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# Analysis of the Effective Uses of the Digital Workspace in Higher Education : the Case of the Languedoc-Roussillon Digital University 2006.

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## Abstract

The ENTICE project is devoted to the analysis of the design, development and implementation of a digital workspace (DW) in a consortium of educational institutions in Languedoc-Roussillon (France). The study is conducted in order to reveal how different dimensions interact during the DW development. Different communities have been observed following an ethnographical approach: managers, technicians, teachers, students and faculty staff are all seen as actors having a potential impact on the DW expected and actual uses.

**Keywords:** digital workspace, effective uses, ethnographical study.

## 1. Introduction

After the French Ministry of Education had launched the "Digital Campus" initiatives<sup>1</sup> from 2000 to 2002, many universities and other educational organisms have grouped on a geographical and regional basis in order to federate their efforts. The French state has then oriented its policy towards these consortiums as part of its territorial development plan with the "Regional Digital Universities" call<sup>2</sup> (UNR). The region Languedoc-Roussillon has been actively involved in this initiative through the Montpellier/Languedoc-Roussillon Open University consortium<sup>3</sup>.

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<sup>1</sup> Appels « Campus Numérique ». See the URL [www.educnet.education.fr/superieur/campus.htm](http://www.educnet.education.fr/superieur/campus.htm)

<sup>2</sup> Appel « Universités Numériques en Région ». See the URL [www.educnet.education.fr/superieur/uninumA-P.htm](http://www.educnet.education.fr/superieur/uninumA-P.htm)

<sup>3</sup> UOMLR: Université Ouverte Montpellier Languedoc-Roussillon. See the URL [uomlr.agropolis.fr/](http://uomlr.agropolis.fr/)

The main objective of the Languedoc-Roussillon UNR project was to design, develop and implement a digital workspace targeted at all actors of universities: students, teachers and faculty staff. The present paper reports on an evaluation of the overall process surrounding the development of the digital workspace. The evaluation is conducted by several researchers from different horizons, in an effort to collect, compare and combine information of various natures. Ethnographic observations are put against purely quantitative measurements in order to gain the widest and richest view on the development and implementation of a digital workspace in higher education. The ENTICE project is ongoing and is funded by the French Ministry of Education through the call "Internet Uses"<sup>4</sup>. The ENTICE project website can be accessed at [recherche.univ-montp3.fr/entice/](http://recherche.univ-montp3.fr/entice/).

## 2. Effective uses of the DW

Designing, developing and implementing a digital workspace in higher education while being able to foresee its uses, both from a pedagogical as well as from an administrative standpoint, is a complex task. Indeed, the digital workspace (DW) brings in collaborative technology acting at various levels: informational, educational and administrative. Moreover the DW is targeted at different communities. Students, teachers and faculty staff will all be affected by this technology.

The ENTICE project aims at building a better understanding of how the digital workspace enters the life of a university. ENTICE is interested in the overall process and does not solely focus on how IT impacts the practices of all workers: administrators, teachers and/or students practices [1]. Neither does it look at the DW deployment as an innovation diffusion paradigm [2]. The

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<sup>4</sup> Appel « Usages de l'Internet 2003 ». See the URL [www.recherche.gouv.fr/appe/2003/usagesinternet.htm](http://www.recherche.gouv.fr/appe/2003/usagesinternet.htm)

DW design, development and implementation is tackled from different angles in order to embrace its full complexity attached to technological and/or social issues and, more importantly, and by paying attention on how these dimensions interact.

Indeed, putting up a digital workspace does not reduce to the “technologization” of all existing services, but most of all, requires the development of a new organization, and more particularly of a new way of teaching. As a matter of fact, among all subgroups in charge of developing the DW, one was specifically in charge of change management. That is, it is important to think not only about the impact of technologies but also to foresee the changes taking place at a social level, and concerning all categories of workers and students.

In order to gain insight on these technological and social changes, we designed an ethnographic approach centered on *in situ* observation of various activities. We decided to insert research into the dynamic process of all activities in a synchronic manner with the observed phenomenon, as opposed to an *a posteriori* analysis. This methodology requires to first observe the evolving situation and to note all indications of innovations taking place in actual practices. Placing ethnographic observation close to action favours the access to the birth and evolution of technological and social innovation within the course of their development.

For example, the first phase in the development of UNR-LR in 2004-2005 (the Languedoc-Roussillon DW) concerned the LDAP directory access protocol. Although this phase was not really visible to the end-users, its development required all regional academic actors to unite their efforts. This was made explicit by the person in charge of change management on the occasion of their first meeting using terms such as “as you have all experienced ...”, or “all subgroups appreciated to have the opportunity to exchange in this very special manner ...”. Even though the “technicist” point of view prevailed at the beginning of the UNR-LR project [6], it seems that the early development of the UNR-LR digital workspace was dominated by a social dimension through collaborative work.

In the first phase of the ENTICE project, our effort concentrated on the analysis of the DW design phase, focusing on the uses predicted by managers, designers and developers. Once the DW will be fully functional and operating, a second phase will be devoted to the observation of the actual uses of the DW.

Our findings should bring more light on how the DW acted on practices related to knowledge transmission, learning and communication (at an institutional level). We should be able to identify various mechanisms used by actors in order to either adapt to the DW or adapt the DW to their own purpose.

We have attentively observed different institution managers or department heads involved in the preliminary phases of the UNR project. Numerous meetings and events have been video-taped and provide material describing different UNR activities:

- Discussions between members of thematic working groups.
- Public presentations of the UNR policy.
- Technical and pedagogical activities helping actors to train to the planned uses of the DW.
- Web navigation on the DW portal (prototype).

Many other informal activities were also video-taped. These activities all participate to a change management and communicational strategy that was planned as part of the UNR project. However, the reality revealed to be far more complex than expected.

In order to grasp this overall complexity, we adopted an ethnographic approach taking care to several key dimensions [3], [4]:

**Concomitant:** all observations take place from within all UNR activities (decision, design, communication, uses) requiring from members of the ENTICE project to be actively involved in the UNR project, and more particularly to closely participate in the prototype phase being implemented at Perpignan University. The innovation process is moreover followed during all its evolution and each phase is analyzed as part of a general organisation and as part of a specific situation.

**Supported:** our analysis is mainly based on video-taped material. The process is monitored through systematic recording of all activities (meetings, interviews, etc.). Particular episodes are transcribed in a detailed manner.

**Structured:** we examine how interactions and relations between different situations organize. The method aims at discovering users practice and reasoning underlying all actions performed during the observed interactions. These actions have a situational scope covering the time interval of the interaction and are part of the process as a series of exchanges (a sequence of meetings, for instance). They also are concerned with organisational issues (changes of teaching practices expressed through scenarios).

At this stage of our research, we clearly see that the interpretation of the ENT artefact and the interest shown by actual *and potential* users act as a dominant force between these interactions. From all situations that were examined, we observe emergent potentialities and expected uses, in addition to a “design philosophy”. All aspects of the ENTICE project contribute to a better understanding of how the university mutates towards a fragmented temporality and spatiality [5], [6]. Understanding this transformation is crucial from an analytical and an organizational standpoint.

### 3. Case study

As a case study illustrating our methodology, we look at the desktop developed within the UNR-LR digital workspace. The desktop is one of the basic elements of the DW. It is designed for personal use and must include: a personal address book, workspace (to store/edit files, i.e.), an agenda, a web publication tool and bookmark manager and office suite – as imposed by the French ministry of Education master plan p. 21-25 (Ministère de la jeunesse,

de l'éducation nationale, et de la recherche 12/01/2004). For each tool, a list of options is also suggested, some being judged essential.

The desktop developed within the UNR-LR DW wear different user interfaces depending on the category of users and/or university, as showed in Fig. 1, 2 and 3.



Figure 1. Digital desktop - April 2006 – Teacher



Figure 2. Digital desktop - April 2006 – Student



Figure 3. Digital desktop - April 2006 – Student

User	Screenshots of tabs
Teacher	Nabuco   Accueil   tp   test   Dossier_Harpage
Student	Accueil   Dossier   CROUS   Reinscription   Calendrier
Student	Actualités   Mon Dossier   Pass Culture   Stages/Emplois   BOMLR-ET   Sport-Info   D

As can be observed, the interfaces follow different graphical charts but differences also reside in the set of options and services made accessible through the tabs at the top of the screen. These tabs give access to basic and

expected functionalities but also to links that can be customized. Managing tabs is more or less the same as managing bookmarks. The Ministry master plan provides guidelines on these issues (p.24).

Managing tabs and bookmarks already raised issues for experimenters and for pioneer users as show the interactions detailed below. The coded conversation (see below) and a video sequence report the interactions occurring in a session conducted by the designer (computer scientist) while demonstrating the use of tabs. The audience gathered communication managers of various universities (February 2006). The interactions reveal the potential of the demonstrated tool even though the session did not take place within a daily and personal use.

The possibility of adding personal favorites (bookmarks) is described by the designer as a typical customization, using its own personal desktop as an example and sees in it a proof of customizability – although it was not planned as such for the purpose of the presentation.

The video showing the whole session can be accessed at the URL:

[http://recherche.univ-montp3.fr/mambo/entice/article.php3?id\\_article=49](http://recherche.univ-montp3.fr/mambo/entice/article.php3?id_article=49)

1. ...
2. donc ensuite on va passer au
3. service suivant (.) euh
4. disponible donc >possibilité à
5. chacun de gérer ses liens< (.)
6. donc vous voyez là ici j'ai
7. chargé euh(.) des liens là ben
8. aussi il faudra expliquer hein
9. (.) >une petite=note comment on
10. fait< j'ai mis mes liens
11. personnels à la maison des
12. liens qui sont des liens que
13. j'utilise habituellement à
14. l'IUFM (.) avec accès à des
15. ressources ça ça peut être (--)
16. Universalis >je clique dessus<
17. >j'espère que ça va marcher<
18. (--)
19. peut-être j'aurais plus de
20. chance avec (--)
21. plus de chance avec le wiki

22. peut-être (--) voilà (--) tiens  
23. (.) (rires des participants) c'est  
24. marrant ça (.) on dirait que ça  
25. correspond à ma dernière  
26. recherche (.) bon. ben je sais  
27. pas il doit se souvenir hein:  
28. hein: euh::: (rires des autres  
29. participants) ok (.) alors (--)  
30. (rires des autres participants)  
31. donc ici donc la >possibilité  
32. effectivement de mettre des  
33. liens préférés< donc (.)  
34. c'est quoi ? en fait le plus ?  
35. c'est que (.) >là où que je sois<  
36. je retrouve en fait mon  
37. environnement personnel (.) c'est  
38. à dire que (.) c'est pas lié à mon  
39. ordinateur ça là tout le monde  
40. sait le faire >gérer des liens  
41. des marque-pages vous gérez ça  
42. dans votre indicateur et puis  
43. voilà< mais pensez quand vous  
44. êtes nomade (.) si vous êtes sur  
45. un poste en libre service (.) en  
46. wifi (.) ou dans une autre  
47. université vous retrouvez (.) votre  
48. environnement (.) vos signets (.)  
49. favoris >si vous avez l'habitude  
50. de mettre< (.) je sais pas moi (.)  
51. une recherche sur les pages  
52. jaunes bon alors moi là >Dokéos  
53. Perpignan< il y a tout un tas de  
54. choses (.) qui me sont propres.  
55. euh et ben je les ai (.) où que je  
56. sois c'est vraiment le plus j'ai  
57. trouvé vraiment cette fonction

58. assez originale par rapport à  
59. d'autres c'est vrai qu'on  
60. trouve peu peu de portails qui  
61. proposent comme ça de gérer  
62. des des liens personnels  
63. ...

While describing the use of tabs using his personal account, the designer actually experiences this functionality as a real benefit for the end user, and does it almost involuntarily. Because the feed-back is too slow, he actually has to adapt the presentation he had prepared for showing the use of favourites. The non-expected apparition of a wikipedia, the last page he had browsed, stops him because it brings personal matter into a public event. Warning the audience, they all laugh. His tone of voice changes several times, confirming this collision between personal and public levels. His comments and reactions, as well as those of the audience (see lines 22 to 31), form a distinct subsequence and illustrates how a personal relation between a user and his desktop can initiate. This sequence shows privacy can be stored into tabs and made accessible to others through unplanned situations, revealing how tabs can actually be intrusive – this is confirmed by a change of tone in the voice of the designer but also by the use of an independent personality as confirmed by the neutral subject in the sentence “*the user* must thus remember that ...” (see line 27). The designer ultimately finds a way out of this uncomfortable situation and proceeds with his “public” presentation. This public demonstration underlines functionalities that were not yet assimilated since we are in a pioneer phase. The designer himself discovers uses he had not experienced. What we actually observe are scenarios determined by the tool itself. This unplanned use of the interface also unveils original and new uses. This instrumental approach adopted by the designer reflects uses as they are performed: the expert becomes a user and reveals the potential of a tool as it is used.

As a second use case, we look at the use of a distance learning platform. In this case, the usage scenario is not solely experienced though public presentation. For example, a teacher has been interviewed on his teaching practice by a research assistant as part of our research program ENTICE. The interviewed teacher then reports on the innovative aspects of his teaching in the classroom, providing a detailed view of his teaching activity.

The study of the conversation has to take a full account of the reported practices both on the technological and pedagogical aspects, thoroughly describing the linguistic and interactional elements. The scenario can be studied in relation with the possibilities and practical constraints that the interviewer and the interviewed teacher have to deal with. Again a video sequence can be accessed at the URL:

[http://recherche.univ-montp3.fr/mambo/entice/article.php3?id\\_article=73](http://recherche.univ-montp3.fr/mambo/entice/article.php3?id_article=73)

Our analysis examines all arrangements of these interactions. The interview is actually a social event

defined and performed by the two participants. The interviewer and the interviewed teacher thus shared a co-constructed interaction space [7, 8, 9]. Moreover, the ordering of the sequence elements relies on the relation between the use of technology and interactional constraints.

What types of actions do the two interacting actors produce? What is the relation between the interventions of the actors and their “source” activity concerning the experience of the teacher and that of the students? What role does technology hold when the teacher reports on his activity?

During the interview, the researcher aims at identifying and isolating information that can be seen as participating in an innovation process. In order to achieve this, the situation has to be framed as to capture specific actions, establish constraints and interactional possibilities. The interview does not reduce to a simple question and answer exchange covering the subject initiated by the first question. The answers given by the interviewed teacher go beyond the subject underlying the question. The teacher actually develops on extended interactional forms [11], [7] to which the scenario of activities takes part<sup>5</sup>.

Short sequence (R: researcher, T: teacher)

1.	R:	euh d'accord alors et pour vous
2.		en fait comment quel avantage
3.		pédagogique est-ce que vous avez
4.		trouvé
5.	T:	c'est très simple c'est la
6.		question de de manière de faire un
7.		cours quand je vais en cours j'ai
8.		bien sûr un canevas et j'ai une
9.		liste de choses que je vais faire
10.		eux ont un texte sur lequel on
11.		travaille et je parle et je pose
12.		des questions et on fait comme ça
13.		ce qui fait qu'à la fin eh la
14.		différence pour un cours plus
15.		traditionnel il n'y a aucune note
16.		parce que je ne dicte rien mais si
17.		on regarde eh celui là par exemple
18.		ils ont toujours ils ont mon cours
19.		et donc ils peuvent participer
20.		a mon cours et l'avantage c'est que
21.		je n'ai pas à me soucier s'ils ont
22.		pris assez de notes parce qu'il y a
23.		toujours quelque chose sur lequel
24.		ils peuvent travailler et ça
25.		permet ça permet enfin de faire
26.		quelque chose de plus animé...

<sup>5</sup> When studying presentations or interviews, our analysis methodology aims at identifying the conversational form of the scenario as part of the interaction. Other uses we have studied take place as part of a collaborative design process. The scenario then serves the production of models or prototypes, hypothesis or specifications of future possibilities [16].

The interviewed teacher has to accomplish a series of tasks as part of the informational and interactional process defined by the interviewer. First, he has to analyse the contribution of the interviewer: the form and the goal of the question and its ending. He must decide when to answer the question. In his answer, he witnesses of his experience as a pioneer by describing a scenario built around the use of a distance learning platform. The changes that took place in the practices of the teacher and the students are thus described in a systematic manner, revealing how the technology was brought in the process<sup>6</sup>. In doing so, the teacher does not refer to his personal experience, together with some intrigue ([13, 15]<sup>7</sup>, but rather as a typical and generic scenario. In other words, the interviewed teacher reports of the changes that took place in the pedagogical practices in a stabilized form. In terms of quantitative information, he adopts an economical procedure (“it is not necessary to give a list of examples”), and links his pedagogical experience to the interview itself<sup>8</sup>. He finally formulates his answers in an elegant manner to help the extraction of information as part of the research interview procedure. Observing the interviewer, the way she takes notes as the interview evolves shows how immediate her reaction is to what is taking place. After the teacher has finished answering, she replies by asking another question in full coherence with the previous one (see the video sequence).

#### 4. Future work

The DW portal is now being deployed through all four universities in Languedoc-Roussillon, with a prototype that is now going onto its second year at Perpignan. While we go through a careful examination of our video-taped material, we will be able to put together on-campus usability studies at Perpignan. This will offer supplementary material making it possible to effectively compare the expected uses (as projected by actors during the preliminary phases of the UNR) against the actual usage of the portal in all situations (students, in class or off course; teachers, etc.).

Our website should also make various resources publicly available. We are now going through a careful indexation of most of our material to help search of our database.

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<sup>6</sup> Appropriation is a phase in the study of a process leading to a prototype [10]. We confront this point of view with interactional constraints. We thus study the relation between technologies and situations were they are presented and/or used (see [5]).

<sup>7</sup> Even if one could show this is exemplary [14].

<sup>8</sup> The separation between the professional activity on which the interview focuses and the interview itself, as an exclusive research method, has been questioned ([3], [8]). Here, the distance between the two is examined as a practical problem that must be solved by the interviewer.

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