

Theme :Sustainability and Ecodesign of processes, products and services

ANALYSIS OF A CONTROVERSY FOR EDUCATION TO SUSTAINABLE AND ACCEPTABLE PROCESSES, PRODUCTS AND SERVICES

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ABSTRACT

The Ecole des Mines de Paris (MINES ParisTech) introduced an exercise for the training of its engineering students about 25 years ago: Description of Controversies. The Engineering and Environmental Management Master (IGE) led by the ISIGE and the CSI of the same school, offers its students the exercise "Analysis of an environmental controversy". These exercises are about 40 hours of work per student for 4 months in teams of 3 to 5. The evaluated reports are a website, a report, or an oral defense.

These exercises open the students to the uncertainty of the research and the scientific and technical development and the life of the projects, to analyze the complex in the uncertain. The goal is to learn how to map subjects that are both the subject of advanced technical expertise and that have become at the same time a business, often confused, where legal, moral, economic and social issues mingle. It is also for learners to learn to understand conflicts, without taking sides, without trying to solve them, but to make the panorama and analyze the salient points and blocking. This type of teaching develops skills for qualitative inquiry and complements the formalization, modeling, analysis and calculation capabilities provided by other courses. In addition, it makes it possible to become aware of the difficulties that projects may face for these future actors or project managers. The subjects chosen by the engineering students are very diversified, while the exercise of the Master is obviously focused on environmental projects

This exercise has also recently been proposed to student engineers at the SPEIT school (SJTU ParisTech Elite Institute of Technology) who have chosen the energy engineering sector. They are Chinese students enrolled in a "French-style" engineering school at the Shanghai Jiao Tong University, and to whom this exercise is proposed on Chinese controversies chosen by themselves. These young students often opt for apparently unfriendly subjects, and do not hesitate to mount interviews by evoking with their interlocutors some contested aspects of these relatively controversial subjects. Some Chinese students were slightly less inclined to deploy their efforts for this exercise, probably partly due to a lack of familiarity with the exercise of the project with a great deal of autonomy vis-à-vis their supervisors, and asking for a good initiative.

Students and students who carry out this exercise, in France or in China, make a positive assessment and show a real pleasure to realize this exercise. Their freedom of tone and argument is sometimes unattractive to that of their academic supervisors or to the staff of the institutions or companies they interview and who sometimes have limited voice. On the other hand, the impact of the exercise on the qualities or skills of the employees and citizens that these students have become has not been measured, if it is measurable.