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COMPARATIVE STUDY OF THE BSC ENGINEERING COURSES - INSTITUTIONAL AND FINANCIAL SUITANABILITIES OF THE ACADEMIC HUMAN RESOURCE

Mocsáriné Fricz J.*
*University of Debrecen, Faculty of Agronomy
friczj@agr.unideb.hu

Abstract

Competency is a notion of modern science that is used very often in its part of human resource management. Examination of competencies from both side of the higher education institution and the economy were key factors of evaluation. International standards were also involved in these analysis. It have been examined its importance in brand new courses of the Bologna Process, the bachelor, BSc courses and in the economy. We have created a test to analyse expectations of the enterprise sector as potential employers of the BSc graduates. Having studied the results of the research made by tests, we have made a survey concerning analyses of some working activities. It was a very extensive and expansive research of the competencies of the Environmental Engineering bachelor courses that was focused on the main goal that was to form the curricula in a way to make it competitive in the higher education and to give graduates from this course more chance to find an appropriate job, to start a successful carrier. In this publication was presented the results of this research work related to the Environmental engineering BSc program. In the analyses to reduce risk of uncertainty was applied advanced statistical method of SPSS program to invetigate tests results.

Keywords: Institutional suitanabilities, Competency

INTRODUCTION

The notion of competency has been used since more than a decade. As a general notion, it has a steady interpretation. But from the national and international literature about this concept, we can find out that there is not a generally accepted and used system of competencies and the list of competencies appropriate in each case is lacking. We can always find some similarities and differences between methods and models of the literature.
The competency as a human's skill to act can be defined by two kinds of approach. After the first one, it is described as the active person's speciality and property. After the second one, it is classified as the result of an act, from the point of view of the person's manifestation, the person's achievement. The two kinds of definition are used in different ways of life. In the national pedagogic literature and in some kind of laws, like law of higher education, the notion of competency is used as a definition made by the origin of the act, namely by the knowledge and personal characteristics. But in vocational training, the results of an act, consequently activities and tasks to do, play an important role according the notion of competency. After the law of adult training, the competency is a complex of knowledge,

skills, attitudes that makes a person be capable to accomplish a determinate task. *(Juhász, 2008)*

MATERIAL AND METHOD

Nowadays the notion of competency has become a relevant definition even in higher education. It was essential to apply the kind of definition of competency that had been coherent with other developments and was suitable to each area of education and to economy, to culture.

In the examination made in HEFOP 3.3.1 project, during activities according to competencies, competency has been defined as a person's knowledge, skills, attitudes. Hence, competencies are typified as personal characteristics. During the examination, competencies have been analysed as professional, personal, social and methodological ones. In economy, competencies can be defined as requirements that are important for an employee to have.

The investigation of competencies required by the economy was made by tests of 50 questions. Compiling the test, it was very important to make it simple for employers to fill, to build in some specific questions. Tests were sent to 75 companies, altogether. Most of the companies deals with environmental protection, least of them are agricultural companies. The returned tests from the economy were analysed by SPSS, from which some diagrams were made.

Some of the companies that filled and returned tests, sent us some pattern of requirements of working activities. We have monitored employers' expectations according to graduates from the Environmental Engineering bachelor course. The results of this monitoring were compared with the competencies defined in the accreditation documents of the course. In this way, we could be closer to the requirements of the course and the employers.

We have asked 62 companies about professional competencies they needed. Only 10 of them answered, returned some requirements of working activities. From these answers, we could define task profiles.

Task profile can be characterized by general, professional knowledge, that a graduate just after having a degree, possesses. By this knowledge, at the workplace employee can set tasks without any difficulty. The task profile has to be defined according to professional customs, laws, but without specific achievement and qualitative and quantitative characteristics. The task profile contain the list of working activities that an employee having the degree of vocational training can fulfil. *(Henczi – Zöllei, 2007)*

RESULTS AND DISCUSSION

The tests were sent to 75 companies. From 75 companies, 36 returned the filled tests. From the tests, we can determine that mainly authorities (21 %) and economic organizations (18 %) answered our questions. The centre of these companies is situated in West Hungary. Most of the inquired ones have known about the Environmental Engineering bachelor course, they are working in an agricultural field. More over they have employees with graduation from the field of agricultural science. They think that, in spite of the fact that on the whole the economy has know little about the Bologna Process and the transformation of the higher educational system, it is not more difficult for a graduate with a degree of Environmental Engineering to have a job than with other kind of degree. (Figure 1)

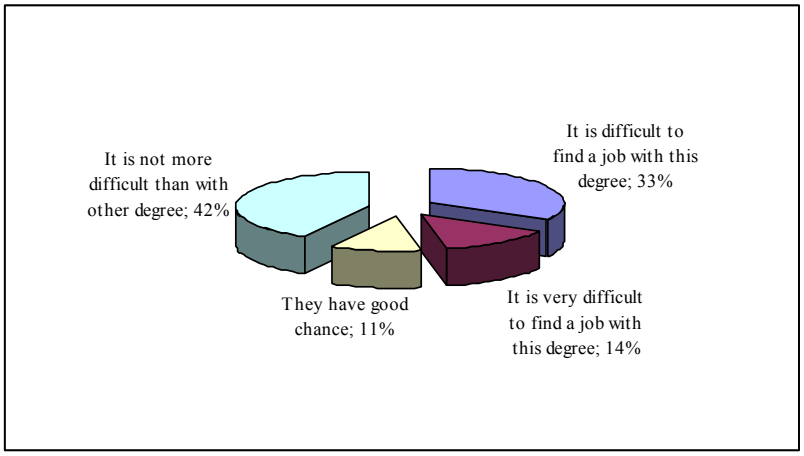

Figure 1.

Examining the general knowledge and skills that is important to have when a graduate looks for a proper job, computer technics is the most necessary and the least is type-writing. (Figure 2.)

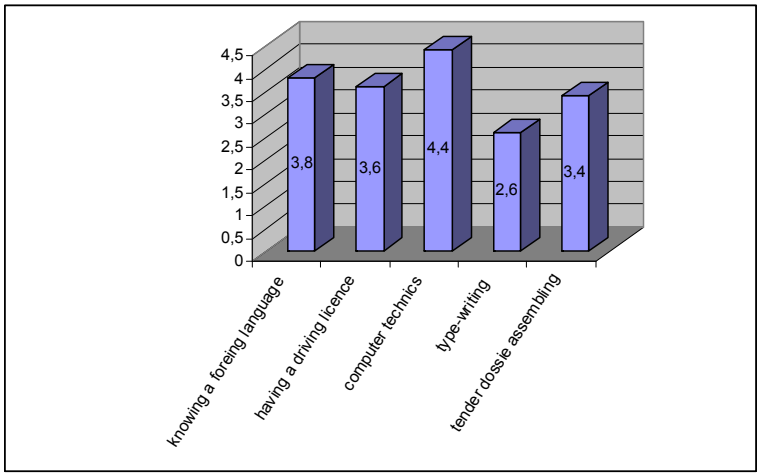

Figure 2.

To have some practice in the field where the company is effective, is not so needed condition. They think that it can be acquired during work. From the tests, it is a significant point that companies are opened to work out theoretical and practical training with the higher education institutions. They are interested in most of the training types. According to the practical training, 80 % of the respondent companies have already accepted students for summer practice. Hence, they have some experiences.

Three-quarter of the respondents would encourage employees with vocational training or bachelor degree to learn more and to have bachelor or master degree. 38 % of the responding companies would employ graduates with Environmental Engineering degree.

In the bachelor course of the Environmental Engineering, students can choose three specializations. In the economy amongst these specializations, the settlement development and the environment protection are the most interested, the quarter of the asked companies is motivated by waste management specialization. (3. figure)

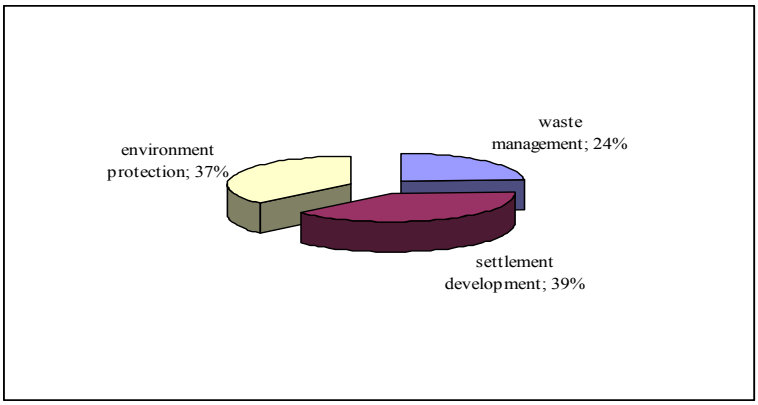

Figure3.

Examining the general field of knowledge, these are financial, marketing, legal, economical ones that are very relevant for a young people to have when he applies for a job. Naturally, professional knowledge of environmental protection is firstly required at these companies.
To be successful in this work, it were not only the tests to examine, but also descriptions of working activities and training requirements of the course.
The labour market developing very fast, we mustn't stop to review the curriculum. If we liked to have a competitive course that was suitable to the new challenges of the science, we have to re-examine our results in every third year. In every third year, because the bachelor courses have three year to learn. *(Juhász, 2001, Berner, 2004)*

Forming our curriculum, we have involved in this work the participants of the educational and working field. The experts of the education and the labour market have valuated our theory by means of a table. 27 filled evaluation forms have returned. In the course of the validation, each competence were qualified in a scale. (1. table).

Table 1

Table of validation

		Mennyire fontos a feladat? (Függetlenül attól, hogy Ön végzi-e vagy sem!)							A feladatvégzés gyakorisága						Mennyire nehéz, bonyolult a feladat?						Átlagok		
	Feladatkompetenciák megnevezése	Érdektelen	Nem fon-tos			Na-gyon fon-tos			Soha	Nagyon ritkán	Havonta	Hetente	Naponta	Folyamatosan	Egy-szerű			Nehéz, bonyo-lult					
			1	2	3	4	5	6							1	2	3	4	5	6			
1	Gazdasági környezet értékel	1	0	3	11	5	3		0	6	4	6	0	6	0	0	1	10	4	7	3		5

Firstly, it was to answer how important the task examined. It was to be answered without reference to the thing whether the person was doing the task. But evaluating, this question could be cancelled in case the task was said to have no importance in the training. If the activity is said to be significant, it had to be valued in a scale from 1 to 5.
In the next question round, the frequency of the task had to be estimated: never, rarely, monthly, weekly, daily, constantly.

The complexity of the duty was examined in the third questions' group. It could be quoted in a scale from 1 to 6, from the simple one to the difficult one.
We have counted the average of the importance and the complexity of the tasks. By this means we could value the task competencies of the Environmental Engineering bachelor course to make it acceptable by the educational experts and by the participants of the labour market.

CONCLUSIONS

In the tests we have drawn some proper questions about knowledge needed at companies. This was a very interesting examination. Analysing the returned and filled tests, we have tried to use the opinion of the participants of the labour market and to build it in our curriculum.
We have reviewed competencies of the training requirement of the course and we have reformed them to be accordant with the expectations of the participants of the labour market and of course, with the goals of the higher education institution, with the prerequisites of the science of environmental protection.

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