

Education Quality in Kazakhstan in The Context of Competence-Based Approach

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ABSTRACT

The background of this paper is to present how education system of Kazakhstan evolved during the last 24 years of independence, highlighting the contemporary transformational processes. We defined the aim to identify the education quality in the context of competence-based approach. Methods: Analysis of references, interviewing, experimental work. Results: Education quality problems are revealed according to the results of the analysis of the state system of vocational education of the Republic of Kazakhstan. It is shown that the learning results description in the context of the competence approach is important at this stage of education system development. It is given recommendations on education quality assurance of the Republic of Kazakhstan in the context of competence-based approach. The novelty of the paper is that quality issues are considered in relation to VET and higher education, it is proposed to use the positive experience of each system. Conclusion: it is possible to solve many of these problems through the development of the National Qualifications Network based on the principles of the European Qualifications Network.

KEYWORDS

Competence-based approach, Kazakhstan, learning results, quality of vocational and higher education

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Introduction

General information and statistics by vocational and higher education in Kazakhstan

The right to education is guaranteed by the state through development of the education system, improving legal framework of its operation and the creation of the necessary socioeconomic conditions for education in accordance with the Constitution of the Republic of Kazakhstan. The main objectives of the education system are:

creating necessary conditions for quality education aimed at the formation, development and professional growth of personality based on national and universal human values and achievements of science and practice; development of creative, spiritual and physical skills of a person, formation of the solid ethical principles and a healthy lifestyle, intellectual enrichment by creating conditions for the personality development; civic consciousness and patriotic education, cultivating love of homeland -

the Republic of Kazakhstan, promoting respect of the state symbols and official language, honoring of the national traditions, intolerance to any anticonstitutional and anti-social behavior; upbringing of a socially active personality, formation of interest in participating in the social and political, economic and cultural life of the republic, conscious attitude to rights and responsibilities; implementation and effective use of innovative learning technologies, including credit, distance, information and communication technologies promoting rapid adaptation of vocational education to the changing needs of the society and the labor market; development of lifelong learning systems ensuring interaction between general education, on-site training and needs of the labor market and assisting people in maximal using of their individual potential based on the knowledge and expertise, etc. ("Education Law", 2010).



The education system in the Republic of Kazakhstan based on the principle of continuity and succession of educational programs includes the following education levels:

- 1) nursery education;
- 2) primary education;
- 3) basic secondary education;
- 4) secondary education (general secondary education, technical and vocational education);
- 5) post-secondary education;
- 6) higher education;
- 7) postgraduate education ("Education Law", 2010).

A student successfully passed the final examination of vocational higher educational program, is awarded a qualification and/or the academic degree "Bachelor". To enter the higher educational institution, the school graduates need to pass simultaneously graduate and entrance examinations in form of common national testing (CNT). School graduates of past years who did not enter or failed to enter higher educational institutions need to pass entrance examinations in form of complex testing.

Master's program refers to the postgraduate education. Masters qualification can be obtained by people with bachelor or specialist degree with higher education that defend a master's thesis. Those completed master's program and defended thesis are awarded diplomas and master's academic degree.

Doctoral program also refers to the postgraduate education. Doctor of Philosophy (PhD) or Doctor of the profile can be obtained by people with a master's degree or candidate of science degree who defended thesis. They are awarded diplomas and degrees of Doctor of Philosophy (PhD) or Doctor of the profile.

Interaction Between Technical and Vocational Education (VET) and Higher Education (HE)

Technical and vocational education is provided in lyceums, colleges and higher technical schools on a basic education. Higher education is provided to people with general secondary or technical and vocational or post-secondary education (Figure 1). In addition, we must remember that in the informal education sector every year more than 20,000 people receive training and retraining without increasing the education level.

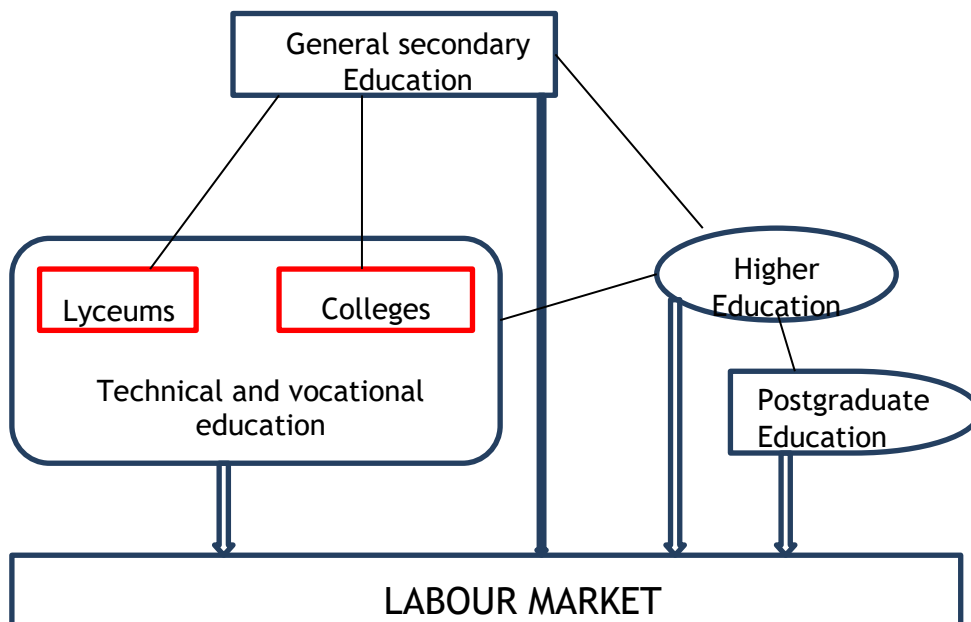


Figure 1. The scheme of the students' transfers from one educational level to another.

Methods

It is known that during educational research we have to deal generally with weakly formalized and non-numerical information, which cannot always be reduced to the form suitable for applying methods of the exact sciences, for example, methods of mathematical statistics. The application of mathematical methods in pedagogy is currently a definite tendency, resulting in forming a certain scientific direction – pedagogical qualimetry. However, general scientific research methods are applied when developing pedagogical problems traditionally: systematic and activity approaches, modeling, mental experiment, etc. Qualitative approach is important for the purposes of our study.

A systematic approach is one of general scientific methods of theoretical and practical studies. Pedagogy includes numerous options of applying of General systems theory for the analysis of pedagogical activity. (Bordovskaya N.V., 2009; Krajewski V. V., 2006). It is considered in the context of the systematic approach, that if an external control action is applied towards the system the desired result is achieved as a direct consequence (Teslinov A. G., 1998). The use of qualitative approach for formation of criteria and parameters of system evaluation provides the reliable information on the system condition in general, its performance results, etc. (Subetto A. I., & Selezneva N. A., 2001).



Qualimetry as a science about the measurement and valuation of quality of any objects and processes has to do with the category “measurement”, “evaluation”, “scaling” and consists of general, special and subject qualimetry (Yakovlev E. V., 2000).

We used the literature review to insight into well-known works under the theme. According to M.J.Baker (2014), evolution and the creation of new knowledge occurs mainly through a process of accumulation/ buildup. As

mentioned before, the growth of knowledge usually occurs through its accumulation, not as the result of a sudden insight.

Experimental work (Novikova T. G., 2002; Levenchuk D. V., 2012; Taubaeva Sh. T., 2013, etc.) is the most important method of the study. To identify quantitative indicators of the higher education quality, we applied the following methods:

- 1) questionnaires for information collection;
- 2) facts collection (digital data, indicators, financial indicators);
- 3) interviewing experts and employers;
- 4) results of the official ratings, inspection of committees, certifications and accreditations.

Results

Learning Outputs and Competence-Based Approach

Strategic impact and practice of different learning outputs approaches

As we know, the requirements to the university graduates' qualification were included into graduate qualification profile, approved by an authorized body in the field of education (Ministry) as a regulatory instrument. In terminology dictionaries "qualification" is interpreted as "fitness of a person to professional activity; a person's knowledge base, skills and experiences needed for a certain work". Qualification confirmed the fitness of the student to implement occupational tasks and conformity of the obtained knowledge with the requirements of state education standards. As qualification was confirmed by the state examination commission formed at the higher educational institution, then both its approval and confirmation was carried out in the educational field. Thereby a graduate completed his/her studies in the conditions of a real production. Such model of professional qualities evaluation is named "output" control, and an approach can be called a qualification one. In case of the qualification approach the professional educational program is linked to the objects (subjects) of labor, complies with their characteristics. Herewith knowledge and skills required for human life and activity are not formed.

However, it should be noted that European educational space "output" control was shifted to monitoring and "output" control of educational process. New educational paradigm is based on methodology of education design where education results become one of the most important structural elements of higher education systems. If planning and implementation of educational process (educational, teaching and methodological activity etc.) were previously performance indicators of educational activity of the universities, then this methodology requires educational results: student's built knowledge, competence and skills, herewith formal and informal modes of study and self-study are also considered. Thus in education evaluation of student educational activity results is reoriented from the notion "knowledge, ability, skills" to the notions "competence/competency" occurs. So, transfer to the competence-based approach



in the educational process is necessary to consider as an attempt to lead the higher education in conformity with the needs of the labor market.

National Qualification Network

The international practice analysis indicates that the basis for qualification network formation is establishment of clear connections between the requirements of labor fields concerning performance of labor functions by employees and requirements to evaluation of employees' fitness to meet these requirements. It also should be noted that this fitness can be formed both in the process of mastering an educational program in an educational institution (if this program is based on the requirements as to results), in the course of labor activity, during self-study, also by using opportunities of innovative technologies.

Therefore, it should be noted the importance of informal and spontaneous learning. The informal learning is learning in the course of planned activity named as "semi-structured" learning, carried out in the course of daily labor situations, containing a teaching component. The spontaneous learning is learning, carried out in the course of human daily life: at work, in a family etc.

Many countries are working out procedures and institutional mechanisms for acknowledgment of informal and spontaneous learning results that fully complies with the tasks of the lifelong learning strategy implementation, which is a fundamental development strategy almost all over the world. In the EU countries this strategy is implemented within Lisbon strategy and program "Education and Learning 2020". The qualification network in such a way creates the basis for systematization and acknowledgment of learning results and forms the ground for increasing of qualification quality, availability, interconnection and acknowledgement both nationally and internationally.

According to the international practice, in the most of countries the learning results are formed in the labor field, i.e. by employers, and allow forming qualifications. Educational institutions transfer them into the competences, herewith, it is widely agreed that in the competences integrate knowledge, understanding, skills, experience and relationships (value system): "The learning results describe what knowledge and abilities are expected from the student after successful completion of the educational process".

Therefore, vocational education system is learning result-oriented assumes three types of standards:

- occupational standards (describing functions which a person shall perform and the requirements to competences necessary for performing these functions);
- assessment standards (describing assessment process for qualification awarding);
- educational standards, describing the results of education required for obtaining qualification, tasks and modes of learning and a scope of learning (in an educational institution, at an enterprise etc.).

The higher education system of the Republic of Kazakhstan adopted educational standards of vocational education, oriented on the learning results. In this connection it is expedient to turn to the international practice. As we know,

in most of European countries the associations (corporations, unions etc.) of employer's develop the occupational standards which are basis educational standards development. However, in a number of countries (Ireland, Scandinavia countries and some others) such standards are not developed separately. But this is not to say that refusal from the result-oriented model of education is observed there. It happens due to the fact that employers' representatives take active part in preparatory work for learning results description (required for labor competences), formations of requirements to their assessment etc. Thus, occupational and educational standards development is a single design process in these countries.

This experience is actually used during educational standards development in Kazakhstan. A main part of this process is made by representatives of educational sphere although with the help of labor sphere representatives, who determine an object, topic, occupational activity functions; form the required competences etc., that is an authority of the second group, and then they work out content of education, requirements to graduate qualification level and solve other questions. It is obvious that it is referred to development of integrated, i.e. educational-occupational standards.

However, the State program of education and science development in the Republic of Kazakhstan for 2016 - 2019 assign a task to bring a share of VET specialties with educational programs developed under occupational standards by 58% by 2019, and in higher education, this percentage should be 45%.

Problems of Competence-Based Approach Implementation in The Educational Process

Employer's requirements to qualifications

Understandably a basis of expected employer's requirements to qualifications is theoretical and empirical knowledge of studied profession. These qualitative requirements are often re-formed in such a way that the additional abilities named key qualifications become necessary. The individual background for raising flexibility and abilities to developing human capital are marked essential. In this regard "logical thinking, ability to concentrate attention, creative work" are focused on in the cognitive field, "readiness to study, ability to study", also social competence elements – "contact, ability to plan, collaboration and language skills" are focused in the affection sphere.

A practical experience of graduate's activity is sometimes understood as a certain volume of additionally obtained knowledge and skills, and more often as an index of personal initiative, interest in economy and special labor areas. Correlation of professional vital aims with out-professional vital aims, individual planning of professional career and team skills play there a role.

Awarding qualification and proper certificate, diploma or academic degree shall be carried out following learning assessment results. This circumstance affects function and learning results assessment, compels to use special assessment ways and instruments. The learning results determine the achievements of a student in the course of acquiring knowledge and practical skills, obtained and demonstrated after successful completion of full learning



course or a separate module of educational program, therefore, specific individual educational achievements are assessed. In this regard the objective assessment criteria and learning achievement indexes shall be developed, the ways and means of the learning results assessment shall be reasoned, a single method of the results assessment shall be formed.

The learning results allow:

- to formulate an exhaustive set of requirements to achievements (competences) of students;
- to raise the transparencies and comparability of qualifications; to ensure a single form of program design for different modes of study (for example, distance learning, on-site training, informal learning etc.);
- to ensure the transparency interaction between the requirements of a labor sphere and content of programs and assessment.

Baidenko V. I. (2006) reasons upon terms of the competence-based approach: “The results of education, expressed in the language of competencies, according to Western experts, is a way to expand academic and professional recognition and mobility, to increase the comparability and compatibility of diplomas and qualifications, ... but the precise definition of this term does not exist either Europe or in the world. Upon analyzing numerous definitions of learning results, it is possible to reasonably allocate there the key words: “competence”, “measured achievements”, “demonstration”, “to do”. The scientist’s opinion correlates with the definition given in the Bologna process glossary: it is a method of modeling learning results and their provision as norms as the higher education quality standards. The results are the sets of competencies specified for each module of the program and for the program in general. This definition is taken as the basis of our study. *Quality analysis*

In 2013 the employment of intramural graduates of technical schools and colleges educated under the state order constituted 84.2%, including 70.5% is employed, 9.4 % continued their education in universities and colleges, 15.8% is unemployed. The share of employed university graduates constituted 79.9% (2013), 82.6% (2009), technical and vocational education graduates – 84.63% (2012), lyceums – 81.5% (2008, 2009), colleges of 51.6% (2009) (National reports, 2014).

The State program of education and science development of the Republic of Kazakhstan for 2016 – 2019 (2016) notes the following weak points in the vocational education system: low prestige of VET, lack of legislative regulations for vocational qualification assessment by employers, lack of VET system quality confirmation methods, unattractiveness of higher and postgraduate education for foreign citizens etc. In 2013 only 83% of VET graduates passed professional training and qualification assessment were able to prove their qualification at the first attempt. 13.4...19.1% of students are excluded from VET institutions each year (for 2007...2013), among them one third is excluded due to underachievement. 12.8...20.1% of student (for 2007...2010, in 2013 -16.7%) are annually excluded from higher educational institutions, 18.6...25.4% (9.5% in 2013) is excluded due to underachievement, (National reports, 2014).

The President of the Academy of Pedagogical Sciences of Kazakhstan A.Kusainov (2013) indicates importance of good university training: "The teaching staff of universities agrees that the quality of applicants enrolled to universities has been declining...School graduates with such knowledge cannot be qualitatively educated in the universities of the country".

Education system trains specialists according to their view, but not under the order of the labor market. Not all sectors of the economy understand the competencies that are necessary for their employees. In the learning process the theory prevails over practice. The informal education results are still considered as secondary to the results of formal education. The adoption of Lisbon strategy and program «Education and Training 2010» by the European Council enabled updating of this problem.

Thus, the vocational education system of the country has the following problems: weak material-technical base; inadequate quality assurance system; weak interaction between the system of education and training and the labor market; lack of awareness of qualifications system capabilities, insufficient coverage of the independent assessment and certification of qualifications on the basis of competencies; lack of occupational standards for the majority of specialties, the lack of evaluation standards.

In 2014 we interviewed employers to identify their requirements to graduates, as well as for the study of image of S.Seifullin Kazakh Agro Technical University graduates at the labor market (Nabi Y., 2015). Upon considering replies for: "What professional knowledge and personal qualities are graduates employed by your company lack of?" it was revealed that graduates have insufficient theoretical knowledge and practical training (Figure 2). A survey conducted in 2016 among employers of graduates of the Kazakh Academy of Architecture and Construction, gave similar results.

The low educational motivation of students is one of the reasons thereof. So only 11.66% of students of S. Seifullin Kazakh Agro Technical University and 17.68 % of the students of the Kazakh Academy of Architecture and Construction have a high level of educational motivation.

The results of staff quality studying showed that a significant share of teachers possesses professional competence – profound knowledge in a specific area, pedagogical excellence (74.4% of teachers have a higher than average or equal to the average indicators). The problem consists of activity and initiative in the mastering new computer and communication technologies, which average indicator is lower than other indicators.

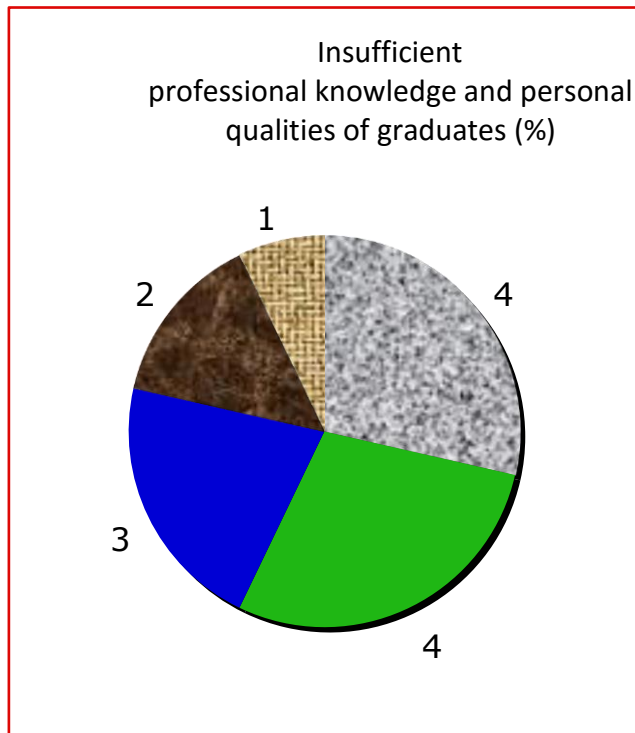


Figure 2. Insufficiency of professional knowledge and personal qualities of graduates (%): 1 - no reply; 2 - independence and initiative; 3 - connection with the real needs of the labor market; 4 - fitness for practice; 5 - basic theoretical knowledge

Studying of educational process instruments quality revealed that at average it is evaluated at 4.0 points out of possible 5. The training and production equipment (technical device, personal computer, etc.) is the weakest point among the educational process instruments – 3.82 points.

The quality analysis results of the educational technology indicate that only 50.8% of teachers provide a complex consolidation and practical application of the knowledge in imitative forms (planned games, role plays), teachers of some universities do not prepare and do not form together with the students in practice.

An analysis of new educational technologies application demonstrates that the following technology is the most known and used: academic discussion (“debate”) (use coefficient -1.79), the technology of critical thinking development (1.82), the technology of development of critical thinking (2.2) - only by teachers under 30 years. Design methods are insufficiently used by teachers prior and over 55 years, information and communication methods – by teachers over 55 years (0.59).

The data in the context of the pedagogical experience almost repeats the data on age of the academic teaching staff. It is worthy of note that the teachers with experience over 10 years also have difficulties in the using information and communication technologies (0.55). Similar data were obtained during the experiment in Kazakh Academy of Architecture and Construction.

The results of the University activity in relation to customers, staff, society and key performance indicators made using the computer program are presented as a chart in Figure 3.

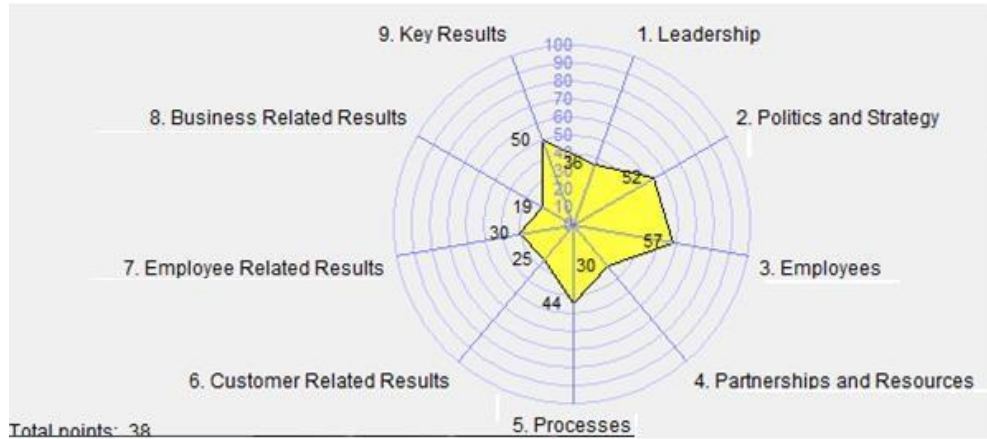


Figure 3. University activity results

Discussion

Experts believe that the education system does not fully meet the expected employers' requirements to the qualification.

According to the head of Technical and Vocational Education Administration of Technical Education and Vocational Training Department of the Ministry of Education and Science D.Kukambaeva, the main priority for the education development shall be the implementation of the national qualification network. Advisor of the Minister of Education and Science G.Kobenova is of the same opinion: "The role of occupational standards is increased in possible differences removal". Head of TVE Problems Studies of the JSC "National Scientific and Methodological Center for Development of Technical and Vocational Training and Qualification" H.Dalabaev also considers it necessary to accelerate the development of occupational standards.

Head of the Department of Agriculture and Veterinary of Buhar-Zhyrau district of Karaganda region M. Kurmangaliyev draws attention to the problem of graduate employment, especially in rural areas. He names lack of social support as one of the reasons that graduates do not work in agricultural sphere. However, there are problems with training specialists. At present practical training in the enterprise is formality. The graduates are to be re-trained at workplaces. Many graduates do not possess analytical thinking skills, team skills, ability to change the job profile.

From our point of view, professor A.Kusainov (2013) notes an important priority: "We have to take into account that one of the factors that ensure success and effectiveness of school education in South-East Asia is preservation of the national priorities, own traditional culture, traditional values and upbringing spiritually rich personality.



This should be our main orientation. And we have to engage in purposeful work.

We must restore and widely use the basic ideas and values of the traditional Kazakh national education with the age-old historical roots in the education of children”.

A similar opinion is shared by L.Shekerbekova (2006), who believes that national-oriented education shall be the main idea of education reform in the country.

Conclusion

We believe that many of these problems may be solved by development of the National Qualifications Network (NQN), based on the principles of the European Qualifications Network.

However, it must be understood that the NQN of the Republic of Kazakhstan requires revision and the industrial qualifications networks based on it should be cancelled. In addition, the methods of occupational standards development were changed for several times. VET has considerable experience in occupational standards development; it should be used in the development of occupational standards for higher education. In turn the VET system needs to adopt experience of development of modular programs and credit-modular training technology of the higher education system.

Exchange of experiences should be made concerning quality assurance by graduate certification method. The certification centers functions in VET under several specialties, they also need to be established in the higher education system. In connection with the above mentioned there shall be created conditions for the integration of levels of VET and higher vocational education. Unification of requirements to the education quality under two education levels shall be facilitated by international accreditation of colleges and universities in agencies being full members of European Quality Assurance Networks.

We understand that our article does not cover all the problems. Further work will be aimed at solving problems concerning two educational level continuity, application of innovative learning technologies, advanced training of engineering and pedagogical staff etc. **Acknowledgements**

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statement

No potential conflict of interest was reported by the authors.

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References

- Baidenko V. I. (2006) *Determination of composition of graduate competences as a necessary stage of designing of new generation GOS VPO: Methodical manual*. - 55 p.
- Baker M. J. (2014) *Writing a Literature Review*. Terra economicus. Issue 3 / volume 12 Bordovskaya
- N.V. (2009) *Educational systemology: a tutorial*. M. Drofa. 464 p.
- "Education Law" of the Republic of Kazakhstan. Astana, 2010. - URL: <<http://www.edu.gov.kz/>>
- Glossary of terms Bologna process*. URL: uchkom.info/index.php...
- Krajewski V. V. (2006). *Methodology of pedagogy: new stage: a textbook for students of higher educational institutions*. - M., Publishing center "Akademiya",. 400 p.
- Kusainov A. (2013). *The quality of education in the world and in Kazakhstan*. - Almaty, - 196 p.
- Levenchuk D. V. *Methods of experimental work in the study of the continuity of professional education*// World of science, culture, education. # 4, 2012
- Nabi Y. (2014). *The quality assurance systems in higher education: Designing on the basis of the EFQM model: Monograph*. - Deutschland, Saarbrücken, Palmarium Academic Publishing. 201 p.
- National reports on the condition and development of education*, (2014). Compilers: A.Kultumanova, G.Nogaybaeva, G.Kusidenova, B.Kabatova and others.- National Center for Education Statistics and Evaluation. -Astana. 292 p.
- Novikova T. G. (2002). *Design experiment in education systems*. – M.:APK&PRO. -112 p.
- Shekerbekova L. (2006). *National-oriented education as the basic idea of education reform in Kazakhstan // Ultagylymy, #1*
- Subetto A. I., Selezneva N. A. (2001). *Theoretical and methodological basis of the quality of higher education*. – SPb.-M.: ICPPS. – 136 p.
- Teslinov A. G. (1998). *Development of control systems: methodology and conceptual structures*. – M.: Globe. – 229 p.
- Taubaeva Sh. T. (2013). *Methodology of pedagogy: a tutorial*. Almaty, "Karasay". 432 p.
- Yakovlev E. V. (2000). *Theory and practice of education quality management in University: Dis... doctor. ped. Sciences*. – Chelyabinsk, – 418 p.