Enhancement of the Global Perspective for Engineering Students by Providing an International Experience

Models of European Double and Joint Degrees: A Need for Transparency

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To day the context of international education is quite complex. In Europe, we are at very different stages of implementation of the so-called “Bologna process” (see: http://www.bologna-berlin2003.de). I will not enter in the details of such a process since others will, but I want to underline that when designing the international projects of our immediate future the problem of the changing scenario becomes relevant not only to the Europeans but also to their partners even if they live in a system not affected by such a change.

Let me also mention that the great transitions in the educational systems will require years to be completed since students already enrolled with one system are generally granted the opportunity to complete their curriculum as begun. Moreover, various European nations are entering the new system in different ways and at different times. It is very clear that the transition will be going on, at least somewhere, for many years.

Clear, transparent schemes for the international projects are badly needed, in particular during the transition period.

The problem, in my view, is particularly serious in the area of the highly-integrated projects. On the one hand they demand a full commitment of the student for a considerable duration of time, often up to two years. On the other hand, very often, the same words and titles are used to describe extremely different things.

First of all let us distinguish between the double and joint degrees.

We speak of a double degree project when each of the two institutions involved awards its own degree to the student who fulfilled the prescribed requirements.

A joint degree on the contrary is a single document issued by the participating institutions (in addition or not to that of one of the two institutions). Sometimes people include double degrees in the category of joint degrees. This can create many misunderstandings, not only among the students.
Each of the two systems, double and joint degrees, has its advantages and disadvantages. For both the change of the educational system of one of the partners is a major challenge.

It seems that the model toward which at least many politicians are tending in Europe is the so-called 3-5-8 system, originally proposed in 1998 by a French committee immediately after the Sorbonne declaration.

The following, indicative scheme refers to Italy where the new system has been already introduced.

![Diagram]

Fig.1

One has to recall that, so far, the intermediate step (a title after the first cycle) has not existed in continental Europe.

With the new system, which has replaced the old one in a complete way in Italy, in a partial way in Germany and is being introduced, in some way and at different times, in many counties in Europe, the indicative table of correspondence with the North American system is the following one, at least for those countries like Germany and Italy where an educational system is in place with 13 years before entering the University.

If we look at the change from the perspective of the international exchanges and in particular of the highly integrated projects we will see how the old and the new scenario are completely different.

For the double degrees I will consider the examples coming from the TIME Association (Top Industrial Managers for Europe). It is the association of 40 among
the top Institutions in Technology in Continental Europe and has the double degree system as the main (even if not the only) goal of its policy.

Very briefly let me only recall that the general principle is that of extending the curriculum by substituting two years at the host for one year at the home institution. When the students return, complete their curriculum, generally in six years, and duly graduate, the institution where they successfully spent two years will automatically award them its degree too. These degrees are both at the level of a Master.

Let me only mention that there are great numbers of examples of good practice. The results have really been outstanding. In May 2002 the first 1000th TIME double degree has been awarded. A survey on the alumni has shown outstanding international careers not limited to the two countries where the courses were attended.

The principles can be used also in other co-operations as some of the TIME partners are already doing, for example, with North American or Japanese partners. Here too the results have been outstanding.

More constrains are now being introduced with the adoption of the so-called 3-5-8 system of Fig.1. Let us recall a passage of the Bologna declaration that says:

…Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification. …
The relevance to the labour market means a conceptual revolution with respect to the system in place so far. In the latter the first years were mainly devoted to giving very strong bases in mathematics, physics, chemistry. The first two years, in particular, have been very similar to those in the curriculum in the sciences, like physics, with the addition of some foundations in engineering, which become more important during the third year. In the new system, for example in Italy, we had to anticipate some specific courses. In order to find room for them, we had to move some basic science courses to the last year of the first cycle or even to the second cycle.

Apart from very few really top quality students, it becomes almost impossible to start double degree projects after two years only. You are left with the students who have already been awarded the degree of the first cycle (Bachelor in the North-American system). Following the principle of two years at the host Institution substituting one year at home Institution the result will be two years at the host Institution and one year only at the home Institution in one of the following two ways:
Both schemes require a very strong confidence between the two institutions, a very strict control of the curricula and a very active cooperation. Moreover, students are staying for a longer period in the host institution than in the home institution. This means that you are bound to limit access to the double degree project to students who completed the first cycle in the home institution.

My feeling is that we will continue to do real double degrees, but that they will be an elitist product even more than in the past. I will come back later to what I mean by “real”.

On the contrary the new system is making joint degrees more and more attractive. They can be well-defined and visible products. They can be done in a maximum of two years after the first cycle. They can easily be offered to students coming from a third institution. The internationalization can be obtained by exchanging students for part of the curricula and/or by an extensive practice of teacher’s mobility.

That is why there is an almost incredible flourishing of initiatives and of new schemes of co-operation in this area of joint degrees.

Let me mention some examples.

Some joint master degrees have been done by two or more universities by moving the teaching staff only. On the contrary the student body is offered the courses at the same location.
The difficulty of this scheme lies in organizing (particularly synchronizing) the teaching staff mobility.

In other cases the courses are offered in one location only at a time, but the location itself is rotating. In other words, for the student enrolling in a certain year the location is unique and different from the one offered to the students enrolling in another year:

Both schemes of fig. 6 and 7 are mainly used for intensive courses of relatively short duration (maximum one year).

A completely different kind of joint degrees has been designed in which internationalization is obtained mainly by moving students. Obviously this kind of projects has a much deeper cultural impact.
There are many options in organizing the teaching and the student mobility. I’ll show the two schemes that seem to emerge as the most interesting ones. In the two examples I am considering, three semesters have to be attended at three different institutions and a fourth semester is done as an internship at a company.

In the first scheme each partner institution will continue to teach the same module both in the first and in the second semester every year. Students will move from one partner to the other:

![Diagram](image)

**Fig.8**

This is probably the easiest way to begin with limited resources. Moreover we can start with three institutions only, and with one group of students only. In this way we can agree on the correct sequence and allow for prerequisites to the second module to be taught in the first module and so on. Unfortunately, as soon as we have more than one group of students we need to make the modules completely independent one of the other and self sufficient in order to allow for different sequences. This is obviously a serious drawback of the scheme.
The latter drawback is avoided in the second option where each institution will teach the three semesters in the proper order. The groups of students will move from one institution to another when moving from the first to the second semester and from the second to the third semester.

Fig. 9

The examples of Fig. 8 and 9 have been shown just to mention the main categories of joint degrees that are flourishing at an almost incredible pace.

Two factors are, in my opinion, becoming of paramount importance in judging those programs. One is the quality control and assurance of the product that is offered. The other one is the added value in terms of employability.
In the case of double degree projects we can say that a quality control system is already built in. Indeed each institution has to award its own degree. In the case of joint degrees many reasons justify the demand of a quality control and assessment both of the product and of the process. The offer of such kind of products on the market is great and constantly increasing so that a guide for the customer is badly needed.

That is why some associations whose label is already well known are setting up their own assessment committee carefully awarding that label to joint degrees fulfilling well defined requirements.

I think moreover that the other factor, employability, will play the major role in determining the survival and success of a joint degree project.

At the level of these projects, by employability I mean the success of the graduates in finding an adequate job where they can take advantage of all the skills acquired, including, in particular, the international awareness. It is here that the job market, appears again.

I will be quite provocative now. I think that it is important to call things with proper names not to cheat our constituency. We must not cheat the job market, and we must not cheat our students.

For me, for example, it is cheating the job market to award two independent degrees after a curriculum that has not required any additional workload, in terms of credits, with respect to the workload required to a student who will be awarded one degree.

I have also the feeling that there is some part of cheating the job market to award two degrees of two different countries without asking the students to be proficient in the languages of both countries.

Coming to the Joint degree, since it is only one degree it is correct not to ask an extra workload, and it is reasonable (and expected by the employer) that the students does not necessarily know the languages of all the Institution that contributed to offer the joint curriculum. It is reasonable that it is offered in English.

What has, however, to be declared clearly in advance is whether the joint title has or does not have a legal value at least in all the countries of the issuing institutions. By legal value I mean that they give, in those countries, the same rights as the official second cycle titles issued by a local institution. The legal value has to do, for example, with public competitions. Moreover, Engineering is a regulated profession. In many countries there are professional orders or charters.
It is cheating the perspective candidates not to tell them the real situation. And this is not a problem of few institutions of few countries. Recently the EUA published a survey done by Christian Tauch. It is evident that very few (to be optimist) joint degrees have a legal value.

Once transparency of titles has been established the transparency of the contents has to be checked vs. employability.

I think employability can be guaranteed only by involving companies. What makes a great difference, in my opinion, is how the international integrated projects are tuned to the demand of the job market; in other words if the latter has an influence on the final product only or also on the structure itself of the educational process.

If we do not involve companies the time interval from the stage of the design to the moment in which the bootstrap of the job market on the project becomes evident through the employability, and then through the number of applications of new students, is too long. It can take same years. Today the dynamics of the global market is much faster.

Companies can provide us invaluable inputs for our international projects. One has to underline and always keep in mind that involving companies in those early stages requires that the higher education institution is already strong enough in the field not to become a mere provider of products, but to become the partner which is knowledgeable and cares of the full Education of the person.