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Experience of the Development of a Regional Qualification Framework for the System of Vocational Education

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The article dwells upon the methodological and technological aspects of the project to develop a framework of qualifications of the Ural region, which concerned with some of the features of the procedure of doing research, as well as the development of diagnostic tools. The work presents the methods of the processing of data collected during the interviews with educational institutions in order to build "an educational qualification net", namely the determination of the adequacy of the choice of the selected descriptors, the correctness of their formulation and the clarification of the contents; the determination of correlating between the importance of assessment of training results according to selected descriptors and the completeness of their formation in educational institutions of different educational levels; the identification of the views of experts on the quality characteristics of training results in educational levels, in accordance with the selected descriptors. The obtained experience in the course of the project implementation, according to the authors, can be useful in conducting similar studies to improve the national qualification systems.

Keywords: vocational education, competence approach, the requirements of labor market, qualification framework.

INTRODUCTION

Relevance of the research

The improvement of the qualification systems in the Russian Federation as well

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as in other European countries is connected with the integration processes in the field of education. Above all, this is the Bologna process aimed at the harmonization of qualification structures in the field of higher education and the Copenhagen process in vocational education. Both of these processes have a significant influence on the formation of the European space both of social and economic development.

To support this process national systems of qualifications developed ctively by the European countries and also by development and acceptation of the European qualifications framework for the higher education and training during all life at the international level (Oleynikova & Muraveva, 2009; Zaitseva, 2013).

The basis of these systems is the national qualifications framework, which should be coordinated with the European Qualifications Framework.

Regional features of the requirements for the qualification of individual countries is important. The study of these features is reflected in the regional framework of qualifications.

The qualifications framework of any level (international, national, regional, branch) is a backbone element of implementation of the concept of training during all life which allows to provide transparency and clearness of certain qualifications levels on the basis of the coordinated requirements of labor market and the education system (Ovchinnikova & Kurzaeva, 2012).

In this work the most interesting results are presented, from this point of view, the results of two successive projects connected with the elaboration and use of the regional qualifications framework - Tempus 144853-TEMPUS-2008-FR-JPHES " Construction of the Qualifications Framework for Higher Education of the Ural region" (2008-2010) (Ovchinnikova et al., 2010), and also Russian Humanitarian Science Foundation project No. 12-06-00067 "Adaptive quality management of the professional education on the basis of competence-based approach (based on the IT sphere)" (2012-2013) (Kurzaeva et al., 2013(a)).

METHODOLOGICAL FRAMEWORK

Methodology and stages of the research

Methodological basis of the qualifications framework elaboration is the competence-based approach.

In the process of creating a framework of qualifications of the Chelyabinsk region, the extensive research of the opinions of the leaders and representatives of professional educational institutions of different levels and different types of businesses on the requirements both to the training results (knowledge, skills and competencies of graduates) and to the work of employees of different qualifications, has been carried out. Pre-project research (analysis on a theoretical level) showed that education sphere and labor sphere in different ways describe the qualification levels of graduates and workers. Thus, in education the approach to the description of the requirements for learning outcomes is similar to the methodology adopted in the European practice-oriented competence. Namely, with the use of this approach the state educational standards of the third generation are developed. At the same time, employers in the formation of labor requirements do not come from the adopted teaching methodology approaches, but from acting regulatory documents in the production sphere.

The development of the qualification framework was being carried out by implementing the idea "from the bottom up" through the establishment of cooperation with representatives of both the education sphere and the labor sphere, eventually getting two options of the qualification framework: one corresponding to the concepts of education, and the other corresponding to the requirements of work.

After that, based on a comparison, the union of these two options into a single regional framework of qualifications acceptable both for the sphere of work, and for the education sphere was made. In this case, to avoid terminological confusion, it was decided: a variant of the qualification framework that focuses on the requirements of the education system, to name "an educational qualification grid" and a variant of the qualification framework that focuses on the requirements of the work sphere, to name "a professional qualification grid".

We shall consider the methodological and technological aspects of the qualification framework using an example of the educational qualification grid.

Tools and research base

In order to conduct the interview, forms were developed to interview the heads of educational institutions and the heads of releasing divisions. Approbation had a total character – all the institutions of vocational education were interviewed in the Chelyabinsk region. The interview form for the leaders of releasing divisions includes 4 sets of questions (Table. 1): I block – the questions that enable to receive the information about the expert and the specifics of the educational institution; II block – the questions that enable to determine the circle of the drawbacks that are present in certain spheres of the educational institution; III block – the questions the answers to which enable to obtain the expert opinion on the descriptors; IV block – the questions enabling to obtain the information on the training results and the levels of training in accordance with selected descriptors.

170 heads of releasing divisions took part in the survey all in all.

RESULTS

Data analysis and interim results

The analysis of the results obtained during the interview was conducted in accordance with the following logic research: 1) the determination of the adequacy of the choice of the selected descriptors, the correctness of their formulation and the clarification of their contents; 2) the determination of the property of being correlatable between the importance of the assessment of the training results according to the selected descriptors and the completeness of their formation in educational institutions of different educational levels; 3) the identification of the views of experts on the qualitative characteristics of the training results of the educational levels, in accordance with the selected descriptors.

To determine the adequacy of the choice of the selected descriptors, the correctness of their formulation and the clarification of their contents, the responses to the question №6 of the interview form for managers of releasing divisions were used.

Question №6: Which of the following is the most important and suitable for the assessment of the training results for your educational program? (Make a mark on each line).

Table 1. Differentiated List of Questions

I block	II block	III block	IV block
1,2,3,4,5	8,9,10,12	6,7	7,11,13

Table 2. Variants of Responses to the Question №6

№ i/s	Competencies	Suitable	Partly suitable	Not suitable
1	Basic Knowledge in Various Spheres	1	2	3
2	Professional Knowledge	1	2	3
3	Informational and Analytical Skills (the ability to analyze and synthesize; elementary computer skills, information management skills: the ability to find and analyze information from various sources)	1	2	3
4	Projective Skills (the ability to organize and plan, problem-solving, decision-making)	1	2	3
5	Communication Skills (written and oral communication in the mother tongue; knowledge of a second language)	1	2	3
6	Motivation and Value Orientation (commitment to ethical values, legal and moral norms)	1	2	3
7	Reflexive Qualities (the ability to criticism and self-criticism, teamwork, interpersonal relation skills, the ability to work in an interdisciplinary team; the ability to communicate with experts from other areas; leadership; striving for success)	1	2	3
8	Culturological Qualities (the ability to perceive cultural differences, understanding of cultures and customs of other countries, the ability to work in an international environment)	1	2	3
9	Basic Personal Qualities (the ability to work independently, ability to generate new ideas, creativity)	1	2	3
10	Adaptation and Developing Qualities (the ability to adapt to new situations, initiative and entrepreneurial spirit, ability to learn, to increase the educational level)	1	2	3
11	Other	1	2	3

The distribution of the responses to the question №6 is presented in Table 3.

Table 3. Distribution of the Responses to the Question №6 (%)

Responses	HVE	SVE	PVE
Basic Knowledge in Various Spheres			
Fully suitable	60,34	67,57	60,00
Partly suitable	36,21	32,43	38,67
Not suitable	0,00	0,00	1,33
Professional Knowledge			
Fully suitable	91,38	89,19	86,67
Partly suitable	6,90	10,81	13,33
Not suitable	1,72	0,00	0,00
Informational and Analytical Skills			
Fully suitable	87,93	75,68	45,33
Partly suitable	10,34	24,32	48,00
Not suitable	1,72	0,00	6,67
Projective Skills			
Fully suitable	70,69	70,27	40,00
Partly suitable	27,59	27,03	57,33
Not suitable	1,72	0,00	2,67
Communication Skills			
Fully suitable	48,28	54,05	37,33
Partly suitable	46,55	43,24	56,00
Not suitable	5,17	2,70	6,67

Table 3. Continued

Responses	HVE	SVE	PVE
Motivation and Value Orientation			
Fully suitable	67,24	67,57	49,33
Partly suitable	32,76	32,43	46,67
Not suitable	0,00	0,00	4,00
Reflexive Qualities			
Fully suitable	63,79	72,97	49,33
Partly suitable	32,76	27,03	45,33
Not suitable	3,45	0,00	5,33
Culturological Qualities			
Fully suitable	41,38	40,54	21,33
Partly suitable	44,83	48,65	58,67
Not suitable	13,79	10,81	20,00
Basic Personal Qualities and Abilities			
Fully suitable	74,14	72,97	65,33
Partly suitable	24,14	27,03	32,00
Not suitable	1,72	0,00	2,67
Adaptation and Developmental Qualities and Abilities			
Fully suitable	79,31	75,68	60,00
Partly suitable	15,52	24,32	34,67
Not suitable	5,17	0,00	4,00

As a response to the "other" question, the representatives of PVE called responsibility, professional mobility; the representatives of SVE – the love for children; the representatives of HVE – logical thinking; the representatives of postgraduate education – methodological culture.

Descriptor "Projective Skills." The percentage distribution of responses is shown in Fig. 1.

The histogram shows that about 70% of the respondents agree with the need and importance of selecting the descriptor for the assessment of training results. However, 57.33% of the representatives of primary vocational education point out that the capacity for the organization, planning and decision making are formed only partly, because this level of education is aimed at forming activity-related skills. The clarification of the descriptor formulation as "Projective Activity-related Skills" enables you to make it easier to understand and use for the assessment of training results at all educational levels.

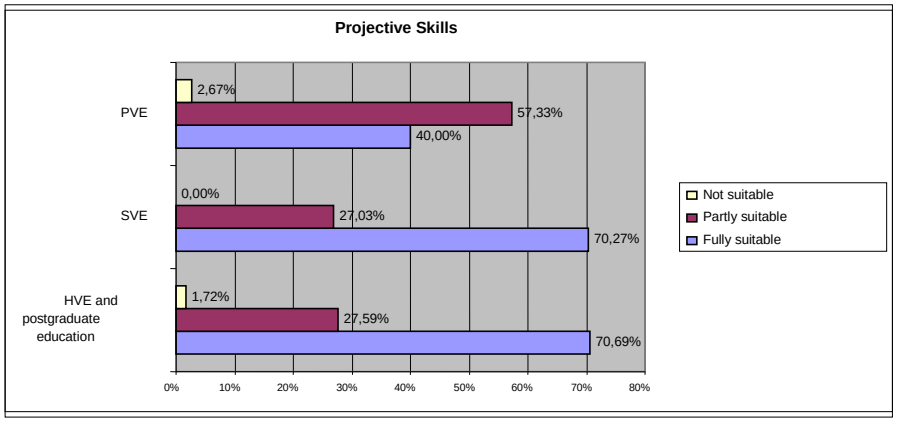

Figure 1. Percentage distribution of the responses to the question № 6 according to the descriptor "Projective Skills"

The sociological research and analysis of the results led to the following conclusions: all the selected descriptors can be the basis of a regional qualification framework; it is necessary to clarify the wording and contents of descriptors "Basic Knowledge in Various Spheres", "Projective Skills", "Communication Skills", "Motivation and Value Orientation", "Reflexive Qualities" and "Culturological Qualities." In order to determine the property of being correlatable between the importance of the assessment of training results according to the selected descriptors and the completeness of their formation in educational institutions of different educational levels, the answers to the questions № 6 and№ 7of the interview form for the heads of releasing divisions were compared.

Question number 7: How do you assess the training results of your program from the point of view of the formed competencies which graduates have? (Make a mark on each line).

Table 4. Variants of the Responses to the Question №7

№ i/s	Competencies	Fully formed	Partly formed	Not formed	Difficult to reply
1	Basic Knowledge in Various Spheres	1	2	3	4
2	Professional Knowledge	1	2	3	4
3	Informational and Analytical Skills (the ability to analyze and synthesize; elementary computer skills, information management skills: the ability to find and analyze information from various sources)	1	2	3	4
4	Projective Skills (the ability to organize and plan, problem-solving, decision-making)	1	2	3	4
5	Communication Skills (written and oral communication in the mother tongue; knowledge of a second language)	1	2	3	4
6	Motivation and Value Orientation (commitment to ethical values, legal and moral norms)	1	2	3	4
7	Reflexive Qualities (the ability to criticism and self-criticism, teamwork, interpersonal relation skills, the ability to work in an interdisciplinary team; the ability to communicate with experts from other areas; leadership; striving for success)	1	2	3	4
8	Culturological Qualities (the ability to perceive cultural differences, understanding of cultures and customs of other countries, the ability to work in an international environment)	1	2	3	4
9	Basic Personal Qualities (the ability to work independently, ability to generate new ideas, creativity)	1	2	3	4
10	Adaptation and Developmental Qualities (the ability to adapt to new situations, initiative and entrepreneurial spirit, ability to learn, to increase the educational level)	1	2	3	4
11	Other	1	2	3	4

The comparison of responses to the questions №6 and №7 and the calculated values of the correlation coefficient are shown in Table. 5.

The analysis of the obtained correlation coefficients in accordance with the Cheddock scale shows that mainly the consistency of the assessment of importance, completeness of the selected descriptors and the formation of the training results according to the given descriptions are characterized as "high," "noticeable" and "moderate". "Weak" correlation is observed in the responses of PVE according to the descriptors "Basic Personal Qualities and Abilities" and "Adaptation and Developmental Qualities and Abilities." Despite the fact that respondents find the given descriptors to be partially suitable, the training results are formed at the level of 65.33 and 60%, respectively, which confirms the importance of evaluating the results of training at the given educational level according to the specified descriptors.

Table 5. Distribution of the Responses to the Questions №6 and № 7 and their correlation coefficients (%)

Responses	PVE		SVE		HVE	
	Question № 6	Question №7	Question № 6	Question №7	Question № 6	Question №7
Basic Knowledge in Various Spheres						
Fully suitable (formed)	22,67	60,00	67,57	40,54	60,34	48,15
Partly suitable(formed)	74,67	38,67	32,43	59,46	36,21	51,85
Not suitable (formed)	2,67	1,33	0	0	0	0
Correlation coefficient	**0,42**		**0,65**		**0,89**	
Professional Knowledge						
Fully suitable (formed)	60,00	86,67	89,19	78,38	91,38	54,39
Partly suitable(formed)	40,00	13,33	10,81	18,92	6,9	42,11
Not suitable (formed)	0,00	0,00	0	2,7	1,72	3,51
Correlation coefficient	**0,84**		**1,00**		**0,72**	
Informational and Analytical Skills						
Fully suitable (formed)	10,67	45,33	75,68	40,54	87,93	51,72
Partly suitable(formed)	84,00	48,00	24,32	59,46	10,34	46,55
Not suitable (formed)	5,33	6,67	0	0	1,72	1,72
Correlation coefficient	**0,60**		**0,50**		**0,65**	
Projective Skills						
Fully suitable (formed)	15,49	40,00	70,27	47,22	70,69	31,58
Partly suitable(formed)	73,24	57,33	27,03	52,78	27,59	61,4
Not suitable (formed)	11,27	2,67	0	0	1,72	7,02
Correlation coefficient	**0,78**		**0,73**		**0,32**	
Communication Skills						
Fully suitable (formed)	5,63	37,33	54,05	32,43	48,28	30,36
Partly suitable(formed)	80,28	56,00	43,24	62,16	46,55	58,93
Not suitable (formed)	14,08	6,67	2,7	5,41	5,17	10,71
Correlation coefficient	**0,72**		**0,73**		**0,79**	
Motivation and Value Orientation						
Fully suitable (formed)	13,33	49,33	67,57	54,29	67,24	42,59
Partly suitable(formed)	78,67	46,67	32,43	42,86	32,76	57,41
Not suitable (formed)	8,00	4,00	0	2,86	0	0
Correlation coefficient	**0,51**		**0,94**		**0,70**	
Reflexive Qualities						
Fully suitable (formed)	18,92	49,33	72,97	37,84	63,79	33,33
Partly suitable(formed)	75,68	45,33	27,03	59,46	32,76	56,14
Not suitable (formed)	5,41	5,33	0	2,7	3,45	10,53
Correlation coefficient	**0,58**		**0,49**		**0,49**	
Culturological Qualities						
Fully suitable (formed)	7,89	21,33	40,54	25	41,38	33,33
Partly suitable(formed)	56,58	58,67	48,65	52,78	44,83	51,85
Not suitable (formed)	25,00	20,00	10,81	22,22	13,79	14,81
Correlation coefficient	**0,93**		**0,72**		**0,91**	
Basic Personal Qualities and Abilities						
Fully suitable (formed)	24,00	65,33	72,97	43,24	74,14	41,07
Partly suitable(formed)	72,00	32,00	27,03	54,05	24,14	55,36
Not suitable (formed)	4,00	2,67	0	2,7	1,72	3,57
Correlation coefficient	**0,25**		**0,64**		**0,53**	
Adaptation and Developmental Qualities and Abilities						
Fully suitable (formed)	16,44	60,00	75,68	51,35	79,31	38,6
Partly suitable(formed)	79,45	34,67	24,32	48,65	15,52	54,39
Not suitable (formed)	4,11	4,00	0	0	5,17	7,02
Correlation coefficient	**0,21**		**0,78**		**0,31**	

Final results

The descriptors in the educational qualification grid characterized the results of educational process with the help of knowledge, abilities and competences.

Knowledge is the result of the process of cognition of reality, which reflects in the person's consciousness in the form of ideas, concepts, opinions, theories, laws, etc. Knowledge is necessary for solving some educational, professional, scientific and other tasks. Within the educational qualification grid knowledge is divided into basic knowledge in various fields and professional knowledge. Basic knowledge in various fields is declarative and procedural knowledge in relation to the scientific world picture. Such knowledge can be obtained empirically with the help of practical training and professional experience during the process of studying. Professional knowledge is necessary to work on the position at the enterprise and to perform job functions. This knowledge is mainly procedural.

The description of the results of education is made according to the descriptors and is based on the criteria, which are breadth and type. Breadth characterizes coverage of available ideas (declarative aspect). The type defines the nature and the level of knowledge (procedural aspect). Abilities are the person's way of performing actions, provided with a set of acquired knowledge. Ability is expressed in the capability to consciously apply one's knowledge in practice. Within the educational qualification grid the results of education are described with the help of the descriptor «generalized abilities». Generalized abilities characterize the results of education in terms of two aspects: projective-activity and information-analytical. The projective-activity aspect determines the ability from the point of view of mastered methods of goal setting, problem statement, organization and planning. Information-analytical aspect determines the ability from the point of view of the mastered techniques of search, selection, analysis, synthesis, comparison information and ways of solving problems.

The abilities are characterized with the criterion «The degree of difficulty of tasks». The competences determine the capability of effective and creative application of knowledge and abilities obtained in the result of training for solving professional and scientific tasks to act in different situations. Within the educational qualification grid competences are divided into autonomy, communicativeness, responsibility, adaptability, motivation and ability to develop. Autonomy is development, relative independence and self-dependence of the individual's activity or activity of the organization. Communicativeness is a special ability to communicate in the sphere of studying-professional and scientific interaction. Responsibility is the individual's obligation and willingness to be responsible for their actions and their consequences. Adaptability - the ability to act in conditions of changing technologies, requirements of the labor market i.e. adaptation to changing external or internal factors of the professional environment. Motivation is a system of internal and external factors that cause and guide individual's goal-oriented behavior. Ability to development is regarded as the ability of awareness of the need to find ways of personal and professional development. All competences are characterized with the criteria «role» and «context». The role determines the individual's position. The context defines the area of the activities.

DISCUSSIONS

In Russia the previous researches, which were made by I. A. Zimnyaya (2003), O. N. Oleynikova, A. A. Muraveva, M. Koulz (2006), V. I. Baydenko (2006), O. F. Batrova (2008) are devoted to historical aspects and introduced results only of qualifications frameworks and competences development.

However, the analysis of scientific works showed that there is a lack of works, which are devoted to a describing of stages and methods to setting requirements for education results in regional aspect.

CONCLUSION

The technology, presented in the article, based on descriptive and analytical methods of data analysis, makes it possible to perform a comprehensive analysis of the object of study and prove the adequacy of the obtained in the research results.

In the works of L. V. Kurzaeva, I. G. Ovchinnikova & G. V. Slepuhina (2013) the requirements for training results are presented in the form of substantial qualitative characteristics of level descriptors correlated with the taxonomy by B. Bloom. That qualimetric interpretation of the requirements for training results is widely used in the design specifications of modules, work programs, as well as in the design of training technologies, diagnostics and assessment and has already established itself in the course of testing in Magnitogorsk State University as a solid scientific basis for the development of educational programs. These are presented in the works of I. G. Ovchinnikova et al. (2013) and M. O. Chusavitin, G. N. Chusavitina & L. V. Kurzaeva (2013).

RECOMMENDATIONS

Research is focused on been used in two ways: firstly, to apply its results and secondly to apply the experience of their receiving in the projects devoted to elaboration of the system of qualifications. These methods produce results can be useful for the study of labor market needs and the education system, the development of educational programs in accordance with these requirements.

REFERENCES

Batrova, O. F. (Eds.) (2008). *National Qualifications Framework of the Russian Federation*: Recommendations. Moscow: Federal Institute for Educational Development.

Baydenko, V. I. (Eds.) (2006). *The Bologna Process: The Search of Generality within European Education Systems* (project Tuning). Moscow: Research Centre of Training Quality Problems.

Chusavitin, M. O., Chusavitina G.N., Kurzaeva L.V. (2013). Elaboration of the Competence Model for Future Teachers of Informatics and ICT in the Field of Ensuring Information Security. *Basic research, 10-13,* 2991-2995.

Zimnyaya, I. A. (2003). Key Competencies - the Result of a New Education Paradigm. *High education today, 5,* 34-42.

Kurzaeva, L. V., Ovchinnikova I. G., Slepuhina G. V. (2013). *Adaptive Management of Vocational Education Quality on the Basis of Competence Approach (for example, the IT Industry)*: Methodological Bases, Models and Basic Tools on Installation of Requirements for Learning Results. Magnitogorsk: Magnitogorsk State University.

Ovchinnikova, I. G, Kurzaeva L. V., Kurchatov B. V. (2010). *Regional Qualification Framework: the Role and Place in the System of Continuing Professional Education and Development Experience*. Magnitogorsk: Magnitogorsk State University.

Ovchinnikova, I. G., Kurzaeva L. V., Zakharova T. V., Mironova A. A. (2013) *Development of basic education programs through the use of modular competence approach*: methodic recommendations. Magnitogorsk: Magnitogorsk State University, 36.

Oleynikova, O. N., Muraveva A. A, Koulz M. (2006). *Principles and Procedures for Developing a National Framework of Qualifications*. Moscow: Centre for the Study of Professional Education.

Oleynikova, O. N., Muraveva A. A. (2009). The system of qualifications in the European Union. Retrieved from http://www.cvets.ru/NQF/NQF-EC.pdf

Zaitseva, N. A. (2013). The role of education system in adaptation of graduates from Russian institutes and colleges at European enterprises (by example of service companies). *Middle East Journal of Scientific Research, 13(5),* 693-697.