

# EFFECTS OF BOLOGNA, THE ECONOMIC CRISIS AND THE IMMIGRATION IN ENROLLMENT AT THE UPM

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## Abstract

Over the past 20 years, the economic landscape has changed dramatically in Spain, undergoing a growth explosion and a subsequent decline which has led to the current economic crisis. This growth has led to heavy immigration from both developed and developing countries, which provided skilled and unskilled labour.

This article aims to analyze the impact of immigrant students at the Polytechnic University of Madrid, pondering the effect that the economic crisis is having and will have on this group, and evaluating the implementation of new plans of Bologna.

We analyze the enrolment at the UPM and particularize to the Civil Engineering school (previous EUITOP), crossing with the effect of the economic crisis on foreign students.

The exponential increase of foreign students, most of them from Latin American and born in Spain, and students of European countries that have started to register considerably from 2002 and 2003, lead us to consider a renewal in certain areas of learning, and to exploit the possibility of interaction with other countries so successful through the acquisition of transversal skills, as well as to guide and improve, support and integrate these groups at our university  
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## 1 INTRODUCTION AND OBJECTIVES

Over the past 20 years, the economic landscape has changed dramatically in Spain, undergoing a growth explosion and a subsequent decline which has led to the current economic crisis. This growth has led to heavy immigration from both developed and developing countries, which provided skilled and unskilled labour.

Without discussing statistical data on the number of unemployed in Spain, the reality is an increase in this rate, which has been much accentuated in the construction sector since the bursting of the "real estate bubble" in 2007 to the present 2011, with an unemployment rate of 20% in round figures.

Based on this position, the logical thing would be a radical decline in the enrolment rates of Students pursuing technical careers related to the construction sector, in accordance with the unemployment increase. This radical reduction has not occurred. A lower decline has been detected in the last years, but probably under a direct consequence with new undergraduate and master studies brought to us by the new EEES and the proliferation of Civil Engineering schools in the Spanish territory.

## 2 DEVELOPMENT

Sleeter and Grant describe five approaches to multicultural education [1] that can be summarized in:

1. Exceptional and culturally different teaching approach.
2. Human Relations approach.
3. Single group studies approach.
4. Multicultural equal link approach (race, gender, language, culture handicap and social class).
5. Multicultural and social reconstructionist approach.

The main goal was to consider the effect on enrolment of university students, especially in Civil Engineering schools, from the years of economic recession beginning in 2007-2008 until today, but focusing on the effect on the foreign population and the adaptation problems of this group in our University.

The main factors that have been considered in order to expose these problems are, in order of importance, the language barrier, the different customs of origin and the gender difference.

The language barrier brings problems of serious difficulties for a normal track of the classes, for verbal expression and, consequently difficulties, not only to transmit the knowledge acquired in the written tests, but also in verbal communication with both teachers, and their own classmates, generating insecurity on the student, which ends in isolation and lack of integration in the university.

Cultural traditions are a fact that can not be ignored in this study, and in a more or less distant past, in every culture has prevailed the education of men over the women. Other cultural tradition doesn't have a significant effect on the student, as they are far more important at home than at the University. This lead us to the third factor, gender.

Although there are no IQ differences between men and women, several other studies have appreciated small differences in some specific capabilities, result of cultural expectations and norms. General knowledge and mechanical reasoning for men (Feingold, 1992) [2] and language and planning tasks for women (Warrick and Col, 1993) [3] Our own experience over many years of teaching can confirm that female students tend to be more hard-working and constant than men [4].

The following data, obtained from the statistic of the UPM [5] and [6] (table 1), shows an increase in the number of foreign students, which in the case of EUITOP is significant.

Table 1: Comparative course enrolment UPM - EUITOP				
	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011
UPM	54.335	57.034	62.618	68.299
Spanish	51.293	53.338	57.799	62.586
Foreigners	3.042	3.696	4.819	5.713
EUITOP	2.569	2.751	2.673	1.998
Spanish	2.508	2.674	2.563	1.822
Foreigners	61	77	110	176

The tendency of the total foreigners enrolled students both for the University (UPM) and the Civil Engineering School (EUITOP) is shown on Figure 1.

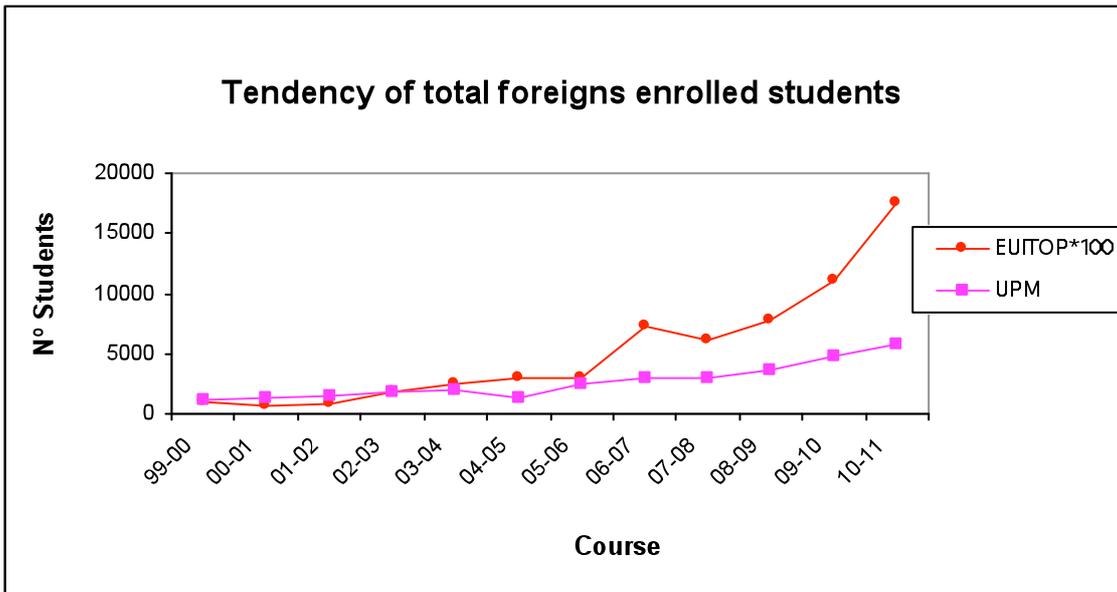


Figure 1: Tendency of foreign enrolled students

As for the origins and nationalities, we observed a tendency of American students, and within them, the Latin Americans are the bigger group due to the coincidence in language and similar customs and traditions (fig 2 and 3).

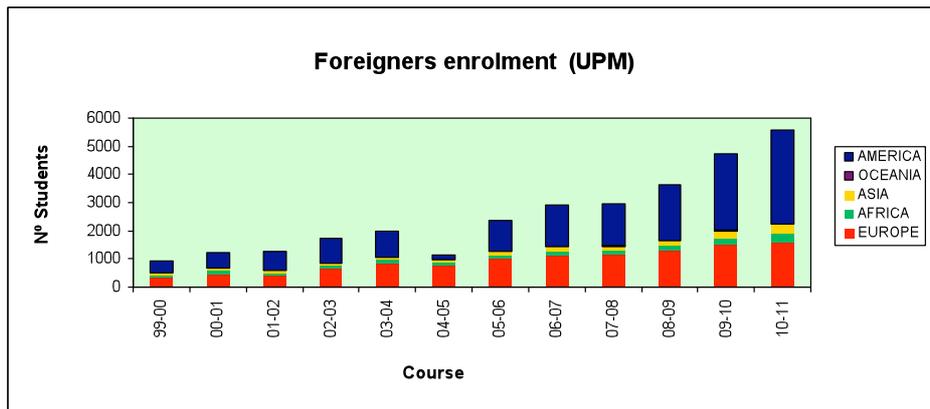


Figure 2: Foreigners enrolment (UPM)

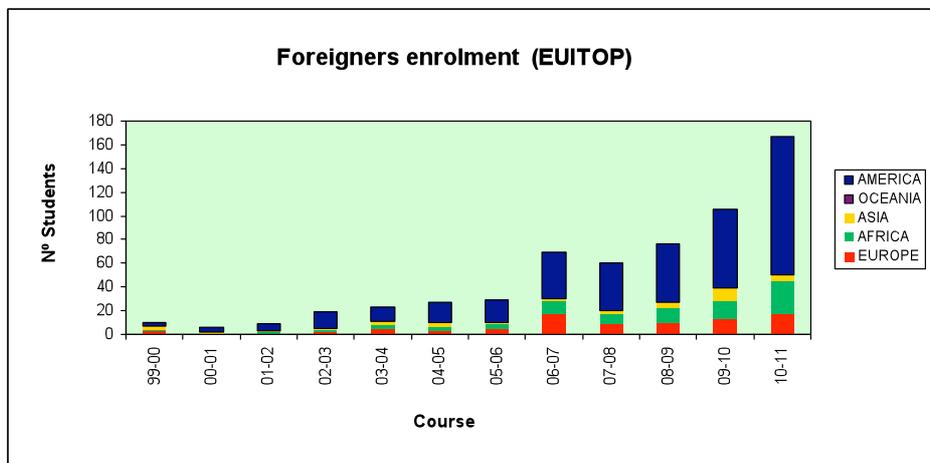


Figure 3: Foreigners enrolment (EUITOP)

Thus, the effect of the crisis in the construction sector on the foreign student population has not been such. Instead, the new EEES has brought in the case of the EUITOP, an increased diversity of students and a cultural exchange that we must seize in the present and the future.

### 3 RESULTS AND CONCLUSIONS

Watching these figures, we must think if we are facing an incredible opportunity to face the new challenges of the engineer in the 21<sup>st</sup> century. Today and tomorrow engineering challenges are more likely to contain elements of social, ethnic, cultural and national diversity as a part of the data set to develop the best professionals [7].

Since course 2002-2003 the increase of foreigner students has unexpectedly caught teachers and universities without a planning for this new group of students. And, although there are student exchange programs being used for several decades, and postgraduate students programs, there are no particularized programs for foreign students with official enrolment. To be able to attend the diversity is necessary to recognize and identify possible special needs of students that enter the university. For this, all universities should develop programs focusing on student diversity as an indicator of professional excellence and teaching quality [4].

These programs should include actions at all strata, with on-line questionnaire at enrolment, improvement and link inclusion on the web site differing from the current link to exchange programs, reception of these students and guidance by teacher tutors or student mentors, support for this students by the Student's Representation, support of the Subdirection of University Extension, and group discussion inclusion by the teachers.

The university professor must develop the ability to attend the diversity by acquiring the necessary skills that enable him to establish the necessary measures to ensure equality of opportunity and to manage this wonderful occasion of training the new engineer in these transversal skills.

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