

## **Cooperation between school and companies so as to frame students' workplace activities – the case of a cooperative program in an industrial engineer school in France**

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Cooperative education is a pedagogical approach combining classroom-based education with practical work experience. This pedagogical trend is now widespread at a university level in France. Since the beginning of the nineties, many Bachelor and Master programs, as well as engineer schools have decided to set up their courses with a view to facilitating students' school- to- work transitions and newcomers' efficiency in workplaces. Our presentation will focus on a three-years engineer course which is organised in a cooperative mode (alternation of periods of 1 month at school and 1 month in a company).

The overall aim of the course is to train engineers, both able to manage complex production systems and to improve them, in their various aspects: organisational, technical and economical. Each student is supervised by 2 tutors: a supervisor from the school; and an engineer from the company. Within the workplace, the students' tasks and working conditions are not only defined by the company tutor, but must also be consistent with school recommendations. More precisely, trainers are convinced that each student must follow a specific trajectory in the company to become a particular type of engineer.

In this presentation we will try to answer two types of questions about the cooperative program:

How can schools and their industrial partners (companies which are engaged in this teaching program) collaborate? Is it possible for companies to satisfy the school recommendations while complying with its social and technical constraints and specificities?

What do student's activities really consist in? What types of knowledge and skills do they acquire in companies? Are these knowledge and skills consistent with the school's official pedagogical objectives?

To answer these research questions, we have developed a theoretical framework based on the work of anthropologists like M. Douglas (1999) and J. Lave (1991) and French didacticians as Y. Chevallard (1992) and G. Sensevy (2001). Our methodology is based on two case studies. We have followed and observed two students' complete trajectories (3 years each) in two different industrial workplaces (pharmaceutical products; paper industry).

Our case studies show that school recommendations often go against the social, technical and economic organisation of the companies. According to the specificities of the companies, students engaged in the cooperative program have developed quite different skills and knowledge in the workplace. For example, one student has built strong industrial project management skills, whereas another has become progressively more and more expert in a narrow technical domain (cleanness of paper). These results point out that cooperation between schools and companies with the view to creating and managing training programs is complex. It ideally needs a strong mutual understanding, which proves difficult considering the specific constraints of each type of institution.