Elaboration of a Frame Model for Intensification and Managing Requirements to Learning Outcomes in Regional Systems of Continuing Professional Education

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ABSTRACT

The relevance of the declared in the article problem is caused by both universal integration processes and necessity of elaboration of effective management mechanisms for requirements to learning outcomes. First of all the qualifications frameworks of any level is created for formation of the interaction basis between the labor market and the system of education through establishment of compliance to qualification requirements of knowledge, abilities and competences regardless of a form of their acquisition (formal, informal, non-formal). The aim of the research is a qualifications framework elaboration of regional system of continuing professional education as a model of identification and adaptive management of requirements to personality's educational outcomes. The article focuses on elaboration of the qualifications framework for system of continuing professional education in Chelyabinsk region. The research is based on methods of the system analysis and the competence-based approach is applied. The work presents the elaborated regional qualifications framework for system of continuing professional education, on the example of the Ural region: Requirements to the contents, structure and structure concerning system of descriptors, qualification levels; the scheme of coordination of the developed qualifications framework with the project of the National qualifications framework of the Russian Federation; the ways of achieving qualification levels according to respondents' opinions who are representatives of educational community and labor market. The results of the research can be the basis for creating an adaptive control system of requirements to the results of training in a regional education system and also they can be used for elaboration of adequate requirements for labor market, educational community, systems of certification of graduates of professional education establishment and certification of employees of the enterprises.

Keywords: Qualifications Framework, Competence-based Approach, Formal Training, Informal Training, Non-formal Training, Adaptive Management of Education
JEL Classifications: A23, I23, I26

1. INTRODUCTION

1.1. Relevance of the Research

The problem of elaboration and studying of system of qualifications on the basis of competence-based approach is essential and important both for Russia and European countries.

The objective reasons for studying the matter are several ones such as isolation of development of an education system and labor market from each other; processes of globalization and integration within which special attention is paid to quality of labour force and degree of professional standard compliance to the international requirements.

It is confirmed by initiation and active elaboration of national systems of qualifications 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 and Muraveva, 2009; Kalimullin and Masalimova, 2016; Sabirov et al., 2015).

All elaborations of national frame structures are focused on integration with the international qualifications framework on the basis of competence-based approach.

In the context of fast technological changes and dynamic development of all branches of economy the education system of the Russian Federation faces the problem of providing each person with an opportunity to increase their professional level constantly in accordance with social and economic changes and manufacturing environment.

In general it is the universal tendency which is issued in the form of the concept "lifelong learning" or building the society on knowledge (the training society).

Implementation of the concept "lifelong learning" assumes consideration of continuing professional education as a multilevel system in which all knowledge, skills and competences are results of training and taxonomic by nature.

In 2008 The Federal institute of education development of the Ministry of Education and Science of the Russian Federation and National agency of qualifications development of the Russian Union of Industrialists and Entrepreneurs developed a National Qualifications Framework (further - NQF) of the Russian Federation which is intended to harmonize the requirements of the labor market and the system of education at the different qualification levels (Batrova, 2008).

NQF is permissive rather than mandatory and according to the developers' opinion, in addition, it allows to define the general requirements to qualification in professional and federal state educational standards.

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.

The requirements to the results of training which are specified in the qualifications framework may form the basis for elaboration of the certification system according to the results of receiving formal and also certifications according to the results of informal and non-formal training (Ovchinnikova and 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., 2013a). Thus, it should be noted that within the projects the research captured all levels of professional education, and, in fact, the qualifications framework for system of continuing education of Chelyabinsk region was obtained (further - qualifications framework).

2. METHODOLOGICAL FRAMEWORK

2.1. Methodology and Stages of the Research
Methodological basis of the qualifications framework elaboration is the competence-based approach.

For research purposes the following methods were used: Analysis of normative documents and products of activity, content analysis, systematization and generalization of the facts and concepts, modeling, method of expert evaluations, interviewing and poll, methods of descriptive statistics.

There are three stages of the research.

At the first stage there is the study of the works which are devoted to the description of training results at different levels of system of continuing professional education in Russia and abroad. The principles and methods of building the regional qualifications framework are defined (Ovchinnikova et al., 2010).

The second stage is the main one. At the stage there is elaboration of the qualifications framework. During approbation of the tools of the research the following feature was revealed. The approach to the description of the requirements to the results of training which is used in education is close to the methodology that is accepted in the European practice and which is focused on competences. The approach was taken into account for elaboration of federal state educational standards of the third generation. At the same time employers while forming requirements to work do not take into account the approaches which are accepted in pedagogical methodology but from the existing qualification reference books and professional standards which were gaining strength because competences and functions are synonymous in them. In this regard the decision of initial independent elaboration of two documents is made: Educational and professional nets of qualifications, and then their integration into the uniform regional frame of qualifications. It allows to find the "common language" of requirements description to results of training which is understood unambiguously by both representatives of the labor market, and educational community (Kurzaeva et al., 2013).

The third stage is the final one. There is systematization, judgment and generalization of research results. Theoretical conclusions were specified; processing and registration of the received results of research were carried out.

2.2. Base of the Research

149 professional educational institutions of Chelyabinsk region and also 33 enterprises of various types formed the base of the research.

2.3. Requirements to Results of the Research

The following requirements to elaboration were defined to ensure efficiency of the elaboration process:

Concerning descriptors:
- Brevity of the description and clearness of formulations of descriptors for both the education system and labor market;
- The maximum transference of descriptors of initial nets (professional and educational) into the united frame;
- Definition of each descriptor criteria which provide differentiability of results of training at the different levels;

Concerning qualification levels:
- Taking into account existing national system of professional education features

Concerning results of training:
- Clearness and unambiguity of understanding of formulations both from the point of view of representatives of the educational environment and representatives of employers;
- Training results continuity of initial nets (professional and educational).

It was caused by the developers' requirement to gain independent and complete impression which includes regional features concerning requirements to results of training.

Elaboration of the descriptors system was conducted with the support on the results of the international TUNING project, federal state educational standards and normative documents which establish requirements to activity of workers at the federal (national), branch and corporate level (level of the separate enterprises and organizations).

3. RESULTS

3.1. Structure and Content of the Qualifications Framework

Descriptors in the qualifications framework characterize the results of training through knowledge, skills and qualities of the personality (Ovchinnikova et al., 2014). The continuity of levels is defined by an increment of practical experience, training and self-education. These results are shown by Table 1.

3.2. Consistency with the National Qualifications Framework

The resulting study is a Regional Qualifications Framework which is consistent with the levels of the National Qualifications Framework and reveals the requirements to the results of training in much greater detail (Ovchinnikova et al., 2014) (Figure 1).

Figure 1: Correlation of the national qualifications framework structure and the qualifications framework of continuing professional education of the Chelyabinsk Region
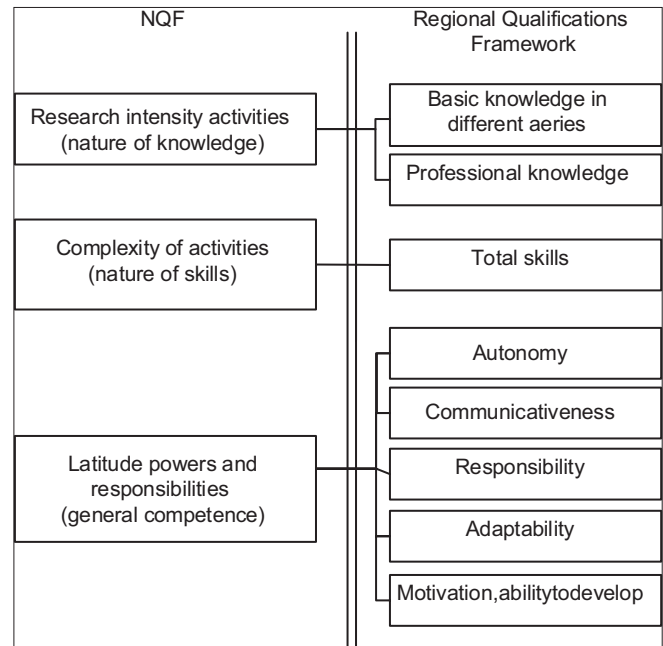
3.3. The Main Ways of Achieving Qualification Levels in the Various Types of Training

In the present study, the initial goal was to elaborate a frame of qualifications, based on formal training. However interviews carried out in Chelyabinsk region which covered on the one hand all educational institutions and on the other - the majority of organizations of different types, allowed to take into account within the qualifications framework the transition from one level to another in terms of both formal and informal and non-formal training. According to the glossary of the project under consideration, informal training is a program of additional professional training and non-formal training is supposed to be an independent study\training or work experience (in the workplace) (Ovchinnikova et al., 2010).

Moving from one qualification level to another depends on the type of training and can be done through obtaining some higher level programs of professional education, additional professional training, and what is important for the evaluation system of achieving the qualification standards and the recognition of qualifications through self-study or gaining experience in the workplace (Kurzaeva et al., 2013a). Table 2 presents the ways to achieve qualification levels through formal, informal and non-formal training.

4. DISCUSSIONS

In Russia the previous researches, which were made by Oleynikova et al. (2006), Baydenko (2006), are devoted to historical and structural aspects of qualifications frameworks development, and using. The works of Zimnyaya (2003), Kurzaeva (2010) are devoted to elaboration and diagnostics of the basic key competences and their psychology and pedagogical content.

Table 1: Descriptors of the levels of the qualifications frame of the continuing training in Chelyabinsk region

| Knowledge | | Skills | | | Competence | | |
Basic knowledge in different aeries	Professional knowledge	Total skills	Autonomy	Communicativeness	Responsibility	Adaptability	Motivation, ability to develop
The 1st level of qualification Scattered facts which build the worldview at the level recognizing and reproducing	Subject factual knowledge at particular job level according to ready-made instructions	Basic skills which are necessary for performing simple and repetitive tasks	One performs work in academic or professional field in accordance with instructions and/or under the guidance	One carries out oral communication at the speech level in the Sate language in the framework of educational and professional activities	One is responsible for the results of the work and is able to give an oral report	One shows limited adaptive abilities as part of the work	One realizes the importance of the chosen profession, the role and personal contribution to the results of the enterprise activity
The 2nd level of qualification Generalized facts which build a simplified understanding of the world view	Specific knowledge and expertise of regulatory and technical documentation within the standard applications, the initial management expertise\skills which are necessary to organize one's own work	Basic skills needed to solve a limited set of common tasks on the basis of independent search and selection methods and solutions from a number of the known and tested ones	One performs the work in academic or professional field in accordance with the instructions and/ or under partial guidance	One carries out oral communication at the speech level in the Sate language in the framework of educational and professional activities, expresses and defends one's personal point of view	One is responsible for the results of the work and is able to give an oral and writing report	One shows the adaptive abilities at minor changes within the conditions of social and professional environment	One understands one's own role in the team, acts as a member of a group and is interested in the professional growth
The 3rd level of qualification Generalized facts which contribute to understanding the holistic worldview	The generalized practical knowledge and the knowledge of the standard documentation within technological process, the initial administrative knowledge which are necessary for organizing both one's own work and participation in group work	A number of sills which is demanded for solving standard tasks with the use of complex equipment on the basis of independent search and selection and ways of their carrying out from a number of known and approved ones	One performs and estimates the work in educational or professional area in accordance with instructions and standards and legal documentation	One can clearly, reasonably and competently builds oral and written speech in a state language and can state and argue the point of view	One is responsible for his/her work and is able to give a full account including analysis elements	One shows adaptive abilities when the social or professional environment conditions change	One estimates his/her role and contribution to enterprise activity; one independently defines problems of professional and personal development, one is engaged in self-education and consciously plans professional development

Table 1: (Contd...)

	Knowledge		Skills			Competence		
Basic knowledge in different aeries	Professional knowledge	Total skills	Autonomy	Communicativeness	Responsibility	Adaptability	Motivation, ability to develop	
The 4th level of qualification								
Systematic evidence\facts which to contribute to a holistic understanding of the scientific world view	Generalized theoretical and practical knowledge as well as knowledge of the regulatory reference and guidance documents, administrative knowledge which is necessary for understanding the essence of the organization and operational control of its own educational and professional activities and the staff activity	A set of knowledge which is required for formulating and solving complex problems on the basis of self-search, selection and evaluation of the necessary information	One consciously uses instructions and regulatory legal documents, is able to organize the working place, takes part in team work	One uses oral and written speech in the state language as a means of business communication and presentation of the educational and professional activity results, has some initial training for intercultural communication	One is responsible for activities, which are defined by regulatory and legal documents; is able to give a full written report, including elements of the analysis in both one's own work and in group work	One carries out professional activities in terms of its content updates	One evaluates one's own role and contributes actively to the organization's activities, selects the promising areas of personal and professional development based on one's own vision and needs, is engaged in self-education	
The 5th level of qualification								
Knowledge of the scientific worldview at the level of their educational and professional activity application	The systematized theoretical and practical knowledge, the knowledge of directive and administrative documentation, methodical and standard materials, the administrative knowledge which are required for processes project making and for organization and control of own educational professional activity and activity of the personal	A number of abilities which is necessary for the solution of complex and non-standard tasks, selection of methods of their solving on the basis of independent generalization; analysis and synthesis of information that is necessary for stating and solving the problem and estimation of educational and professional activity	One consciously uses instructions, standard and legal documents for organizing his/her personal work and work of the staff	One uses oral and written speech in a state language as means of business communication and representation of results of educational and professional activities; has basic background for cross-cultural communication	One is responsible for his/her activity which is determined by standard and legal documents; is able to give the account on professional and administrative activity	One takes bearings in the conditions of updated aims and changes in the content of educational and professional activity	One estimates his/her role and the role of the group, makes an active contribution to activity of the enterprise, chooses the perspective directions of personal and professional growth, is engaged in self-education	
The 6th level of qualification								

Table 1: (Contd...)

Knowledge		Skills		Competence			Motivation, ability to develop
Basic knowledge in different aeries	Professional knowledge	Total skills	Autonomy	Communicativeness	Responsibility	Adaptability	
Knowledge of the scientific world view at the level of its use to solve the problems of the research	Scientific knowledge, knowledge of regulatory and administrative documentation, methodological and regulatory materials, managerial expertise which is necessary to evaluate and optimize the processes, to intrude innovations and manage subordinates in unpredictable situations within the professional activity	A set of skills necessary for solving complex non-standard creative and organizational and management tasks on the basis of independent generalization, analysis and synthesis of information	One organizes one's own activities and/or group work on a scientific basis, to solve difficult non-standard tasks; independently carries out scientific research in the field of professional activities under the guidance, evaluates the results	One states clearly and precisely one's own point of view on the problem of the research, participates in public speaking, has a basic training in intercultural communication in the framework of professional activity	One takes responsibility which is defined by regulatory and legal documents, for tone's own activities and the activities of the group; makes decisions in situations of high risk and complexity and is personally responsible for them; is able to give an analytical report	One patterns one's own behavior on the changing objectives and content of professional and/or academic activities, as well as under conditions of uncertainty	One realizes one's own role in achieving the goals of the team and the organization, is aimed at professional recognition and creative self-realization
The 7th level of qualification The knowledge of the scientific worldview at the level of critical conceptualization of problems within the professional activity	Scientific knowledge at the level of creation of innovative works in the field of professional or scientific activity, carrying out their assessment by practical consideration according to directive and standard documentation; administrative knowledge which are necessary for tactical management	A number of the abilities which is required for the solution of administrative and organizational tasks, controlling of their performance at the level of a division, including on the scientific basis	One carries out statement of tactical targets, planning and organizing the activity of the division, including carrying out scientific researches on the chosen specialty under the scientific management	One states accurately and clearly the point of view on problems of professional/scientific activity, has experience of public speech, has basic training for work in the international scientific and professional environment	One makes administrative decisions under the conditions of uncertainty, bears a personal responsibility for the activity and results of the work of his/her subordinates, one is capable to give the analytical account	One takes bearings independently in the conditions of changing professional tactical aims and defines ways of their effective achievement	One understands the corporate strategy, his/her role and the role of the division in its realization, it is interested in creative self-realization
The 8th level of qualification Knowledge on the level of the whole scientific world view, which is used for the evaluation of the professional problems and allows the formulation and solution of strategic tasks	Scientific knowledge which allows to design a strategy (concept) of development; administrative knowledge which is necessary for strategic management of the research projects or departments/organizations in accordance with laws and regulations	A set of skills which are necessary for strategic management of the organization/a unit on a scientific basis	One independently sets strategic goals, plans and organizes the management of the organization/enterprise and/or scientific school	One states clearly one's own views on professional scientific/activities; evaluates the professional achievements of other countries, participates in various forms of intercultural communication	One controls scientific or professional team work, is responsible for the results of one's own research activities and the ones carried out by the team under one's guidance, as well as responsibility for the professional development of the staff	One is self-guided in a changing strategic objectives and determines how to achieve them effectively in the changing socio-economic conditions	One is interested in the development and implementation of effective corporate strategy, aimed to creative self-realization, professional and public recognition

Table 2: The main ways to achieve qualification levels

Qualification level	Ways to achieve a relevant\corresponding qualification level
1	Formal training: • According to the curriculum of primary professional education on the basis of comprehensive general education or secondary (complete) general education Informal training: • Professional training (courses on the basis of an educational institution upon the training programs of professional training) at the level of education not lower than the secondary (complete) general education Non-formal training • Workplace learning, corporate training if there is no lower than the secondary (complete) general education
2	Formal training: • According to the curriculum of secondary professional education of the basic level on the basis of comprehensive general education or secondary (complete) general education or primary professional education Informal training: • According to the programs of additional professional education (advanced training, professional retraining, professional training, additional qualification, internship) Non-formal training: • Workplace learning, corporate training on the base of the secondary (complete) general education or primary professional education
3	Formal training: • According to the curriculum of secondary professional education of the higher level on the basis of secondary (complete) general education or primary or secondary professional education of basic level Informal training: • Professional retraining, advanced training if there is secondary professional education of basic level Non-formal training: • Workplace learning, corporate training on the base of the secondary professional education of the basic level
4	Formal training: • According to the curriculum of high professional education on the basis of the curriculum of not lower than secondary (complete) general education Informal training: • Professional retraining, advanced training on the base of not lower than secondary professional education Non-formal training: • Workplace learning, corporate training on the base of the secondary professional education
5	Formal training: • According to the curriculum of high professional education on the basis of the curriculum of not lower than secondary (complete) general education Informal training: • Professional retraining, if there is high professional education Non-formal training: • Workplace learning, corporate training on the base of the secondary or high professional education
6	Formal training; • According to the curriculum of high professional education (magistracy) on the basis of bachelor or specialty curriculum Non-formal training: • Workplace learning, corporate training on the base of high professional education; practical experience in practice-oriented research
7	Formal training: • According to the curriculum of post graduate education leading to a candidate degree on the basis of bachelor or magistracy curriculum Non-formal training: • Professional experience, practical experience in scientific research
8	Formal training: • According to the curriculum of post graduate education leading to PhD degree on the basis of a candidate degree Non-formal training: • Professional experience, professional and/or social recognition

However, the analysis of scientific works showed that there is a lack of works which are devoted to a problem of requirements management of all-professional results of training at the regional level. The existing works are not coordinated with national requirements to the level of qualifications.

5. CONCLUSION

During the research the requirements to elaboration of components of qualifications framework are defined: Descriptors, qualification levels, results of training; the system of descriptors and qualification levels is created; the current state of requirements to results of training of the personality in the system of continuing education is studied, the ways of achieving the qualification levels from positions of formal, informal and non-formal education are specified.

It is established that the elaborated regional qualifications framework allows to identify accurately requirements to results of training and allows to create the necessary management influence for improving the system of continuing education on the basis of the harmonized requirements of employers and educational community to the results of different levels training.

The established united requirements to the results of training will allow to carry out training of highly qualified and competitive specialists who are capable to adapt quickly to any socioeconomic transformations. It gives possibilities of elaboration of the corresponding diagnostic tools (Kurzaeva, et al., 2013b).

Another successful example of region qualifications framework using are studies on formation of requirements in the field of information security of the personality (Chusavitin et al., 2013; Chusavitina and Zerkina, 2015a,b)

6. 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. Particularly it may be used in researches that are connected with labor market and educational community requirements to the system of graduates' certification of professional educational institutions and enterprises employees' certification.

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