



RE-THINKING THE POSTGRADUATE EDUCATION: THE CASE OF THE UNIVERSITY OF AVEIRO (PORTUGAL)

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(Electronics). At present it offers a wide range of undergraduate and master Courses, as well as several PhD and specialization programmes, in different areas such as engineering, science, arts, business administration, economics and planing, education and communication.

I. INTRODUCTION

Recent European documents have emphasized the important role of Postgraduate Education in Higher Education, bringing up new perspectives and the need to re-think it in order to adjust its functions to the challenges that society and education is facing today (for example, Bologna Declaration, 1999; Frijdal and Bartelse, 1999).

The University of Aveiro, in Portugal, has been going through a process of re-orientation of its policy, management and practices also in what concerns this area of intervention. Therefore we thought as relevant to share this experience in this Conference, namely through its description and by mentioning some issues we may be of interest to others. Before entering into the subject we are going to give a brief description of our University in order to contextualize this presentation.

The University has also contributed to the development of polytechnics education, integrating today three Polytechnic Schools (the Higher School of Technology and Management of Agueda; the Higher Institute for Accountability and Administration of Aveiro and the Higher School of Health of Aveiro). This is an indicator of how the University has responded to the increasing demand from an ever-growing number of students who seek diversified courses of short duration, which are flexible and geared towards the professional requirements of the region and the country.

The population of the University has increased considerably in the last years, consisting today of approximately 639 academic staff (56% with a PhD and 22% with a Master degree), 9 000 students, including 680 postgraduate, and 443 non academic staff.

II. THE UNIVERSITY OF AVEIRO: BRIEF DESCRIPTION

The University of Aveiro¹ was established in 1973 in the city of Aveiro, located 250 km north of Lisbon and 10 km from the Atlantic coast. The main functions of the University are: (i) the provision of short and long term higher education and postgraduate degrees; (ii) the promotion of fundamental and applied research in various scientific subjects and (iii) the co-operation with society (promotion and development of cultural interaction, co-operation with the entrepreneurial world and lifelong education).

The University has started its pedagogic activity, in 1974, with a first undergraduate course in Engineering

The basic unit of the Organic Structure of the University has always been the Department (15 in the whole, at present) and more recently also the Polytechnic Schools. The establishment of intermediate structures (Institutes), between the Rector Team and the basic units, are fundamental elements of a New Organizational and Administrative Model, which is being implemented. The Institutes seek (i) to improve the articulation between the level in which the policies and strategies of the whole University are defined and the everyday activities; (ii) to promote the transversal integration of the areas where the University acts and (iii) to guarantee the quality of the different functions of the University. One example of these Institutes is the Postgraduate Institute, which has been created in June 2000.

The University has been going through a deep process of reflection and change in the last few years. This includes, among others, the implementation of a new Model of Organization and Administration and a cycle of curriculum change concerning Undergraduate Education

¹ *Guia da Universidade* (english version), University of Aveiro, Portugal, 1999

(Alarcão, 2000), the last one being reached its end some weeks ago. With the consolidation of this process new challenges are now in the agenda of the University, namely the establishment of a postgraduate school recognised at an international level.

III. THE PAST, THE PRESENT AND THE FUTURE OF POSTGRADUATE EDUCATION AT THE UNIVERSITY OF AVEIRO

III.1 The Past

While the undergraduate education has started at the University of Aveiro since its beginning, postgraduate education has only been developed after some years. In the decade of the 70's and 80's most of the members of the academic staff of our University had to go abroad in order to obtain their postgraduate degrees (Masters and PhDs).

Only when the University had a considerable number of qualified staff that the postgraduate function started. This occurred in the beginnings of the 80's but mainly in what Master Courses in Education were concerned. The need to qualify professionals for the High Schools of Education, which were then created in several parts of the country, was the principal reason for that initiative.

However, in the beginnings and middle of the 90's, a proliferation of offers in the area of postgraduate education occurred at our University, namely in terms of Master Courses and PhD programmes. For example, in the academic year of 96/97 the University offered 24 Master Courses, in four main areas: Sciences and Applied Sciences (8); Education (7); Engineering (3) and Humanities (3).

A reference should be made here about the main features presented by this area of intervention at that time:

- . the offers consisted mainly in Master courses and PhD programmes, the last ones only research based; little offer, or even none, was given in terms of shorter courses (for example, Specialization courses leading to a Certificate and or a Diploma) and postdoctoral programmes;

- . the proposal of the courses were mainly a departmental initiative; only the responsibility of a few courses belonged to more than one Department of the University, and even less were designed in collaboration with other portuguese universities;

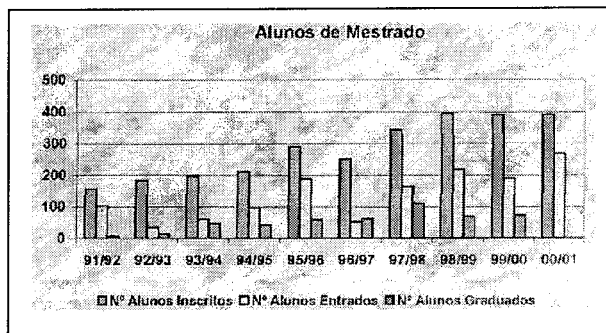
- . the international dimension was rarely presented. For example, in the 24 Master courses offered in the

96/97 academic year, only one course was organised in collaboration with foreign universities;

- . the great majority of the postgraduate students were professionally involved in Higher Education, that is they were members of the academic staff in universities, Colleges and other High Schools;

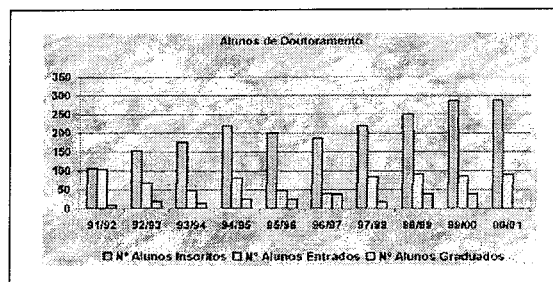
- . the main function of the postgraduate programmes consisted on the *production of scientists* and they worked as an important *filter for selecting university and high school teachers*.

In the second half of the 90's, postgraduate education in our University has undertaken significant changes, some of them similar with what was happening in other countries, for example in the United Kingdom (see for example, QAA Document, 1998). The most important changes include:



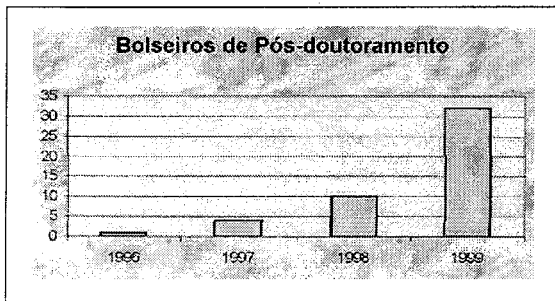
Graphic 1: Number of Master Students (candidates/blue color, registered/yellow color and graduated/red color) of the University of Aveiro since academic year 1991/92 up to 2000/2001 (Source: Reitoria/UA, 2001, pp 11)

- . a rapid growth of the number of postgraduate students. Graphics 1 and 2 below give data with respect to the evolution of the number of Master and PhD students of our University since year 1991/92 to 2000/01;



Graphic 2: Number of PhD Students (candidates/green color, registered/yellow color and graduated/blue color) of the University of Aveiro since academic year 1991/92 up to 2000/2001 (Source: Reitoria/UA, 2001, pp 12)

. a growth in the diversity of postgraduate programmes, namely in what concerns Specialization courses and Postdoctoral programmes. Graphic 3 illustrates this change with respect to the last case mentioned;



Graphic 3: Number of Postdoctoral Students of the University of Aveiro since year 1996 up to 1999 (Source: Reitoria/UA, 2001, pp 12)

. an increase in the diversity of the range of subjects studied, both within and outside academic disciplines;

. the intensification of initiatives interdepartmental and inter-institutions, in a national context;

. an increase of the international dimension;

. an increase of the relevance of the programmes to a wider range of participants (including not only academic staff in universities and colleges);

. an extension to the function of postgraduate programmes in terms of contributing to the specialisation of less academic professions.

It should be noticed here that the most important *wheel* for the changes stated above consisted in the re-orientation of the policy of our University. In 1997, a Document written by one Vice-Rector, and given for discussion to the university academic members, actually pointed out several of those dimensions (Alarcão, 1997).

III.2 The present and the future

The present (and the future) situation of the Postgraduate Education at our University has been strongly driven by the following factors: written Documents, by the Rectoria Team (Alarcão, 1997; Reitoria/UA, 2001); the discussion generated by them in the academic community, involving the Directors of the Departments and of the Research Units and other academic members, and the recent establishment of a Postgraduate Institute at the University. These initiatives and processes, although internal to the University and occurring when there were conditions for them (for

example, after the consolidation of the Undergraduate Education cycle), have also taken into account orientations emerging from outside (for example, the Bologna Declaration).

In the first Document mentioned, Alarcão (1997) starts by systematizing the main force ideas which should guide the endeavor of re-thinking the Postgraduate Education. They are, the need: (i) to strength the postgraduate programmes; (ii) to observe and to identify the demands of the society (at a local, national and international level); (iii) to increase the qualifications of human resources with respect to the needs identified; (iv) to increase the international dimension of postgraduate education and (v) to create synergies between postgraduate training and research and between initial and permanent education.

Having these force ideas presented, Alarcão establishes as the main goals for the Postgraduate Education in the University the following ones:

. to create a Postgraduate School recognized internationally;

. to qualify human resources;

. to intensify research;

. to respond to our and other countries needs;

. to promote internalization (both in terms of the standards and the quality of the programmes, and the co-operation with foreign universities);

. to increase the number of postgraduate students.

Having defined these aims, Alarcão continues by presenting the strategies needed to achieve such aims. Among them, we quote the following ones:

. to increase the diversity of the postgraduate programmes, in what concerns its nature (for example, to increase Specialization Courses of short duration) and public (not only academic but also other professionals);

. to allow and promote the mobility among different programmes, for example through a system of creditation;

. to capture the best students, for example, through the offering of scholarships;

. to promote the divulgation of the programmes at a national and international level;

. to promote postdoctoral programmes;

. to promote the development of programmes, through networks with universities of other countries.

The second Document referred in the beginning of this section (Reitoria/UA, 2001) consists in the Development Strategic Plan of the University for the period 2000-2006. It reinforces almost all the aspects put forward in Alarcão's Document and points out for the consolidation of the pattern, which has characterized the evolution of postgraduate education in the University. It systematizes, in the form of keywords, the characteristics which must have the postgraduate programmes of the University. These keywords are: *diversity, coherence, flexibility, articulation, demanding and internationality.*

The third landmark in the evolution of Postgraduated Education at our University is the recent establishment of an Institute (intermediate structure between the Rector and the organic units), the Postgraduated Institute. Its competencies are basically the following ones:

. to guarantee both the realization of the policy for Postgraduated Education and its quality;

. to promote the collection and diffusion of relevant information for the activities of postgraduated training;

. to promote the articulation with the other structures of the University in order to implement the policies of the University.

The Institute is directed by a Vice-Rector (presently I. Alarcão) who is sponsored directly by a member of the academic staff (presently J. Frade). Each Department of the University is represented at the Institute through one of its member designated for that function. At present, the Institute is organized in four Working Groups: one responsible for the promotion of the Postgraduated Programmes of the University (which is already developing a web site with all the information concerning the programmes of our University- in both Portuguese and English language); a second Group responsible for the optimization of the procedures, for example, concerned with the establishment of the rules for the launching of programmes; a third Group responsible for studying the demands with respect to the needs of postgraduated training and, based on them, to propose new areas where postgraduated education is necessary. The fourth Group is concerned with the Quality issue, for example, by proposing criteria for the assessment of the quality of our postgraduated programmes.

Despite all these orientations and procedures there are still dimensions which should be improved. Table 1 systematises the Postgraduated Programmes (only for

Specialization and Master Courses) existing in our University at the present (some with a single edition, others with several ones), in terms of: the nature of the programme; scientific area; public (academic, other professionals and mixed); organization at a national (departmental, interdepartmental, inter-universities and inter-institutional) and internalization level (that is involving foreign universities). If one can see the considerable number of programmes, and scientific areas, which exist today in our University it is also noticeable the need to improve other dimensions, for example, the number of short programmes (Specialization Courses), develop much further the internationalization level of our programmes, namely through the establishment of networks with universities of other countries.

Type of Courses Scientific Area	Number of Courses		Public			Organisation (national level)				Org. (int.lev)
			Ac.	Prof.	Mix	1 D	+1D	+1 Un	Un +Ins	
Specialisation										
-n/art.MA area: Education(1)	1	+1								
-art.MA area: Education(3)	2	6	-	1	7	6	1	-	1	
Engineering(1)										
Science(1)										
Others(2)										
Total	8									
Specialisation										
area: Education(10)										
Engineering(6)										
Humanities(4)	7	31	-	-	38	21	10	4	-	3
Math(2)										
Science(11)										
Social Sc.(2)										
Others(3)										
Total	38									

Table 1: Characterisation of the Postgraduated Programmes (Specialization and Master Courses) offered by the University of Aveiro²

² Guia da Universidade de Aveiro, 2000/2001

IV. FINAL COMMENTS

Despite the attempt made to point out the elements which helps to characterize the Postgraduated Education, and its evolution, in our University, we have decided to finish this presentation by electing three issues which, from our point of view, are worth to be looked further, namely because of the challenges they still bring up.

- The Quality Issue

The growing and the proliferation of postgraduated programmes arise, certainly even more strongly, the need to assess and monitor their quality. This question is actually already put forward both in the literature (see for example, Domingues *et al.*, 1996) and by some of our University Departments. This issue concerns at least three aspects: the quality of the applicants, that is the students who want to join our programmes, subject which frequently occurs namely when the same programme is being offered during several years; the quality of the programme itself and the quality of the "product", in other words, the impact and relevance of the training for the professional practices of the postgraduated students when they "return" to their professions. Questions, such as "how can we assure the quality of the entering students? Should we or not change the entry requirements to assure the quality of the students?"; "what standards should be defined to assess the quality of the programmes?" and "What information can we get in order to assess the impact of the training given during the programmes, in terms of their positive impact at the professional level of the students, and how can we use this information to improve the relevance of the programme?", need certainly to be looked further. Despite some initiatives which are already being taken in our University (for example, the consideration of a Quality Group inside the Postgraduated Institute and the development of some research projects, being Costa, 1997, an example) we think that much more effort must be directed to this issue.

- The responses to present European Challenges. The Bologna Declaration Issue

We have mentioned several times during this presentation the Bologna Declaration and its consequences to the re-thinking of Higher Education. There is, however, a specific issue not yet directly mentioned which is, and will be, influencing changes in Postgraduated Education. This is the so called *two-tier model*, that is the adoption of a system essentially based on two main cycles, undergraduate and graduated. As it was already mentioned our University have just finished a cycle of re-thinking the undergraduate education system which have had as one important vector its adaptation and alignment to the Bologna Declaration (for example, proposing more flexible, large spectrum, less heavy, in terms of hours, curriculum). Changes must also

continuing to occur at the level of the postgraduated system, namely by promoting new programmes and adopting the two-tier articulation.

- The responses to New Society Needs Issue

The need to articulate the Postgraduate Education System to new society needs is another subject, which deserves further attention. The significant changes in what concerns the public of the postgraduate programmes implies considerable measures: the increase of the interaction between universities and other professional domains (for example, industry); the greater flexibility in patterns of study (including other regular contact behind presencial at the universities, for example, also in the workplaces, by email and/or through the world wide web) and the use of methodologies and topics of study more professional and practice orientated. These are just some possible ways which need to be incorporated and developed further in the academic and scientific culture.

We expect that some of the questions referred to above will be tackled, developed and improved by us given the richness of the dynamic which exists within our University, and in particular now through the leadership of the Postgraduate Institute. However, we also recognize the need to gain insights from other sources. The information and discussions, which will occur in the context of this Conference and the contacts which will be established here, are certainly a good example of such sources.

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