

OBSERVATORY OF GRADUATES IN ENGINEERING AND TECHNOLOGIES OF THE UNIVERSITY OF MINHO

Rosa M. Vasconcelos¹, Sílvia Monteiro²

Abstract - The changes verified throughout the last years on the labour market together with the evolution of the higher education system, with an increasing and more heterogeneous student population, led to a new set of requirements and responsibilities. This implies a straight link between academic education and the needs of the society with regard to professional development of graduates. The recognition of professional competencies in the *curricula*, with a close connection to the reality of the professional world has been particularly emphasised with the implementation of the Bologna Declaration. Because of the growing importance of professional competencies, the Council of Engineering Courses of the University of Minho has recently developed a job observatory of graduates in Engineering, Business Informatics and Architecture over the last few years. The results show that nearly of 90% of the graduates are employed, of whom a majority found a job immediately after finishing their course.

Index Terms – Bologna, Observatory, Professional Competencies

INTRODUCTION

The university represents a multifaceted institution, with an important role in the political, social, economic and cultural domain of society. This interaction between university and the job market implies important responsibilities relatively to the definition of the curricular plan that each institution of higher education offer to its students. The European Commission, in the White Paper on Education and Training [1], argues that the most appropriate preparation for a job contains three main ingredients: (1) basic knowledge, which should reflect a good balance between the acquisition of knowledge and methodological capacities to self-learning; (2) technical knowledge, related with a specific profession; (3) interpersonal competencies, namely the capacity to cooperate and work in team, creativity and the quality research.

In fact, there is some controversy around several issues associated with academic politics. Even though education was expected to be closely related to the “requirements” of the employment system and particular social factors, there are obvious imperfections and uncertainties which make

close links unlikely. Available research and past debates for instance pointed out the following issues: (a) occupational dynamics - the employment system is very dynamic in terms of changes of unspecified job tasks within given professions; (b) indeterminate work tasks for highly qualified workforce; (c) planning gap - there is an unavoidable time gap between the identification of new job assignments and the teaching/learning of respective competencies concerning school leavers and graduates, as years are needed for the revision of curricula, and the actual “production” of new graduates; (d) generalists’ vs. specialists’ paradigms - views vary among experts regarding the extent to which education should be general or specialised according to areas of knowledge or occupations; (e) emphasis on vocational education vs. general education - views differ on the extent to which the growing role of lifelong learning might reduce the need for pre-career vocational or professional education and training, on the change of learning abilities over the life course, job requirements in different career stages, and the economic and social conditions for lifelong learning. Education can be viewed as instrumental in securing the individual’s and the society economic success [2].

In a report produced in 1990 in the USA by Secretary’s Commission on Achieving Necessary Skills [3] several changes were identified in the world of work: (1) changes in what workers do, related to the development of new technologies, with impact on the way people learn new knowledge. On the other hand, new tendencies on the business market imply a larger need for critical thought and of capacity to take decisions; (2) changes in the way people work, with a tendency towards a smaller number of tasks, but in a more distinctive way; (3) changes with whom people work, implying team work and a multicultural environment.

This tendency has been more and more emphasised over the years, trying to accompany the growing economical needs. This implies a growing effort also on behalf of universities to prepare the students for the job market. As Santos (2002) refers [4], with the Declaration of Bologna, the institutions are called to interpret the legitimate expectations of society, in national plans, as well as in the plan of the construction of an European area in which the mobility and employment of the citizens has full meaning. The authors however, considers that it is responsibility of

1 Rosa Maria Vasconcelos, Conselho de Cursos de Engenharia da Universidade do Minho, Campus de Azurém, 4800-058 Guimarães, Portugal, rosa@det.uminho.pt

2 Sílvia Correia Monteiro, Conselho de Cursos de Engenharia da Universidade do Minho, Campus de Azurém, 4800-058 Guimarães, Portugal, silvia@ece.uminho.pt

the higher education institutions to proceed their own modernisation, adapting themselves to new realities and needs coming from the demands for a knowledge society.

Providing an answer to these needs, it was a major concern of the University of Minho and, in particular, of the Council of Engineering Courses, to evaluate some indicators of the educational quality, namely the transition of graduates to the labour market. At the end of 2006, an observatory of graduates' job situation in Engineering, Business Informatics and Architecture over 2002/2003, 2003/2004 and 2004/2005, was carried out. The goals of this study are (1) to determine the time that the recently graduated take to find a job after finishing their course; (2) to identify the area they enter in the job market and to verify if this is according to their academic preparation; (3) to analyse the kind of link established between the graduates and their employers.

METHOD

Respondents

The respondents were 325 graduates of the University of Minho, of the following courses: Architecture (27), Civil Engineering (27), Industrial Electronics and Computers Engineering (27), Materials Engineering (27), Polymer Engineering (27), Mechanical Engineering (27), Industrial Management and Engineering (28), Apparel Engineering (27), Textile Engineering (27), Biological Engineering (26), Computer Science and Systems Engineering (27), Business Informatics (28). They were equally distributed by the year in which they ended their course. That represents the population estimated to a margin of error of 5% on a total of 1731 graduates.

Procedures

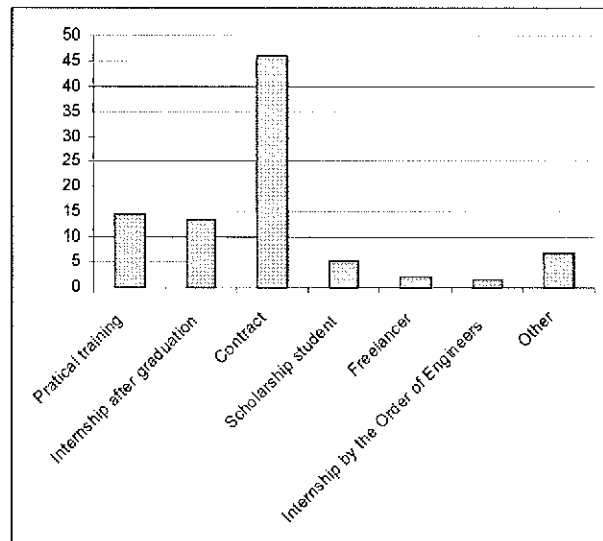
A short phone interview at the graduates was conducted with questions on the entrance on the job market. The data were analysed using SPSS (version 15.0 for Windows).

RESULTS

The results of our study show that 89.8% (292) of the respondents are employed and 91.8% (268) of them are employed in their specialisation area and 8.2% (24) are working in another area.

With regard to the entrance of the graduates in companies/institutions, several options were identified. The results are presented in the Figure 1:

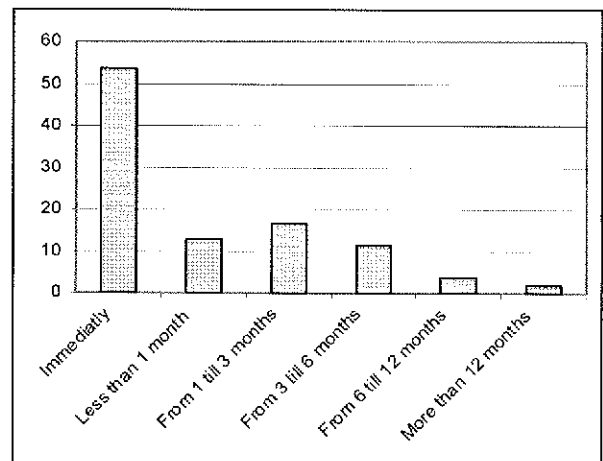
FIGURE I
Entrance on the labour market



The majority of the graduates started their first job with a contract (51.4%), followed by practical training (16.1%) and the internship after graduation (15.1%).

Another aspect analysed was the time that graduates spent to find job, presented in the Figure 2:

FIGURE II
Time to find first job



The time to find a first job was little: 53.8% had a position immediately after graduation. The lowest percentage (2.1%) corresponds to more than 12 months to find a job. The majority of these graduates (94.5%) are dependent and only 5.5% work independently.

Job change occurred to 39% of the graduates, while 61% of them had never changed jobs.

CONCLUSION

The analysis of the results shows some positive indicators in relation to the graduates' entrance on the job market. In general, the students seem to find a job relatively easy and fast. Results also show that a vast number of the graduates enters immediately in companies/institutions, establishing a solid relationship. It seems that internships, both before and after graduation, facilitate the inclusion in companies/institutions.

In general, graduates of the courses involved in this study appear to be received rather well by the labour market. This could indicate that competencies that the university offers in general, meet the expectations of the labour market. A more profound analyse on the labour market however is needed to identify the type of competencies that employers value and graduates demonstrate, as well as the satisfaction of the employers with the graduates' professional preparation.

Another aspect that would be interesting to consider is the curricular changes associated with the Declaration of Bologna. All the graduates that responded to this observatory ended their course before the curricular reforms of the Bologna Declaration were implemented. Therefore, and given the close relationship between the academic education and the socioeconomic and cultural relevance that this declaration imposes, it will be very important to evaluate the reactions of the employers to the changes in competencies that are the results of these curricular changes. The new curriculum values the development of soft competencies, as e.g., a critical attitude, team work and adaptation to change. Therefore, a new professional profile is expected, that, besides the basic and technical knowledge, invests above all in the competencies of the interpersonal domain, as this is more and more valued on the job market.

Dearing [5] refers the importance of the higher education institutions in identifying and developing the opportunities to get acquainted with the real world labour market and help to reflect on acquired experience. We emphasise that this kind of studies are important, not only for universities and companies, but also for students, because it allows a progressive improvement of all parts and decreases the gap between universities and companies and institutions of our society.

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