Evaluation of Economic Education from Graduates' Point of View

Renáta Kunstová[1] | *University of Economics, Prague, Czech Republic*
Hana Řezanková[2] | *University of Economics, Prague, Czech Republic*

Abstract

The labour market expects graduates with certain levels of competences, which reflect the quality of education. In this paper we present the results of the analyses of selected indicators concerning of the education quality obtained on the basis of answers of graduates of the University of Economics, Prague. The graduates were addressed four or five years after graduation within large REFLEX surveys realized in 2006 and 2010. We compare competence levels acquired by graduates with competence levels required by employers; both types of levels were evaluated by graduates. We investigate dependency, agreement and similarity of acquired and required competence levels by different coefficients and we compare their values in the 2006 and 2010 surveys.

Keywords

Higher education, graduates, education evaluation, acquired competence levels, required competence levels

JEL code

A23, I21, J24

INTRODUCTION

One of many reasons, why universities should pay attention to evaluation of education quality, is investigation of reform implications. The Bologna declaration, signed on June 1999 by ministers in charge of higher education, started reforms of higher education in many European countries. In accordance with these reforms, since the beginning of the 2000s, study programmes have been converted into a three-cycle structure of higher education (bachelor's, master's and doctoral degrees) with the uniform European credit transfer and accumulation system (ECTS). It is obviously useful to investigate whether the transformation of higher education influenced the acquired knowledge, skills and abilities of graduates.

From the partial conclusions published in OECD (2010) it appears that the Czech Republic is a country with a low level of tuition fees, with no financial or other barriers to entry to higher education, with the most significant increasing number of students admitted to universities, and unemploy-

[1] Nám. W. Churchilla 4, 130 67 Prague 3, Czech Republic. Corresponding author: e-mail: renata.kunstova@vse.cz, phone: (+420) 224 095 418.

[2] Nám. W. Churchilla 4, 130 67 Prague 3, Czech Republic.

ment is generally still low. According to the data published by the Czech Statistical Office (2011), the total number of students studying at the universities has almost doubled during the past ten years. Because universities are a part of the labour market, and we can assume that this market will soon be saturated, universities have to be prepared for the competitiveness of their graduates (European Commission, 2003). According to Koucký, Zelenka (2010), the unemployment rate of university students under the age of 30 years moves on a long-term basis in the range from 50% to 90% of the total unemployment rate in the Czech Republic. Although the unemployment rate of university students is below the national average, their number increased in the last four years also as a result of the economic crisis. For example, Koucký, Zelenka (2010) has published, that unemployment rate of university students increased from 1.5% in 2008 to 2.4% in 2010. The Czech Republic has started to tackle the unnaturally high number of universities graduates, but, according to Doucek et al. (2011), it is a long-term process. Universities have to deal with the quality of their students to be competitive in the saturated labour market.

In this paper we analyse the data collected by the REFLEX surveys in 2006 and 2010, in which the Czech Republic participated. We deal with data obtained from graduates of five faculties of the University of Economics, Prague, and we focus on selected indicators of education quality. We are interested in the evaluation in relation to employers and further professions of graduates, and in the competence levels acquired by graduates and required by employers.

1 SURVEYS OF HIGHER EDUCATION QUALITY

Different data collections concerning higher education have been realized in the last few years. The series of books Education at a Glance published from 1998 with the latest in 2011 (OECD, 2011) provides internationally comparable data on education. Each publication focuses on four main topics: education levels and student numbers, the economic and social benefits of education, paying for education and the school environment. Educational systems are compared mainly by means of quantitative indicators.

For the evaluation of education it is very important to know how well students are prepared for various professions. However, the measuring of this aspect is very difficult. A wide variety of potential indicators of a graduate's performance was reviewed by Hartnett and Willingham (1979). Emphasis was placed on problems with the selection of indicators and their definitions. The available results of other surveys are primarily oriented towards single evaluations of the data (Mason, 2001, Archer, Davidson, 2008).

Several surveys focusing on acquired competences of graduates have been realized in the past decade. They followed the CHEERS[3] project (Careers after graduation from Higher Educational institutions — a European Research Study), which was realized in the years 1998–2000 in twelve countries and concerned graduates from the 1994.

An important European project was REFLEX[4] (Research into Employment and professional FLEXibility), which was realized in the years 2004–2007 in 16 countries. It concerned graduates from 2001 and 2002. Besides European countries (including non-EU members), Japan participated in this project. One of the objectives was a qualitative study on graduate competences in the knowledge society. The structure of the questionnaire was unified for all countries (the questionnaire was translated into the native language in each country). General results from the international point of view were published, for instance, by Allen, Van Derveldend (2007) and Petersson (2007).

[3] Available at: <http://www.uni-kassel.de/incher/cheers/index.ghk>.

[4] Available at: <http://www.fdewb.unimaas.nl/roa/reflex>.

The PROFLEX[5] project (with the title "Flexible Professional in the Knowledge Society: New Demands on Higher Education in Latin America"), was undertaken using some parts of the REFLEX methodology in six countries of Latin America. The HEGESCO[6] project (Higher Education as a Generator of Strategic Competences) addressed the needs of the main groups of higher education stakeholders who were interested in the employability of graduates. It was based on qualitative interviews among employers and higher education institutions from five partner countries. It was realized in eight countries of southern and eastern Europe.

The DECOWE Network[7] (Development of Competencies in the World of Work and Education), was established after the conference held in September 2009 at the University of Ljubljana. The main purpose of this initiative is to promote relevant research, researchers, teaching and governmental projects, initiatives and events related to improvements in educational and employability policies, studies related to development of competences in different environments and establishment of learning recognition and qualification frameworks.

The second REFLEX project, with the title "Employability and graduates' labour market success", was realized in the Czech Republic in 2010. Similar surveys were also being undertaken in Austria and Germany at that time. General results of the REFLEX 2006 and 2010 surveys related to the Czech Republic were published, for example, by Kalousková (2006), Kalousková, Vojtěch (2008), Koucký, Lepič (2008) and Koucký, Zelenka (2010).

2 CHARACTERIZATION OF ANALYSED DATA FILES

In the Czech Republic, projects REFLEX 2006 and REFLEX 2010 were coordinated by the Education Policy Centre at the Charles University in Prague. Selection of the graduates was designed as regional where individual faculties corresponded to regions. For the survey, the Education Policy Centre (EPC) determined numbers of graduates for individual faculties and individual years.

The technique of the graduate selection was rather complicated. The number of addressed graduates was specified on the basis of the number of the faculty's graduates. It was determined as a percentage of graduates, from 33% (each third graduate from the alphabetic list was asked) to 100% (all graduates were asked). The EPC assumed that 20% of questionnaires were fulfilled enough with using the possibility of searching for other contacts in case if a postal address was invalid (e.g. by e-mail address). However, a graduate degree was not taken into consideration.

We analysed the data relating to five faculties of the University of Economics in Prague, which participated in both surveys. The numbers of received fulfilled questionnaires desired by the EPC were achieved in case of these faculties. In accordance with the rules of use and publishing results of the REFLEX project we do not mention the names of these faculties.

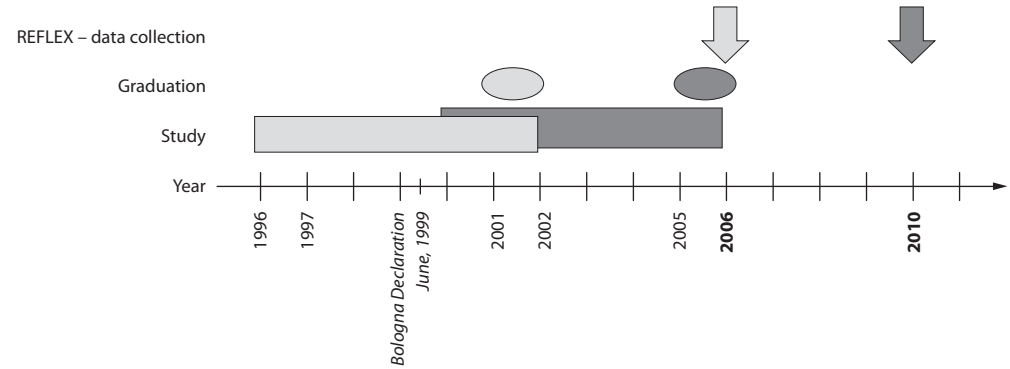
The analysed data sample includes only graduates with a master's degree because they account for the major part of all graduates in investigated periods. The numbers of these respondents were 412 in 2006 and 506 in 2010. The continuity of data collection to the end of the study is shown in Figure 1. Graduates from ISCED (International Standard Classification of Education) 5A programmes (UNESCO, 1997), who got their degree in 2001 or 2002 (in the 2006 survey) and 2005 or 2006 (in the 2010 survey), were involved. It means that respondents were addressed four or five years after graduation. Both periods are displayed in the length of the whole study in Figure 1. In the earlier period students completed a five-year study, three-cycle system students achieved the same level of study after completing bachelor's (three years) and master's (two years) degrees of study.

[5] Available at: <http://www.encuesta-proflex.org>.

[6] Available at: <http://www.hegesco.org/content/view/8/10>.

[7] Available at: <http://www.decowe.com>.

Figure 1 The timeline of the REFLEX projects



Source: Own construction, data origin from REFLEX 2006 and REFLEX 2010

The questionnaires used in surveys 2006 and 2010 were divided into several sections which were focused on study and work orientations, evaluation of the educational programme, work experiences before and during higher education, the transition to the labour market, characteristics of the first and current job, characteristics of the occupational and labour market career up to the present, assessment of required and acquired competences, etc. The questionnaires in 2006 and 2010 were not identical, only similar. Some questions were changed and new questions were added in the 2010 questionnaire in accordance with the experiences from the first survey and new circumstances. We focused on questions from a few selected sections in our analysis.

Firstly there is evaluation of study programmes from different aspects, including relationship to employers and further professions of graduates. Five (or four) years after graduation respondents re-evaluated their university studies. They could compare content and demands of study with their employment needs. Respondents judged their study from the following aspects: an overall concept of the study programme, the study programme as a basis for future professional and personal development and satisfaction with the selection of the study programme and the university. The analysed indicators were defined identically in both surveys.

Secondly there is the comparison of graduates' acquired and required levels of competences. Although respondents are employed, their satisfaction with the way the faculty prepared them for their professions may be various. Both acquired and required levels of competences were evaluated by graduates. The indicators of competences were various in the surveys. They differed in the number of competences, their formulations and in the rating scale. In 2006 respondents evaluated competences on a seven-point scale and in 2010 the scale was ten-point. We therefore focused on the analysis of selected competences, whose formulations were similar. Due to comparability of association coefficients in different periods, we recalculated both original scales to a three-point scale.

3 RESULTS OF ANALYSES

In this section we present the results of comparison of selected indicators concerning evaluation of study programmes from the surveys in 2006 and 2010. Besides the percentage distributions of individual categories, different independency tests were applied for investigation of statistical dependency of indicators on a study period. In addition, different measures of dependency, agreement and similarity are used for relationship investigation of acquired and required competence levels. Statistical calculations were performed in the IBM SPSS Statistics and MS Excel systems.

3.1 Evaluation of study programmes

Percentage distribution of the evaluating scale concerning description of the study programme concepts is showed in Table 1. Grey colour indicates statistical dependency of the evaluation on a year according to different independency tests in a contingency table, including the chi-square test and zero tests for asymmetric tau and uncertainty coefficients. Respondents of the 2006 survey underwent a different structure of study from respondents of the 2010 survey, whose studies have already been influenced by the Bologna process. The frequency distribution shows that the study of economic disciplines was regarded as medium and rather demanding in both periods.

Table 1 Percentage distributions for description of study programmes

Description of study programme	Year	1 not at all	2	3	4	5 very high extent
Programme was generally regarded as demanding	2006	1.0	16.3	38.6	36.4	7.7
	2010	1.4	18.4	42.1	31.8	6.3
Employers are familiar with the content of programme	2006	7.4	33.7	29.5	24.6	4.9
	2010	6.5	30.2	25.3	32.6	5.3
There was freedom in composing your own programme	2006	3.9	14.5	27.8	35.1	18.7
	2010	2.2	17.8	32.2	38.3	9.5
Programme had a broad focus	2006	0.2	14.7	28.7	47.3	9.1
	2010	0.6	16.4	22.5	49.0	11.5
Programme was vocationally orientated	2006	2.7	22.7	34.0	33.5	7.1
	2010	4.2	26.5	30.8	32.0	6.5
Programme was academically prestigious	2006	4.4	34.2	30.8	22.2	8.4
	2010	4.3	28.1	27.3	32.4	7.9

Source: Own calculation, data origin from REFLEX 2006 and REFLEX 2010

Employers were more familiar with the content of the programme in the later period. However, the survey does not tell us whether faculties have better public relations or employers searched for such information.

The smaller degree of freedom in composing one's own programme in the 2010 survey is related to the division into bachelor's and master's studies; we can consider the same reason for the changes in the broad focus of the study programme and in vocational orientation. Academic prestige had relatively low ratings in the 2006 survey. In the later period this prestige changed significantly in favour of higher evaluating levels.

Published statistics of employment and unemployment provide initial information about the employability of graduates in the labour market. However, although respondents are employed, their satisfaction with the way the faculty prepared them for their professions may be various. Results in Table 2 provide a comparison of percentage distributions concerning preparedness for future professions (grey colour indicates statistical dependency of the evaluation on a year at 5% significance level). Most of the frequencies of higher levels are lower in the 2010 survey, but the obtained values are positive in general.

With the exception of one indicator, more than 70% of the answers were at the middle or higher levels in both surveys. The evaluation of "good basis for respondent's personal development" was the best. Only the last indicator "development of entrepreneurial skills" was evaluated more by lower categories.

Respondents of both surveys answered similarly to the question of whether they would choose the same study programme at the university on the basis of their current opinions (see Figure 2). Sixty-one

Table 2 Percentage distributions for evaluation of study programmes in relation to future professions

Study programme was a good basis for	Year	1 not at all	2	3	4	5 very high extent
Starting work	2006	6.1	9.8	24.9	35.0	24.2
	2010	8.1	16.8	30.6	31.2	13.2
Further learning on the job	2006	5.2	11.9	26.6	43.2	13.2
	2010	5.7	17.2	30.6	31.4	15.0
Performing current work tasks	2006	5.2	17.0	35.2	30.3	12.3
	2010	6.9	20.2	29.4	33.0	10.5
Future career	2006	4.4	9.3	32.2	40.0	14.0
	2010	4.7	20.9	29.6	33.2	11.5
Your personal development	2006	1.7	7.6	23.4	44.6	22.7
	2010	3.2	10.3	28.3	40.5	17.8
Development of entrepreneurial skills	2006	25.1	29.6	23.4	18.4	3.5
	2010	25.1	31.0	24.7	15.0	4.2

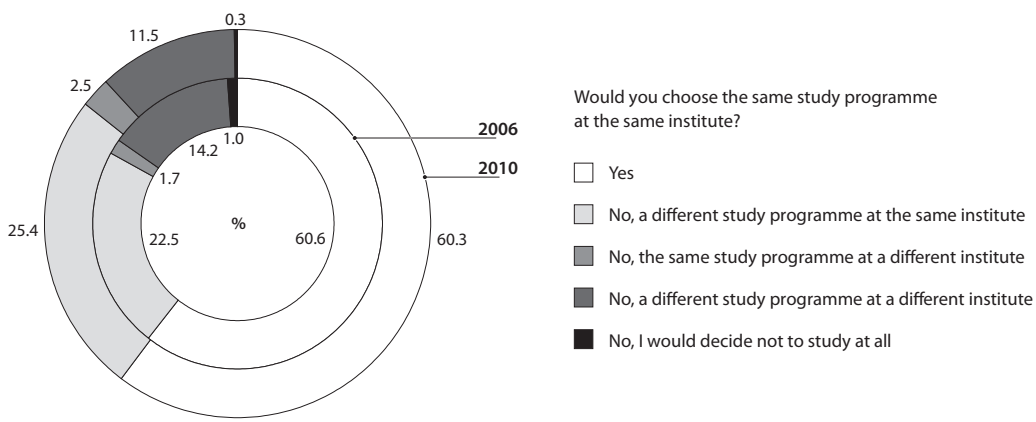
Source: Own calculation, data origin from REFLEX 2006 and REFLEX 2010

percent of respondents would choose the same programme at the same university. Over twenty percent of respondents would change the study programme but not the university. The number of respondents who would change the study programme and the university was higher in 2006.

3.2 Evaluation of acquired and required competence levels

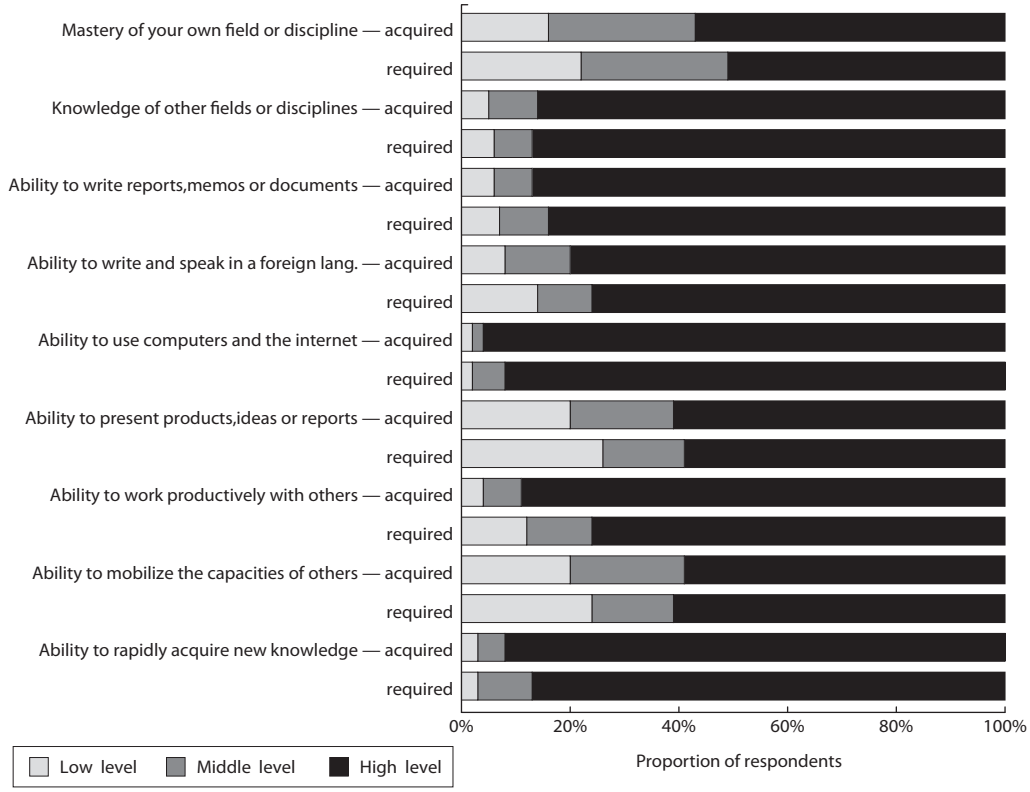
Figures 3 and 4 present the comparison of acquired and required competence levels in both periods. We can see that the level of an acquired competence is almost always higher than the level of a required competence. The comparison of investigated periods shows that results are better from the 2010 survey. In this year respondents evaluated the level of acquired competences always as higher and with a greater difference compared with the level of required competences.

Figure 2 Percentage distributions of responses to the choice of a study programme (in %)



Source: Own construction, data origin from REFLEX 2006 and REFLEX 2010

Figure 3 REFLEX 2006 – graduates' acquired and required levels of selected competences (in %)



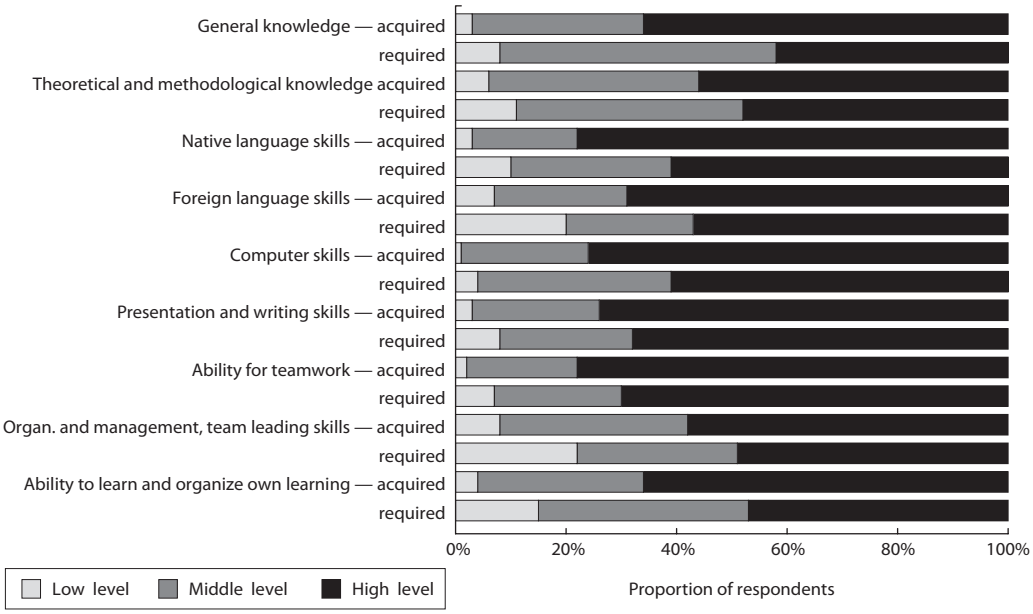
Source: Own construction, data origin from REFLEX 2006

The biggest difference between acquired and required competence levels was in "ability to work productively with others" (in 2006) and in "general knowledge" (in 2010). On the other hand, the smallest difference was in "knowledge of other fields or disciplines" (in 2006) and in "ability for teamwork" (in 2010).

Further, we investigated dependency, agreement and similarity of acquired and required competence levels. We applied Kendall's tau-b as a measure of dependency, Cohen's kappa as a measure of agreement and the cosine measure for investigation of similarity. Computational formulae and properties of these measures are described, for example, by Pecáková (2011), Řezanková (2011) and Řezanková et al. (2009). The obtained values are in Table 3. They need to be considered with the relationships to percentage distributions presented in Figures 3 and 4. If the highest category predominated, then the relationship between levels of acquired and required competences is more important. In all cases, dependency and agreement were statistically significant at 1% significance level.

In the 2006 survey the highest dependency, agreement and also similarity were in the case of "ability to use computer and the Internet". Higher values are related to dominance of the third category. In the 2010 survey, the value of Kendall's tau-b was the highest for "organization and management, team leading skills", whereas Cohen's kappa and the cosine measure were the highest for "ability for teamwork". In this case the relationship between levels of acquired and required competences is more important because the proportion of the third category is higher.

Figure 4 REFLEX 2010 – graduates' acquired and required levels of selected competences (in %)



Source: Own construction, data origin from REFLEX 2010

Table 3 Evaluation of the relationships between acquired and required competence levels

Competence	Year	Tau-b	Kappa	Cosine measure
Mastery of your own field or discipline	2006	0.385	0.315	0.983
General knowledge	2010	0.409	0.336	0.969
Knowledge of other fields or disciplines	2006	0.349	0.294	0.936
Theoretical and methodological knowledge	2010	0.435	0.369	0.966
Ability to write reports, memos or documents	2006	0.485	0.473	0.984
Native language skills	2010	0.509	0.441	0.973
Ability to write and speak in a foreign language	2006	0.357	0.315	0.969
Foreign language skills	2010	0.413	0.307	0.955
Ability to use computers and the internet	2006	0.573	0.507	0.996
Computer skills	2010	0.419	0.376	0.977
Ability to present products, ideas or reports to an audience	2006	0.408	0.333	0.938
Presentation and writing skills	2010	0.500	0.431	0.978
Ability to work productively with others	2006	0.297	0.214	0.969
Ability for teamwork	2010	0.566	0.484	0.983
Ability to mobilize the capacities of others	2006	0.465	0.347	0.950
Organization and management, team leading skills	2010	0.574	0.447	0.963
Ability to rapidly acquire new knowledge	2006	0.338	0.291	0.986
Ability to learn and organize own learning	2010	0.457	0.340	0.962

Source: Own calculation, data origin from REFLEX 2006 and REFLEX 2010

CONCLUSION

Employability of graduates is one of the general criteria of the universities evaluation. It is not possible to make the simple conclusions that the smaller the unemployment of graduates is, the better their study was. In this paper we focused on the opinions of graduates and their retrospective evaluation of completed study programmes. We analysed the answers of two graduate groups, which differed in their study period. The respondents graduated at the same economic faculties and they were addressed four or five years after graduation. Groups differed in the structure of the study programme, which had changed between the two investigated periods of studies.

Employers were more familiar with the content of a programme in the later period (in the 2010 survey). Less freedom in the composing of graduates' study programmes was found in this period. Academic prestige had relatively low ratings in the 2006 survey; in the later period this prestige increased significantly. But in both periods the study of economic disciplines was mostly regarded as either middling or rather demanding.

The respondents evaluated their study programmes in relation to future professions very well. The evaluation of "good basis for respondent's personal development" was the best. Only the indicator "development of entrepreneurial skills" was evaluated worse.

From the general graduates' point of view, they almost always evaluated their competences at a better level than their employer required. The investigation showed better results for the later period, when the level of all acquired competences was, in graduates' evaluations, better than the level of required competences and the difference between levels was higher.

ACKNOWLEDGEMENT

This paper was prepared with institutional support for the conceptual development of science and research at the Faculty of Informatics and Statistics, University of Economics, Prague, project No. IP 400040.

References

ALLEN, J., VAN DERVELDEND, R. *The Flexible Professional in the Knowledge Society: General Results of the REFLEX project* [online]. 2007. [cit. 13.1.2012]. <http://www.fdewb.unimaas.nl/roa/reflex/>.

ARCHER, W., DAVIDSON, J. *Graduate Employability: What do Employers Think and Want?* [online]. London: The Council for Industry and Higher Education, 2008. [cit. 13.1.2012]. <http://ec.europa.eu/education/higher-education/doc1263_en.htm>.

CZSO. *Ženy a muži v datech 2011. Kapitola 3: Vzdělávání* (Women and Men in Data 2011. Chapter 3: Education) [online]. Prague: Czech Statistical Office, 2011. [cit. 13.2.2012]. <http://www.czso.cz/csu/2011edicniplan.nsf/p/1417-11>.

DOUCEK, P., KUNSTOVÁ, R., MARYŠKA, M. Do We Have Enough ICT Specialists in the Period of eDependency? In *Creating Solutions for the Individual, Organisations and Society Proceedings.* Bled: University of Maribor, 2011, pp. 1–17.

EUROPEAN COMMISSION. *The Role of Universities in the Europe of Knowledge, Communication from the Commission, COM/2003/0058* [online]. Brussels: European Commission, 2003. [cit. 13.1.2012]. <http://europa.eu/legislation_summaries/education_training_youth/lifelong_learning/c11067_en.htm>.

HARTNETT, R. T., WILLINGHAM, W. W. *The Criterion Problem: What Measure of Success in Graduate Education?, GRE Board Research Report GREB No. 77-4R* [online]. 1979 [cit. 13.1.2012]. <www.ets.org/Media/Research/pdf/GREB-77-04R.pdf>.

KALOUSKOVÁ, P. *Potřeby zaměstnavatelů a připravenost absolventů škol — šetření v terciární sféře* (Needs of Employers and Readiness of Graduates — a Survey in the Tertiary Sector) [online]. Prague: National Institution of Technical and

Vocational Education (NUOV), 2006. [cit. 13.1.2012].
<http://www.nuov.cz/potreby-zamestnavatelu-a-pripravenost-absolventu-skol>.

KALOUSKOVÁ, P., VOJTĚCH, J. *Potřeby zaměstnavatelů a připravenost absolventů škol — souhrnný pohled* (Needs of Employers and Readiness of Graduates — Summary) [online]. Prague: National Institution of Technical and Vocational Education (NUOV), 2008. [cit. 13.1.2012].
<http://www.nuov.cz/potreby-zamestnavatelu-a-pripravenost-absolventu-skol-2>.

KOUCKÝ, J., LEPIČ, M. *Vývoj kvalifikačních požadavků na pracovním trhu v ČR a v zahraničí* (Development of Skills Requirements in the Labor Market in the CR and Abroad) [online]. Prague: National Institution of Technical and Vocational Education (NUOV), 2008. [cit. 13.1.2012].
<http://www.nuov.cz/vyvoj-kvalifikacnich-pozadavku-na-pracovnim-trhu-v-cr-a-v>.

KOUCKÝ, J., ZELENKA, M. *Postavení vysokoškoláků a uplatnění absolventů vysokých škol na pracovním trhu* (The Position of University Graduates and their Use in the Labor Market) [online]. Prague: Education Policy Centre (EPC), Charles University, 2010. [cit. 13.1.2012]. <http://www.strediskovzdelavacipolitiky.info/>.

MASON, G. The Mix of Graduates and Intermediate-Level Skills in Britain: What Should the Balance Be? *Journal of Education and Work,* 2001, 1, pp. 5–27.

OECD. *Education at a Glance 2010. OECD Indicators* [online]. Paris: OECD, 2010. [cit. 13.1.2012].
<http://www.oecd-ilibrary.org/education/education-at-a-glance-2010_eag-2010-en>.

OECD. *Education at a Glance 2011. OECD Indicators* [online]. Paris: OECD, 2011. [cit. 14.1.2012].
<http://www.oecd-ilibrary.org/education/education-at-a-glance_19991487>.

PECÁKOVÁ, I. *Statistika v terénních průzkumech* (Statistics in Field Surveys). 2nd ed. Prague: Professional Publishing, 2011.

PETERSSON, K. *Graduates from Higher Education in Europe* [online]. 2007. [cit. 13.1.2012].
<http://www.fdewb.unimaas.nl/roa/reflex/documents%20public/publications/REFLEX_Sweden.pdf>.

ŘEZANKOVÁ, H. *Analýza dat z dotazníkových šetření* (Analysis of Data from Surveys). 3rd ed. Prague: Professional Publishing, 2011.

ŘEZANKOVÁ, H., HÚSEK, D., SNÁŠEL, V. *Shluková analýza dat* (Cluster Analysis of Data). 2nd ed. Prague: Professional Publishing, 2009.

UNESCO. *International Standard Classification of Education* [online]. UNESCO, 1997. [cit. 13.1.2012].
<http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx>.