

Virtual ethnography methodology for researching networked learning

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Abstract

This article describes the application of a qualitative method based on digital ethnography in research on networked learning in Higher Education. The proposed method tends towards a solution for the need of innovative techniques for the study of new forms of interaction emerging in computer supported collaborative learning (CSCL) and their effective uses. The method used is based on three phases: first, initial exploration and systematic collection, then organisation and comparison of data, finally analysis. The corpus is composed of various data (audio-visual recordings, images, texts): audio-visual and textual data are organised and compared. The results suggest that an analysis of the process in its development is possible. The interpretative course is built thanks to the effective situations of uses. The ethnographical methodology applied to the study of the technological environment brings a concrete visibility of the tracks of implementation and manners and gives the possibility of having access to the development of the non stop process. The taking into consideration of all the constituent elements allows to encircle the diverse activities of the actor. It permits to analyse phenomena that would be invisible with a quantitative method.

Keywords

Research methodology, Virtual ethnography, participant observation, networked learning environment.

Introduction

The ethnographic approach deals with qualitative methodology as a “systematic description of human behaviour and organizational culture based on first-hand observation” (Howard 2002, 553). It uses “inductive (bottom-up), interactive (immersive) and recursive (cyclic) analytic strategies, while drawing on various data collection methods” (Lucas 2005, p 51). The ethnographer does not use experimentation but participant observations (direct observations) based on fieldwork, that is to say in a context that is not fabricated by the researcher. He observes or tends to observe in a synchronic manner with the observed phenomenon.

A methodology of qualitative research allows to encircle social processes in their complexity and to reach their understanding by a microsociological analysis of the data. An ethnographical perspective strengthens the commitment of the researcher in the reality of the data. In an educational context, the ethnographic approach permits direct evaluation of the student’s competence in networked learning. The questions which arose are: how can we access to the materiality of the student use in a higher education context? Are the logging interactions of the learning environment enough to apprehend the real students’ uses of the platform? What are the activities that allow us to understand the appropriation of the innovation by the users? In this perspective we wish to widen this frame of analysis in order to study the construction of the effective activities by an empirical approach so that we can analyse not only the expected uses but the real uses (Charnet 2007). The objective of our paper is to describe an ethnographic approach to grasp the learning processes of student collaborative activities supported by virtual learning environment in their real contexts. As a case study illustrating our methodology, we took a master’s programme context of the Language Sciences department of the University of Montpellier 3. This master

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on “Knowledge Management, Learning and elearning”² is both on and off-campus the first year. The second year, students are based in France or abroad and courses are mainly off-campus with week on campus between the two semesters. This week is composed of workshops and meetings with professionals. The courses are supported by the WebCT digital workspace, but the student can also use non institutional tools like Yahoo! Messenger or Skype™. The students follow educational courses including individual and collaborative activities. The online collaboration involves complex interactions using a directory of diversified communications.

We took into account the digital specificity of the observed object. So the following methodology joins in an ethnographical observation of sequences of activities recorded in context of the different situations, and uses of these devices. This frame of continuous observation requires the participation of the researchers during the whole process. The data collection reports the course and the integration of the device in the considered organisation. Thus we turned to a collection of diversified data which offers the possibility of a direct observation of situations that are in the field of the anticipation or of the stabilized use.

The methodology of the research is articulated in three phases: first, exploration, then systematic collection, location, organization and linkage of the data, and finally, analysis (Crabtree 2003). The analysis does not occur only at the end but during the whole process of research.

Exploration Phase

In the first phase of exploration the researchers are asked to get in touch with the field and to become integrated into it. In a networked learning context, the ground should be defined by the student community and the tools that they are using for the courses or to interact with each other. The researcher can take different positions in the ground. R. Gold (1958) distinguishes different status of the observer: the complete participant, the participant observer, the observer as participant and the complete observer (the lurker). In the networked learning context, each participant is identified and has a status. That means the researcher is identified as a student, as a teacher or as a tutor. The complete participant does not reveal his status of researcher and participates entirely. On the other side, the complete observer observes some location or process without becoming part of the setting in any way. In our context, that means the observer has access to the learning environment but does not participate in it. This position is close to an ideal unobtrusive observer. But Participant observation also provides with the opportunity to collect data that are not easily accessible by using other methods (Paterson 2003, p.4). The participation of the researcher in the process gives more opportunities to collect data. The direct observation of the researcher is one part of his work. Fieldnotes permit to have a general view of the process. But the analysis of the process is monitored through systematic recording of the activities. For example, during a collaborative activity, the researcher will participate in the activity (student or tutor are privileged status to this). His direct observations will contribute to the understanding of the activity in progress: time progress of the activity, special events...

Data Phase

Our direct observation was supported, by recordings. We can distinguish two kinds of recordings. First of all, the logs that the technical framework permits to collect. The use of computers has been considered as a resource for the researcher due to their capability of logging interactions (Martinez 2003). The institutional logs of the virtual learning environment constitute the first source of that kind of information. In our case, WebCT enables to extract the interaction activities such as web conferencing and chat on the platform. We can proceed to a systematic collection of data. This process does not need any planned device or the intervention of the researcher before or during the activity observed. It gives us authentic interactions. But the focus on the virtual learning environment is not enough to encircle the students' real uses in networked learning activities contexts. As we can see below (Table 1), some interactions in the virtual learning environment let us see that some activities do not occur in this environment.

Table 1: Extract of a student webconferencing message on WebCT during a collaborative activity

² http://www.univ-montp3.fr/metice/_masterprogaf/

Original message	Bonsoir à tous :) Bon je sais qu'il faut passer par Webct avant d'avancer dans notre travail mais nous nous sommes retrouvés S1 et moi-même sur skype pour parler de la pluie et du beau temps pour dériver sur un travail collaboratif synchrone sur l'évolution du sms, ce qui donne à peu près ceci: [...]
Translation	Good evening :) Right, I know we have to use WebCT to speed up our work but S1 and I met on Skype to talk about various things and that finally drifted on to a synchronic collaborative work on the evolution of SMS. That gives something like this : [...]

In this message, a student reports the activity he had with another student during an IP voice session. Ciussi (2007) points out this phenomenon, calling it “device dissonance” (Ciussi 2007, 7). The implicated situation of the researcher allows to record other interactions that occur outside the virtual environment. We propose to call that kind of interaction “parallel activities” because they occur out of the expected virtual environment of the activity, but deal with the activities. It can concern the collection of e-mails exchanged, instant messaging or other logs that the researcher has with other participants.

The ethnography methods enable to enlarge the collection of log data. The ethnographer is interested in other kinds of recordings for his analysis: record of the ecological context. The ecology of the activity is important in order to understand how the students are working. The logs from the virtual learning environment do not tell us to know how students are using tools in their activity.

Contrary to a classroom, the recording of the context in a networked learning context, seems to be more difficult. The context is not the site of the classroom, but it is multisite. Each student has a different context of working. We can distinguish two levels of context which need different techniques of recording of the ecology.

The first point of view is the ecology of the computer screen. During collaborative activities, the student may be at the same time reading a course, posting message on webconference of WebCT and chatting in another system like yahoo or Skype™, as we can see below.

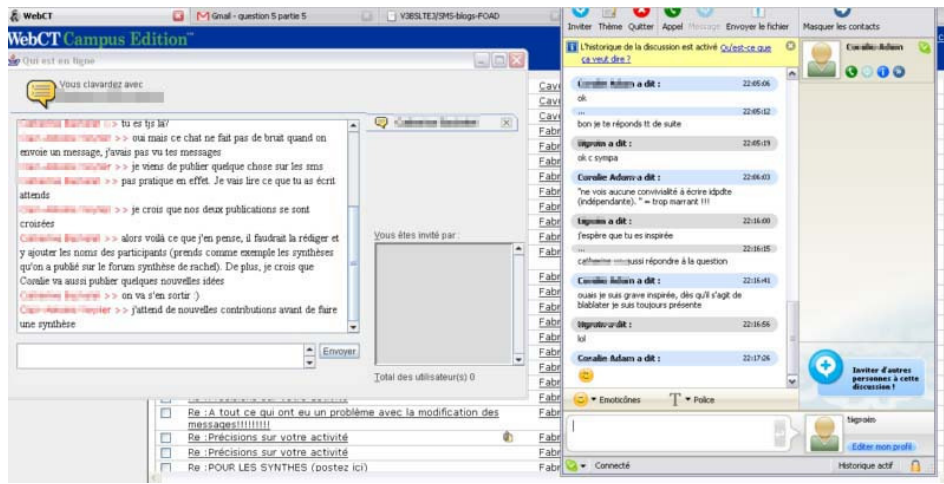


Figure 1 : Screenshot of a student computer during collaborative activity

The recording of the screen during the activity allows analysis of the interactions in their complexity. For example the logs of the WebCT chat on figure 1 have to be interpreted as occurring at the same time as an interaction with another student on Skype™. The two activities are adjusted and have to be understood together. The use of the Skype™ tool has to be understood not for itself but in the context of the activity. Video-taping the screen of the computer permits to analyse the multitasking activity. Some softwares allow to record all the actions while using an application, including mouse movements and keyboard activity, or audio sound from a microphone or the speakers. We had the choice between a commercial software, Adobe Captivate, and a free open-source software Camstudio. We chose the second one for two reasons. Because of the license, the commercial software restricts to install it on a limited number of computers. It does not allow us to install it on the students' computers. In this way it is impossible to keep

the authentic student ecology. It compels the student learner to come to the laboratory for the recording or to lend the student a specific computer with the program. On the other hand, the free open-source software Camstudio allows us to install it on any computers without restrictions. It is a small program that does not need much space on a computer and can be easily downloaded from anywhere. The student can install it and record himself without the intervention of the researcher. Furthermore, the Camstudio software has fewer features than Adobe Captivate. In this way, it is easier to use.

The fieldwork is both online and offline (Goodwin 1996, Heath 1997, Jordan 2008). In this way, the recording of the screen can be completed when possible by the video-tape of the student working on an activity. That kind of recording is punctual because of the cost of this proceeding. The camera is fixed behind the student and focused on the computer screen and its direct environment. The cameraman begins the recording and leaves the student alone during his activity. This recording is more intrusive but gives the researcher more details on the procedures used by the student.

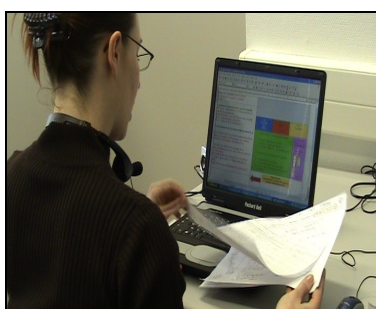


Figure 2: Video-tape capture of a student during collaborative activity

On the example above, the student is interacting with another student on a voice IP system. They are reviewing the situation of their collaborative work: what they have done until now. The student is using for that purpose an artefact: a paper.

Data to corpus

Our corpus is multimodal and we collect different kinds of data from the same activity. Networked activities are usually discrete, alternating synchronous and asynchronous interactions. The data are all dated, and come from different episodes of the same activity. So every recording is identified and classified at first chronologically. The contents of the data are then tracked down and organised to allow the constitution of a corpus which constitutes the maximal unit in which it will be possible to build interpretative routes. Then a phase of location is necessary to identify each sequence with the aim of indexing it. Indeed, as it is about broadcasting data partially, we cannot have a systematic research there as we could make it with a textual corpus. Besides, it is necessary to introduce metadata in order to give a recognisable materialism to the broadcasting. The problem we have then is how to explore all the data. Computer-assisted qualitative data analysis software like Atlas.ti is used to explore complex data collection (Marsh 2001) by coding procedure (Barry 1998). We didn't use such a tool because it was not exactly appropriate for our analysis as we will see below.

Analysis phase

The analysis of the digital collaborative activities requires consideration of all the routes of devices. Furthermore, different manners can appear according to the frame of organisation in which they are activated. The associations of various sequences which were linked up constitute the framework of the interpretative route which the analyst develops. The detailed study of the episodes shows how every stage is essential for the construction of manners and participates in the direction given to these numeric manners. Many of these phenomena only emerge after repeated viewing video tapes or other data.

In our case, the role of the participant observations emphasised that the participants did not use only the learning platform tools to collaborate (even if it was specified they had to use them), but they also used other instant messaging tools like Yahoo! Messenger or Windows Live Messenger, their own mail...

Then the recording and the viewing of the capture video permitted a micro-analysis of the procedure used by the students in this context. Another method of research should have revealed the phenomenon, but the analysis of detailed interactions permits apprehending of how the students combine the tools given on the platform with other tools. It reveals how the use of the platform is affected by the use of other tools in the collaborative activities.

Conclusion

The ethnographical methodology applied to the study of the technological environment brings a concrete visibility of the tracks of implementation and manners and gives the possibility of having access to the development of the non stop process. The taking into consideration of all the constituent elements allows to encircle the diverse activities of the actor. It permits to analyse phenomena that would be invisible with a quantitative method. The ethnographic method should benefit an instrumentation which will permit to explore the multimodal data in their sequential order and relation.

The project objective is to define and make use of epistemological foundations, methods and computer instrumentation to transform an audiovisual and textual corpus into a structured and visual ethnographic knowledge corpus.

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