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REQUIRED EMPLOYEES' KNOWLEDGE AND SKILLS FROM THE EMPLOYERS PERSPECTIVE

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Abstract. An important pre-condition for successful operation and development of business are highly motivated and professional employees. The aim of the paper is to analyse the employee's knowledge and skills required by the employers. Methods used in the research are: analysis of scientific literature, survey of employers and survey of graduates of vocational education institutions of Kurzeme region, Jelgava city, Jelgava district, Ozolnieki county, Dobele district (the surveys were conducted in June 2013 – October 2013). Methods used for data analysis: descriptive statistics – indicators of central tendency or location and indicators of variability, analysis of variance, cross tabulations and factor analysis. Empirical research results showed that the employers' highly evaluated the following knowledge and skills: specific professional knowledge, ability for self-contained work, ability to plan work time, co-operation ability, initiative, and creativity.

Key words: qualified workforce, knowledge, required skills, education, attitudes.

JEL code: M53; D24

Introduction

An important pre-condition for a successful operation and development of business are highly motivated and professional employees. The needs of employers are changing fast following the changes in the economic conditions. The education system cannot prepare employees for the whole working life. Public administrations and employers are responsible for the improvement of knowledge and skills of the employees, and occasionally it is the responsibility of the employees themselves. The first step is to investigate the existing needs. Next steps should be the appropriate changes in initial and continuing vocational education and training, the changes in non-formal and informal education provision, and changes in the legislation and financing of education.

The above mentioned issues are being addressed by researchers worldwide, and the research

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results have been published in advanced scientific journals specially related to those issues, like *Journal of Workplace Learning, International Journal of Educational Development, Journal of Vocational Behaviour, Journal of European Industrial Training, Education + Training, Economics of Education Review*, and many others.

The aim of this paper is to analyse the employee's knowledge and skills required by employers. The methods used in the research are: analysis of scientific literature, survey of employers' and survey of graduates of vocational education and training institutions of Kurzeme region, Jelgava city, Jelgava district, Ozolnieki county, and Dobele district. The surveys were conducted in June 2013 – October 2013. The evaluation scale 1-10 was applied for most of the questions in questionnaire, where 1 – not significant, 10 – very significant. The methods used for data analysis are: descriptive statistics – indicators of central tendency or location and indicators of variability, analysis of variance, cross tabulations as well as the method of multivariate statistical analysis – factor analysis.

Theoretical background

Researchers from Switzerland Simone N. Tuor and Uschi Beckes – Gellner have made a detailed research on risk – return and trade – offs regarding different educational pathways: vocational, academic and mixed types of educational pathways. They have found that choosing a mixed educational pathway is a useful strategy, indicating that the permeability of the national education system is a very important educational policy issue (Tuor&Backes – Gellner, 2010). Young people's experiences of vocational education and training are an important issue for qualitative and skilled employees (Lawy, 2010). Researchers from Germany have raised the question: is vocational education and training in Europe an alternative to the European qualifications framework (ITB, 2009). Researchers from Australia have raised another important question – if the availability of vocational qualifications through work assisted social inclusion. As a result of the research they have come to the conclusion that work – based qualifications are a useful investment of public resources (Smith and Smith, 2011). International harmonization of training and qualifications in the manufacturing industry has gained wide international acceptance (Quintino, *et al.,* 2011). Analysis of policy failure in vocational education and training has been examined in greater detail in the context of the introduction of National Vocational Qualifications based on an individual competence at work (Williams, 1999) and competence – based training (Matlay& Addis, 2002) as well as through the role of higher education in supporting graduates early labour market careers (Pavil, 2014). Quality aspects in vocational education are evaluated in different ways, including application of different models (Cervai, *et al.,* 2013). Different countries have different experience and have used the findings of other countries, like Finland and Sweden (Lindell &Stenstöm, 2005), Germany (Schmidt, 2010), France (Bėduvė&Giret, 2011), Israel (Neuman&Ziderman, 2003), South Africa (Allais, 2012), Ethiopia (Baraki&Kemenade, 2013), Uganda (Blaak, *et al.,* 2013), Cambodia (Cheng, 2010), also with regard to different fields of the national economy (Pema &Mehay, 2012). All these cases are good examples for the preparation of a skilled workforce.

The Triple Helix approach has frequently been used in higher education: University-Industry-Government Relations (Zawdie, G., 2010). The attention to innovations and to the links of employers with education tends to increase *(*Higher Education Council, Republic of Latvia, 2013). Investigation of the needs of the local industry, including small and medium size enterprises, is important for a successful development of the economy. Cooperation of local municipalities with education establishments and various enterprises should be investigated (Buligina, I. *et al.*, 2014). Researchers have indicated that a range of aspects have to be taken into consideration for decision making and in the training of a skilled labour force.

Research results and discussion

The survey of employers and the graduates of vocational education institutions of Kurzeme region, Jelgava city, Jelgava district, Ozolnieki district and Dobele district were conducted from June 2013 to October 2013. The authors used the web survey, phone survey and written survey. A systematic sampling was applied in the survey to guarantee it is a random sampling. The company register LURSOFT was used for the selection of respondents for the employers' survey. All large and middle companies and every fifth of the small companies were selected. At first the respondents were called on the phone and invited to participate in the survey and fill in the questionnaire placed on a professional research company server. For the respondents who had difficulties to fill in the web survey form, the survey was implemented through a telephone interview. If the respondent did not fill in the questionnaire in one week, the respondents were called by phone once more and asked to do it; in total respondents were called three times. The response rate was 20%. For the survey of the graduates of vocational education institutions, all graduates were invited to participate in the survey (the representative from the vocational education institutions sent e-mails to their graduates and asked them to fill in the questionnaire placed on a professional research company server.

The evaluation scale 1 – 10 was applied for most of the questions, where 1 – not significant, 10 – very significant. For data analysis the following methods were used: descriptive statistics – indicators of central tendency or location and indicators of variability, analysis of variance, cross tabulations and factor analysis.

Factor analysis was used for identifying the key factors – skills and knowledge required from the employees and for determining the mutual statistical relations of these factors. As a result of the factor analysis the initial fifteen factors, through five iterations (by using the Varimax rotation with Kaiser Normalisation) are grouped in four complex factors (Table 1).

Table 1

Employers' evaluation on required employee's skills and knowledge
(Complex factor matrix after rotation)

Required skills and knowledge	Factors			
	F1	F2	F3	F4
Ability to plan and control (tasks and their execution)	0.914	0.078	-0.100	0.188
Co-operation ability	0.880	0.085	0.127	-0.124
Caring for the agenda and organization of work	0.862	0.042	-0.121	0.172
Purposefulness	0.749	0.118	0.317	-0.402
Ability to lead a team	0.608	0.458	0.111	0.358
Progress towards development, the ability to plan further education	0.603	0.452	0.289	0.116
Latvian language skills and knowledge	0.517	0.433	0.169	-0.107
Initiative - in addition to the actions to be taken in addition to an effort that required under the formal job responsibilities, in order to avoid problems in the labour process	0.489	0.292	0.300	-0.471
English language skills and knowledge	0.105	0.884	0.039	-0.160
Computer skills	0.073	0.768	-0.012	0.177
Other languages (excluding English and Russian) skills and knowledge	0.226	0.765	-0.113	0.131
Russian language skills and knowledge	0.256	0.758	0.271	-0.094
Initiative - in additional duties taking	0.267	0.269	0.755	-0.080
Professional knowledge	0.282	0.020	0.645	0.338
Driving skills	0.119	0.147	0.158	0.766
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				

Source: author's calculations based on entrepreneurs survey conducted in June – October, 2013 (n=340), evaluation scale 1 – 10, where 1 – not significant; 10 – very significant

The interpretation of the identified complex factors will follow - regarding the indicators have relatively high burdens with the initial indicators:

1) Complex factor F1: purposefulness, ability to organise and work in team, desire to acquire new knowledge and skills, the factor has relatively high burdens on the following indicators: ability to plan and control, co-operation ability, caring for the agenda and organization of work, purposefulness, ability to lead a team, progress towards development, the ability to plan further education, the Latvian language skills and knowledge, initiative – preparedness to do more than required.

2) Complex factor F2: languages, and computer skills and knowledge, the factor has relatively high burdens on the following indicators: the English language skills and knowledge, computer skills, other languages (excluding English and Russian) skills and knowledge, the Russian language skills and knowledge.

3) Complex factor F3: professional knowledge and initiative - committing oneself to additional

tasks, the factor has relatively high burdens on the following indicators: initiative - preparedness to do more than required, professional knowledge.

4) Complex factor F4: driving skills, the factor consists of the initial indicator.

The employers evaluated employee's professional knowledge as being of major importance– (arithmetic mean – 8.9, median – 9, mode – 10), the evaluations were fairly homogenous (standard deviation– 1.2, range – 5). The second highest evaluated factor was the Latvian language skills and knowledge (arithmetic mean – 8.8, median – 10, mode – 10). However, these evaluations were not as homogenous as the evaluations of the factor 'professional knowledge (standard deviation – 2, range – 9). The statistical indicators of the evaluation of the required skills and knowledge of the employees are reflected in Table 2.

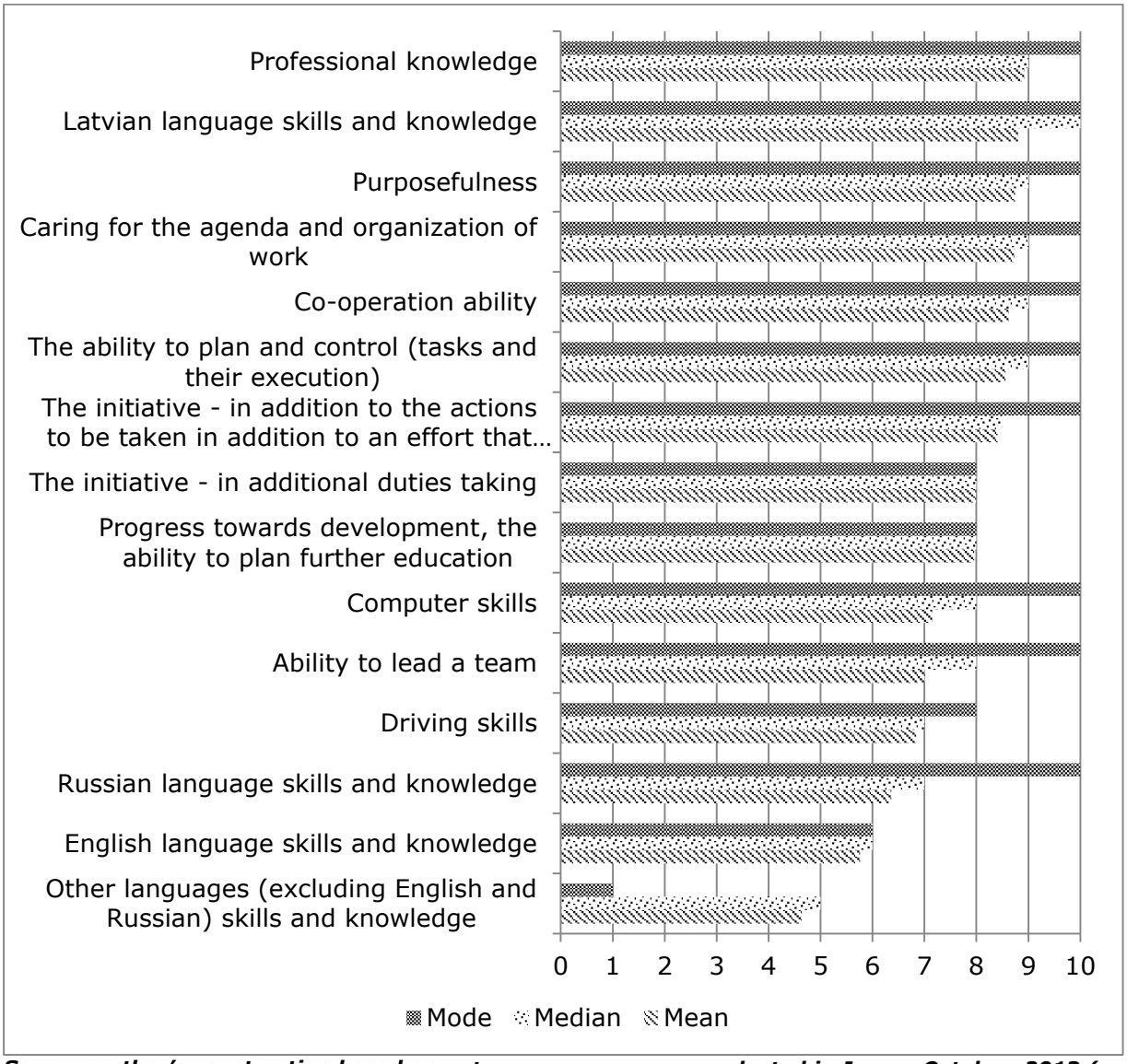
Table2

The employers' evaluations on the required skills and knowledge of employees, employers' evaluations

Required skills and knowledge	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Latvian language skills and knowledge	8.8	10	10	2.0	1	10
English language skills	5.8	6	6	2.7	1	10
Russian language skills	6.4	7	10	2.8	1	10
Other languages (excluding English and Russian) skills	4.6	5	1	2.8	1	10
Computer skills	7.2	8	10	2.7	1	10
Driving skills	6.8	7	8	2.3	1	10
Initiative - in addition to the actions to be taken	8.4	8.5	10	1.5	5	10
Initiative - in additional duties taking	8.0	8	8	1.9	1	10
Purposefulness	8.7	9	10	1.2	5	10
Professional knowledge	8.9	9	10	1.2	5	10
Co-operation ability	8.6	9	10	1.6	2	10
Ability to plan and control (tasks and their execution)	8.6	9	10	1.8	1	10
Ability to lead a team	7.0	8	10	2.8	1	10
Caring for the agenda and organization of work	8.7	9	10	1.6	1	10
Progress towards development, the ability to plan further education	8.0	8	8	1.9	1	10

Source: author's calculations based on entrepreneurs survey conducted in June – October, 2013 (n=340), evaluation scale 1 – 10, where 1 – not significant; 10 – very significant

The average values of employers' evaluation on required employee's skills and knowledge are shown in Figure 1.



Source: author's construction based on entrepreneurs survey conducted in June – October, 2013 (n=340), evaluation scale 1 – 10, where 1 – not significant; 10 – very significant

Fig.1.**Average values of employers' evaluation on required employee's skills and knowledge**

It must be pointed out that the differences in the evaluations of the significance of the required employee's skills and knowledge by industry groups were statistically relevant with high probability proved by the result of the analysis of variance (p<0.002). In the construction industry, employers highly evaluated the professional knowledge, initiative, ability to plan and control, ability to lead a team, the Latvian language skills and knowledge. In the transport and storage industry, employers highly evaluated the initiative, the Latvian language skills and knowledge, purposefulness. In the agriculture, forestry and fishing industry, employers highly evaluated the professional knowledge, the Latvian language skills and knowledge, co-operation ability. In the wholesale and retail trade, repair of motor vehicles and motorcycles industry, employers highly evaluated the Latvian language skills and knowledge, purposefulness, caring for the agenda and organization of work.

About 37% of employers pointed out that their company was in need or in the next three years will require new employees. The employers mentioned honesty was mentioned as a very significant factor hen hiring new employees (arithmetic mean – 9.5, median – 10, mode – 10), sense of responsibility as another important factor (arithmetic mean – 9.3, median – 10, mode – 10) as well as desire and commitment to work (arithmetic mean – 9.3, median – 10, mode – 10). Developed intellect, reasoning and analysis and synthesis capabilities were also mentioned as significant factors (arithmetic mean – 9.3, median – 9, mode – 10) as well as communication skills (arithmetic mean – 9.3, median – 9, mode – 9). The evaluations of mentioned above factors were quite homogenous. The statistical indicators of evaluations on required skills and knowledge when hiring new employees are reflected in Table 3.

Table 3

Employers' evaluations on employee's skills and attitudes when hiring new employees

Employee's skills and attitudes	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Appropriate work experience	7.3	8	8	2.1	1	10
Appropriate education and qualification	7.4	8	8	2.1	2	10
Sense of responsibility	9.3	10	10	1.2	5	10
Developed intellect, reasoning and analysis and synthesis capabilities	8.5	9	10	1.6	4	10
Appearance and social behaviour	6.6	7	8	2.2	1	10
Honesty	9.5	10	10	1.1	5	10
Expression skill	7.4	8	8	2.2	1	10
The overall impression of the overall adequacy of the post	7.7	8	8	2.0	1	10
Good reviews from people who trust	8.1	8	8	1.9	1	10
Motivation to work in the company and a vacant post	8.4	9	10	1.5	4	10
Communication and acumen	8.5	9	9	1.6	4	10
Desire to work in good faith	9.3	10	10	1.0	5	10

Source: author's calculations based on entrepreneurs survey conducted in June – October, 2013 (n=340), evaluation scale 1 – 10, where 1 – not significant; 10 – very significant

The graduates of vocational education institutions gave the highest evaluations to the following statement: the vocational education developed their ability (arithmetic mean – 7.3, median – 8, mode – 7), however, the evaluations were quite heterogeneous (standard deviation – 2.1, range – 9). The second highest evaluation was given to the statement that the vocational education sufficiently prepared the student for continuing his or her education (arithmetic mean – 7.2, median – 7, mode – 7), the third highest evaluation was given to the statement – the vocational education sufficiently prepared the student for work in the

profession (arithmetic mean – 7.0, median – 7, mode – 7), however, a surprisingly low average evaluations with a high variability of the evaluations was given to the statement regarding the competitiveness and prestige in the labour market (Table 4).

Table 4

Graduates of vocational education institutions evaluation on vocational education

	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Developed my ability	7.3	8	7	2.1	1	10
Competitive and prestigious in the labour market	6.7	7	9	2.3	1	10
Sufficiently prepared me to work in the profession	7.0	7	7	2.3	1	10
Sufficiently prepared me for continuing education	7.2	7	7	2.4	1	10

Source: author's construction based survey of graduates of vocational education institutionsconducted in June – October, 2013 (n=109), evaluation scale 1 – 10, where 1 – don't agree; 10 – agree

Conclusions, proposals, recommendations

1. The needs of employers regarding employee's qualifications, knowledge, skills, and attitudes differ significantly. According to the research results gained in the research employers when hiring new employees, such general features as appearance and skills for expression were evaluated as the less important having the largest standard deviation. Also specific work experience and qualification were evaluated as not important but with large standard deviation. There are significant differences in the evaluations of the significance of the required employees' skills and knowledge by industry groups. The education system should gather information about the real needs of specific and general skills and knowledge to meet the very different needs of employers.

2. Such attitudes as honesty, desire to work with commitment and the sense of responsibility received the highest evaluations with the lowest standard deviation (all three ranked with mark 5 or more), also motivation (ranked with mark 4 or more). Intellect and acumen were evaluated slightly lower. The results confirm the outstanding significance of attitudes. Special attention must be paid to the creation of attitudes using education, culture, art and philosophy. Cooperation of the government with universities and with the whole education system is necessary to solve the task of the creation of attitudes.

3. The same tendencies regarding the evaluation of attitudes and general skills were identified in the inquiry of the graduates of vocational education institutions. The highest evaluations were given to the development of abilities and the preparation for continuing education. The analysis of the results of the employers' evaluation on required skills and knowledge of the already working employees indicates to the importance of the complex factor: professional knowledge and initiative taking additional tasks and duties. The complex factor F1 represents motivation and willingness to participate actively in the work. The complex factor F2 represents

different means of communication: foreign languages and computer skills. The standard deviations of the factors included in the complex factor F2 are rather high – the needs of the different means of communication differ significantly depending of the concrete enterprise. Most of the employers indicate that they do not need foreign languages, except for English and Russian. Nevertheless, many of them support foreign languages as an important positive factor. It has been indicated that also the need for computer skills will rapidly increase. The education system should create possibilities for employees to receive the necessary language skills and computer skills according to the individual needs. The complex factor F2 partly overlaps with the complex factor F1, since attitudes and means of communication are linked. The driving skills are useful for many employers but not for all, as represented by the complex factor F4. More investigations are necessary to find the right place in the education system for such universal, relatively simple skills. Some recommendations are prepared for the improvement of the education system in relation to the needs for a qualified workforce.

4. The education system should gather information about the real needs of specific and general skills of the employees.

5. Additional investigations could be useful to find in the education system the right the place for various universal relatively simple skills, similar to the driving skills.

6. Attention must be paid to the creation of attitudes using education, culture, art and philosophy.

7. Education system should create possibilities to offer the necessary language skills and computer skills according to the individual needs.

8. Measures should be implemented to improve the cooperation between employers, public administration, including local communities, and educators.

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