

The Peculiarities of Qualitative Information, Analytical Maintenance Innovative and Educational Activity Technological Projection in Higher Educational Institution

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Abstract: The quantity of educational innovations grows incessantly, however there is no reliable information about their influence on the quality of higher education and if it is essential. Therefore within this article we revealed the peculiarities and the algorithm of qualitative information and analytical maintenance of innovative and educational activity technology in higher educational institution. While developing technology of qualitative information and analytical maintenance of innovative and educational activity in higher educational institution, we relied on system, synergetic cybernetic and an approach of quality and surroundings estimation. The presented technology includes the following stages: analytical, projection, approbating, estimated and implementation stages. Its realization promotes improvement of quality of innovative and educational activity, development of innovative processes in higher educational institution, and is applicable in various not only higher educational institutions, but also in secondary professional ones.

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1. Introduction

In a modern economic and social -cultural situation, quality of education becomes a strategic factor of innovative development of Russia (Makarov et al., 2014). The criteria of quality of vocational training, resulting in need of revision of approaches to educational process of higher educational institution, expansion of innovative and educational practice change (Ivanov, Akhmetgaraev, Varaksin, 2011).

Educational innovations at the higher vocational school are urged to provide its modernization and development according to requirements of modern reality. However in most cases innovative and educational activity in higher education institution (development, approbation and introduction of educational innovations) has spontaneous character that doesn't allow the estimating of adequately extent of its influence on quality of education, and it, in turn, causes the necessity of development of system approach to the analysis of information about the peculiarities of educational environment of higher educational institution, to resources and risks of innovations, to comparison with the assumed and received results

of development of personal and professional qualities of the graduates, formation of competence-based model of the graduates (Baigozhina, 2014; Bimaganbetova, 2013). It is obvious that there is necessity to make the process of innovative and educational activity in higher education institution more operated for the successful solution of tasks which the higher education must make proper (Brenclveton, 2008) education (Komelina et al., 2009). The questions of design of information and analytical maintenance and an assessment of quality of educational innovations should be studied more deeply for ensuring adequate reaction of the higher vocational school to the modern world challenge within a modern competence-based paradigm of education.

2. Materials and Methods

While developing technology of qualitative information and analytical maintenance of innovative and educational activity in the institution of higher education we relied on system, synergetic cybernetic approaches of surroundings and quality estimation approach.

According to system approach for forecasting of prospects of innovative development of higher educational institution it is necessary to reveal contradictions, both in an education system of the institution of higher education, and between it and the environment. One of constructive mechanisms of removal of such contradictions is the superstructure of educational system with over-system. We will consider pedagogical system of qualitative information and analytical maintenance of innovative and educational activity of higher education institution as such superstructure. The model of such system has pragmatic character, and is a result of the pedagogical integration which penetrates all the substructures of its methodological providing (Shaidullina, Ziyatdinov, 2013; Masalimova, 2012; Khairullina, 2007). According to the theory of the system organization, the creation of such model begins with the determination of integrative property – information and analytical maintenance of innovative educational activity, then the sequence of functions of the components, necessary for manifestation of integrative property is defined, the component is selected or projected according to the functions (Torkunova, 2012). There are structural and functional models of systems. The structural model will be implemented at organizational level by us, and the functional model will be projected at the procedural level of pedagogical system.

Synergetic approach assumes consideration of innovative and educational activity in higher educational institution as an open self-organizing system (Nuriyev and Starygina, 2007). According to the theory of self-organizing systems the development of innovative educational activity happens during the passing of points of bifurcation and emergence of coherence in achievement of the aims. The choice of a way of the development depends on fluctuations. Fluctuations can amplify due to external influences which work in a resonance, "push" system to a choice of a trajectory of development. The pedagogical system of qualitative information and analytical maintenance which allows predicting of bifurcation points is offered for ensuring coherence in achievement of the goals of innovative educational activity as such external influence, helps to choose an optimum trajectory of development, and also, if necessary, to estimate deviation degree from it at an assessment of quality of innovative educational activity.

Cybernetic approach assumes consideration of dynamic object from the point of view of effective and purposeful management using the feedback which is based on information about

internal state of object and on the condition of the environment (Subetto, 2000). Such approach will allow the providing of effective management of innovative educational activity which in combination with approach for quality estimation will considerably increase its quality. Cybernetic approach is realized by broad application of monitoring, and by estimation of quality of the innovative educational activity assuming selection of indicators of measurement, scaling, data collection, processing of results and their interpretation. According to this approach creation of innovative educational activity on an accurate prognostic basis allows higher education institution to react quickly enough to changing conditions of taken into account available resources.

The approach of surroundings allows the considering of the environment as the mechanism of the mediated formation and development of object of changes, in this case – innovative educational activity (Klimenko, 2007; Yudina, 2006; Kirilova and Vlasova, 2011). Such environment forms a basis of qualitative information and analytical maintenance and represents system-organized set of technical and software storage, processing and transferring of information, information resources, organizational and methodical providing, and also the communications arising between objects of this environment, intended for satisfaction of needs of users in creation, transformation, consumption and distribution of information about innovative educational activity of institution of higher education.

In the course of research of this problem the following methods were applied: theoretically-methodological analysis of pedagogical, psychological, administrative literature; the dialectic analysis of modern educational process in higher education institution in the conditions of modernization from a position of improvement of quality of innovative and educational activity and introduction of competence-based approach; comparative analysis of pedagogical experience; system and structural analysis; modeling; method of variable pedagogical experiment; method of expert evaluations; methods of quality estimation; statistical methods of processing of experimental data.

3. Results

The technology of qualitative information and analytical maintenance of innovative and educational activity contains:

The analytical stage includes the analysis and an assessment of environmental conditions on

mega-, mid - and micro levels; analysis and assessment of resources of innovative and educational activity of higher education institution; analysis of opportunities of observance of the general and specific principles; statement of the purpose (purposes) of introduction of innovations. By preparation for innovation design in the course of information and analytical maintenance it is necessary to reveal strong and weak sides of the educational organization, possibility of resources, and also opportunities and environment threats (SWOT analysis). For the best understanding of influence of environment on educational process it is necessary to consider this influence from the point of view of policy, economy, society and modern technology (PEST analysis). At the same stage the competence-based model of the graduate is built, the reliability of distinctions between available and necessary level of competence is defined (Torkunova, 2013).

The design stage includes projection, planning and specification of development of innovative and educational activity; specification of form and content of an educational innovation, prediction of quality of an educational innovation.

The approving stage includes creation and maintenance of the information and innovative environment; monitoring during realization; measurement of formation of competences before innovation application.

The estimated stage includes the analysis of received results; formulation of conclusions; assessment of achievement of goals and pedagogical expediency; pilot assessment of quality of an educational innovation; correction of the purposes and projects.

The implementation stage consists of distribution of information about results of innovative and educational activity of higher education institution in the external and internal environment of institution of higher education; in a total assessment of quality of an educational innovation.

Let us see the details of the maintenance of these stages.

The analysis and assessment of environmental conditions at mega-, mid - and micro levels. The analysis of conditions and requirements of environment, social and economic inquiries of the society, new standards of training, level of preparation being trained, etc., causing need of introduction of educational innovations by means of SWOT-or PEST analysis is carried out. It is obvious that not always the purpose of educational innovations is formation of a certain competence-

based model, the introduction of innovations is often directed at change of ways, forms of process of training, and also change of requirements to objects and subjects of educational activity. The analysis of the external and internal environment of a higher educational institution let define, change of requirements to the contents, besides new requirements to competence, technologies, the organization of educational process.

Analysis, assessment and search of reserved resources. The analysis of personnel, financial, technical, organizational, methodical, etc. resources regarding their sufficiency for implementation of innovative and educational activity is carried out, the innovative capacity of pedagogical collective is estimated, prerequisites and limiting factors of development of innovative and educational activity of higher education institution are defined, reserved resources of quality of innovative activity are defined. The main reserve of quality of innovative and educational activity is the innovative capacity of pedagogical collective. Innovative potential is understood as ability of collective to self-development and realization of educational innovations therefore during diagnostics the susceptibility to innovations, level of innovation, creative activity and communicativeness of teachers is defined. Proceeding from the updated requirements and conditions, the purpose of introduction of innovations is defined.

Development of innovative and educational activity projection. This stage begins with a formulation of the main idea of necessary changes and justification of its resource providing, then the main directions of innovative and educational activity are defined, and also responsible persons for their implementation (teachers, higher education institution administration), are developed interaction schemes between departments, are formulated the main results of introduced innovations, techniques of their assessment are defined, critical values, risks and expenses are predicted, projection of quality of an innovation becomes (Torkunova, 2011).

Planning. The plan of innovative and educational activity of higher education institution is developed (more often for academic year) the information card of an educational innovation is filled in. Forms of information exchange between subjects of educational process of higher education institution, a format of creation of the information and innovative environment are provided in the plan.

Specification. Information exchange is resulted by specification and specification of

educational innovations, classification of educational innovations by types is carried out.

Realization. During realization of innovative and educational activity it is necessary to provide a monitoring assessment of results of introduction of educational innovations. Pedagogical monitoring of results of introduction of educational innovations consists of invariant and innovative part. The invariant part of monitoring checks actually knowledge, abilities, skills, i.e. quality of training, level of assimilation of a training material of a subject. The innovative part is urged to estimate development of those qualities and the competences the improvement of which was put by the purpose of introduction of educational innovations at a stage of their design.

The analysis of the received results. At the final stage according to the developed model of an assessment of quality of innovations and innovative and educational activity the analysis of the received results is carried out, conclusions about pedagogical expediency of introduction of these innovations in mass practice, or about their adjustment are drawn. The analysis of pedagogical expediency is carried out by formation of competence-based model of the expert, ranging of competence by employers, drawing up quality-estimating competence-based model, comparison and the accounting of the importance of distinctions in values of a total indicator of competence at application of an innovation and without its application

Formulation of conclusions. The expert opinion on implementation of the developed plan of innovative and educational activity and extent of achievement of a goal on development of innovative and educational activity of institution of higher education is drawn.

Information dissemination in the external and internal environment. Work on distribution of information on results of innovative and educational activity that includes holding scientific and methodical seminars, information placement on a higher education institution site, participation of teachers and employees in conferences, and also preparation of publications in the press and scientific and practical editions on scope of innovative and educational activity is carried out (Torkunova, Ponomarev and Biryaltseva, 2013).

Observance of all stages of the presented technology gives real systematic view, a target orientation, availability of resources and productivity of innovative and educational activity that allows the increasing of its quality significantly.

4. Discussions

Various aspects of innovative and educational activity were already discussed in pedagogical science.

Innovative and educational activity, its theoretically-methodological bases found the reflection in V.I. Andreyev (2008), V.I. Zagvyazinsky (2001), V.S. Lazarev (2004), V.Y. Lyaudis's (1994) works. Specifics of innovative pedagogical activity are analyzed in the works of L.S. Podymova (1994), M.M. Potashnik (1993).

Innovative and educational activity has difficult and dynamic character that is caused by influence of a large number of factors, including variability of the external and internal environment. There are no accurate criteria assessments of quality of innovations, as a rule. So it is quite difficult to estimate the importance of developed and introduced innovations. In the works of A.I. Subetto (2000) and M.M. Potashnik (1996) methodological bases of qualitative approach are developed, aspects of this approach are presented and estimated in the works of N.A. Selezneva (2001), V.S. Cherepanov (1991), etc. However, their qualities and quality of innovative and educational activity isn't reflected in institution of higher education as a whole in the specified works application of this approach to an assessment of pedagogical expediency of innovations.

Questions of information and informational and analytical maintenance at different levels of educational system, creation of the information environment of higher educational institution is investigated by B.L. Agranovich, A.I. Chuchalin, M.A. Solovyev (2003), G.V. Ivshina (2000), A.N. Mayorov (2003), etc. However information maintenance of innovative and educational activity in these works isn't considered.

Thus, the sufficient attention to the analysis of information on the external and internal environment of higher educational institution isn't paid both in the theory, and in practice of innovative and educational activity in higher educational institution, results aren't investigated, the quality of innovations isn't estimated, therefore there is no reliable information about that, their influence on quality of higher education is essential though the quantity of educational innovations grows. Therefore within this article we believed expedient to present technology of qualitative information and analytical maintenance of innovative and educational activity in institution of higher education.

5. Conclusion

Thus, the pedagogical technology of qualitative information and analytical maintenance of innovative and educational activity offered by us assumes set of the following stages: the analytical stage including the analysis and an assessment of environmental conditions at mega-, mid - and micro levels; analysis, assessment and search of reserved resources of innovative and educational activity of higher educational institution; analysis of opportunities of observance of the general and specific principles; statement of the purpose (purposes) of introduction of innovations; the design stage including projecting, planning and specification of pedagogical development of innovative and educational activity; the appropriate stage including creation and maintenance of the information and innovative environment; monitoring during realization; the estimated stage including the analysis of received pedagogical results; formulation of conclusions; assessment of achievement of goals; correction of the purposes and projects; the implementation stage, consisting distribution of information about results of innovative and educational activity of higher education institution in the external and internal environment of higher educational institution.

Observance of all stages of the presented technology gives systematic view, a target orientation, availability of resources and productivity of innovative and educational activity that allows the increasing of its quality significantly.

Realization of this technology promotes improvement of quality of innovative and educational activity, development of innovative processes in higher educational institution. The detailed description both conceptual and procedural part of this technology allow the reproducing of it not only in various higher educational institutions but also at other stages of education.

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