

Paper in the domain: Learning and Instructional Technology

**Developing computer-support learning  
environments in vocational education:  
A socio-cultural approach to the study of pilot projects**

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**Abstract**

In this paper, we present a research which was aimed at evaluating the use of platforms for e-learning in twenty vocational schools in Switzerland. The research has been carried out over a two-year period (2002-2004) in which each of these schools developed a pilot project that gave them the opportunity of experimenting various forms of computer-support learning environments in order to meet their different training needs.

Drawing upon a socio-cultural approach, our research questions focus upon the meaning that the various actors give to their pilot projects; the way in which they make sense and appropriate new tools of communication; the influence of these tools on educational practices; the organisational and technological conditions that enable the realisation of a school project; the various resources used (or not) by the project teams.

In order to answer these questions, the method puts emphasis upon a qualitative approach: interviews with the leaders of the projects and all the teachers involved in the projects; participation in the meetings of the project teams; observation of training situations; analysis of the documents and e-mails which were exchanged through the platforms; questionnaires addressed to the students and teachers involved in the school projects.

The results presented in this paper will concern two different aspects. First, we shall describe the educational practices that have been developed in the new learning environments that the schools have experimented. Second, we shall analyse a series of dimensions which account for some positive outcomes in the school projects.

## Summary

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## **A socio-cultural approach to educational pilot projects**

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### **The context of the research**

In 2001, a programme aimed at promoting the use of ICT in the context of vocational education was brought up by the Swiss Institute of Pedagogy for Vocational Education. During the period 2002-2004, twenty vocational schools belonging to three different linguistic regions of Switzerland have been supported by this programme. As a research team, we were responsible for evaluating the outcomes of this programme. In other words, the context of our research is that of an evaluation mandate which was aimed at analysing the various projects which were developed in the schools. A common feature of these projects is that they all used an e-learning platforms with the aim of increasing teacher-learner interactions.

### **Theoretical framework**

Drawing upon a socio-cultural perspective, our approach puts a special emphasis upon:

- the meaning that the individuals give to the tasks and situations in which they are involved;
- the dynamic process of innovative practices (rather than static outcomes);
- the organisational and institutional contexts in which a school project is developed.

### **Research questions**

Our main research questions explore four different issues: 1) What are the training dynamics (be it formal or informal) in which the teachers who work in the pilot projects are involved? 2) What is the evolution of the projects during their realisation, depending upon the experiences which were made, the difficulties which were found and the solutions which were proposed? 3) What are the institutional and organisational aspects that help or on the contrary impede the positive outcome of the projects? 4) What is the educational and pedagogical influence of computer mediated communication on learning situations, the teachers' role and tasks, the way of interacting and learning?

## Method

In order to answer these questions, priority was given to a qualitative research method which draw upon various types of data: interviews with the leaders of the projects, as well as with all the teachers involved in the projects; participation in the meetings of the project teams; observation of learning situations; analysis of documents and e-mails which are exchanged on the platforms; questionnaires addressed to the students and teachers who are involved in the projects.

## Main results

*A large variety of practices.* First of all, we observed a large variety of educational uses of ICT in the schools. These practices vary according to the type of training, the perception of educational needs, the teachers' expectations and aspirations, as well as to the available equipment and resources. In fact, the use of ICT is an answer to multiple needs: for example, some schools put emphasis upon the technologies of communication in order to keep in touch with their students during certain periods of practical stage. One of the schools want to put on line the complete material of a course at the intention of their students who have a high involvement in sportive activities and are therefore often absent; for other schools, the expectation is ICT to provide a support for distant group work; other schools want to put exercises on line in order to enable the students to rework the school matters for their final examinations. Finally, some schools explore the possibility of substituting certain school days by distant work, in order to spare the time needed to go from home to school or to the apprentice's workplace; this is especially the case for schools which are situated in mountain regions. In each of these situations, the use of a e-learning platforms fulfils a particular role and puts emphasis either upon the collaborative and communication tools, or upon providing and exchanging documents.

## The situatedness of ICT: a source of many tensions

The introduction of ICT in the context of vocational education has different effects at many levels. For each of them, we observe the existence of tensions and try to describe them:

*At a technological level:* The technological problems that have to be solved are numerous and require a lot of energy from the project teams. In many schools, it resulted in a disproportion between the time dedicated on the one hand to solve technological problems, on the other hand to discuss pedagogical and didactic aspects.

*At a didactic and pedagogical level:* The teacher's activity in particular is more demanding since the pedagogical material which is provided on the platform requires a particular attention in order to be understood by the students. The expectations regarding the work to be carried out have also to be formulated in a more explicit way than in a face-to-faceteaching situation. These new tasks constitute a source of overwork in the teacher's tasks.

*At the level of the teachers' training:* The diversity of the projects, the heterogeneity of the teachers' competence, the specificity of the required competence for the realisation of the pilot projects, the nature of the internal and external resources that the school may use, are all dimensions that oblige us to take into consideration elements that are sometimes difficult to conciliate and to try, as much as possible, to articulate them.

*At the level of work organisation:* The functioning of a school (programmes, schedules, examinations, etc.) is made of a set of constraints. Institutional constraints such as the

introduction of a school reform or the restructuring of a school, or financial constraints play an important role. The organisational conditions determine in a crucial way the development of a project of quality, but these conditions are systematically put aside by the members of the project teams.

## **Conclusion**

By trying to identify the many dimensions which are liable to be troubled by the introduction of a new learning environment, our research contributes to a better knowledge and understanding of the difficulties and tensions that are involved in any project development. The development of new effective learning environments, those in particular which draw upon the computer mediated communication, cannot avoid to thematise and negotiate these tensions with the partners who are involved in the project.