



Soft Skills of Czech Graduates

Jiří Balcar, Milan Šimek, Lenka Filipová¹

Abstract: Finding a job is easier for people who are better equipped with soft skills, as they are more productive. Therefore, this article deals with the evaluation of soft skills of graduates from Czech public universities. The results show that the same soft skills are required from university graduates as from the population as a whole (only problem solving is more pronounced with them), but the required level of these skills is 42% higher in the case of graduates. Unfortunately, employers perceive the level of graduates' soft skills insufficient as their level is by 16.46 to 31.15% lower than required. A more detailed analysis showed that, in terms of the development of soft skills, Czech universities provide a very homogenous service. Graduates of universities have nearly the same level of soft skills, while they can also identify similar strengths and weaknesses. These findings suggest that Czech universities should pay more attention to the systematic development of soft skills.

Keywords: graduates, language skills, professional skills, skill gap, soft skills, university

JEL Classification: I25, J23, J24

Received: 17 October 2017 / Accepted: 10 January 2017 / Sent for Publication: 8 March 2018

Introduction

The success of an individual in the labour market is determined above all by his/her skills, which can be defined as 'the capacity for carrying out complex, well-organized patterns of behaviour smoothly and adaptively so as to achieve some end or goal' (Reber and Reber 2001: 683). Higher skills increase the chances of an individual to obtain the employment, reduce the risk of dismissal and lead to higher wages (e.g. Orazem, Vodopivec 1997). For a better understanding of these positive effects, it is necessary to look at the individual types of skills because of their different consequences for the labour market status.

It is possible to distinguish between general skills that increase the productivity of individuals with all relevant employers, and specific ones that increase productivity only with a given employer (e.g. knowledge of firm's processes and organizational structure, expertise in a company-specific software, etc.), while a change of employer depreciates

¹ Affiliation: VSB - Technical University of Ostrava, Faculty of Economics, Sokolská třída 33, 701 21 Ostrava, Czech Republic. E-mail: jiri.balcar@vsb.cz, milan.simek@vsb.cz, lenka.filipova@vsb.cz

them completely. This distinction is particularly useful for the public sector, which, through the development of general skills, tries to promote the employability of various groups of people. For the private sector, it is more relevant whether the skill is soft or hard. The distinction depends on the content or the essence of the skills. Soft skills can be defined as hardly measurable skills closely related to the attitudes of an individual (Balcar et al. 2011), e.g. communication, cooperation, leadership, independence and creativity. Hard skills, on the other hand, are seen as easily measurable skills, such as ICT skills, typing, or performing surgery, which are closely related to the knowledge of an individual, and thus it is also relatively easy to develop them (Balcar et al. 2011). This classification of skills has a considerable link to employability: general skills increase the likelihood of finding a job, while employers use hard skills formalised in the level and field of education as a primary screening of job applicants. From the candidates having the same required qualification, the one who can show the greatest level of soft skills relevant to the position in question gets the job (Balcar et al. 2011). Moreover, if the job seeker has some specific skills relevant to the employer, he/she gains a comparative advantage over other candidates. Specific skills, which are usually accumulated at work, then reduce the probability of job loss, whether it is a hard or a soft skill.

Due to the great importance of soft skills for employability, the aim of this article is to evaluate their level among graduates of Czech public universities, while some attention is also paid to professional and language skills, i.e. hard skills. To the best of the authors' knowledge, it is the first article assessing soft skills in the Czech Republic that employs definitions of these skills provided by the National System of Occupations (see <http://nsp.cz>). The aim will be pursued gradually over a number of steps. First, Section 1 reviews literature on soft skills requirements on the Czech labour market. Section 2 describes data and survey used in this article. Third section provides analysis and evaluation of the level of soft skills of graduates of Czech universities. The last part includes conclusions and recommendations for educational sector.

1. Literature Review on Soft Skills in the Czech Republic

Czech employers consider professional and general skills to have roughly equal importance (professional skills were deemed more important by 51.5 to 57.1% of employers, as evidenced by Burdová, Paterová 2009; Kalousková 2007 and 2006; Kalousková et al. 2004). Detailed analysis of these studies revealed that soft skills are considered more important in the context of the general skills.² This highlights the need to address the development of professional and soft skills simultaneously, because both are crucial to success in the labour market. It is supported not only by the different roles of these two types of skills in recruitment (see Introduction), but also the fact that in recent dec-

² These studies use a set of 9 soft skills and 4 hard skills (ICT skills, language skills, literacy and numeracy). It can be assumed that the same importance of hard and soft skills would result in their equal distribution in the set of 13 skills ranked according to their importance for employers. However, the analysis of information on 12 categories of workers (these categories vary according to level of education, economic sector, region, and year) showed that on average there is only 1.4 of hard skills among the 7 most important skills, i.e. 35.4% of hard skills is among 53.8% of the most important skills.

ades the fastest growth in employment has been in occupations requiring high levels of both soft and hard skills (Weinberger 2011; Bacolod, Blum 2008; Borghans et al. 2006). The change in the structure of employment towards occupations requiring both kinds of skills may be regarded as a specific factor for economic growth, due to their productivity (for evidence of productivity of soft skills see Weinberger 2011; Conti et al. 2009; Bacolod, Blum 2008; Borghans et al. 2008 and 2006; Black, Spitz-Oener 2007; Kuhn, Weinberger 2005; for Czech Republic Balcar 2016³).

The aim of many empirical studies is to identify those soft skills that employers consider the most important for the work performance of employees. These studies, however, often differ in employed methodology and set of skills that are taken into account. The most required soft skills are often identified through surveys carried out in different sectors (e.g. Burdová, Paterová 2009; Kalousková 2007 and 2006; Karásek et al. 2004; Kalousková et al. 2004) or regions (eg. Gottvald et al. 2008; Gavenda 2006; Havlena 2004), analysis of job advertisements (e.g. Balcar et al. 2014; Štastnová et al. 2008 and 2006) and interviews with representatives of labour office (e.g. Skácelová, Vojtěch 2009; Burdová et al. 2007) or employment agencies (e.g. Štastnová et al. 2008 and 2006). These studies often distinguish requirements for soft skills for workers with different levels of educational attainment, which increases the amount of relevant information.

In all of the 13 above-mentioned studies, it is possible to find information on the importance of soft skills for 39 categories of workers (these categories differ in the educational attainment, the economic sector, the region, the methodology used and the relevant year). Despite methodological differences and variation in the assessed skills, it can be concluded that responsibility and communication belong among the 3 most important soft skills in more than half of the categories. In addition, lifelong learning, flexibility / adaptability, independence, problem solving and cooperation were found among the 3 most important soft skills in more than a fifth of the categories. As 9 of the studies provide information on workers with a university degree, it can be noted that at least half of them identified responsibility, communication and problem solving as the 3 most important soft skills for graduates. This suggests that similar soft skills are required from university graduates as from the population as a whole, but problem solving is more pronounced with them. Four of these studies also deal with future demand for skills. They show that lifelong learning, flexibility / adaptability as well as finding and orientation in information are among the 3 most frequently cited skills and their importance will grow the most over the next few years. The importance of foreign languages and ICT skills, however, will outstrip that of any of the assessed soft skills in the future. A similar future trend was also revealed by an analysis of skills requirements in particular economic sectors and professions in the EU (Balcar 2011), which shows the growing

³ Balcar (2016) provided an evidence that soft skills are as important as professional skills for explaining wage differentials in the Czech Republic. One standard deviation increase in professional skills brings a wage premium at the level of 8.84%, the same increase of soft skills is accompanied by a 8.51% wage increase. Even if a number of personal, employer and job characteristics are controlled, both professional and soft skills remained positive and statistically significant wage determinants. The importance of developing both professional and soft skills can be further emphasised by the evidence suggesting that soft skills and in particular professional skills are productive only when they are used together.

importance of ICT skills and foreign languages in the case of hard skills, and flexibility, communication and intercultural skills in the case of soft skills.

These conclusions point to the importance of soft skills for employment and productivity of an individual, but some attention should be paid also to their level. The discrepancy between importance and required level of the skill can be clearly illustrated by an example of a secretary, where mastering of MS Office is highly important for carrying out the work, but the requirements on it can be relatively low (e.g. basic calculations, formatting of tables and creating of charts in MS Excel can be considered necessary for this work position, while using analytical tools or programming of macros is usually not required; requirements on other programmes in MS Office are not discussed in this example). Information on importance can be used for identification of the most relevant skills, while information on requirements define a necessary proficiency in that skills. A combination of information on skills' importance and requirements, however, requires shared definitions of skills taken into consideration.

Table 1. Required level of soft skills on the Czech labour market

	All employees (N = 1 500)		Employees with university degree (N = 209)	
	Mean (on scale 0- 5)	Share of workers with required level 4-5	Mean (on scale 0- 5)	Share of workers with required level 4-5
Independence	3.47	45.60 %	4.34	85.65 %
Efficiency	3.40	36.73 %	4.02	80.86 %
Flexibility	3.24	26.13 %	3.97	72.25 %
Effective communication	3.24	36.87 %	4.26	82.30 %
Proactive approach	3.23	30.47 %	4.11	76.08 %
Problem solving	3.20	33.33 %	4.03	76.08 %
Planning and organizing work	3.11	33.40 %	3.99	77.99 %
Cooperation	3.09	27.87 %	3.78	70.33 %
Creativity	3.05	16.40 %	3.59	42.58 %
Stress resilience	3.02	23.67 %	3.68	66.51 %
Life-long learning	2.67	9.47 %	3.78	70.81 %
Finding and orientation in information	2.58	20.33 %	3.68	87.08 %
Customer orientation	1.93	24.00 %	3.27	58.85 %
Influencing others	1.84	18.53 %	3.37	82.30 %
Leadership	0.86	13.20 %	2.23	50.72 %

Source: Balcar (2018), own calculations.

Note: National System of Occupations specifies the level of each soft skill required using a tailor-made behavioural description based on a 6-point scale (from 0 – not developed to 5 – highly developed). See online Appendix 1 at <http://homen.vsb.cz/~bal112/app-s04-01.pdf> for detail information on all 15 soft skills and their behavioural descriptors.

Balcar (2018) combined the information on soft skills levels required by particular occupations, provided by the National System of Occupations, with a representative sample of 1,500 Czech employees aged 25-54, in order to pin-point the requested levels of soft skills on the Czech labour market (see Table 1). A glance at the mean level of soft skills required from Czech employees shows that independence (mean level 3.47), efficiency (3.40), communication (3.24), flexibility (3.24) and proactive approach (3.23) are the most demanded soft skills on the Czech labour market. We can also see that independence, efficiency and communication (along with problem solving, and planning and organizing work) belong among the skills whose mastery at the highest level (level 4 and 5) is required from more than a third of employers. On the other hand, life-long learning (2.67), search and orientation in information (2.58), customer orientation (1.93), influencing others (1.84) and leadership (0.86) are the soft skills with the lowest requirements. However, this is not due to the fact that these skills are required by employers at a relatively low level, but the fact that they are required only from a limited number of employees.

If we look at required levels of soft skills of employees with university degree, we may be surprised to see that the five skills with the highest requirements, just as a group of five skills with the lowest requirements, are not significantly different from those indicated for all employees. The only change in the group with the highest requirements was problem-solving pushing out flexibility, while the one difference in the group of skills with the lowest requirements being creativity instead of life-long learning. Although the order of skills is not significantly different, the difference in the required level of skills is enormous. It turns out that the level of requirements for soft skills among employees with university degree is higher, on average, by 42%, which corresponds to 0.94 points on the behavioural scale (the smallest difference - 18% - can be found in creativity, the biggest difference - 159% - in leadership). If we look more closely at the proportion of people whose profession demands these skills at the highest level (level 4 and 5), the importance of soft skills among university-educated people becomes clear. While the proportion of all employees required having the highest level of skills reaches, on average, 26.40%, in the tertiary education labor force it is 72.03% (a difference of 45.63 pp). Once again creativity had the smallest difference here (26.18 pp), with the biggest difference being in finding and orientation in information (66.75 pp).

This brief overview discussed the importance of soft skills for success in the labour market and their desired levels, especially for workers with university education. The question is whether Czech universities satisfy these needs of employers. A study that could appropriately assess the level of soft skills of university graduates is unfortunately missing. Available sources indicate that the development of soft skills in formal education is still inadequate across Europe (Balcar et al. 2011), with the Czech Republic being no exception (NVF 2011; Leisyte et al. 2012). Following sections are, therefore, focused on answering this important question.

2. Data

A survey of employers and graduates was performed in order to assess the soft skills of Czech university graduates. Employers' opinion on the quality of graduates is critical, as it strongly influences their willingness to accept graduates for vacant positions. For this reason, the survey of employers with 10 or more employees (56,893 employers in the Czech Republic) represents the most important source of information. Invitation to the survey was sent by e-mail to 17,300 employers and 1,186 of them completed an online questionnaire in January and February 2014. Subsequently, the sample was reduced to 770 observations to ensure its representativeness at the level of the Czech Republic in accordance with the prevailing sector of economic activity (NACE rev. 2) and region (NUTS level 3). The size of the employer according to the number of employees was not used as a criterion for representativeness, since official statistics provide no information on this characteristic in 58% of cases (CZSO, Albertina CZ).⁴

The survey carried out among graduates of Czech public universities (up to 6 years from successful graduation) has the character of a supporting source of information on how graduates themselves evaluate their level of soft skills on entering the job market. Public universities were asked for cooperation in contacting the graduates. Due to the demanding administration and, in some cases, lack of contact with their own graduates only 7 out of 28 universities promised cooperation⁵. In order to maximize the number of responses information about the survey was also disseminated through social networks. Finally, an online questionnaire was completed by 2,095 graduates from February to April 2014 (unemployed graduates or graduates from private universities are not included in order to achieve comparability of data from both surveys). Given the fact that the sample was, from the perspective of representation of universities, very unbalanced (2,014 respondents came from 7 collaborating universities and the remaining 81 respondents from 16 other universities), data only from schools that were represented by at least 100 respondents was used. Those schools are Palacký University Olomouc (N = 637), University of West Bohemia (N = 449), VSB - Technical University of Ostrava (N = 374), Brno University of Technology (N = 231), University of Economics Prague (N = 185) and Tomas Bata University in Zlín (N = 112), i.e. 1,988 respondents (39.74% males and 60.26% females). The survey polled mostly graduates who have graduated in recent years (50.80% of the respondents graduated in 2012-2013, the rest in the years 2008-2011).⁶

⁴ Structure of the sample according to the number of employees: 69.0% employers with 10-49 employees, 23.1% employers with 50-249 employees and 7.9% employers with 250 or more employees.

⁵ Universities, which cooperated on contacting its graduates were Palacký University Olomouc, University of Economics Prague, Brno University of Technology, VSB - Technical University of Ostrava, University of West Bohemia, Tomas Bata University in Zlín, Janáček Academy of Music and Performing Arts in Brno. Authors of this article would like to thank the management of these universities for their cooperation and support.

⁶ It is interesting to note that most graduates of those universities are working in the field have studied (61.37%) or at least in a related field (25.25%). Outside the field of study works 13.38% of graduates. In these responses, however, we can identify significant differences between individual disciplines. The largest share of individuals employed in their field can be found among graduates of health and medical sciences (classification KKOV 5, 93.85% of 130 graduates work

Questionnaires used in the survey of employers and graduates can be found in online Appendix 2 at <http://homen.vsb.cz/~bal112/app-s04-02.pdf>. Their wording suggests that the paper sheds some light on soft skills of Czech graduates in general, i.e. across universities, faculties and occupations (therefore a sample representativeness is important). Obtaining detailed information on graduates of particular universities or faculties would require a significantly larger sample as well as more time-consuming questionnaire, which makes this aim hardly achievable. Therefore, it is recommended to repeat this survey at the university or faculty level to reach more detailed and relevant results for decision making on soft skills development of university students. It would also overcome limitations stemming from a fact that following results are related to the year 2014.

3. Soft Skills of Graduates from Czech Public Universities

A representative sample of 770 employers, employing 93,488 people, allows a better understanding of the nature of the demands for a highly educated workforce. It turns out that employees with university degree are in fact employed by only 85.45% of employers (in which university graduates represent 22.88% of employees). Companies without university-educated workers are in most cases small companies (under 50 employees) in the sector of accommodation and food service activities (NACE I), wholesale and retail trade (NACE G), construction (NACE F), transport and storage (NACE H), water supply, sewerage and waste management (NACE E) and agriculture, forestry and fishing (NACE A).

Managers of enterprises employing graduates were asked to rate the importance of 15 soft skills, linguistic and professional skills for their job performance (see Table 2). It turned out that problem solving, effective communication, efficiency, flexibility and independence are more important, or at least as important as the professional skills. It may be noted that the evaluation of problem solving and effective communication as the most important soft skills corresponds with the conclusions of existing empirical studies (see Section 1). Language skills are then generally perceived as less important than any soft skills. This may be due to the relatively lower rate of actual use of these skills in working life.

In the next 10 years, employers expect increasing demands on the performance of various skills to continue, which corresponds to positive values for all investigated skills (see Table 2). The biggest increase of importance is expected in the case of professional skills, effective communication, exploring and orientation in information, customer orientation and English (cf. the conclusions in Section 1). Growth in importance of these skills is compared with other skills significantly higher (the difference is statistically significant at the 0.01 level, in the case of English at the 0.05 level).

in their field), followed by technical sciences (KKOV 2-3, 66.88% of 465 graduates), natural sciences (KKOV 1, 57.26 % of 241 graduates), social sciences (KKOV 6-7; 56.64% of 627 graduates, but exceptions are graduates of law, legal and public administration with a share of 77.36%, and graduates from teacher training and social care with a share of 70.92%), culture and arts (KKOV 8, 47.72% of 44 graduates).

Table 2. Importance of soft and hard skills on the labour market

	Importance of skills		Change in importance of skills in the next 10 years	
	Mean (on scale 1-7)	Standard deviation	Mean (on scale -2-2)	Standard deviation
Soft skills				
Problem solving	5.88	1.121	0.64	0.816
Effective communication	5.83	1.192	0.72	0.814
Efficiency	5.82	1.032	0.61	0.840
Flexibility	5.73	1.124	0.58	0.796
Independence	5.69	1.147	0.64	0.837
Proactive approach	5.65	1.121	0.60	0.807
Cooperation	5.64	1.132	0.62	0.768
Customer orientation	5.64	1.392	0.70	0.841
Creativity	5.55	1.228	0.55	0.828
Stress resiliency	5.55	1.163	0.56	0.871
Life-long learning	5.54	1.215	0.62	0.838
Exploring and orientation in information	5.52	1.159	0.72	0.793
Planning and organizing	5.47	1.186	0.60	0.790
Influencing others	4.72	1.282	0.33	0.704
Leadership	4.65	1.351	0.46	0.756
Hard skills				
Professional knowledge and skills	5.69	1.261	0.74	0.853
Communication in English	4.56	1.714	0.68	0.817
Communication in other languages	3.66	1.692	0.44	0.819

Source: Authors (based on the survey of employers)

Note 1: Importance of skills was calculated as a mean of answers on scale from 1 (not important) to 7 (very important). Change in importance of skills was calculated as a mean of answers on scale -2 significant fall, -1 slight fall, 0 no change, +1 slight rise, +2 significant rise.

Note 2: 658 respondents

Information about the importance of particular skills of graduates to employers is necessary for relevant setting of educational goals. However, the question is, which skills of graduates need to be developed and which of them are already sufficiently developed.⁷ The answer to this question can be found in Table 3, which compares the required level of skills and real level of skills of graduates (both measured on a scale from 1 – not developed to 7 – highly developed). It turns out that employers perceive the most signif-

⁷ It is possible to demonstrate the differences between importance and required level of soft skills (discussed also in Section 1). Based on employers' responses (N=658) correlation analysis of these two variables was performed for each soft skill. It showed that Pearson's correlation coefficient for each given skill ranged from 0.3334 (problem solving) to 0.6203 (customer orientation). These values confirm that there is no strong correlation between importance and desired level of skill.

icant shortcomings in leadership (graduates lack 31.15% of the required level), problem solving (29.01%), independence (27.65%), planning and organization (27.52%) and influencing others (27.33%). On the other hand, the smallest deficit can be found in the case of English (11.62%), exploring and orientation in information (16.46%), life-long learning (17.82%), flexibility (18.36%) and creativity (19.13%). Mean skill gap of graduates in the case of 15 soft skills was 23.66%, in the case of professional skills 25.81%.

Table 3. Skill gap of graduates

	Required level of skill		Real level of skill of graduates		Skill gap (in %)
	Mean (on scale 1-7)	Standard deviation	Mean (on scale 1-7)	Standard deviation	
Soft skills					
Problem solving	5.86	0.971	4.16	1.356	29.01
Effective communication	5.88	1.005	4.36	1.278	25.85
Efficiency	5.78	0.987	4.55	1.255	21.28
Flexibility	5.61	1.001	4.58	1.286	18.36
Independence	5.75	1.013	4.16	1.416	27.65
Proactive approach	5.90	0.985	4.71	1.350	20.17
Cooperation	5.81	0.941	4.52	1.217	22.20
Customer orientation	5.70	1.245	4.20	1.403	26.32
Creativity	5.49	1.081	4.44	1.293	19.13
Stress resiliency	5.73	1.053	4.32	1.380	24.61
Life-long learning	5.50	1.214	4.52	1.380	17.82
Exploring and orientation in in- formation	5.71	0.981	4.77	1.302	16.46
Planning and organizing	5.56	1.096	4.03	1.410	27.52
Influencing others	4.94	1.253	3.59	1.365	27.33
Leadership	5.04	1.253	3.47	1.473	31.15
Hard skills					
Professional knowledge and skills	5.89	1.094	4.37	1.394	25.81
Communication in English	4.82	1.493	4.26	1.478	11.62
Communication in other lan- guages	4.06	1.652	3.27	1.499	19.46

Source: Authors (based on the survey of employers)

Note 1: Level of skills was calculated as a mean of answers on scale from 1 (not developed) to 7 (highly developed).

Note 2: 498 respondents

The identification of English as the skill with the least deficiency is in no way contrary to the frequent criticism of the level of English of graduates that comes from employers. This arises from the different methodological approaches of each source of information. First, the survey assesses the skill of employed graduates only. Since language skills

belong among hard skills, i.e. they can be easily tested and during the selection process forms one of the conditions of acceptance, respondents to this survey evaluated only those applicants who met employer's minimum language requirements and were taken on. The remainder of the applicants (i.e. candidates with lower levels of language skills) were not hired by the respondents and therefore not evaluated by the survey. Second, the sample of employers is representative according to NACE. In many industries, knowledge of a foreign language is an advantage, but it is not crucial. This is not true in organizations that are owned by foreign capital, employ workers with technical education, are export-oriented or have their own R&D activities, where the knowledge of a foreign language is necessary. For these companies, the level of language skills demanded of their workers is one of the major barriers to business. (This conclusion was confirmed by, for example, interviews with company representatives performed in the frame of National Research and Innovation Strategy for Smart Specialization in the Czech Republic.)

The results, presented in Table 3, clearly show that employers' demand for various soft skills are met by graduates to varying degrees (skill gap ranged from 16.46 to 31.15% in 15 soft skills). Likewise, it can be assumed that the level of these skills varies between different universities and faculties. This may be caused partly by the different attention paid to the development of soft skills in various schools, partly by the different character of their students (Becker 1993 demonstrated that more capable individuals tend to accumulate higher amounts of human capital, including soft skills). The systematic evaluation of the level of soft skills among graduates of all faculties of public universities in the Czech Republic is a very demanding task, which is out of scope of the surveys that have been carried. Therefore, the assessment of graduates' soft skills was performed at least at the university level. Employers were asked to assess the level of soft skills of graduates of various public universities, based on experience with currently employed graduates of these schools. Table 4 therefore provides two types of information: a) number of employers in a representative sample, who employ graduates of particular schools, b) the mean level of graduates' soft skills on a scale from 1 – not developed to 7 – highly developed.

The absolute value of the assessment is not as interesting as the position of individual schools among public universities, since the detailed analysis of graduates' soft skills was done above. The evaluation of soft skills of graduates of individual public universities (using the scale 1-7) ranges from 3.40 to 4.69 (mean value 4.02). Given that the schools were evaluated by different numbers of employers, it is necessary to find out whether the differences in evaluation are statistically significant. It was revealed that in the case of more than $\frac{2}{3}$ of the schools the evaluation of soft skills of graduates was not statistically different from its mean value. On the other hand, Charles University, Masaryk University, Palacký University Olomouc, University of Chemistry and Technology Prague and the University of Economics Prague have been identified as universities, whose graduates have higher than mean level of soft skills, and College of Polytechnics Jihlava, whose graduates have a lower than mean level of soft skills (statistically significant differences at the level 0.05 or lower).

Table 4. Evaluation of the level of soft skills of graduates by institution

	Mean (on scale 1-7)	Standard deviation	Number of respondents
Charles University	4.69 ***	1.346	160
Masaryk University	4.49 ***	1.307	170
University of Veterinary and Pharmaceutical Sciences Brno	4.47 *	1.370	38
Palacky University Olomouc	4.43 ***	1.435	129
University of Chemistry and Technology Prague	4.42 **	1.499	65
University of Economics Prague	4.39 ***	1.450	146
Brno University of Technology	4.26 *	1.388	129
Czech Technical University in Prague	4.19	1.289	163
Mendel University in Brno	4.16	1.209	81
Czech University of Life Sciences Prague	4.14	1.435	102
Academy of Performing Arts in Prague	4.08	1.605	25
Silesian University in Opava	4.03	1.327	68
VSB - Technical University of Ostrava	4.02	1.446	123
University of South Bohemia in České Budějovice	3.99	1.387	92
University of West Bohemia	3.92	1.478	111
University of Pardubice	3.90	1.438	77
University of Ostrava	3.89	1.392	102
Technical University of Liberec	3.89	1.403	94
University of Hradec Králové	3.87	1.388	75
Tomas Bata University in Zlín	3.87	1.540	94
Academy of Fine Arts in Prague	3.85	1.586	27
Jan Evangelista Purkyně University in Ústí nad Labem	3.83	1.464	87
Institute of Technology and Business in České Budějovice	3.77	1.750	35
Academy of Arts, Architecture and Design in Prague	3.75	1.191	32
University of Defence	3.70	1.540	27
Janáček Academy of Music and Performing Arts in Brno	3.67	1.494	27
The Police Academy of the Czech Republic in Prague	3.59	1.476	29
College of Polytechnics Jihlava	3.40 **	1.519	35

Source: Authors (based on the survey of employers)

Note 1: Level of skills was calculated as a mean of answers on scale from 1 (not developed) to 7 (highly developed).

Note 2: Level of graduates' soft skills differs from mean level (4.02) at significance level * 0.1, ** 0.05 or *** 0.01.

The main attention has so far been paid to the views of employers on the importance of soft skills on the Czech labour market and their satisfaction with the level of these skills among graduates of public universities. The reason is prosaic, as the employers' satisfaction and dissatisfaction with graduates point to their employability. An interesting source of information about the level of soft skills are also graduates, who are already employed and therefore have direct experience on the labour market. The following text, therefore, focuses on an analysis of the responses of 1,988 graduates from six public universities (see Table 5), which aims to provide a different perspective on the soft skills of graduates. Given that the sample is not representative on a graduate-level of the Czech Republic, conclusions will be drawn based on data about individual schools.

Graduates of the 6 universities retrospectively judged the level of the 15 soft skills at the time of graduation, as did employers in Table 3. The comparison of the evaluation yielded very interesting findings, which also allows a judgement on the relevance of self-assessment by graduates as a source of data on soft skills.

1. The evaluation of the mean level of 15 soft skills showed a higher value when carried out by graduates than employers. Employers' evaluation reached a mean value of 4.24, while those done by graduates of the 6 universities ranged from 4.57 to 5.01 (not shown here). This relatively favourable assessment of one's own skills was also reflected in the case of quantifying skill gap. A mean deficit of soft skills achieved at those universities values from 9.79% to 16.13%, while the corresponding figure quoted by employers amounts to 23.66% (see Table 5). This overestimation of skills level by graduates can stem from their ignorance of what mastery of particular soft skills at the highest level looks like. Another explanation may also be assessing their own soft skills based on the levels needed to manage their job in the first years of working life, which often differ significantly from the levels needed to cope with challenges at a later stage of their careers.
2. Comparison of the above stated 6 universities by a mean level of 15 soft skills of their graduates based on the evaluation carried out by graduates (mean value was calculated for each school based on the evaluation carried out only by graduates of the school) does not correspond with the evaluation of schools by employers in Table 4. It was confirmed also by statistically insignificant Pearson's correlation coefficient with a value of 0.1405. It can be, as in the previous case, a consequence of an ignorance of the representation of the various levels of soft skills in the working population and the consequent inability of respondents to assess them objectively.
3. Graduates of the selected universities assess the relative levels of particular soft skills in a similar fashion as employers. This means that employers and graduates agree on which soft skills are the most developed and which the least (see Tables 3 and 5). Correlation analysis of the level of each soft skill mentioned by employers and graduates from the six universities confirmed their high dependence (Pearson correlation coefficients reach values of 0.7828 to 0.9259). It also suggests that more or less the same soft skills are developed or neglected at all discussed universities.

Which soft skills do graduates lack the most? This is given not only by achieved levels of skills, but also the regional structure of jobs and specific requirements. The survey of employers provides a good idea of what graduates are lacking at the national level (see Table 3), but it is necessary to conduct further research to reveal the skills deficits at the level of individual universities or faculties. It should be stressed once again that the article only deals with employed graduates from public universities. This means that the skill gap, quantified at the level of 23.66% in the case of soft skills and 25.81% in the case of professional skills, would be significantly widened by the inclusion of unemployed graduates.

Table 5. Skill gap from a perspective of graduates

	Graduates						
	Palacky University Olomouc (4)	University of Economics Prague (6)	Bruno University of Technology (7)	USB - Technical University of Ostrava (13)	University of West Bohemia (15)	Tomas Bata University in Zlín (20)	Employers (see Table 3)
Soft skills							
Leadership	15.92	36.39	28.16	13.47	18.69	27.18	31.15
Problem solving	16.42	17.88	19.82	13.78	15.43	20.09	29.01
Independence	11.33	14.68	14.38	11.44	9.98	11.93	27.65
Planning and organizing	13.40	19.81	20.68	9.61	13.49	19.79	27.52
Influencing others	14.82	30.22	24.49	14.39	16.71	20.11	27.33
Customer orientation	12.18	22.19	25.29	16.57	17.02	23.43	26.32
Effective communication	18.02	29.67	22.45	16.42	17.94	22.29	25.85
Stress resiliency	13.04	14.08	11.06	7.69	13.17	15.58	24.61
Cooperation	8.17	18.16	14.61	7.04	7.58	13.00	22.20
Efficiency	8.05	10.16	12.14	7.94	8.23	12.95	21.28
Proactive approach	4.29	6.77	8.59	3.77	5.74	7.98	20.17
Creativity	8.85	12.34	8.71	6.50	6.58	1.60	19.13
Flexibility	5.93	9.63	5.23	1.47	3.43	5.92	18.36
Life-long learning	4.08	3.16	3.33	3.08	2.52	1.52	17.82
Exploring and orientation in information	2.75	7.43	7.76	3.22	2.10	2.77	16.46
<i>Mean level of skill gap</i>	<i>9.79</i>	<i>15.33</i>	<i>16.13</i>	<i>10.47</i>	<i>10.36</i>	<i>14.6</i>	<i>23.66</i>
Hard skills							
Professional knowledge and skills	16.15	21.64	19.64	20.86	16.48	26.37	25.81
Communication in English	1.97	16.85	21.10	14.16	6.78	16.00	11.62
Communication in other languages	0.92	-15.15	22.93	17.01	4.69	14.29	19.46
N	637	185	231	374	449	112	498

(rank of the university according to results in Table 4 is presented in parentheses)

*Source: Authors (based on the survey of graduates)**Note: Negative skill gap (see communication in other languages in the case of University of Economics Prague) means that graduates evaluate their skills higher than requirements of their job.*

Conclusion and Recommendations

Recent evidence suggests that soft skills are as productive (approximated by their wage returns) as professional skills in the Czech Republic. The importance of both kinds of skills can be further emphasised by the fact that soft skills and in particular professional skills are productive only when they are combined (Balcar 2016). Therefore, this article dealt with the evaluation of the level of soft skills of graduates from Czech public universities, which have direct impact on their employability. It revealed that the same soft skills are important for university graduates as for the population as a whole (only problem-solving is more pronounced with them), but the required level of these skills is 42% higher than in the case of the general population (the percentage of persons who should have these skills at the highest levels is nearly 3 times higher in the case of university graduates). Employers perceive the level of graduates' soft skills as insufficient - their level is from 16.46 to 31.15% lower than is required (it should be added that these figures apply only to employed, therefore successful graduates). The biggest shortcomings of graduates are seen in the case of leadership, problem solving, independence, planning and organizing, and influencing others. A more detailed analysis showed that, in terms of the development of soft skills, Czech universities provide a very homogenous service. Graduates of public universities have nearly the same level of soft skills, while they can also identify similar strengths and weaknesses.

These results clearly indicate that Czech universities should very seriously begin to address the systematic development of soft skills of their students in such a way as not to be detrimental to the development of professional knowledge and skills. This can be achieved notably through appropriate changes in teaching and the development of teaching skills of university tutors (for more information see Balcar, Knob 2016). Any development of soft skills in universities should be accompanied by the implementation of the same at the level of elementary and secondary education, because it is clear that the structure of soft skills required of the university graduates is virtually identical to that of skills required of the population as a whole. However, only the change of teaching methods is not sufficient. Universities have to monitor both changes in requirements on (soft) skills of their graduates and their skills gap, and use this information for continuous updates of education goals. Intermediate surveys of employers, designed to obtain detailed overview of current perceptions of the level of graduates and future requirements for them, and annual surveys of graduates from previous year, designed to provide prompt feedback, represent suitable combination for obtaining necessary information. For example, surveys carried out in this article suggest that Czech universities should focus mainly on the development of skills for problem solving and independence, as these skills are highly important for an employer, their importance will increase in the future and high skills gap was identified in their case. There are, however, also other soft skills, whose development at the national level would be useful. They are planning and organizing, influencing others, effective communication, customer orientation and leadership in relevant cases (see Tables 2 and 3).

Funding: This work was supported by European Social Fund under Grant Acquisition and assessment of quality in tertiary education (number CZ.1.07/4.1.00/22.0001).

Disclosure statement: No potential conflict of interest was reported by the authors.

References

- ALBERTINA CZ. *Databáze firem a institucí* (Database of firms and institutions), ver. Silver Edition 10/2013, 2013.
- BACOLOD, M., BLUM, B. S. (2008). *Two Sides of the Same Coin: U.S. Residual Inequality and the Gender Gap*. Working paper, 2008.
<http://www.rotman.utoronto.ca/bblum/personal/2%20sides.pdf>
- BALCAR, J. (2011). Future skills needs in EU and skills transferability in 2020: sector meta-analysis. *Ekonomická revue - Central European Review of Economic Issues*, 14(1): 5-20.
- BALCAR, J. (2016). Is it better to invest in hard or soft skills? *The Economic and Labour Relations Review*, 27(4): 453-470, DOI: [10.1177/1035304616674613](https://doi.org/10.1177/1035304616674613)
- BALCAR, J. (2018). *Soft Skills on Czech Labour Market*. Mimeo.
- BALCAR, J., HOMOLOVÁ, E., KARÁSEK, Z. ET AL. (2011). *Transferable competences across economic sectors: Role and importance for Employment at European level*. Publications Office of the European Union, Luxembourg, 2011.
<http://ec.europa.eu/social/BlobServlet?docId=7124&langId=en>
- BALCAR, J., JANÍČKOVÁ, L., FILIPOVÁ, L. (2014). What General Competencies Are Required from the Czech Labour Force? *Prague Economic Papers*, 23(2): 250-265.
- BALCAR, J., KNOB., S. (2016). *Rozvoj měkkých kompetencí na základních, středních a vysokých školách*. Ostrava: VŠB-TU Ostrava.
- BECKER, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. Chicago: The University of Chicago Press.
- BLACK, S. E., SPITZ-OENER, A. (2007). *Explaining Women's Success: Technological Change and the Skill Content of Women's Work*. IZA Working paper 2803.
<http://ftp.iza.org/dp2803.pdf>
- BORGHANS, L. B. WEEL, WEINBERG, B.A. (2006). *People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups*. Working paper 11985.
<http://www.nber.org/papers/w11985.pdf>
- BORGHANS, L. B. WEEL, WEINBERG, B.A. (2008). Interpersonal Styles and Labor Market Outcomes". *Journal of Human Resources*, 43(4): 815-858.
- BURDOVÁ, J., PATEROVÁ, P. (2009). *Šetření potřeb zaměstnavatelů a připravenosti absolventů v zemědělské sféře*. Národní ústav odborného vzdělávání, Praha.
- BURDOVÁ, J., TRHLÍKOVÁ, J., VOJTĚCH, J. (2007). *Názory pracovníků úřadů práce na uplatnění absolventů škol – 2006*. Praha: Národní ústav odborného vzdělávání.
- CONTI, G., GALEOTTI, A., MUELLER, G., PUDNEY, S. (2009). *Popularity*. ISER Working Paper 2009-03. <http://www.iser.essex.ac.uk/publications/working-papers/iser/2009-03.pdf>
- CZSO. *Veřejná databáze, Ekonomické subjekty podle počtu zaměstnanců*.
<http://vdb.czso.cz/vdbvo/uvod.jsp>

- GAVENDA, M. (2006). *Průzkum mezi podniky v Moravskoslezském kraji 2006*. <http://resa.rza.cz/www/file.php?id=30>
- GOTTVALD, J., ET AL. (2008). *Uplatnitelnost absolventů škol v podnicích a institucích Moravskoslezského kraje*. Ostrava: VŠB-TUO. <http://resa.rza.cz/www/file.php?id=72>
- HAVLENA, J. (2004). *Kompetenční model MS kraje: Anketa mezi velkými zaměstnavateli*. <http://resa.rza.cz/www/file.php?id=32>
- KALOUSKOVÁ, P. (2006). *Potřeby zaměstnavatelů a připravenosti absolventů škol - šetření v terciární sféře*. Praha: Národní ústav odborného vzdělávání.
- KALOUSKOVÁ, P. (2007). *Potřeby zaměstnavatelů a připravenost absolventů škol - šetření v kvartérním sektoru*. Praha: Národní ústav odborného vzdělávání.
- KALOUSKOVÁ, P., ET AL. (2004). *Potřeby zaměstnavatelů a připravenost absolventů pro vstup na trh práce – 2004*. Praha: Národní ústav odborného vzdělávání.
- KARÁSEK, Z. ET AL. (2004). *Profesní struktura ve strojírenském oboru v Moravskoslezském kraji* <http://rzasystem.rza.cz/file.php?fileID=34>
- KUHN, P., WEINBERGER, C. (2005). Leadership Skills and Wages. *Journal of Labor Economics*. 23(3): 395-436.
- LEISYTE, L. ET AL. (2012). Závěrečná zpráva 7: Lidské zdroje ve VaV (elektronická příloha). In MŠMT. *Závěrečná zpráva mezinárodního auditu výzkumu, vývoje a inovací v České republice*. Praha: MŠMT. ISBN 978-80-87601-01-3.
- NVF (2011). *Mapa výzkumného a aplikačního potenciálu Česka, Situace na trhu práce: nabídka a poptávka po pracovnících ve vědě a výzkumu*. http://www.vyzkum.cz/storage/att/F61E482972D69CB6B8D2A32142931998/mapa_vavai_cr_analyza_lidskych_zdroju_nabidka_a_poptavka_po_ps_1.pdf
- ORAZEM, P. F., VODOPIVEC, M. (1997). Value of Human Capital in Transition to Market: Evidence from Slovenia. *European Economic Review*, 41: 893-903.
- REBER, A. S., REBER, E. (2001). *The Penguin Dictionary of Psychology*. 3rd ed. London: Penguin Books.
- SKÁCELOVÁ, P., VOJTĚCH, J. (2009). *Názory pracovníků úřadů práce na uplatnění absolventů škol v období ekonomické krize*. Praha: Národní ústav odborného vzdělávání.
- ŠTASTNOVÁ, P., ET AL. (2006). *Potřeby zaměstnavatelů z pohledu analýzy inzertní nabídky zaměstnání a názorů pracovníků personálních agentur (2006)*. Praha: Národní ústav odborného vzdělávání.
- ŠTASTNOVÁ, P., ET AL. (2008). *Potřeby zaměstnavatelů z pohledu analýzy inzertní nabídky zaměstnání a názorů pracovníků personálních agentur (2007-08)*. Praha: Národní ústav odborného vzdělávání.
- WEINBERGER, C. (2011). *The Increasing Complementarity between Cognitive and Social Skills*. Working paper. <http://www.econ.ucsb.edu/~weinberg/MathSocialWeinberger.pdf>