An in-depth exploration of the effects of the webcam on multimodal interactive learning

Tatiana Codreanu*, Christelle Combe Celik**

ICAR Research Laboratoty,École Normale Supérieure, 15 Parvis René Descartes, BP 7000, 69342 Lyon Cedex 07, France
***LIDILEM, University Stendhal Grenoble 3, BP 25, 38040 Grenoble Cedex 09, France*

Abstract

Current research describes multimodal pedagogical communication of two populations of online teachers; trainee tutors (second year students of the Master of Arts in Teaching French as a Foreign Language at the university Lumière- Lyon 2, France) and experienced teachers based in different locations (France, Spain and Finland). They all taught French as a Foreign Language to a group of students from UC Berkeley in 2010. They participated in a project using a desktop videoconferencing platform (*VISU*) designed for delivering online courses. The study focuses on the webcam's effects on teaching and learning and tries to answer the following question: how does multimodal interaction affect interactive learning? Our hypothesis is that experienced teachers channel information through the webcam more efficiently and effectively in order to engage learners in knowledge construction. This paper presents the results of research based on an empirical method of collecting ecological data.

1. Introduction

Computer-mediated communication has been used in language teaching for the past 30 years. Previous research has focused on peer-to-peer videoconferencing (Develotte, Guichon & Kern, 2008) and the potential of the webcam for language instruction (Develotte, Guichon & Vincent, 2010).

In foreign language learning, face-to-face communication facilitates mutual understanding. Desktop videoconferencing (DVC) is similar to face-to-face communication but at a distance (Develotte, Kern & Lamy, 2011). Nevertheless, DVC communication is different from face-to-face as it involves more gestures and less word (Cosnier & Develotte, 2011). Hence, teaching through videoconferencing might be different from teaching face-to-face.

This paper focuses on the tutoring practices of two populations of teachers, trainee teachers and experienced teachers. All teachers participated in a project using a DVC platform, VISU, designed for delivering online language courses. For the purpose of this research we analyzed the teachers' use of the

* Contact author. Tel.: +33-4 37 37 60 00; ** Contact author. Tel.: +33-4 76 82 43 74.
E-mail address: tatiawa@gmail.com; christellecelik@hotmail.com

webcam and we tried to answer the following question: How does multimodal interaction and the polyfocality of attention affect interactive learning and teaching?

This paper discusses the aforementioned research question of the webcam's effects on the multimodal active learning and is divided in to three parts. The first part introduces the context and the subsequent two parts discuss the theoretical and methodological frame and present the results of the study.

The study has been conducted in an international context: the project *Le Français en (premiere) ligne* allows the learners of French to interact with French speakers and also allows students of Lyon 2 to tutor and design online tasks. VISU, implemented in 2010, combines videoconferencing features in addition to writing and interaction tools. The prototype used for the experience has three different rooms: the synchronous room, designed for the interactions between tutors and students, the retrospection room where sessions can be replayed, and the administrator/tutor's room designed for tutors to set up the online tasks and upload hypermedia links.

Our hypothesis is that in the DVC environment, the tutoring situation affects both experienced and inexperienced teachers and the way that they teach. We will emphasize the framing, the degree of use of the webcam, the spatial context and the disturbances, and tutors and learners' gestures. We will highlight the qualitative findings of the study conducted on this multimodal corpus and full results will be published in our paper.

2. Method

2.1. Participants

The teachers sample consisted of 11 tutors (8 trainee teachers and 3 experienced teachers).

The trainee tutors (N= 8, 6 females and 2 males), second year students in the Master of Arts in Teaching French as a Foreign Language at the University Lumière- Lyon 2, delivered the online instruction in the same classroom lab. Seventy-five percent (75%) of the trainee tutors claimed before the interactions commenced that they were comfortable using VISU.

The experienced teachers (N= 3, 2 females and 1 male) hold a Master of Arts in Teaching French as a Foreign Language and were based in different locations (France, Spain and Finland). One hundred percent (100%) of the experienced teachers reported before the interactions commenced that they were comfortable using VISU. It must be noted that these teachers had previous online tutoring experience.

The students' sample consisted of 24 UC Berkeley BA students (24 females, 5th semester of learning French) working in pairs.

2.1.1. Procedure

Participation was voluntary. Trainee teachers received 20 hours of training on how to use VISU in Lyon in their regular classroom. Experienced teachers received a 45 minutes online instruction in January, one week before the online interactions.

The trainee teachers were the designers of the online tasks and they registered instructional information on the platform two days before the interactions commenced. Subject areas were based on UC Berkeley's curriculum. The online sessions, which were 45 minutes each, took place from January to March every Tuesday at 6 PM CET/ 9 AM PST.

2.2. Methodological framework

The protocol of research is based on an empirical method of collecting ecological data. A corpus of study is proposed to describe the tutoring practices on multimodal synchronous computer mediated communication.

The qualitative data analysis method is based on Computer-Mediated Discourse Analysis (Herring, 2004) in addition to recent French research on discourse and interaction analysis (Kerbrat-Orecchioni, 2005, Cosnier, 2008) and the degree of tutor's involvement through webcam (Develotte, Guichon &Vincent, 2010). We conducted our analysis based on Cosnier's concept of "totext" described as a complex phenomenon of communication including symbols, co-verbal, coordinators and extracommunicative gestures. We studied two key concepts, the polyfocality and the multimodality in the DVC environment.

2.3. Corpus of study

The main corpus consists of a total of 7 sessions of instruction, which were 45 minutes each. We selected the 5th session in order to study stabilized tutoring practices and the use of different communication tools for a total of 7 hours, 7 minutes and 47 seconds of online interactions.

2.4. Data analysis

We focused on multimodal interaction and the polyfocality of attention in three configurations of tutoring: 1 tutor and 2 learners, 1 tutor and 1 learner, 2 tutors and 1 learner. We studied the following aspects: the framing, the degree of use of the webcam, the spatial context and the disturbances, the tutors and learners' gestures, the tutors' ethos and politeness in the DVC environment which included face threatening and face flattering acts.

3. Results

The results of the study reflect the differences between tutors and are intended to provide a preliminary understanding of the effectiveness of the use of webcams in the DVC environment. The framing analysis shows several types of framing while using two types of webcams: external webcam and built-in webcam. The types of framing we analyzed were classified into centered, lateral, shifting, lateral medium, extreme close-up and satellite close-up during double-tutoring. In a satellite close-up, when one of the tutor moves, the webcam creates an effect of canted framing which means that either the right or the left side of the frame is bigger/smaller or higher/lower than the other, creating an imbalanced effect.

While using the webcam all the students and teachers were in the field of view of the screen. Sometimes, during external disturbances tutors and learners looked away from the screen. The analysis shows that for only 4 in 8 trainee tutors, the webcam's potential is integrated in the tutors' behavior. When tutors are immobile and when a person passes by it appears as though the background moves. As a result, the learner's eyes are drawn towards this movement.

In DVC, mimogestuality and framing are important factors that influence the image that the tutors give of themselves to the learners. The study of tutors' ethos shows that experienced teachers effectively used the webcam, framing and calculated gestures. Trainee teachers are building up a tutoring ethos based

on the webcam's potential but some of them are too focused on their own image, while others neglect the benefits of using the webcam.

4. Conclusions

The purpose of this study was to conduct a detailed analysis of the effects of the webcam on interactive learning. Experienced teachers effectively channeled information through the webcam in order to engage learners in making sense of the discourse and knowledge construction.

Double tutoring has an effect on interactive learning and teaching. For example, when two tutors have to share the screen, the headset and the task of giving instructions, they tend to have confidential exchanges, which results in the student feeling "left out".

Similarly, tutoring one or two learners has an effect on learning and teaching in DVC in terms of regulating online interactions.

We propose to add to Develotte, Guichon and Vincent's (2010) typology, different degrees of the use of webcam, our analysis which takes into account the actors' framing during the online interactions.

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