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► **To cite this version:**

Brigitte Gruson, Françoise Barnes. Case study investigation of CMC with young language learners. JE-LKS:Journal of e-Learning and Knowledge Society, 2012, 8, pp.79 - 90. 10.20368/1971-8829/644 . hal-01748798

HAL Id: hal-01748798

<https://hal.science/hal-01748798>

Submitted on 29 Mar 2018

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Case study investigation of CMC with young language learners

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Keywords: videoconferencing, primary education, linguistic repertoires, reciprocity contract

By providing authentic experiences with the world outside the classroom, CMC seems to enhance the learning potential of conventional lessons (Pritchard *et al.*, 2010, p. 211). The assumption underlying the use of videoconferencing to teach and learn a second language is that it will help learners develop their oral and socio-cultural skills. However, when using CMC with young language learners, primary teachers' relatively limited expertise both in the linguistic and technological fields represents some of the challenges they have to face. Following Pritchard *et al.* (*Ibidem*), who show that students who have experienced video-conferenced lessons have more confidence to experiment with language and, in general, produce language of a higher quality, our work examines the impact of CMC on students' communicative skills and teachers' actions in primary education. In this paper, we analyse a bi-national session that involves videoconferencing between young learners of French and English as a foreign language as they

for citations:

Gruson B., Barnes F. (2012), *Case study investigation of CMC with young language learners*, Journal of e-Learning and Knowledge Society, v.8, n.3, 79-90. ISSN: 1826-6223, e-ISSN:1971-8829

play a well-known game Cluedo. In our analysis, we first examine some of the constraints teachers have to face when using videoconferencing to teach an L2. Secondly, we present a few extracts that aim to probe the impact of CMC on the way students use both L1 and L2 and on its possible effect on the development of their linguistic repertoires.

1 Introduction

Under the French national project “1000 videoconferencing systems for primary schools”¹, a growing number of French schools are being equipped with videoconferencing systems. The assumption underlying this project is that putting students in a position to communicate with distant native speakers will allow them to improve their language proficiency and develop socio-cultural skills. Indeed, by enabling young learners to be in direct visual interaction with native speakers, videoconferencing seems to enhance mutual understanding and develop specific skills both in the students and the teachers. As the use of videoconferencing with young language learners is still an emerging area of research, it seems important to conduct empirical studies that examine the possible impact of the use of videoconferencing on learning outcomes and teachers’ professional development. Following Pritchard *et al.* (2010), who show that students with experience of videoconferencing “have more confidence to experiment with language; in general they produce language of a higher quality” (p. 217), our work studies the impact of CMC on students’ communicative skills and teachers’ actions. To do so, we analyse a bi-national session involving videoconferencing between young students learning French and English as a foreign language as they play a well-known game Cluedo.

The main questions we examine in this paper are:

- To what extent does the use of videoconferencing have an effect on the students’ and teachers’ joint actions?
- Does CMC contribute to the development of students’ listening and speaking skills?
- Does CMC have an impact on the didactic milieu and contracts?

To investigate these questions, first we outline the theoretical tools we used to conduct our analyses. Then, we describe the research context, the methodology and the conditions under which Cluedo was implemented. Finally, we present our analysis that relies on the complete transcription of the session.

2 Theoretical framework

Part of the work we are currently doing aims to develop a theoretical fra-

¹ For more information about that project, see Eduscol website: <http://eduscol.education.fr/numerique/dossier/archives/visio-conference>

mework that brings together concepts used in three complementary fields: Joint Action Theory in Didactics (JATD), Second Language Didactics (L2D) and Computer Assisted Language Learning (CALL).

Our main concepts come from JATD (Sensevy & Mercier, 2007; Sensevy, 2011b; Gruson & Forest, 2011; Gruson *et al.*, 2012), which argues that one cannot understand learning practices without understanding related teaching practices. Following Sensevy (2011b), we consider that “it is impossible to understand the student’s action in relation to knowledge without relating it to the teacher’s action in relation to knowledge. A didactic act is an act one cannot understand without describing it as produced in an undividable system (Knowledge, the Teacher, and the Student)” (p.61). This first theoretical framework is completed by concepts borrowed from CALL. Within CALL research, we situate our work in the perspective defined by Egbert (2005, p. 4): “CALL means learners learning language in any context with, through, and around computer technologies.”

In this paper, we limit our analysis to the concept of transactional distance elaborated by Moore (1993) and the concepts of didactic contracts and milieu that are core concepts in our work.

2.1 Transactional distance

This concept refers to the psychological and communication space existing when the teacher is at a distance from the learners. It is described according to two sets of variables, dialogue and structure, and the level of autonomy required from the learners. In our research, we use this notion in a different context since we have observed that during lessons with young learners teachers of both classes are usually with their students. Nevertheless, we consider this notion to be very fruitful as it includes contextual factors² that are particularly useful to describe videoconferencing sessions in primary education. Among these factors, our observations indicate that the number of students, the frequency of sessions, students’ language proficiency and content knowledge (*Ibidem*), and technical problems (Macedo-Rouet, 2009) have a strong impact on the transactional distance and thus on the students’ and teachers’ actions during videoconferencing sessions.

2.2 Generic description of the concepts of contract and milieu

The notions of didactic contract and milieu were initially elaborated by Brousseau (1998) and Chevillard (1992) and further developed by Sensevy (2011a, 2011b). Generally speaking, the didactic contract is used to describe the system of habits, which is largely implicit, between the teacher and the

² For a more detailed presentation of these factors, see Moore (1993) and Macedo-Rouet (2009).

students in relation to the knowledge in question. On the basis of the habits, each participant (the teacher or the student/s) attributes some expectations to the other(s). The didactic contract provides a common background between the teacher and the students, against which the didactic transactions occur.

But this common background has to be renewed. Thus, in order to learn, students have to deal with a situation involving a problem that previous knowledge does not allow them to solve. In JATD we consider this situation as a milieu (Brousseau, 1998), which provides a kind of resistance to the student's action, which is also a resistance to the joint action. This concept describes the system of material and symbolic objects involved in the situation. When facing a problem, students are confronted with the milieu as the fundamental "hidden" knowledge structure of the problem, and one can see the students' progress towards solving this problem as the way they orient themselves in the milieu.

When students evolve in a didactic situation, they generally produce moves according to the habits of action (the didactic contract) related to the knowledge they have recognized as the knowledge in question. Some of these moves do not enable them to act accurately to meet the didactic situation requirements; they encounter a resistance to their action (in the milieu). Thus we argue that, in order to characterize the didactic joint action, one has to identify how the students orient themselves, either by enacting the didactic contract habits or by establishing epistemic relations with the milieu.

2.3 The Concepts of contract and milieu in L2D

Using these concepts in our research has led us to redefine them in relation to second language didactics (L2D). In this field, we have shown (Gruson, 2009) that the milieu is very complex since, in an L2 class, students have to deal with a wide variety of media and semiotic systems. As for the concept of didactic contract, we set out three specific forms of contract that seem to characterize the ordinary L2 class when the language is taught to young learners. The first refers to the way the L2 is used in the class. The second, named the repetition contract, is used to outline the way repetitions determine teachers' and students' joint actions. In our opinion, it represents one of the main characteristics of the L2 class in primary education. The third one corresponds to what we term the complete and correct sentence contract. It describes primary teachers' expectations concerning the production of complete correct sentences. Indeed our studies (Gruson, 2006) show that accuracy is often more important for the primary teachers we observed than fluency.

More recently, our research on CMC has led us to define a new didactic contract. Videoconferencing sessions between a French and an English class are in essence bilingual sessions during which both languages are supposed

to be used equally. Hence these sessions are based on a fundamental principle that could be termed the “equal benefit” principle meaning that both partners have to benefit equally from the exchanges. We showed (Gruson, 2010) that this principle, which we term the reciprocity contract has a strong impact on the teachers’ and the students’ actions: it not only modifies the didactic milieu but also the type of didactic contracts that occur in the L2 class.

3 Research context and methodology

3.1 The teachers and classes we observed

The teachers who took part in the study have different degrees of experience with videoconferencing: the French Primary Teacher (FPT) who taught English in France is considered an expert as he has been using videoconferencing in telecollaborative contexts to teach English for ten years³. In contrast, the English Primary Teacher (EPT), who taught French in England, started using videoconferencing quite recently. Neither of them are specialized language teachers. The two classes we observed were respectively a year five class with 23 students in Brittany and a year four class composed of 18 students in Devon.

3.2 Playing Cluedo during the session

Using games is highly recommended by official French texts setting out the national curriculum for second languages in primary education as games are said to have a positive impact on the child’s cognitive, affective and psychomotor development. However, it is difficult to find games that are both relevant and easy to use in class.

As indicated previously, the observed session is based on the use of an adapted version of the popular board game Cluedo⁴. This game involves solving a murder; the aim of the game is to identify the murderer, the room in which the murder took place and the weapon used to kill the victim.

For the adapted game, the basic equipment consisted of three sets of cards, one composed of six suspects, another one of nine rooms and the last one composed of six weapons, and of individual detective notebooks.

At the beginning of the game, three cards — one suspect, one weapon, and one room card — were chosen at random and put into a special envelope, so that no one could see them. These cards represented the mystery to be solved. The remainder of the cards were distributed among the players, who worked in

³ This teacher started to use videoconferencing with the support of the British government in the context of a project entitled « News in Europe - Video Conferencing as a tool to learning » launched in January 2002.

⁴ A well-documented description of the history and rules of Cluedo can be found at this address: <http://en.wikipedia.org/wiki/Cluedo>

small groups. Since the students were in two different countries, the research team decided beforehand which cards would be the “mystery cards” and which cards each class would receive.

As in the original Cluedo, during the game, each group of players had to make a suggestion, for example, “I suspect Professor Purple in the living-room with the candlestick”. The other players then had to disprove the suggestion, if they could, that is if they had one of the cards mentioned in the suggestion. In order to make the students practice their listening and speaking skills more thoroughly instead of just showing and looking at cards⁵, both teachers agreed on making the students answer the ‘suggestions’ orally, for example, “I have got Professor Purple”. Then once an answer was given, all the students had to tick the corresponding box on their detective notebook so as to keep track of the answers and narrow the solution. Finally when a group of players thought they had worked out which three cards were in the envelope, they could make an accusation saying, for example, “I accuse Mrs White in the bathroom with the rope”. The winner was the group of players who made a correct accusation thus solving the mystery.

3.3 Data

Our data comprises the video recordings of the session, a synopsis and complete transcription of the session that we used to study the interactions at a micro level and from which we selected significant episodes in relation to the questions examined in this study. For this paper, we focus specifically on the second round of the game during which both classes used English whereas the first round was in French.

4 Empirical analyses

For this paper, we focus on two main aspects. First we examine some of the constraints teachers have to face when using videoconferencing with young language learners and how these affect their joint actions. Secondly we present a few extracts that reflect the impact of CMC on the way students use both L1 and L2 and its possible impact on the development of their oral skills.

4.1 Logistical constraints

Since Cluedo is a game for a maximum of six players, it had to be played in groups so as to involve all the students. As a consequence, each player was represented by several students who had to agree before interacting with the

⁵ In the original game, showing the card to the suggesting player is done in secret so the other players may not see which card is being used to disprove the suggestion.

other groups. During the session this tended to considerably extend the time between two suggestions. Hence the time needed to make and answer a suggestion varied from 30 seconds to 2 minutes, which was quite long. The time needed for collaboration was all the more important as the number of groups had to be reduced to two in each class so that the two groups could be in view of the camera and the interactions between groups easier to monitor.

This example together with other data we have collected in the past years indicates that using videoconferencing with whole primary classes is a challenge due to the large numbers of students involved. If videoconferencing is to become more commonplace in primary education, innovative solutions to this difficulty will have to be found.

4.2 Technological constraints

Videoconferencing equipment is getting better and better. Nevertheless, teachers often encounter recurrent technical problems when using it, which tends to dampen some teachers' initial motivation (Comber *et al.*, 2004). In the session we observed, the quality of sound was quite poor; an echo was regularly heard throughout the session, which added to the usual difficulty of overlapping interactions during virtual communication. Hence both teachers had to regularly ask their students to either come closer to the mike or to speak louder.

ST⁶ 175 – FPT: Tu vas te rapprocher du micro parce que je ne suis pas certain qu'ils t'entendent (come nearer the mike because I'm not sure they can hear you)

The word "loud" was used six times by EPT to encourage her students to speak louder. The teachers also had to zoom onto the students in charge of making a suggestion and remind them to look straight at the webcam when talking to the other class, which slowed down the interactions as well.

ST 93 – FPT: réponds je te mets en grand regard + regarde Julia (answer I'm zooming on you look + look Julia)

ST 117 – EPT: Can you just move back so we'll have Harvey in please

As can be seen here, technology can have a strong impact both on the learners' and the teachers' actions⁷ but "it is not technology per se that affects the learning of language and culture but the particular uses of technology" (Kern,

⁶ These letters stand for Speech turn; the numbers refer to the transcription of the sessions.

⁷ During the session, the teachers had no technicians providing them with support.

2006, p. 200). This highlights the central importance of the teacher:

“Because the dynamics of interaction (and feedback-uptake relationships) in online environments differ from those in face-to-face interaction, teachers must be prepared for new ways of structuring tasks, establishing exchanges, guiding and monitoring interaction, and evaluating performance, not to mention mastering the relevant computer applications.” (Ibidem. pp. 200-201)

In our opinion, all these factors have an important effect on the transactional distance, which increased here because of the large number of students and the technical constraints teachers had to take into account.

4.3 A more confident use of L1 and L2

As explained previously, EPT repeatedly asked her students to speak louder. In addition, we observed that the English students modified the language they used so as to facilitate their French partners' comprehension. These modifications are described in several studies as what is called “foreigner talk” by Arthur *et al.* (1980).

“Some of the other salient characteristics of foreigner talk include slower rate of speech (Conrad, 1989; Hankansson, 1986; Kelch, 1985; Wesche & Ready, 1985), louder speech, longer pauses, more repetitions (Chaudron, 1983a), more deliberate articulation (Kelch, 1985; Derwing, 1990), and more use of gestures.” (Park, 2002, p. 4)

These modifications obviously occur in face-to-face communication but they seem to be more frequent in virtual communication (Dejean-Thircuir *et al.*, 2010) especially in a primary context (Gruson, 2010), which, we believe, are an important aspect of young learners' (intercultural) communicative competence and can have a positive impact on young learners' L1. Indeed, being aware of their partners' difficulties, students tend to articulate sentences more correctly and use more formal expressions. Moreover, seeing their partners struggling to put together a sentence, they realize more about their own language.

As for the use of L2, it was striking to observe that, during this round of the game, FPT did not need to remind his students to speak English. Whereas in previous studies (Gruson, 2009) we showed that the use of L2 contract represented one of the characteristics of conventional L2 lessons⁸, there was no sign of that contract as the French students were very eager to use L2, which appeared much more relevant to them. However, we must not forget

⁸ During the session, the teachers had no technicians providing them with support.

the equal benefit principle we defined earlier, which means, according to the reciprocity contract, that each group of students has to be given the possibility to use L2. This shows that the balance between the use of L1 and L2 during videoconferencing sessions has to be negotiated and decided upon by teachers before the sessions. Another interesting possibility would be to organize videoconferencing sessions between two classes of non-native speakers (NNS) whose common language was English. Indeed, Bueno (2010, p. 15) showed that “NNS-NNS different-Language 1 dyads appear as the most beneficial for pronunciation development – both in achievement and instances of modified output – followed by NNS-NS dyads and NNS-NNS same-L1 dyads”.

4.4 Enhanced listening skills

As we showed in a previous study (Gruson, 2010), it seems that videoconferencing helps students develop their listening skills. Indeed even if native speakers adapt the language they use to the situation and their partners' level⁹, our observations bring to light that the French students had no trouble at all understanding the English students' suggestions and answers and that they were very quick to react. However, the development of the students' listening skills strongly depends on the way teachers monitor the interactions. In the session we observed, we noticed that FPT's and EPT's behaviours were very different. FPT never repeated what the English students had said, which he clearly explained to his students at the beginning of the game.

ST 70 – FPT: je vous signale que je ne répèterai rien donc écoutez bien (I inform you that I won't repeat anything so listen carefully)

On the contrary, EPT kept repeating what the French students had just said even if it was in English as she wanted to make sure her students had understood the suggestions.

ST 307 – Julien: I suspect Professor Purple in the + stairs with the + rope

ST 308 – EPT: ok Professor Purple on the stairs with the rope

In doing so, EPT prevented the students from interacting directly and the French students from getting spontaneous feedback from their partners. Hence it seems to us that, even if the audio can be bad at times, teachers should re-

⁹ This corresponds to the requirements described in the “Common European Framework of Reference” (CEFR) where it is written that at A1 level learners “can interact in a simple way provided the other person talks slowly and clearly and is prepared to help”.

frain from getting involved in the interactions between the students and limit their work to guiding and monitoring interaction without interfering so that the students get the opportunity to experience real-time communication with native speakers.

4.5 Learning opportunities heightened by students' involvement

The last aspect we want to tackle concerns the students' language output as it seems to us that by increasing the students' involvement, videoconferencing can potentially enhance the quality of L2 produced by students.

First it must be noted that playing Cluedo proved to be a very fruitful situation as the students had to produce quite long sentences involving a great variety of vocabulary, specific prepositions "in/with" and different verbs. Secondly we observed that, during the session, the students were very willing to participate and made great efforts to produce their sentences again and again as they wanted to make sure they could be understood. In this context, repetitions were not the results of the repetition contract as in conventional lessons (Gruson, 2009) but were motivated by the desire to get their message across.

A last interesting example is the way students learning German¹⁰ got involved in the game and in doing so showed outstanding language skills.

ST 112 – FPT: tu penses bon on va essayer parce que tu fais de l'allemand toi alors on va essayer (you think so ok we'll try because you learn German so we'll try)

ST 113 – Sarah: I suspect + Professor Purple (approximate pronunciation) in the + living-room with the + hammer (h clearly pronounced)

In that short extract we see that Sarah was able to produce a whole sentence¹¹ drawing on German to pronounce the word "hammer" similar in English and German. This simple example shows that more links should be established between the different L2 taught in schools so as to draw on the students' diverse linguistic repertoires¹².

¹⁰In the class we observed in France, six students out of twenty-six learned German as their first foreign language. Due to logistical constraints, the German teacher was not in the school when the data was collected. As a consequence, these students had to stay with the rest of the class during the VCS.

¹¹To prepare the VCS, the whole class including the students learning German had played a game of Cluedo in English in the morning, which explains why Sarah was able to produce the whole sentence.

¹²This complies with the perspective promoted in the CEFRL (2001, p. 5) which states that "the languages offered in educational institutions should be diversified and students given the opportunity to develop a plurilingual competence".

Conclusions

Using videoconferencing with young language learners represents an important challenge and a great number of longitudinal qualitative empirical studies are still needed. This small-scale study represents a modest contribution to the debate about CALL research and the question of the effectiveness of videoconferencing. Multiple factors such as the learners' level, the teachers' expertise, the setting and the communicative situations have a significant effect on students' learning. Consequently, more research on videoconferencing and language learning in primary education needs to be conducted so as to investigate the specificity of the primary context and identify examples of good practice. In that perspective, future research should draw on a diversity of data and bring together teams of researchers, teachers and teacher trainers so as to enhance the reliability of findings and explore the potential benefits of videoconferencing in primary education on a larger scale.

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