Preffered Competence Structure of University Graduates: Russian Employers' Point of View

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Abstract

Purpose of the article: The article examines preffered structure of competences from Russian employers's point of view in order to provide universities with the knowledge on how graduates' skills are viewed by the main customers.

Methodology/methods: The article is based on factor analysis of competences which are derived from the questionnaire which was distributed to Russian enterprises (mainly meduim sized manufacturing enterprises). The questionnaires were gathered from management of the companies, and evaluated by factor analysis using varimax method. Significance of the findings is confirmed by the level of Cronbach alpha.

Scientific aim: The scientific aim of the article is to define the main competences of university graduates as they are seen by employers. The paper also aims to define whether the structure of preffered competences differs alone the timeline, *i.e.* do employers evaluate their requirements in past, present and future differently.

Findings: In the article it is revealed that preferred structure of competences university graduates should possess evolves overtime, and that employers have lower understanding of their needs and requirments for the future. Second, it appeared that the most signigicant graduates' competences are systemic thinking and professional skills, but the other factors may only be considered moderator of these skills in future. Finally, multidisciplinary skills appear to gain significance along the timeline of the study, so employers are looking for multidisciplinary skills for the future as a response for existing high turbulence.

Conclusions: The main limitations of the study are small sample and focus on mid-Russian meduim enterprises, which are mainly manufacturing. The study has distinct applications to practice by defining the most significant graduates' competences from employers' perspective, and to theory by proposing evolution paths for competence significance.

Keywords: competences, university graduates, employers, competence evaluation, factor analysis, Russian enterprises

JEL Classification: M12, I21

Introduction

Higher education had been a subject to significant changes for the past 20 years, especially once online courses were introduced and the generation of millenials came to the universities; despite the fact that more and more people now are getting involved in different types of education activities, the quality of education seems to decline over time (UNESCO, 2015). To evaluate this tendency a number of scholars and practicians stated that employers are to become the main evaluators for higher education activities, which lead to a number of studies examining approaches towards university graduates' competence evaluation, including the one which involves employers (Male, Chapman, 2005).

Up to date there is a number of tools used to evaluate employees' competence at any stage of career, which include performance evaluation, key productivity indicators, 360 appraisal, and a number of others (Moore, 2014), though still these instruments are not the ones which can be implemented fully to evaluate university graduates' competences, especially in case when companies do not have human resource development strategy.

Within this study we examine preffered university graduates' competence structure as it is viewed by Russian employers nowadays in order to answer the main research question: to what extend employers in turbulent economic environments are able to evaluate competences which they see as major ones at the current moment and in the future. We have chosen Russian employers as a target market for university graduates due to the fact, that majority of the companies in this part of the world do not have formal or informal human resource development strategies, so this case can be seen as a typical for emerging states with high economic turbulence.

1. State of art

Analysis of existing research on university graduates' competence evaluation indicates that the majority of research is focused on examining of competence-based learning and learning by doing, though a number of other factors are considered by the scientists and practitioners. Some evaluate information and skill building as significant factors that define the quality of graduates' knowledge (Lang, Dittrich, 1982); others insist that competences can be built by social learning as opposite to predominance of cases and laboratory works (Argyris, 1980; Barnett, Wilsted, 1978; Dooley, Skinner, 1977), while a number of authors consider multidisciplinary studies and corresponding learning by doing as a key factor for graduates' adequate competence building (Clarisse *et al.*, 2009). Besides that, one can find a number of formal guidelines for competence building, which are used to evaluate education quality: ABET, CDIO *etc.*

At the same time some research is focused on what prevents efficient learning, and from this point of view one can find a number of studies on intrinsic versus extrinsic motivation (Arnold, 1985), cultural and cross-cultural triggers in education process and student development (Reichard *et al.*, 2013), acceptance of learning styles (Kolb, Kolb, 2005), disintegration of learning on different learning levels (Mentkowski, 2000), and a number of other directions of research. These studies view inappropriate structure of university graduates' competences as compared to desired ones as a consequence of inadequate teaching approaches used by higher educational institution.

Another set of studies, the ones evaluating acquired competence from the early university graduates' point of view, have led to several important findings. As indicated by Kellerman (2007), graduates evaluate university's input in their competence as relevant of irrelevant skills (as required by employers), not evaluating the structure of what is required. Evaluation of graduates' answers on acquired university training allowed Garcia-Aracil and Van der Velden (2008) to develop a 32-unit measuring form to assess competences; based on their findings, Gil-Galvan (2011), Nita, Goga (2014) tested the model for Spanish and Romanian students revealing specific features for students in these countries. Finally, some researchers (Allen, de Weert, 2007) mention that there is a mismatch between universities' and employers' understanding on what competences a student should acquire within educational process, thus leading to proposed necessity of practice-based learning.

According to existing research we adapted the idea that contemporary higher education should be practical oriented, and use experiential learning (Kolb, Kolb, 2005), implementation of multidimensional learning evaluation tools (Keeton *et al.*, 2002), multipurpose assessment of undegraduate learning and performance evaluation tools (Summers, 2003), and a strict algorithm for building curricula for sustainable competence development (Parsons, Beauchamp, 2003). Hence if university curricula would be based on the stated principles, it shoudl ensure education quality; however, this point of view, in our opinion, should be evaluated from employers' point of view to understand whether suggested educational

structure lead to desired structure of university graduates' competences as seen by the main customer – employers.

2. Sample and methodology description

For the purposes of this paper, we developed a questionnaire that evaluated the main competences that an employee should have in the employers' opinion. Development of the questionnaire was based upon existing research in competence-based learning for the case of Russia (Vasilyeva, 2010; Gaynanov *et al.*, 2012; Monitoring of employers' satisfaction with graduates' education quality, 2015). The questionnaire included 9 questions (see Table 1 for details), and it was distributed between 120 managers of real economy sector companies, and the response rate was 87%. 43% of the companies were industrial enterprises. The results were evaluated with the use of factor analysis in SPSS Statistics 21.0 according to the guidelines provided by SPSS (2010), which helped to reveal the main competences valued by the employers in the field of renewable and alternative energy processing masters in a five-year interval.

5-point Likert scale on which the manager had to assess how important certain employees' skills and knowledge are (1 – absolutely unimportant, 5 – very important) was used in the suggested questionnaire. The respondent had to evaluate the importance in the past (5 years ago), at present and in future (in 5 years). Response scales were developed according to Schwarz, Deutsch (1985) findings. We identified Likert scale as an optimal for the purposes of this study to perform clear evaluation of different factors' significance compared to each other.

To evaluate the findings we used factor analysis in SPSS in accordance to the recommended approach towards factor analysis with turned matrix components. To define the key factors the method of main components was used, and varimax method of factor turning was implemented. The results were proved statistically significant for all three time periods by Cronbach alpha (which was estimated as 0,803, 0,931 and 0,935 for each of above described periods).

3. Evaluation of employers' perspective on desired university graduates' competences

For the purposes of this study we suggested that graduates' competences were to be evaluated along the

Table 1. *The structure of questionnaire.*

Questions	Criteria	Type of question /number of suggested answers
Part 1: Employee assessment characteristics		
Question 1	Evaluation of employees' key professional skills on a timeline (5 years ago, currently, in 5 upcoming years)	Closed question/10 proposed answers
Question 2	Evaluation of employees' professional skills from the other branches of knowledge and performance on a timeline (5 years ago, currently, in 5 upcoming years)	Closed question/5 proposed answers
Question 3	Assessment of time period that has to pass after an employee was hired. before he or she would need additional professional training (for a person employed right after graduation today, 5 and 10 years ago)	Closed question/8 proposed answers
Question 4	Evaluation of employees' personal characteristics on a timeline (5 years ago, currently, in 5 upcoming years)	Closed question/5 proposed answers
Question 5	Evaluation of certain skills of the employee on the timeline (5 years ago, currently, in 5 upcoming years)	1 open question. 21 closed question/5 proposed answers per each question
Question 6	Evaluation of employees' competence profile in regard to person's origin	Closed question/5 proposed answers
Part 2: Respondent profile		
Question 7	Amount of employees a manager is responsible for	Closed question/7 proposed answers
Question 8	Respondents' age	Closed question/10 proposed answers
Question 9	Respondents' experience (years)	Closed question/10 proposed answers
Question 10	Organization's industry	Closed question/12 proposed answers

Source: Own findings. 2013.

Table 2. Factor analysis of employees' competences (5 years ago).

Employees' competences	F1	F2	F3	F4
Is able to define the reasons and consequences of the actions	0.951			
Is able to evaluate the problem from different perspectives	0.887			
Is able to identify and structure the problem	0.874			
Has the wide scope of knowledge		0.875		
Posesses deep professional knowledge		0.874		
Is able to provide arguments in favour of opinion/proposal		0.770		
Is able to use specific tools in professional activity			0.892	
Is able to implement necessary calculations and evaluations			0.745	
Has the ability to use special software and professional methods			0.842	
Is able to provide oral and written presentations				0.920
Is able to understand professional information in foreign languages				0.873

Source: Own findings. 2014.

Table 3. Factor analysis of employees' competences (current situation).

Employees' competences	F1	F3	F5
Is able to define the reasons and consequences of the actions	0.781		
Is able to evaluate the problem from different perspectives	0.706		
Is able to identify and structure the problem	0.850		
Is able to suggest different ways of solving the identified problem	0.866		
Is able to use specific tools in professional activity		0.895	
Is able to implement necessary calculations and evaluations		0.915	
Is able to adapt theoretical models to practice		0.918	
Is able to learn and implement new technologies		0.809	
Is able to use special software and professional methods		0.863	
Has good teamwork skills			0.917

Source: Own findings. 2014.

timeline (past, current situation and future), hence factor analysis was performed in retrospective (for employees, who were hired 5 years ago), at present (for employees manager was hiring in the current year) and in perspective (for employees which managers was planning to hire in 5 years). We used this design to estimate not only preferred competence profile of university graduates from the industry point of view, but also to evaluate how their priorities were changing alone the timeline.

Within proposed framework we have set the following set of hypothesis: 1) competence structure which is considered an optimal one from the industry point of view, is changing alone the timeline; 2) multidisciplinary competences are one of the key factors that define the value of employee; 3) looking from the long-term perspective, the significance of certain skills decreases, while the significance of multidisciplinary and complex skills increases from the employers' point of view; 4) employers provide detailed evaluation of preferred competence profile for retrospective and current evaluation of employee

competences, but are less sure about preferred perspective competences.

The majority of respondents (68%) were in charge of more, than 50 employees in total, their average age was 43 years, and average management experience – 13 years. The significant results for employees' competence evaluation in retrospective can be found in Table 2. For the purposes of the study we have developed the following groups of competences: F1 – "Systemic thinking", F2 – "Basic professional skills", F3 – "Advanced professional skills", F4 – "Information analysis and evaluation" and F5 – "Communication skills and adaptivity".

As it can be seen from Table 2, employers provide a detailed evaluation of what they considered necessary competences of university graduates 5 years ago. This profile includes various types of knowledge and skills, both professional and personal ones. The most important skills are the ones from the "Systemic thinking" group, followed by the ability to acquire and process professional information. At the same time employers had outlined, that they

Table 4. Factor analysis of employees' competences (in 5 years).

Employees' competences	F1	F3
Is able to define the reasons and consequences of the actions	0.939	
Is able to evaluate the problem from different perspectives	0.879	
Is able to identify and structure the problem	0.799	
Has the wide scope of knowledge	0.763	
Is able to evaluate mid-term and long-term consequences of the decision	0.792	
Is able to use specific tools in professional activity		0.976
Is able to implement necessary calculations and evaluations		0.976
Is able to adapt theoretical models to practice		0.808
Is able to learn and implement new technologies		0.927
Is ready for life-long learning		0.791

Source: Own findings. 2014.

did not consider communicative and adaptive skills important in retrospective.

The same type of analysis was performed for the current situation, when we evaluated employers' perception of university graduates' competence profile in the current year, and were asking respondents to assess their requirements for employees who were hired in 2014. The results of this analysis can be found in Table 3.

As it can be derived from the Table 3, the profile of competences had changed in 5 years: employers became less interested in basic professional knowledge, but are focused on professional skills and teamwork; it was relatively interesting to understand that the knowledge of foreign language was considered less important than 5 years ago.

Finally, the same analysis was implemented for perspective period. The results of employers' evaluation of employees' competences in 5 years is presented in Table 4. As in Tables 2 and 3 we have used the same groups of competences.

From the data in Table 4 it can be seen, that future profile of the university graduate is limited by two groups of competences: systemic thinking and advanced professional skills, while information evaluation and analysis, as well as communicative skills and adaptivity, are not considered important by the employers.

The most important skills include evaluation of reasons and consequences and deep professional knowledge; it is also important that employers outline significance of how ready an employee is to learn throughout his or her career (this factor was not considered a necessary part of employee competence profile in present and in the past). At the same time, perspective evaluation of employee preferences reveals absence of teamwork requirements which were considered important at the current stage.

The above Tables prove, that employers' desired competences profile of university graduates changes alone the timeline, which imposes extra requirements on the higher educational institutions, as they have to consider retrospective, perspective and current requirements during the process of curricula development, choice of learning techniques and program implementation.

4. Discussion

The above described analysis had supported the first hypothesis, the priority competence profile of the employees (university graduates) is changing over the timeline; the only groups of competences that are unchangable are systemic thinking and professional skills. This finding is fully in line with literature, and supports in terms of importance of professional knowledge (Arnold, 1985; Bellanca, 2010; Kolb, Kolb, 2005). The result that shows time evaluation of preferred competence profile complements existing literature by stressing the importance of future profile evaluation to develop curricula which would be suitable for employers in perspective.

Hypothesis 2 was partly supported, as competences that include evaluation of reasons and consequences of decisions were considered important part of employee's competence profile on all three stages of evaluated timeline; still, employers did not consider multidisciplinary knowledge itself to be important. This findings contributes to the existing literature as it states the contradiction between the main stream of educational research (concluding multidisciplinarity as a significant part of employee performance) and empirical evidence from Russian employers.

Hypothesis 3 was fully supported by the findings, as we have seen the desired competence profile of

university graduates changing over time. These findings are in line with existing literature (Keeton *et al.*, 2002). At the same time we estimate, that for the future employers' understanding of desired competence structure becomes vaguer, thus leading to the possibility that Russian employers rarely have human resource strategy. This finding contradicts existing literature (Bamberger, Meshoulam, 2000; Buller, McEvoy, 2012) that states trend towards long-term employer orientation in human resources management, which is due to peculiarities of Russian business environment.

Hypothesis 4 was fully supported by the study: as we move alone the timeline, employers become less positive on preferred competences, and are able to provide less details on priority directions in education. This findings complement to practice by outlining that for Russian case it is the university which defines future competence profile, while industry partners can provide very limited suggestions for curriculum buildings. This result is contradictory to existing literature (see Keeton *et al.*, 2002), which probably is a consequence of different approaches used by Western and Russian companies in employee evaluation.

At the same time, we see a possibility that our empirical findings can be supported in case of developing countries, as similar results were achieved by Nita, Goga (2014) in Romania for current moment (in terms of evaluation of current competences) or dan Abdul Waris (2015) in Indonesia.

5. Conclusion

The study has several outcomes for theory and practice: first of all, it had revealed certain contradictions between existing literature which evaluates university approaches to teaching in terms of collaboration with industry, and empirical evidence from Russian industry and financial companies as a result of different approaches in employee development

strategy which are used by Western and Russian companies. Lack of employers' understanding of future requirements to employees' competence profile was proposed by Krymov (2008), who blamed poor HR management practices, and Avshalumova (2012), who outlines low level of education as a main reason of employer dissatisfaction. Our findings confirm the problem on both sides: employers are unsure of preferred competence profiles of future employees, and universities might take into account their current requirements instead of unclear perspective ones. Second, we have revealed the most important competences, which include systemic thinking and professional technical skills, which are to be considered in the process of curricula development. Finally, the study indicates that in order to acquire high quality labor in future, currently Russian companies should develop their own human resource strategies to create a clear idea on what type of competences they are to be looking for in the nearest and far future while currently in many cases these questions remain unanswered.

The study has several limitations: first, the sample of employers included solely Russian enterprises that operate in mid-Russia outside the capital ciites. Hence, as other studies show, the results acquired in capital cities might appear very different from the achieved ones. Second, the study had a relatively small sample of respondents, which did not allow us to consider factors with less than 0.7 significance, to be important ones. Third, the questionnaire used mainly closed questions and thus did not allow respondents to insert their own suggestions on significant competences in the majority of cases.

All of these limitations call for future research which should consider a bigger sample of employers, including the ones from capital cities, to confirm the findings of this survey. Also, it would be valuable to perform a cross-country study to help better understanding how the situation differs across cultural environments.

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