Introduction to University and the ICT Sector

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Abstract

The innovative subject "Introduction to ICT" combines a general Introductory Course to the University with elements around the Information and Communication Technologies sector (including the ICT engineer competence profile, market aspects, etc.)

This new course has been developed and implemented in three degree programmes offered by the Polytechnic School at Universitat Pompeu Fabra, Barcelona. The course team consists of thirteen teachers, including business professionals, librarians, computer technicians, institutional representatives as well as an educationalist responsible for advising on methodology and study techniques. The subject was designed for a high number of students (260). At the end of the course, we collected quantitative and qualitative information about the students' satisfaction. The findings show the positive vision that they had about the topics worked during the subject.

This paper describes the course, its implementation and evaluation and, of course, the details of the findings that we collected about students' satisfaction.

Keywords: Introduction to the University, Teacher coordination, work about competences training, immersion in European Higher Education Area (EHEA).

1. Introduction

The transition to University is certainly an important change for students, since it represents the evolution of the regulatory context as well as training orientation. Both elements affect their academic and personal lives (Gairín, 2004). Adapting to this new way of doing and learning can be more or less traumatic depending on variables that affect the adaptation process such as the maturity of the student or previous learning experiences.

To ensure the processes´ quality of transition between the different stages of education, we must ensure the organization (Guillamón and Feixas, 2005), Universitat Pompeu Fabra, gives substantial support to minimize the most harmful effects that transition could cause to help students overcome insecurities, lack of information, uncertainties or lack of study skills (Brick, 2006), which may in turn lead to academic failure and drop out in the early months.

The first step to act on this line was to design the Course of Introduction to the University (CIU) during 2006 to 2007. Then, the Universitat Pompeu Fabra raised the possibility of offering an introductory course for new students and this was the moment when the Polytechnic School (among other faculties and schools of the UPF) decided to conduct a pilot study.

To this end, some teachers began to reflect on the objectives, content, overall structure of the course and other specific characteristics for good design of the program.

In addition, we must consider the introduction of the European Higher Education Area (EHEA), which implies an additional change with double reading:

- Maybe this effort to adapt the degrees with consistency and quality to the EHEA has

exhausted everyone involved and they do not feel sufficiently motivated to carry out a proposal as CIU

- Or maybe, it could be an opportunity to initiate processes of structural and organizational change such as the design, development and evaluation of the CIU, which way be useful in the processes of decision making when creating the new degrees.

Thus, during 2007-2008 the CIU was held for the first time in the ESUP with a program developed by a group of internal and external UPF professionals.

From this first experience arose a paper (Moreno et al, 2008a; 2008b) in which the results are collected as well as progress in terms of immersion in the EHEA. All these results were considered in the design of the CIU 08-09 and for the ITIC subject too.

With the arrival of the new degrees it was decided to turn this into a mandatory course for all freshmen at the UPF. This was the beginning of the ITIC subject. Specifically this subject has a weight of 6 ECTS credit concentrated in the first quarter.

Given the design of new degrees this course consists of two main blocks: one concerning the **introduction to the University** and another focused on the **introduction to the sector, enterprise and ICT market**. Each block is also divided into subsections; for example, they have got their own laboratory practices, workshops and works about specific themes. And each one had different requirements, duration, evaluation weight, etc. There is a certain level of integration between the two blocks. The content for some of the methodological activities carried out in the introduction to the University block were related to ICT sector issues, and to practice the written communication skills introduced in the first block, the students were asked in the second block (introduction to the sector) to write an academic report on ICT market aspects.

Below you will found the methods that we used, the evidences that we collected and finally, the conclusions in play.

2. Methods

As presented in the previous section, the subject of ITIC is composed of two large blocks closely linked through practice and activities, with the aim of not losing sight of transversally and continuity of the subject. This objective is reinforced with greater intensity with the realization of a final report to be presented in public. This work has a number of requirements (quality of information sources, formal quality of both written and oral presentation, etc.) to secure the use of everything worked (or much of the content) along the subject. With each and every one of them we want to guarantee the quality of their work, not only the result but also the whole process.

The formative program is based in work and competences development, not only instrumental but also transversal (Tuning project, 2006), so, we must collect evidence about all of them. This variety is the principal motivation to design a complete methodological model as it can be seen in Table 1.

Table 1. General and specific competences in ITIC

General skills	Specific Skills
Instrumental 1. Ability to organize and planning. 2. Ability to search and information management. 3. Ability to communicate orally and property written in Catalan and Spanish, to audiences both expert and inexperienced. 4. Troubleshooting. **Interpersonal** Ability to work as a team. **Systemic** 6. Ability to adapt to the new situation in University and ESUP. 7. Ability to recognize and understand the diversity and multiculturalism.	A. Basic knowledge of ICT engineering profession. B. Know the general principles of economics and business, and the impact of ICT on society. C. Ability to work draft and development in the area of their specialty. D. Ability to manage own documentation of the profession as specifications, regulations and mandatory standards. E. Ability to use search tools and bibliographic information resources relating to ICT.

Since this is an introductory course, the proficiency levels for some of the basic skills is low because there are others subjects along the degrees will work them at higher levels. Anyway, this is an ideal moment to enable them to become familiar with them.

At this point, we present the **methodological strategy**. It is characterized by the combination of plenary lectures with sessions of individual and group work that students perform in large group sessions or small.

In particular, the work inside and outside the classroom is organized as follows:

- **Lecture sessions of presentation:** the teacher presents the theory about each theme of the course. Students are expected to participate with questions and comments.

- **Seminars:** These are small-group sessions where students work individually or in groups depending on the activities planned by the teacher. The activities outlined in the seminars are diverse in nature so as to enable practice, review and discuss the issues worked actively in the lectures. To prepare the seminars, students perform the preliminary work required at home. The activities form part of the continue evaluation system.

- **Practice with PC's:** The students work in a computer room. The teacher monitors the work. These practices serve to reinforce the concepts presented in the lecture sessions and personal study. The activity is conducted in groups of two.

- **Work about a ICT sub-sector:** Groups of four or five students deepen over part of the ICT market. The students must use the information received in lectures, practices and

reference's documentation and write an academic report. Each group presents the work to be done plenary. The work will be supervised by tutors in the corresponding seminar groups.

- **Academic debate:** Debates are made with preparations beforehand (in groups of four or five people) and students assume the role of an institution to discuss a controversial issue in the ICT sector. It will provide a guide that details the procedure for the conduct during the debates.

- **Final exam:** Short written examination including all the contents worked along the subject.

As mentioned earlier, the teaching methodology is complex because it must include the work of instrumental competence and transverse. Thus, the evaluation system is also on the same line as shown below.

The evaluation process focused on the achievement level of each of the competence so, every activity with evaluator character was associated with a range of activities and competences. This relation about competences, activities and evaluation weight was explicit in the subject's formative plan. It means that, the students were fully aware of how you would develop the subject at all times (Bloxham and Boyd, 2007).

Some details of this assessment are as follows:

- To successfully overcome the subject is necessary achieving the minimum level required in each of the competencies to be developed along the subject. Every competence was worked in more than one activity, so, this criterion does not mean that the students must pass all the activities. They can fail in 3 (maxim).

- Since most of these skills are employed and evaluated in person (classroom) and continuing along the course, the class attendance was essential. (In general, in the continuous assessment is not taken into account whether the lack of attendance is justified or not.)

It is also a key point for the course that students take an active role. That means they must be critical of the issues raised, they should think about their own ideas while maintaining the interest and curiosity about the material presented throughout the sessions. It is essential that their reflections are based on the formative plan references' and, where possible, also contrasted with the additional sources that are provided along the classes.

Finally, it is worth mentioning to add that the materials were available in a Moodle course (Aula Global) where the students could access all the materials that were needed. Teachers also provided another resources list and materials to widening and deepening about different topics. Also, the students can go to the tutorial sessions always that they need it.

3. Evidence

Given the nature and characteristics of this course, it is coordinated by the director of the Teaching Quality and Innovation Unit (USQUID) of the Polytechnic School. The global evaluation of the course development was evaluated by the USQUID. The pedagogical staff of the USQUID was in charge of designing the instrument to evaluate the students' satisfaction and performing the analysis.

Emphasis was put on this evaluation process, as well as a new item we consider essential for new programs in its distinct character. The evaluation results will provide important indications to enhace the ICT subject which is consider in the Polytechnic School a great opportunity for our students and to increase the academic quality of ESUP.

Trying to cover most of the issues, the USQUID designed several instruments collecting both general aspects of the subject development as more concrete and specific aspects of the teaching received.

Specifically, the evaluation of the subject was developed through:

- Conducting an assessment of overall satisfaction by a short questionnaire prepared by the USQUID.

- Conducting an assessment on each and every one of the sessions and activities raised during the subject by a larger questionnaire prepared by the USQUID (in key academic quality, interest, motivation on the topics, quality of resources provided by the teacher, adequacy of the dedication required in each activity, etc.).

- Other elements coming from observations performed along the course (classes, tutorial sessions, etc).

With this information, we can extract a very positive level of satisfaction. It is also true that students have emphasized some elements of improvement such as changing the order of some sessions.

The following findings result from the analysis of the data collected in the evaluation (n = 155):

General aspects:

- The 62.6% of students who responded to the questionnaire believed that there has been no repetition throughout the course.

- About 75% of students believe there is a good level of coordination between teachers of ITIC.

Aspect of the subject they liked most:

- "One of the jobs that I liked the most were the debates, because they present interesting topics around important concepts about the industry."

- "I like the debates."

- "The aspects that I have liked most were the work on transversal competences because of their importance (for example oral expression)."

- "What I liked most is the activities involving the interaction and collaboration with classmates, especially the debates."

- "The level of satisfaction is high; I have found it useful to augment my knowledge about my future professional context."

- "The debates have been most fun."

Also we analyzed their academic performance because it represent the final computation of the evaluation that students have been receiving in each and every one of the activities, and therefore represents numerically the achievement of goals outlined in the formative plan: 27 don't presented (10%), 1 suspended more than three minimum requirements, therefore there is no option to recover the subject in September but should be repeated next year, 19 have the opportunity to recover the subject in September (since they fail less than 3 minimums), 213 pass (82%). Considering the totality of the information collected we can make a positive assessment of the subject.

Well worth adding that at the beginning of the quarter, we prepared a document open to all

teachers (by Aula Global) where they could add all the comments and suggestions they think can be useful to improve the subject for the forthcoming year. In this way, besides having the detailed assessment of students, we also have the teachers' feedback. Most of the teacher comments are around organizational aspects so that students have more time to prepare the activities and assignments proposed along the course (for example increasing the number of days between debates). This measure will also allow the groups to deepen more in each of the topics proposed. In general, teachers are satisfied on how well the students have received the course.

4. Conclusions in play

This section presents the conclusions reached after the development of the subject ITIC. These conclusions derive from the feedback received by students and teachers, and will help to improve the implementation of the subject in the forthcoming year:

- We must reconstruct some aspects to improve the ordering of topics, for example, present the "oral expression techniques" before carrying out the debates. Doing so, we will also make our students to work harder the transversals competences' related to this issue, such as nonverbal expression, attitude towards a hearing expert and not experts, etc.

- It should be emphasized the use of all resources that UPF offers (for this and for the rest of subjects).

- Increase the time devoted to discuss the advantages and difficulties of group work, since we detected some conflicts where students have asked for help. Team work is an essential transversal competence for engineers (Martinez-Monés et. al., 2005; Hernández-Leo et al., 2006). Students should understand its importance and challenge from the beginning of their engineering studies and take advantage of the opportunities provided to work in groups to develop this competence.

- Improve the structure of the organization of materials in the Aula Global (Moodle course) so that it is easier to navigate and find materials.

- Increasing the dynamism of some sessions to motivate the students and let them see the value of the issues tackle for their short-term future performance in the University and a subsequent professional development.

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