pushed output' is not necessarily 'more complex' or 'lengthier output', but can be

Table 1. *Impact of the technology on some discourse practices in Erben (1999)*

Behaviour triggered by the tool	*Impact on discourse practice*
Reduction in contextual information Participants do not know where others are, what others look like, what others are wearing and what time it is in their location.	Reduction in the number of inter-personal exchanges
Loss of extra-linguistic semiotic indices Participants do not know whether others are displaying body language expressing nervousness, annoyance, approval, scepticism, amusement etc.	(a) Reduction in the number of interpersonal exchanges. (b) Amplification of the use of discourse strategies such as repetition, redundancies, comprehension checks.
New semiotic indices Use of stylised punctuation and of emoticons, particularly where chat is happening in parallel with voice-communication.	(a) Amplification in the volume of symbolic exchanges. (b) Amplification of vocal production (articulating exaggeratedly to compensate for sound channel problems).
Risk of ambiguity due to loss of clues (referred to above)	Reduction or amplification of discursive practices to minimise this risk (i.e. reducing linguistic complexity in order to ensure simple unambiguous utterances; amplifying by explaining, paraphrasing etc, to reduce this risk).
New learner behaviours (to solve difficulties arising out of human-machine interaction)	(a) Reduction in the number of programmed tasks accomplished (due to the increase in waiting time between turns). (b) Amplification: more group-management by students. Pressure on peers to cooperate with each other. (c) Amplification of modal functions: multimodality.
New teacher behaviours	Amplification of strategic/planning behaviours (by instructors) leading to reduction of flexibility (for learners).

'more concise' or 'reduced' output too).

Following Erben, it is sensible to suppose that, faced with these discontinuities, participants will either give up or persevere. Those who persevere must by definition be those who have successfully constructed a strategy for progressing with the learning task, despite and through these obstacles. My assumption is that they are not only constructing but also co-constructing a learning process, and my further assumption is that their L2 learning benefits from this.

5 Data and discussion

Language students at the UK Open University are adults studying French, German or Spanish. The data to be discussed in the next section come from two different groups of higher-intermediate learners of French working with a task-based programme involving role-plays and other debates.

At the Open University attempts were made as early as 1997 to bring together geographically dispersed students into virtual tutorials which they access from their homes. Hewer and Shield (2001) describe the chronology of this in detail. Here is a summary of the tools used: in 1995–96 telephone conferencing was used; in 1997–98 telephone conferencing was enhanced by email communications; in 1998–99 a voice-over-Internet environment, comprising voice and text chat, called 'VoxChat' was adopted. The VoxChat experiment provides the first batch of examples in the sections that follow.

5.1 Characteristics of VoxChat

Here are the characteristics of VoxChat that are relevant to our study (see Figure 1).

- 'rooms' metaphor: on logging into VoxChat, the student goes to the 'room' allocated to the group by clicking on the appropriate name in the list provided. Permanent breakout 'rooms' can be created as can temporary 'rooms' as the need arises. (For the purposes of the course which our data is taken from, the 'rooms'
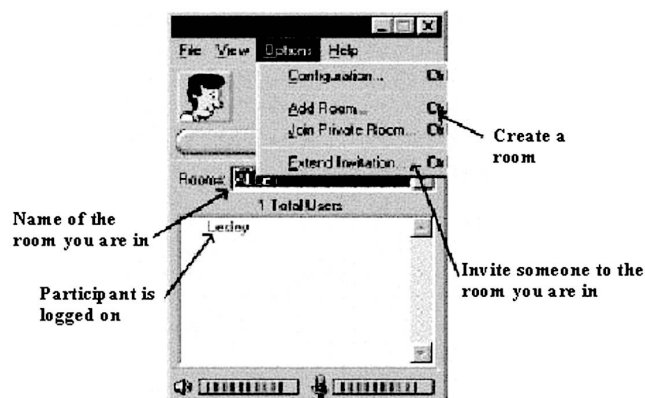

Fig. 1. VoxChat screen.

metaphor has been adapted to become a 'towns' metaphor);

- identification of speakers and turn-taking: a microphone icon is displayed against the name of the person who is talking;
- inviting people: participants can talk to someone who is in a different 'room' or 'town' to theirs, and invite them to join in with them.

5.2 Discussion of the VoxChat data

The first example (see Table 2) involves a tutor and two students. It starts at the end of a role-play in which small groups were asked to invent gadgets for making life easier. The

Table 2. *VoxChat example 1*

Tutor:	Ah donc, c'est le recyclage parfait, alors!	Ah OK, so it's a perfect way of recycling things!
D:	Oui exactement. *Il faut que je m'excuse un moment parce que le téléphone sonne.*	Yes exactly. *I'm sorry I must just go and answer the phone.*
Tutor:	Bien, alors A, qu'est-ce que vous avez fait, vous?	Right, OK A, what did your group do, then?
A:	Nous avons inventé une chose très simple que nous avons appelé la 'couette rapido'…	We invented a very simple thing, which we called the 'rapido duvet'…

Table 3. *A competence model for the behaviour of D in Example 1*

Competence type	Competence indicators
Linguistic-functional	Preserves functional coherence by the use of the function 'apologising'. Thus the disjunction between the topic 'inventing gadgets' and the topic 'phone ringing' is minimised.
Socio-cultural	Conforms to the social code (shared by the cultures of all participants) requiring that you provide a reason for abandoning a conversation.
Institutional	Explicitly signals the introduction of an extrinsic type of discourse (domestic) into the existing discourse (institutional).
Environmental	Shows good understanding of the facilities offered by the environment. Student shows that she knows that: • the push-to-talk device means that other participants cannot hear the background noises in each other's homes, such as a phone ringing. • the name display system 'obliges' her to declare her forthcoming absence (if she didn't, yet her name remained displayed, others might assume she was logged on but silent for some reason).

utterance in italics introduces a disruption to the conversation and an apology from student D, whose telephone has started ringing nearby.

Payne and Whitney (2002) found that online presence is linked to expectations of participation: "In an online environment, non-participation equals non-attendance. If a student goes for more than a couple minutes without contributing to the conversation, fellow group members often inquire as to his or her whereabouts." Here the display of D's name in the 'users' box may have an effect on D similar to that observed by Payne and Whitney. A full account of D's conversational gambit (in italics in Table 2) requires that we use several analytical perspectives. Table 3 gives an idea of the types of competence to which D's behaviour relates in this instance.

The second example involves three students. As they conclude a small-group session mostly conducted without their tutor (called B) they are unsure how to prepare for the following week's tutorial (see Table 4).

Using the same analytical categories as above, we can see that, like D, A is also exhibiting elements of different competence types. The unit of analysis is the utterance in italics. At the start of the exchange the contexts are situational (without further tutorial input the group is unable to deal with process), and environmental (the tutor is logged on

Table 4. *VoxChat Example 2*

T:	C'est necessaire que nous ecrivons?	Do we have to write something?
C:	Je ne sais pas. Je ne sais pas.	I don't know. I don't know.
A:	Je sais que je ne serai pas ici la semaine prochaine. Et je ne sais pas qu'est-ce qu'il va arriver. Peut-etre il faut demander a B? *Je vais l'appeler..*	I know I won't be here next week And I don't know what's supposed to happen. Maybe we should ask B. *I'll call him.*
	Silence 9 seconds, while A calls B by clicking the 'invite' button	
A:	Salut, B. …nous nous demandons qu'est-ce qu'il arrivera la semaine prochaine.	Hello, B. …we were wondering what's going to happen next week?

Table 5. *A competence model for the behaviour of A in Example 2*

| Competence type	Competence indicators
Linguistic-functional	Can express a future course of action.
Socio-cultural	Faced with perplexity (from T) and indecision (from C), student A assumes leadership.
Institutional	Student facilitates resolution of the process issues that were an obstacle to group progression.
Environmental	Student understands the 'invitation' device and its attendant technical drawback (sound cannot be transmitted while the 'invitation' operation takes place). Her declaring what she will do makes the following 9 second silence understandable to her peers.
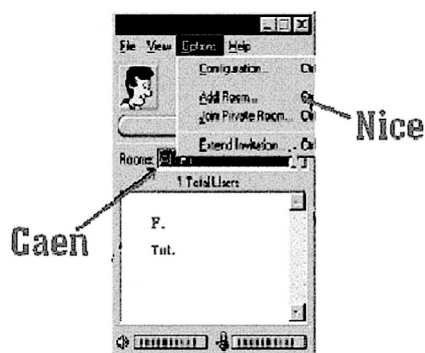
Fig. 2. Management of space in VoxChat via the 'rooms/towns' metaphor.

to a different 'room'; the 'invitation' button has to be clicked before his attention can be attracted) – see Table 5.

The third example involves the tutor and one student, both logged on to a 'room', which for the purpose of the role-play has been given the name of a real French town, Caen.

Below we have reconstructed a screen image to give an idea of the room/town metaphor for that particular tutorial (see Figure 2).

Student F and the tutor are expecting a third person to log on, and they have the exchange shown in Table 6. The ambiguity, preserved in the translation, runs through the three turns and revolves around the 'real' town of Nice (on the French Riviera, where it is true to say that in general the weather is better than in the Normandy town of Caen) and the VoxChat 'room' called 'Nice', where the missing participant may or may not be logged. Using the competence grid approach, the multiple competences displayed by F in this example are shown in Table 7.

5.3 Characteristics of Lyceum

The next section looks at further examples, this time from the Lyceum environment. Lyceum was a development from VoxChat but it also offered an interactive whiteboard and, ultimately, a concept mapper, a screen grabber, a shared document facility with dedicated collaborative work tools and recording facilities for all participants (armed with the requisite permissions) to record the conversation of the group to which they belong for purposes of later revision or reflection (see Figure 3).

Table. 6. *VoxChat example 3*

F:	Il n'est peut-être pas arrive.	Maybe he's not here yet.
	Il est peut-être encore à Nice.	Maybe he's still in Nice.
Tutor:	Peut-être qu'il fait plus beau	Maybe the weather's better in
	à Nice qu'à Caen.	Nice than in Caen.
F:	Bien! Je serai à Nice la semaine prochaine.	Good ! I'll be in Nice next week.

Table 7. *A competence model for the behaviour of F in Example 3*

Competence type	Competence indicators
Linguistic-functional	Demonstrates understanding of ambiguity. Produces (appropriately) ambiguous discourse.*
Socio-cultural	Demonstrates understanding of the social requirement to join in a joke.
Institutional	Joins in the co-construction – initiated by the tutor – of a dual discourse (geographical and VoxChat-related).
Environmental	Shows understanding of the spatial characteristics of VoxChat.

*We depart from Erben here: ambiguity in this part of our data did not trigger compensatory reductions or amplifications. Instead, it was accepted as coherent discourse by the participants, as shown by the fact that no discourse shifter appeared in the spoken exchanges signalling the ambiguity explicitly, and that on the contrary, both levels of the ambiguity continued to feature in this discourse until the conversation was concluded.

Among the further devices that are of relevance for the data that we will present in the next section, we have chosen the following:

a. icons for managing turn-taking;
b. icon for managing presence and temporary absence from the environment.

They are all visible on the general screen in Figure 3, but Figures 4a and 4b show them in a little more detail.

Figure (4a) shows how participants take turns in the Lyceum environment. Participants intending to speak click the 'hand' icon. The tool will allow several people to speak at once, but we operate a convention, although loose and not always adhered to, that they 'raise their hand' (allowing a transfer of behaviour from the physical classroom to the virtual space). The 'raised hand' icon then appears next to their name as a result of clicking. In Figure 4a, the facilitator knows that Tricia wants to speak. Participants holding the floor are identified by a 'loud-speaker' icon, which appears beside their name as
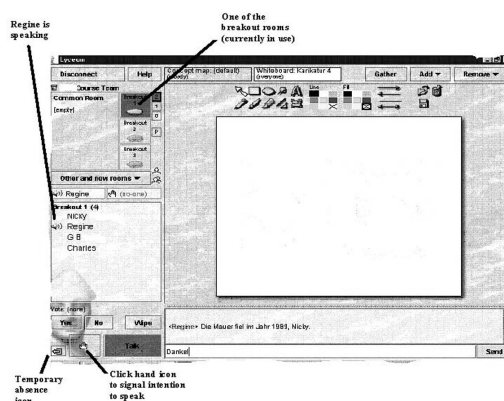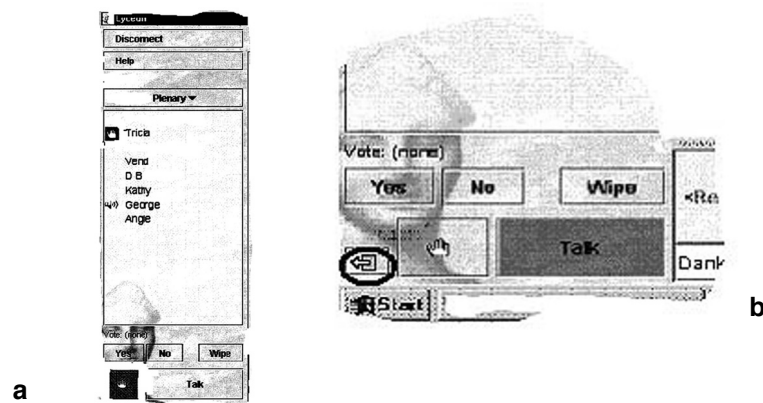

Fig. 3. The Lyceum environment.

Fig. 4. (a) Taking turns in Lyceum; (b) the Lyceum temporary absence icon.

soon as they click the 'Talk' button (here, George). Clicking the 'Talk' button is also the action which 'opens' their microphone, allowing their voice to be heard by all.

Figure (4b) shows the icon (circled in black) on which participants click if they wish to signal that they are leaving their computer workstation temporarily. The icon will appear beside the person's name as long as they don't click the icon again. This reassures the rest of the group that the absentee is merely taking a break, as opposed to being disconnected (in which case their name would vanish altogether).

5.4 Discussion of the Lyceum data

As we saw earlier, Payne and Whitney had noted that the materialisation of online presence could act as an encouragement to participation (though sometimes this acts as a disincentive, for example if an unpopular group member is shown to be logged on!).

The Lyceum 'temporary absence' icon has a similar effect as the VoxChat name display. But whereas in Example 1 we could only assume that the name display may have influenced the learner's decision to apologise, in the following example the conversation could not have happened without the 'temporary absence' icon. Here is the brief dialogue that took place when the tutor noticed the icon that was displayed besides N's name (see Table 8).

Table 8. *Example 5*

Tutor:	Ah! Je vois que N est parti.	Ah! N has gone, I see.
J:	Oui, je crois il est …voir le feu.	Yes I think he is…watch the fire.
Tutor:	Le feu?	The fire?
J:	Oui, il a dit tout à l'heure je crois il y a un supermarché et il a…les pompiers.	Yes he said earlier I think there is a supermarket and he has … the fire brigade.

Table 9. *A competence model for the behaviour of J in Example 5*

Competence type	Competence indicators
Linguistic-functional	Preserves functional coherence by responding to the tutor's off-task comment. Displays functional competence in correctly detecting an information gap. Does not display full linguistic competence (i.e. fails to make her response contextually clear).
Socio-cultural	Displays competence in offering to plug an information gap.
Institutional	Fails to explicitly signal the introduction of an extrinsic type of discourse (domestic) into the existing discourse (institutional).
Environmental	Shows good understanding of the 'temporary absence' icon.

In this dialogue, the icon acts as a trigger for the tutor's question and J's response (based on J's pre-sessional conversation with fellow-student N, who told her that there appeared to be a fire in a shop near his house). The analysis for J is close to that for D in Example 1, except that J is partially competent or non-competent in some areas.

The next example shows the additional impact of the spoken synchronous CMC environment on the demands placed on the students. The exchange involves students working in a small group on a form-focused task. In Lyceum, moving from the plenary room to a breakaway room for group-work takes a few seconds during which no sound reaches the participants, so students are told that the tutor may take a while to 'visit' their 'room', and that they should not wait for the tutor's 'arrival' before they start their activity. The following dialogue takes place immediately after students C and L have gathered in the breakaway room – see Tables 10 and 11.

A consequence of the temporal constraints of the tool is that both learners find themselves having to use the discourse of turn-taking-management in addition to task-oriented discourse (in conformity with Chun's observations). Additionally, C is producing technology-management discourse. In this example both learners appear to be competent in shifting from one discourse type to another, i.e. there is no evidence of disruption to their conversation.

Table 10. *Example 6*

C:	Alors je crois que nous devons écrire des antonymes. L, est-ce que vous voulez commencer? .	So, I think we have to write antonyms L, would you like to start?
L:	Moi, je suis d'accord pour «la tristesse». C, qu'est-ce que vous en pensez?	I agree about «la tristesse» C, what do you think?
C:	L, votre voix n'est pas fort. S'il vous plaît, répétez ce que tu…vous a dit.	L, your voice is not loud enough. Please repeat what you said.

Table 11. *A competence model for the behaviour of C and L in Example 6*

Competence type	Competence indicators
Linguistic-functional	Both display competence in using the appropriate functions (presenting the task, giving the floor, taking the floor, handing back the floor, dealing with an incident). C displays partial linguistic competence (gender error, verb agreement error).
Socio-cultural	C displays partial competence in using the tu/vous address code.
Institutional	Both display competence in implementing the institutional dialogue required of them by the task.
Environmental	C is competent in offering guidance to help overcome a technological problem.

6 Methodological challenges

Ethical issues abound in researching student conversations on electronic media, whether manually or with tracking systems, but for the sake of this argument we will assume that such research is always carried out with participant agreement. Similarly, we will set aside for the purpose of this paper the issue of observer paradox and the importance for the researcher of being part of the community.[2]

The previous examples are simple in that participants are few (no more than three) and exchanges are continuous. Yet even with such simple conversations, there are three major difficulties in defining the unit of analysis.

- One of these difficulties relates to choosing the type of evidence that we should adduce in order to claim conversational competence for a given individual;
- another difficulty resides in how the analyst interprets evidence;
- the third issue involves how to represent non-individual conversational competence, i.e. the competence displayed by a pair, a trio or a larger group.

With respect to choosing types of evidence, the first methodological precaution would be to specify that we should prioritise evidence that could not be found in the traditional, synchronous environment, i.e. face-to-face.

In relation to the analyst's interpretation of the linguistic material, methodological precautions must be taken, and alternative meanings should be allowed. For example in Example 3, it is possible that F is speaking literally in his final turn. If so we should consider him conversationally competent in the linguistic-functional sense (he does not break coherence), but we have no evidence to say whether he is competent under the other three categories. In that sense our interpretational work has to take place in conditions identical to those that obtain when studying data from traditional synchronous environments.

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[2]However, both will have to be addressed in further research because these environments, in displaying the names of all those logged on, make clear to any group that the researcher is there.

In analysing data from spoken synchronous CMC an extra condition is added: interpretation should be compatible with technological evidence. For example in Example 2, we have technological evidence that A is competent in bringing about a resolution of the group's problem through contacting the tutor, because the final line of the extract contains linguistic evidence of her speaking to him, from which we infer that she has successfully contacted him. With devices available at the time of writing, evidence will also increasingly come through automatic logs in statistical, graphic or other form.

The third methodological issue relates to constructing a model for conversational competence that transcends the 'turn' as a traditional unit of analysis. For instance in Table 3 (assuming that the non-literal interpretation is correct), F's institutional competence is closely linked to the competence of his interlocutor. To describe this in the Table we used the word 'co-construction', indicating that F and his tutor share the same understanding of ambiguity and the same willingness to work with ambiguous discourse. It will not surprise CA analysts to read that no single utterance by either F or his tutor can carry evidence of this co-construction, but the additional factor for those analysing synchronous CMC conversations is that the co-construction also relies on a shared understanding of the materiality of the environment (here, the option of creating rooms – a possibility that is both conceptual and technical) and of the ways in which this is encoded by the software (here the 'rooms' metaphor) and can be appropriated by the users (here, the 'towns' metaphor). So we propose that the unit of analysis for the study of such data should include sequences running across 'turns', and defined by their internal coherence in relation to some environmental feature (here, the 'rooms' creation tool).

To illustrate the methodological issues discussed above, a final example from the VoxChat learners is shown in Table 12. The conversation takes places over half an hour. It involves three students and the tutor and it starts with the tutor trying to allocate students to 'towns' for a role-play preparation. We have shown in italics language from which we can infer which environmental feature is central to this sequence.

The competence grid in Table 13 is a partial formalisation of the competence traits evidenced by A (who alerts the group to the technological problem), of those shown by F (who solves the problem) and of those of the group as a whole (shown via group responses).

One of the challenges highlighted by this grid is that the competences are interconnected in a complex way. All participants did well on the 'environmental' competences, and we can speculate that this type of competence is an area where interconnection is particularly important. If one of the participants had lacked that competence trait, the learning of that individual but also of the group would have been affected (which is not to say whether it would have benefited or suffered). On an analogy with Chun's discourse management indicators, we would propose that to account for oral competence in multimodal environments, we need to add indicators of 'environment management'. These would not refer to the procedural skills (e.g. of knowing which button to click), but to the ability to talk appropriately about these skills or about their objects in furtherance of the group's conversational health. They are, therefore discursive in nature, and they are evidence of the quality of the handling of the environment by participants.

A challenge derived from this is the transcription problem noted by Kress, Ogborn & Martins (1998) as early as 1998 in their attempt to analyse science classroom data, this is shown in Table 14. As Kress *et al.* (1998) observe, "we have continued with the by

Table 12. *Example 4*

Tutor:	Au fait, je pense que S est à Nice, si vous voulez aller la voir.	By the way I think that S is in Nice, if you want to join her.
Pause		
A:	*Je n'ai pas trouvé Nice.*	*I can't find Nice.*
Tutor:	Bon! Nice a disparu. Alors je ne sais pas où est S! Ecoutez, le plus simple ce sera de préparer ensemble dans le petit groupe où vous êtes maintenant. Vous êtes d'accord?	Right! Nice has disappeared. In that case I don't know where S is. Listen, the easiest thing is for you to prepare the work together, in your current group. Do you agree?
All:	D'accord.	OK.
Conversation continues		
F:	Mais on fait une petite présentation la semaine prochaine, oui?	But we'll be doing a short presentation next week, is that right?
Tutor:	Oui, c'est ça. Comme ce soir. 10 ou 15 minutes et je vous donnerai une autre chose à faire. Est-ce que vous avez des questions?	Yes that's right. The same as tonight. 10 or 15 minutes, then I'll give you something else to do. Do you have any questions?
All:	Non.	No.
Tutor:	Alors je vous propose de retourner dans une salle. Quel est le nom de la salle où vous étiez avant?	Then I suggest you go back to a room. What's the name of the room where you were before?
F:	Nous avons la salle de Nice. *Je l'ai recréée maintenant.*	We have the room 'Nice'. *I've recreated it now.*

Table 13. *Formalising group competences*

	A	F	ALL
Linguistic-functional	✓	✓	✓
Socio-cultural	✓	✓	
Institutional		✓	
Environmental	✓	✓	✓

now naturalised practice of representing what goes on in this lesson through language-as-central-medium. But the passages shown just above in capital letters here suggest that we might have proceeded differently: they indicate that actions, objects, materials, gesture, images etc. could be taken as the central communicational and representational aspects – and language (as speech) could be treated as not-central, even if not as peripheral. One major obstacle to that mode of proceeding is a relatively trivial one: we do not have the technological means for doing so" (1998: 84). Technology has moved on since this was written and in the context of audio-graphic tools in 2004, we certainly have

Table 14 *Kress et al.'s example of transcription protocol difficulties*

Teacher:	Now we should have (looks around) A PIN that we can stick in (STICKS PIN TO GLOBE) TO THE EARTH to represent A PERSON, a big person, OK. THIS PIN STUCK ON HERE (POINTS), if you like, produces a SHADOW. You see a SHADOW?
Students:	Yeah
Teacher:	OK, now as — as you go from morning through to (TURNS GLOBE) evening the POSITION OF THE SHADOW changes, doesn't it.

facilities for recording conversations, and for saving written chat data. To an increasing extent we have facilities for tracking individual connections, disconnections and navigational moves. But the challenge of integrating those indicators into the linguistic material for multimodal analysis remains as great as it was for Kress *et al* in 1998.

7 Conclusion

In discussing the changes that computers have brought about in the way that we understand the epistemology of education, Lankshear & Knobel (2003: 158) have proposed several different "dimensions of digitally-induced change". One of these involves "changes in the relative significance of, and balance among, different forms and modes of knowing, which are associated with the impact of digitisation." In our study we have suggested that for the L2 learner seeking to speak synchronously on line, such changes in "forms and modes of knowing" affect both content knowledge and procedural knowledge. Similarly, Noet-Morand's "kissing" teenagers needed to know (content) about the cultural significance of kissing, and about the convention that represents kisses as "xoxoxox". They also needed to know (procedural) when to appropriately implement the convention, and how to create the correct string of characters from the keyboard. This provides at least four interconnected areas of knowledge for learners to master, and for researchers to formalise. There is therefore much work to be done before we can provide an account, let alone a robust one, of the interplay between these conversational and technological competences, and before we begin to really understand the conditions under which these different modes of knowledge hinder each other, or on the contrary support and advance one another in the furtherance of L2 learning.

   Further research will centre on simultaneous use by learners of the voice and of written interjections in a chat window (of which many as-yet-unanalysed examples occur in our Lyceum data), focusing in particular on the interplay between discourses and registers in these two modes.

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