



Circumstances and Conditions in the Accreditation Process of University Degrees at the Albacete School of Industrial Engineering (Spain)

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Abstract

This work considers some of the main aspects involved during the period that elapsed between the validation of our degrees to the present time, which the School of Industrial Engineers of Albacete are currently under-going. One of the most disturbing factors has been teaching staff, who have been subjected to Spain's economic circumstances. Other considerations, related to some difficulties of the re-accreditation process, have also been taken into account. Finally, we point out that although new learning methodologies were expected, the scope and the way Quality systems operate have arrived somewhat late.

Keywords

Accreditation, Quality Guarantee, Quality Systems



1. Introduction

As we all know, the creation of the European Higher Education Area (EHEA) has meant a complete transformation in European convergence in this area, and has led to recent diverse bibliography that has analysed these aspects, basically in relation to the role of European interaction in the convergence process to determine the importance of mobility programmes and the role of research in the European convergence process (Teichler, 2006). Another outstanding aspect about which more forums and bibliography have been generated in recent years has been the role of new teaching methodologies in the process. For instance, the reference work (Benito & Cruz, 2006) can be consulted in many citations on Scholar Google. The evaluation system, which has been contemplated in particular, has also given way to a large body of literature on continuous evaluation processes and evaluation by competences. These last two circumstances even call into question the concept of releasing Professorship, which has been overestimated in the past (Vidal, 2012). After having necessarily referred to the indicated aspects, determining the importance of a system which guarantees degrees is essential, this being the backbone of European convergence that forms part of mutually recognising the competences that students acquire, as set out by the press release made by European Ministers about the agreements reached during the Bergen Conference held in May 2005 (Bergen, 2005). The text below stands out:

“We adopt standards and guidelines to ensure a quality EHEA, as proposed by ENQA. We are committed to introduce the proposed peers evaluation model of national quality agencies by respecting commonly accepted criteria and patterns. We take the principle of a European quality agencies register based on national reviews. We request its practical application to be undertaken by ENQA in cooperation with EUA, EURASHE and ESIB, which will send a report through the follow-up Group. We emphasise the importance of cooperation among nationally recognised agencies in order to enhance mutual recognition from decisions made about quality accreditation or guarantee.”



The above paragraph indicates not only the existence of a process to set up national and supranational quality guarantee agencies, but also the need for coordinating shared criteria and for a European quality agencies register. The importance of cooperation between nationally recognised agencies complements this register, and is a main objective in Europe, and also in Spain between ANECA (the Spanish Quality and Accreditation Evaluation Agency) and Spanish autonomous agencies. To further complement this register, cooperation among nationally recognised agencies is relevant to enhance mutual recognition from decisions made about quality accreditation and guarantee. These national agencies not only evaluate by examining the peculiarities of each system, but also work as a network and establish mutual recognition processes. This objective has been set in Europe, and also in Spain between ANECA and the Spanish autonomous agencies (Marcellán, 2005). An interesting description of the European accreditation system before the 2005 Bergen Conference is found in the work by Michavila and Zamorano (Michavila & Zamorano, 2007).

Certainly during the verifying process of bachelor memories imparted in the Industrial Engineers School of Albacete, we all considered the importance of the re-accreditation of degrees after the 4-year period, although other factors also came into play, which probably did not allow us to pay all our attention to this process; among them, we list the role of the new evaluation methodologies and systems. Having verified these specifications, the centre's internal quality system was gradually shaped by naming course and degree coordinators, and by setting up an Internal Quality Guarantee Committee, which is beginning to operate with the preparation of the first degrees follow-up report. Some authors stress the fact that this aspect has been incorporated later in Spain than in other European countries (Galán-Palomares, 2008). Royal Decree 1393/2007, of 29 October, sets out the legal framework to organise official university teaching by defining the process to follow up degrees and by allocating ANECA and the Spanish autonomous evaluation agencies their respective competences (RD 1393/2007). To comply with this Royal Decree, in 2009 (ANECA, 2010) ANECA defined the reference framework to follow up the

bachelor and master degrees included in the Register of Universities, Centres and Degrees (RUCT). This it did by collaborating with the agencies that form part of the Spanish University Quality Agencies Network (REACU), and it did so by taking the basic criteria as a basis to follow up the official degrees defined by these evaluation agencies. In 2010, ANECA (ANECA, 2011) offered the possibility of participating in a pilot scheme to follow up the undergraduate and master degrees already implemented in the Spanish Autonomous Communities that did not have an evaluation agency (Asturias, Cantabria, Castilla-La Mancha, Extremadura, La Rioja, Navarre and Murcia), and to universities that answered to the Spanish Ministry of Education and concordat universities. This process continued until the so-called MONITOR programme came into being in 2011, in which ANECA ran the aforementioned pilot scheme by taking 59 bachelor and 34 master degrees as a reference, of which respectively 7 and 6 corresponded to the area of Engineering and Architecture (ANECA, 2012).

It can thus be concluded that learning methodologies and evaluation by competences were dealt with by pilot schemes well before post-Bologne plans were implemented into the School of Industrial Engineers of Albacete, while awareness and the definition of quality systems came later. In the School of Industrial Engineers of Albacete, verification reports were prepared and presented to ANECA before a MONITOR programme outline was clearly defined by the agency. Very little was known about the dimensions and the way to prepare the re-accreditation self-reports we were recently involved in, nor about the process which we shall have to undertake in the near future.

While the written reports were being prepared, nobody was able to foresee the vast effect that the economic crisis we are still going through would have, which has greatly conditioned the development expected to take place in the years following the degrees verification process.

This work presents what the teachers belonging to the School of Industrial Engineers of Albacete have progressed, as far as academic aspects are concerned, the way the economy has evolved, indicators, and aspects related to the difficulty of managing the re-accreditation process owing to some changes in criteria made by ANECA during the period involved.

2. Socio-economic factors to consider at the School of Industrial Engineers of Albacete

When the verification reports were being prepared, the socio-economic situation of Spain, and of the Spanish Autonomous Community of Castilla-La Mancha, allowed some more or less optimistic extrapolations to be made in not only staff matters, but also in relation to general laboratory and teaching means. As we all know, this situation was compromised very shortly afterwards by the severe economic crisis of Spain, which is still ongoing. The impossible situation of organising permanent job posts and the application of a 10% replacement rate have generally brought the development of Spanish universities to a standstill, which is particularly marked in our university, the UCLM. The Law passed in 2011 on implementing a replacement rate below 10% has been the strictest of Spain's recent history (see Table 1) (Montesinos et al., 2014).

Other factors that have affected our School of Industrial Engineering are considered and listed below.

- Although Technical Industrial Engineering studies have been taught since 1978 at what was then the Polytechnic University School of Albacete, in April 2008 the School of Industrial Engineers was created to accommodate studies related to the industrial field. At that time, such studies, plus computer engineering studies, were taught in the same centre. This had its peculiarity because it affected the way the personnel of each centre were assigned. Basically a division took place by implementing an internal teaching load organisation plan for both types of school, which considered the reality of that time. The change of syllabi in the already existing Higher School of Computer Studies and the School

of Industrial Engineering evolved differently compared to their initial starting points. This led to certain asymmetries in the personnel of each school. During the period when post-Bologna degrees were taught, some members of staff were re-assigned. However, the authors believe that this situation was strongly conditioned by the division into certain subjects that took place.

Table 1. Main measures that have affected jobs in Public Administrations (PA) since 1993 (Montesinos et al. 2014)

Year	Source	Description
No. of new posts in Public Administration		
1993-1994	GPE (General Plan of Employment)	Exclusively limited to those considered essential
1995-1996	GPE	Below the staff members replacement rate
1997	GPE	Below the 25% staff members replacement rate
1998-1999	GPE	
2000-2001	GPE	
2002	GPE	
2003	GPE	
2004	GPE	Below the staff members replacement rate
2005-2006	GPE	
2007	GPE	
2008	GPE	
2009	GPE	Below the 30% staff members replacement rate
2010	GPE	Below the 15% staff members replacement rate
2011	GPE	Below the 10% staff members replacement rate
2012	“Real Decreto Ley” 20/2011 and GPE	No new staff members are admitted
2013	GPE	
2014	GPE	
New part-time staff members and interim civil servant job posts		
1998-2002	GPE	No part-time personnel can be contracted, nor can interim civil servants be assigned, save in exceptional, urgent and necessary cases
2003	GPE	
2004	GPE	
2005-2011	GPE	
2012-2014	GPE	

- In our School, three pre-Bologne technical industrial engineering bachelor degrees of three year-duration were taught, which were transformed into their respective post-Bologne four year-degrees. Afterwards, the Master Degree of University Industrial Engineering came into being. Both situations implied growth, which was initially compensated for the bachelor degrees, and also by re-adapting teachers to cover the Master Degree.
- With this new structure, and after creating today's Centre, studies considerably increased as the number of students went from 680 to 1,050, mainly because the bachelor degrees lasted longer.
- The teacher profiles of our School during the pre-Bologne process resulted from the development of both these studies and the Centres where they were taught. The most important milestones were not only the way the syllabi evolved, but also the incorporation-elimination of new studies from this branch, or others, in the Centre. The most outstanding consequence was that certain knowledge areas were lacking: Manufacturing Processes Engineering, Fluids Mechanics and Projects Engineering. The usual teaching of these areas was taught from other areas. Some knowledge areas were poorly justified, such as Signal Theory, and were marginalised as far as number of staff members were concerned, of which there was only one for the above area. Another point we stress was the incorporation of the Chemical Engineering area, which did not appear within the pre-Bologne framework. Finally during the indicated period, nine full-time teachers retired.

3. Progress of the teachers who taught degrees over the 4-year period covering 2010/2011-2013/2014

Table 2 provides the figures which indicate the progress made by the teachers of each bachelor degree during the period these degrees were accredited. As we can see, the number of teachers was cut by about 12%. The greatest loss affected part-time lecturers, which the UCLM tightened by means of budgetary cuts due to the economic crisis. This loss has been partly compensated by reorganising members of staff and by increasing the teaching

workload of some part-time lecturers who currently remain. Even though the analysis has been done by taking the academic year when the written reports were forwarded to ANECA and academic year 2013/14 as references, if we bear in mind the forecasts made for academic year 2015/16, the situation will improve compared to that indicated.

As we can see in Table 2, permanent staff members exceed 80%, which is an adequate percentage according to an objective criterion, especially when we consider the number of retirements that have taken during the study period and the difficulty in replacing them.

Table 2. Progress made by the Centre's teachers per category and degree

Category	Mechanical Engineer. Bachelor		Electric Engineering. Bachelor		Electronic & Automat. Engineering Bachelor	
	Academ. year 2010/11	Academ. year 2013/14	Academ. year 2010/11	Academ. year 2013/14	Academ. year 2010/11	Academ. year 2013/14
Full Professor	1	5	1	4	2	5
University Lecturer	13	15	12	13	11	13
Bachelor Lecturer	25	18	30	18	27	20
Contracted PhD Lecturer	4	4	3	4	4	5
Assistant PhD Lecturer	2	2	1	3	4	2
Assistant Lecturer	0	0	1	0	0	0
Partial-time lecturer	17	11	15	14	15	9
Total	62	55	63	56	63	54

3.1 Teacher status

During the years that the re-accreditation period covered, the number of 6-year periods increased considerably in the Centre compared with the number during the pre-Bologna period; an increase of more than 10% has been recorded.

Another aspect related with tenured lecturers is that quite a high percentage of teachers are accredited as Assistant PhD Lecturers and Contracted PhD Lecturers, which implies the

possibility of replacing permanent staff members in the near future, especially when the Spanish Ministry of Education, Culture and Sports has announced an increase to 50% in the replacement rate.

4. Economic figures related to managing teaching means

The budget that the various UCLM centres (around 40 in all) receive come mainly from the two different UCLM funds:

- Funds that correspond to the Centre's usual operating costs (General Budget –GB–). These funds are estimated basically according to number of students and to the mark related to the studies experimentalism. It is worth indicating that of all the Centres that comprise the UCLM, our School alternates between being in first and second place as far as the amount received is concerned (it competes with the Framework Centre of the School of Law and Social Sciences in the city of Ciudad Real, with over 2,000 students). Evidently we are first on the list of Technical/Scientific Centres.

- Variable funds, depending on the objectives met, which form part of a Programme Contract (PC) agreed on with the Regional Government of Castilla-La Mancha. In this case, the parameters used to decide on these funds follow coefficients, which are considerably more heterogeneous, and even the quantities allocated to each Centre depend on other qualitative considerations (not quantitative ones as in the case of general funds). In any case, our Centre occupies the first five to eight positions of the total number.

Since academic year 2010-2011, in which post-Bologna bachelor degrees began (this was done through immersion in our Centre; that is, all years at the same time), the changes made to the funds received by the Industrial Engineers School of Albacete (EIIAB) are illustrated in Figure 1 (quantities are provided in calendar years, and not in academic years).

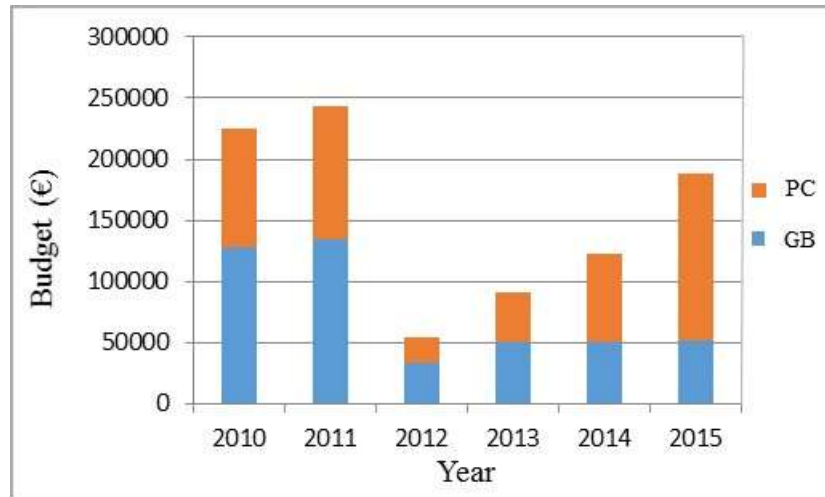


Figure 1. Changes in the funds received (per calendar year)

These changes reflect the impact of the economic crisis (2012 in particular) and gradual recovery (still not completely reached). This fact has negatively affected the investments made in acquiring teaching and research material, mainly in contracting teaching staff, as we previously mentioned.

Regarding the funds received through the PC, Table 3 briefly summarises the basic points considered. Each Centre decides what points to increase (that fall within preset intervals), and by what percentage, according to its most immediate objectives.

When budgets lowered, the whole Centre's budget was centralised. Previously to the crisis effects, almost 70% was shared among the various Areas so they could operate individually.

What this centralised management has accomplished is to optimise expenses and to guarantee that teaching is not affected. At the same time, the shares decided on in the past excessively fragmented the budget, which meant that some laboratories did not receive enough funds which, in turn, led to substantial shortages. The generic computer rooms suffered a similar situation. Indeed, despite the increase in financing being considerable,

the Centre's Board decided to continue with this budget policy as it proved much more efficient than the former model.

Table 3. Criteria considered in the Programming Contract

Training	
IF-1	Number of new students
IF-2	Mean mark for new students to start university studies
IF-3	Drop-out rate
IF-4	Rate of students on exchange programmes
IF-5	Rate of overseas students on exchange programmes
IF-6	Practical placements rate
IF-7	Academic efficiency rate
IF-8	Academic staff's pedagogic training rate
IF-9	Student evaluation of the training they receive
Research and generating technology	
II-1	Rate of PhD teachers
II-2	Rate of awarded research 6-year periods
II-3	Rate of research activity results
II-4	Participation rate in regional research projects
II-5	Participation rate in national and international research projects
II-6	Participation rate of Principle Investigators in public research projects
II-7	Rate of financing obtained from public calls
II-8	Rate of financing obtained in the contracts set out in Art. 83 of the LOU Law
In relation to one's environment	
IV-1	Continuous training rate
IV-2	Rate of cultural events
IV-3	Rate of bibliographic investments
IV-4	Tele-teaching rate
IV-5	Rate of mastering foreign languages
IV-6	Participation rate in training plants
IV-7	Occupational hazards rate

5. Variation in the criteria used by ANECA during the re-accreditation process

Prior to the re-accreditation process that we are currently going through, it was necessary to make the verification reports "official" by introducing them into a telematic application that ANECA provided universities with. This has been a difficult process as it was

necessary to adapt these previously approved reports to an indicated application. In fact, the process has become an exercise to amend reports, whose most relevant points are indicated below.

5.1 Evaluation of proposals to amend syllabi

Regarding the evaluation of the proposal to amend the syllabi of the university industrial engineering degrees that our university teaches, the UCLM forwarded to ANECA the proposals of three degrees on three different dates:

-Bachelor degree in Industrial Electronic and Automatic Engineering. The proposal was sent in September 2014.

-Bachelor degree in Mechanical Engineering. The proposal was sent in November 2014.

-Bachelor degree in Electrical Engineering. The proposal was sent in March 2014.

In its evaluation reports, ANECA stressed the obligation to rectify any aspects related to Criterion 4 (Student access and admission). These reports highlighted two very relevant points: recognition of Official Non-University Higher Education Credits; recognition of credits for students over the age of 40 with work or professional experience.

5.2. Recognition of Official Non-University Higher Education Credits

On 31 October 2014, ANECA issued its evaluation report on the proposal, sent in September 2014, of amending the syllabus of the UCLM Bachelor degree in Industrial Electronic and Automatic Engineering. In its report, ANECA requested, among other aspects that had to be necessarily rectified, the explicit conclusion of the amendments made as to the recognition of the Official Non-University Higher Education qualifications not included in the previously verified report. It also added that in order to evaluate the suitability of these recognitions, knowledge and results of learning, a comparative table

must be provided that corresponds to the subject matters of at least one non-university higher education degree, whose competences could be recognised in this degree.

This request was related to the fact that the previous version of the verification report of these studies, which had been favourably evaluated in 2010, did not include any agreement about explicitly recognising Advanced Vocational Training students since such recognition was not legally acknowledged until 2011, when Royal Decree 16/18/2011 was published on 14 November on recognising studies in the Higher Education domain (BOE no.302, of 16 December 2011, Sec.1, pp 137575-137588). Regardless of the conflictive opinion that such recognition sparked (many teachers believe that this situation should not take place as they are qualifications with clearly different academic competences), some university studies, for which fewer students have registered in recent years, have seen in their recognitions a way to attract students from non-university higher education. Thus, logically, and as the Royal Decree (RD) sets out, this type of agreements signed between a university and education administrations “must be informed to the Spanish Ministry of Education and be officially published”. Consequently, ANECA must ensure that such recognitions are made in accordance with that set out in this RD. Hence at that time, the request it asked of us to evaluate the suitability of the recognitions that the UCLM signed with the Regional Ministry of Education as to its Degree in Industrial Electronic and Automatic Engineering is logical. About such recognitions, the question is: at a later date, did ANECA stick to the same criterion adopted in the evaluation it issued about the proposal to amend the other two syllabi that our university forwarded it? The answer if affirmative, be it with a slightly differentiating nuance, as a similar text to that previously indicated was sent to us for both the reports about amending the syllabi of the Degree in Mechanical Engineering and the Degree in Electrical Engineering. However, it was necessary to attach an annexe to the latter, which listed the university teachings of this degree and of the Advanced Vocational Training qualification for which recognitions could take place.

5.3. Recognitions of credits for the over 40s with work and professional experience

Another aspect that ANECA outlined to be rectified in its evaluation reports was related with the recognitions of credits obtained through professional experience of people aged over 40.

That set out in the previous point can also be cited here because in the previous version of the verification report to amend these studies, evaluated as favourable in 2010, no explicit criterion was included to recognise people with work experience and professional experience. Such recognitions are controlled through Organic Law 8/2013, of 9 December, on the Improvement of Quality Education (LOMCE), which modified the requirements to gain access and be admitted to official degree teachings, and also specifically by RD 412/2014, of 6 June, which included the basic regulations of the procedures by which admission to university degree teachings is accomplished (BOE no. 138, Sec. I, pp. 43307-43323, of 7 June 2014). So it is logical that ANECA pays special attention to this point since the legislation that affects it has been recently modified. Yet we wondered if the identical criteria were maintained on this point in the evaluation of the three university degrees forwarded to it. In this case the answer is negative since the criterion about this point clearly varied de-pending on the time each report was evaluated: the evaluation report about the Degree in Industrial Electronic and Automatic Engineering, which was the first one sent, mentioned nothing about this matter. With the report of the Degree in Electrical Engineering, sent several months later, ANECA requested that the report of the verified syllabus included the accreditation criteria, as well as the area where the work and professional experience was acquired in relation to both these degrees.

6. Conclusions

What comes over from this work is that the Centre's background, along with the economic situation while the accreditation process of the degrees taught at EIIAB was underway, have implied difficult situations for maintaining members of staff and teaching resources.

Yet efficient work has been done despite these difficulties, and these aspects have been overcome. Finally, it is absolutely necessary to plan personnel means in order to achieve successive re-accreditation processes.

Although the changing framework introduced into the process, performed to make reports official by applying the corresponding telematic application, has allowed the rectification of some minor errors in the previously approved verification reports, it has introduced absurd asymmetries into the management that is common to all degrees. So after having accomplished the re-accreditation process, the intense task of rewriting records has to be faced. Based on experience in implementing plans, correcting criteria to recognise not only the different credits in each degree, but also the reconsideration of evaluation systems and competences assigned to each subject matter, will be essential in order to better adapt to these issues.

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