

## **French framework for work based learning education**

### **Abstract**

The goal of this paper is to present the French national and regional context for work based learning and especially the main actors (services supports, schools, universities, companies and regional political and social partners dealing with life long learning). Our public are already employed students within employment contracts between coop students, firms and educational establishment. Benefit of such an educational system is to allow people to obtain an acknowledged degree thanks to both academic education and skills acquired within professional experience. Programs are composed by times in the firms and academic period in school; frequencies depend on the school within large range frequency (from 2 days at school / 3 days in companies till 3 months / 3 months) and can be different depending on the year of the learning period. One plus of this system is to provide students with a dual tutorials (both from the school and the company) to achieve high skill level. In addition, work experience allows students to be employed quickly after passing their degree. Pedagogy relies on project based learning and inductive pedagogy. Financial resources are provided by the firm (student salary), Regional Council dedicated to firm and school, taxes and funds from some lines of business focussed on each available degree. Financial possibilities are administrated by FORMASUP of Nord Pas de Calais considering pedagogical aspects. Note that degrees are from under graduate to engineering diploma. Our conclusion will stress on the international mobility, specific tutoring for innovation projects and the constraint due to both economic evolution and firms necessities.

**Keywords** : work based learning, professional skills, educational system, tutorial, inductive pedagogy, apprenticeship, sandwich course

### **1. Introduction**

The French organisation of higher education is based on four levels: Ph.D level, level 1 standing for Master's degree, level 2 for Bachelor's degree and level 3 for technician certificate respectively 8, 5, 3 and 2 year courses after university arrival. The French organisation of apprenticeship is an additional way to pass diploma adding skills acquisition within work contract between a student and a company. Such work based learning program was first focussed on under graduate degree (craftsman, operator, hands on) and was further applied to higher education for under 26 year's old students. Since 1980, French law was intended to make apprenticeship a form of vocational training to the same degree as secondary or higher vocational and technological training. Therefore access to any level was possible and apprenticeship was really developed in the 90's. Recent legislative (1993 and 2002) consolidated the Region role and reformed the apprenticeship funding system. Region Nord Pas de Calais created FORMASUP in 1992 whose role is further presented in order to show which reply is done to apprenticeship request for higher education. In the following, apprenticeship and applied pedagogy is explained and feedback results and perspectives are given as a conclusion.

### **2. FORMASUP**

#### **2.a. Formasup center: goals and actions**

FORMASUP is a training centre for apprenticeship of higher education, created in 1992 in Nord Pas de Calais (north of France, at the Belgium border). It is part of a national network of similar centres called CFA (Apprentice Training Centre) dealing with the same goal: being a support service that provides solutions for work based learning students and make the connection between actors (learners, companies, schools, regional administrations and organisations) in order to define curriculum with schools, develop work based learning and help and supervise financing. Indeed

FORMASUP covers all the training levels and provides a professional qualification and confers further education degree. With implied educational professionals and motivated firms it makes it possible for young adults to acquire a diploma, with qualification as well as professional experience. In that situation, the apprentice is both a student and an employee depending on a work contract. Such a system is a plus for learners to get acknowledged degree (as for the conventional education system with academic program and short training period in the industry) but with a higher professional experience and knowledge of everyday life of a company. Their skills and competencies allow them to be immediately employed after passing their diploma and much more adaptable and autonomous. This success with respect to exit recruiting rate is possible thanks to a strong tutoring both by the school and by the company tutor in charge of the apprentice on-site training. It's important to note that throughout the training, the apprentice gets a salary as any employee of his skill. The advantages for the company are obvious: they are part of the educational system that will listen to their demands and will propose a faster and adaptable reply. As a consequence, apprentice will be shortly a skill and competency resource for the company (they will know its culture, methods, project and will have the skills for it). So they will both carry-out a possible "pre-recruitment" process and might take financial benefit due to a minimum risk to recruiting and from financial assistance.

## 2.b. Financing view

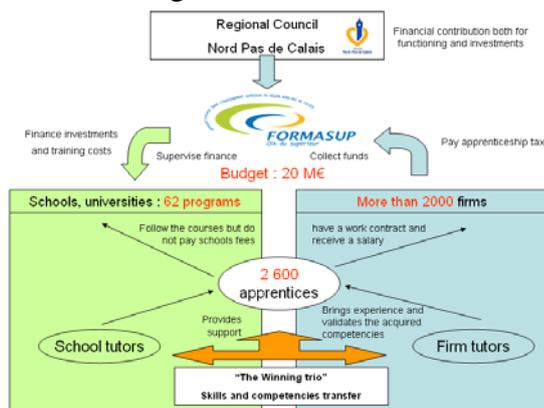


Figure 1 : actors relations for apprenticeship

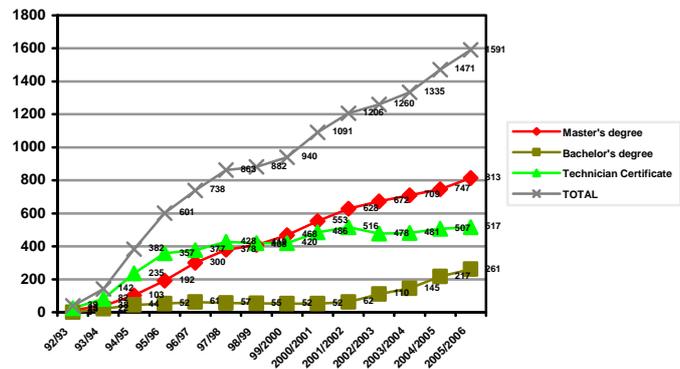


Figure 2: feedback of our activity since 1992

Financing the CFA, the training section and the apprentice requires many actors of different fields (see Figure 1). Among them companies are placed at the first rank within the tax for apprenticeship due by industries with respect to the French law. This law urges the payment depending on the number of employees of the firm. The company can decide to which training or field organisation will take benefit of it. Second actor is the Regional Council through subventions for investments, functioning or specific educative projects dedicated to apprenticeship. Third source of finance are from the school that make work based learning depending of the number of apprentices. FORMASUP can be seen as some kind of regulator that will ask, search, collect financing from the different actors. It helps the school structures to define the budget of the training within some constraints depending of scheduling at the first step and apprentice cost that might be optimised (efficient training, reducing cost). Funds come from parafiscal taxes of some line of business. Financing of the training dedicated to work based learning requires some constraints among which: double tutoring (school/company), accredited degree with well defined curriculum, part time period at school with academic program and part time period in the company with effective work experience. In 2009, FORMASUP covers 62 academic degrees, with 2 600 enrolled apprentices within more than 2 000 companies mostly located in the region of Nord Pas de Calais. Thanks to this specific situation in Europe (at 1 hour from London, Brussels and Paris by High Speed Train (TGV)) and due to the international framework of industrial activities, FORMASUP supports international mobility of apprentices. It also has an action for the creation of company and the social

modernisation dealing with an easier access to the training. Figure 2 presents the evolution of the number of apprentices.

## **2. Pedagogical aspects**

Work based learning curriculum is based on sandwich courses declined in two types of training paths: juxtaposition one when academic learning and work experience do not interact and the articulated one when both periods (academic/work experience) are structurally linked. This form is an integrative sandwich course that optimizes the path to lead the apprentice from the validation of his community project to his fast and effective integration in the strategies of the firms. This choice favors motivation, increased autonomy, cross competencies, social and labor integration. Employability is favored. Permanent questioning of teachers in direct contact with professional environment arises and urges them to continuously adapt and update their pedagogical practices. To reach the objectives for better recruitment, diplomas and certification, development of abilities, apprenticeship is structured around four poles: professional and academic training, problem based learning and project management. Professional training period deals with the acquisition of abilities. This training consists in the definition of firm projects in cooperation with the school and the apprentice taking into account the professional use of the assets of the apprentice within the framework of the projects in the firm, the acquisition of abilities through a concrete implementation of projects, the setting in a progressive situation of the apprentice as a junior manager. The academic training deals with knowledge acquisition with respect to the diploma syllabus (sciences, technical fields, human resources...). Autonomy training relies on project based learning that makes the apprentices become aware of their responsibilities through being in the position of a trainer, exchange and communication capabilities. Project management trains apprentice to a systemic approach that enables him to release a methodological process based on observation, analysis, proposition, validation using cross competencies. As shown on figure 1, the labor experience is under the framework of the apprentice, the firm and the training center. The apprentice, actor of his training, is monitored by a school tutor and a firm tutor: "the winning trio". Success relies on both apprentice's involvement and environments (firm and training center). The company is also an active actor thanks to the mission potential given to the apprentice and provides experience transfer, tutoring, skill evaluation and result validation. Due to the peculiar public, the chosen pedagogy relies on problem based learning (PBL) (Barrows, 1994). Such methods stress on the observation ability (real situation) that requires analysis in order to bring out the theory and solve the problems. As a consequence knowledge and competencies are increased. This is quite a different way in comparison of deductive learning that starts with lecture and ends with application; a not convenient process for public who lack conceptualization capacity. Inductive pedagogy reinforces this ability.

## **3. Feedback and prospects**

### **3.1. Problems and positive aspects**

After more than 20 years experiences, result is that apprenticeship system is worthwhile to improve employment and social grading basing the success on real partnerships between the actors: FORMASUP, Regional Council, schools and companies. The number of apprentice increases as well as the demand of industrials. French policy helps such development but strong constraints and difficulties exist: administrative tasks due to procedure respect, optimisation of the training cost by apprentice, introduction of such a new pedagogy that implied a permanent questioning of teachers and training centre with respect to the curriculum. In addition the international and economic environment should now be taken into account to adapt training with respect to mobility and innovation.

### **3.2. Mobility**

The location of our region makes it historically sensitive to European framework. Our partners have international activities and therefore require engineers that speak English (as a minimum) and can easily work and move to participate to international projects: mobility should then be developed for our apprentice. Many solutions are already implemented thanks to European or regional scholarship in addition of required TOEIC level for an engineer: seminary abroad for culture knowledge and language capacity and training work period abroad. Actors are now looking for partnership abroad both with companies and universities. Aim should be first to propose our diplomas to foreigners that could work and study in France (legally students with work contract), passing a French degree. Further goal is to send our learner for some specific schedules abroad or to combine academic periods in France and industrial periods in European countries but work based learning cost (transport, housing...) might increase due to location abroad.

### 3.3. Innovation awareness

Due to the new economic challenges of our industrial partners, it is obvious that learners should be aware to technological watch and to the detection of innovation project in the company. Innovation can be considered both as research and development projects for big industries and as technology transfer for small companies. Apprentices are therefore a vector for firm development and success within new and original methods. Work based learning is a way to help small companies to detect, develop and implement new methods for optimisation of products or production processes to allow higher performance, quality and security. As a consequence, specific tutoring should be available to afford more precise qualification with respect to the field of application (additive academic or conference program but also within tutoring by expert, modification of schedule to get quicker knowledge). Our educational system closed to our partners (firm and support services, laboratories,...) is a plus to help learner and firms to meet the right partners to finance their projects, conclude contracts and find legal support and additive skill if required. School tutors should then be trained to get a great knowledge of good practices and actors that might help innovation. Finally the apprentice will be part of the process of innovation (detect, support, implement) with an effective and worthwhile work based experience that will increase his skill, competencies and autonomy. In addition benchmarking of learners during academic period will be of interest for our groups of apprentices and the competency of our tutors.

## 4. Conclusion

French educational systems afford different way of access to academic degree. Conventional access represents the main number of students whatever the level is but French as a long history for work based learning which is actually developing due to the demands of industrial partners for quicker training and quickly adaptable employees. FORMASUP is a centre that makes the link between financing resources, firms, apprentices (young employed adults) and school with respect to the French legal framework. The action is to develop accessibility to qualification thanks to appropriate academic curriculum taking into account work based experience. This system is part of the long life learning process for social modernisation and industry development as a clue to economic uncertainties and necessities. Indeed industry demands higher qualification and competencies and the strong partnership between any actors make it a success within an adaptable reply. Actually mobility and innovation are the further perspective of our task.

## 5. References

- 1 Armstrong E: A hybrid model of problem-based learning. In: Boud D and Feletti G (editors): The challenge of problem-based learning, 137-149. London, Kogan Page, 1991

- 2 Barr RD and Tagg J: From teaching to learning - a new paradigm for undergraduate education. *Change*, Nov/Dec.1995:13-25
- 3 Barrows, Howard S. (1994). *Practice-based Learning: Problem-based Learning School of Medicine*, 145 pages
- 4 Boud, D., *Applied to Medical Education*. Springfield, Illinois: Southern Illinois University
- 5 Feletti, G. (1991). *The Challenge of Problem-based Learning*, London: Kogan.
- 6 Dewblam project (2006). *The social and educational challenge of Work based Learning in European higher education and training Results of a pilot experience*, Ed. Reinhard Schmidt, Firenze, December, 352 p.
- 7 Feletti, Grahame and David Boud. Editors. *The Challenge of Problem-based Learning*, 2nd Edition. Sterling, VA: Stylus Publishing, Inc., 1997.
- 8 French Government (2002). *Loi de modernisation sociale (social modernisation law)*, Loi n°2002-73 du 17.01.2002, et décret d'application du 24.04.2002, Version consolidée au 01 juillet 2007.
- 9 Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16, 235-266.
- 10 Hmelo-Silver, C. E. & Barrows, H. S. (2006). Goals and strategies of a problem-based learning facilitator. *Interdisciplinary Journal of Problem-based Learning*, 1. 21-39.
- 11 Kirschner, P. A., Sweller, J., and Clark, R. E. (2006) Why minimal guidance during instruction does not work: an analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist* 41 (2) 75-86
- 12 Manuel de Condinguy C., Deslandes C., Héroult S., Le Goupil N.,(2004) *L'apprentissage en France : enjeux et développements* Centre INFFO, 155 p
- 13 Merrill, M.D. (2002). A pebble-in-the-pond model for instructional design. *Performance Improvement* 41 (7): 39-44.
- 14 Porcher B., Letemplier C., (2003) *Enseigner dans la voie professionnelle : du référentiel à l'évaluation* Foucher, 128 p.
- 15 Schmidt HG: *Foundations of problem-based learning: some explanatory notes*. *Medical Education* 27:422-432, 1993
- 16 Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science* 12 (2): 257-285.
- 17 Sweller, J. (2006). The worked example effect and human cognition. *Learning and Instruction* 16 (2): 165-169.
- 18 Sweller, J., Van Merriënboer, J., & Paas, F. (1998). Cognitive architecture and instructional design. *Educational Psychology Review* 10: 251-296.