

## **Innovations in the Sphere of Higher Professional Education: Experience and Future**

*Alfia Y. Abinova (Zakerya)*

Kazakh Economic University Named T. Ryskulov, Almaty, Kazakhstan

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**Abstract:** The article is devoted to issues connected with implementation and development of innovations in higher professional education of Kazakhstan. Experience and particularities of innovative activity is viewed in detail in higher education institutes of Republic of Kazakhstan: the problems and particularities are defined. Perspective ways of updating innovative activity in education are outlined. They are divided into: innovations of products, innovations of technologies and administrative innovations. Special attention is paid to development of perspective area of focus – models of university students and scientists innovative complexes (USSIC) complexes in Republic of Kazakhstan.

**Key words:** Innovations • Education • IT technologies • Higher education institute • Pedagogics  
• Kazakhstan • University

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### **INTRODUCTION**

The transition point between 20 and 21 centuries is characterized by fundamental changes in all spheres of human activity. Survival of society, progress of states and nations depend on the capability to face challenges brought by Industrial Age [1]. That is the reason which explains the notion of innovation – development and use of novations in all areas of human activity – economy, engineering, medical and cultural spheres. In its turn innovative development of economy of any country including Kazakhstan demands high level of education, growth of intellectual potential of a society, training of new generation of people who are able to design new machinery, to participate, make reforms and raise all national economic complex in active way, to develop national spirituality and culture. In economic development the value of knowledge grows leaving behind the role of means of production and natural resources. In accordance with estimates of World Bank physical capital in new economic system forms 16% from total well-being of the country, natural capital – 20%, human capital – 64% [2].

Therefore innovative direction of development of higher professional education is considered nowadays as of first priority, which is based on the number of the following factors:

- Systematic transformation in educational sphere connected with introduction of new educational paradigm;
- Development of modern educational systems based on humanitarian and democratic principles;
- Modernization changes in educational sphere connected with civilization changes of global character, acceleration of scientific researches, appearance of new IT-technologies.

It is obvious that Kazakhstan pays much attention to development of human capital in order to increase the potential of the country and form favorable innovative environment. Orientation to the innovative education, which must become the base for industrialization and development of Republic of Kazakhstan is fixed in the State Program of fortified industrial and innovative development of Republic of Kazakhstan for 2010-2014 [3]. But it must be mentioned that in spite of achieved progress the lack of qualified personnel hinders growth of private sector of economy and career in scientific and research sphere does not look attractive for the best graduates of universities.

Therefore these problems, perspectives and priorities proves actual character of our study and determine its target and the set of tools of scientific cognition.

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**Corresponding Author:** Alfia Y. Abinova (Zakerya), Kazakh Economic University named T. Ryskulov, Zhandosova, 55, 050035 Almaty, Kazakhstan.

The essence and problems of traditional and innovative models of education were described in the works of such scholars as:.... Etc.

However in spite of great number of studies on this issue innovative and modernization processes in higher education revealed the availability of essential contradictions between what is demanded by new times and what is really implemented in regard to innovative approaches to management of educational facilities and implementation of innovations into educational process. Particularities of innovations, their characteristic features and potential of development in the sphere of modern professional higher education also needs further clarification and specification.

As the result of all this and taking into consideration all said above the aim of this study is to consider the experience of innovative changes in higher professional education sphere and outline the perspectives their further development.

As practice suggests the key factor of providing development of innovative potential in educational sphere was formation of a theory of innovative education which led to the new area of research – pedagogical innovatics dealing with issues of creation, spreading, use and implementation of pedagogical novations. [4]. In numerous studies made during the last decades there were proposals to consider innovative processes in education in narrow, pedagogical and in wide socio-cultural contexts. Pedagogical innovations in narrow sense are intended for overcoming of crisis in education through improvement of quality of education of students, providing educational process with person-orientated, humanitarian character and in broad sense – to the formation of harmoniously developed, innovative-thinking and socially-adapted man [5].

Accumulated empirical and theoretical material on using innovations in education enabled the author to arrive to the following conclusions: formation of innovative processes in the sphere of higher professional education as in any other sphere of activity brought onto innovative way of development was going in non-systematic way. Implementation of novations began with realization of integrated forms and kinds of organizational relations of academic and educational organizations. Creation of innovative structures was initiated, joint fulfillment of scientific programs and international projects, awards on scientific works and scientific and practical conferences were stimulated. The most active in this sense are: Euro-Asian National University named after L. Gumilev, Kazakh National

Agrarian University, Kazakh National Medical University named after S. Asfendiyarov, Kazakh National Pedagogical University named after Aby, Kazakh National Technical University named after K. Satpaev.

But at the initial stages these measures were not of integral and comprehensive character and were just effects of needs in re-orientation to innovative character of educational process. The beginning of new millennium was marked with the following exchange of opinions at pages of national scientific and pedagogical editions: on institutional transformation in innovative sphere in general, discussions on the definition of appropriate ways of institutional support of innovative development of higher education in particular. From this point of view in order to provide formation of innovative processes educational innovations must be considered in connection with other innovations processes in the society, be analyzed inter-disciplinary; economic solution of innovations problems in higher education system must be found.

Table 1 gives systematized results expected from implementation of innovative solutions and reforms in the sphere of higher professional education of Republic of Kazakhstan based on the processing data obtained from official sources of state power, statutory and regulatory base, printed and electronic mass media materials.

There are problems which arises in the educational sphere in its way of use of innovative technologies, methods and techniques. These problems are as follows:

- Imperfect legislation of education;
- Ineffective and protectionist policy of support of educational on the state and local levels;
- Unsatisfactory mechanism of distribution of state order for training of specialists and conducting scientific and research work;
- Out-dated education technologies;
- Low wages of scientific and research employees and as a result – poor motivation for work.

In the course of time innovations in the sphere of higher professional education get their logical extension including development use and distribution of innovations decisions. The institutes become the consumers and producers of knowledge, obtain characteristics of innovative-active economic entities [6]. This refers first of all to the traditional areas of focus connected with provision of educational services (training of specialists, re-training, higher qualification courses).

Table 1: The results expected from implementation of innovative solutions and reforms in the sphere of higher professional education of Republic of Kazakhstan in 2015-2020

Level of education	2015	2020
Professional technical education	<ul style="list-style-type: none"> <li>• Compliance with standards, educational plans, programs of professional t. education with the requirements of labour market;</li> <li>• Implementation of independent certification of specialists on the base of international standards</li> </ul>	<ul style="list-style-type: none"> <li>• System of p-t education is integrated into world educational space;</li> <li>• Forming of National certification system;</li> <li>• Opportunity to choose supplier of educational services regardless of the form of ownership;</li> </ul>
Higher education	<ul style="list-style-type: none"> <li>• Independent accreditation of 50% of higher education institutes in accordance with international standards;</li> <li>• Provided obligatory studies of all students of higher education institutions during 1 academic year abroad (not in Kazakhstan)</li> <li>• National innovative system for realization of scientific research on the base of existing institutes is formed</li> </ul>	<ul style="list-style-type: none"> <li>• High degree of openness, transparency and accountability of higher education system is achieved;</li> <li>• 90% of graduates find work thanks to high innovative level of the country;</li> <li>• National higher education institution are in top rankings of the best universities of the world;</li> <li>• Implementation of mechanisms of electivity of rectors in accredited institutions.</li> </ul>

Provision of scientific and innovative services (consulting, engineering etc.) is also dynamically developed. Less developed are the activities intended for designing of complete products and technologies which are sold in the market. This is the area of focus where, in author's opinion, the perspectives and potential for development of innovations in the sphere of higher professional education lie. Let us concentrate on it in detail.

It is well-known that innovations in the sphere of higher professional education can be divided into 3 groups: innovations of product, innovations of technologies and administrative innovations [7]. This shows that in future higher professional education institutes must form 2 main innovative products:

- Graduates having appropriate competences demanded by modern labour market;
- Results of scientific works corresponding to the requirements of knowledge economy.

To form these 2 products innovative technologies must be used which are able to provide new value and new quality of the end product. They are methodical, IT and other technologies for providing quality of training of specialists and quality of scientific work. IT technologies must be orientated to special technical equipment because today in the system of higher professional education they use: electronic books; multi-media systems; expert systems; systems of automated design; data banks and electronic libraries and Internet (global); national (regional, local and branch networks) etc. Methodological technologies must form in specialists new intellectual features and scientific and technical techniques of generation and reproduction of

new knowledge based on the methods of scientific and technical creative work (synthesis, brain storm, morphological matrix of ideas), techniques of creative metha-pedagogs and on artificial intellect technologies [8]. Every of mentioned technologies form specific parameter of a product and therefore the end innovative educational product is a result of realization o big number of technologies.

Administrative innovations are any actions connected with realization of new things in organization and planning of educational, scientific and other processes of higher education institutes, with motivation of scientific and pedagogical employees and students and estimation of the obtained results. Administrative innovations are organic additions and the base for realization of other kinds of innovations in pedagogical sphere. We believe that different models of USSICs (university's students and scientists innovative complexes) will facilitate effectiveness and return in the sphere of administrative innovations. As they can not function without innovative approaches to management not only of educational but scientific activity the implementation of these new approaches must be accelerated. It must be mentioned that this area of focus is highly recommended by European economic Commission of UN, as it was formulated in he framework of Review of innovative development of Republic of Kazakhstan [9].

Functioning of USSICs as single whole university complexes of new type demands accelerated introduction of innovative approaches to management not only of educational but scientific activity. If scientific activity is directed to getting new knowledge and scientific and technical results, educational activity – to use of these results and knowledge in educational process then

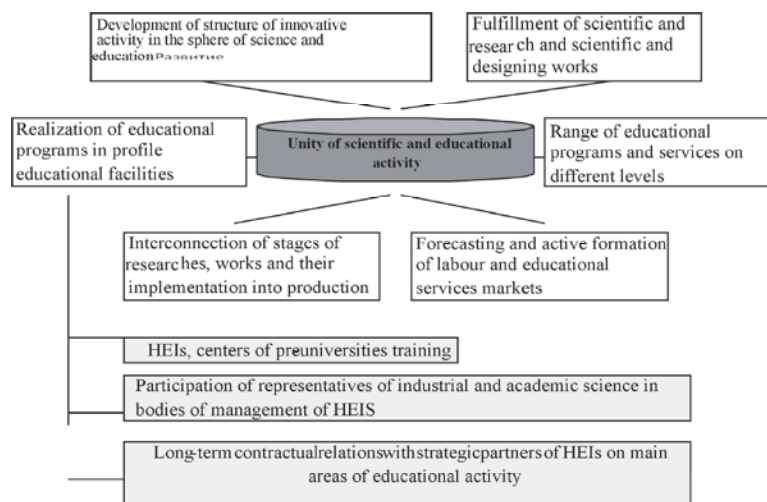


Fig. 1: Model of university of commercial type

perspectives of innovations in the sphere of higher professional education are connected with commercialization of knowledge, it means that these knowledge must be economically beneficially used in scientific and educational spheres. This refers directly to higher education of Kazakhstan at modern stage of development because innovations in education give opportunity to pass to effective model of university of commercial type model (Figure 1).

In mentioned above Recommendations they stress the idea of necessity of getting by students of international education. In this connection it should be mentioned that in accordance with data of official statistics (Expert-Kazakhstan magazine) in 2009 about 16 000 of Kazakhstan students were studying in Russian Federation, in 2010 – 18 000. It is easy to predict that during next years demand for education abroad will only rise. In this context the author (not trying to lessen described way of development) completely agrees with PhD M. Urumbaev who agrees that any cardinal change of the system of education and implementation of innovations technologies demands keeping of traditional fundamental education, but this position must be based on principle of personal and orientated to activity approaches, it means that the best world practice must be used in the country in authentic conditions, not allowing for the best national staff to work abroad [11].

Apart from already mentioned perspectives and future vectors of development of innovations in higher professional education we would like to point out one more thing – resistance of state and local authorities to development of innovative processes in pedagogical sphere by a number of objective and subjective reasons. In order to neutralize this resistance, in author’s opinion,

it is critically important to increase significance of the career of a scientist and inventor; students must be motivated to participate in applied research work organized by state and private companies. It can be provided by a program which will inform state employees on the issues of state management in the sphere of educational innovations and technologies.

Making conclusion of this study we can emphasize the following:

This review has shown that during last several decades methodical, theoretical, institutional and legal foundations of innovative transformations in the system of higher professional education of Republic of Kazakhstan were laid down We can agree that innovative vector of searches for ways of modernization of national pedagogics has its own intellectual tradition. It is obvious that development and implementation of complex national program of measures for innovative transformations can deepen the innovative trends in universities’ activity, become an impulse for new innovations cycle of development both of national higher school and the whole economic and social development of Kazakhstan.

Innovations in the sphere of higher professional education is a key factor in forming of human capital, the key factor of innovative production active doers of which must be students, scientists and teachers. Innovative activity must provide for attraction of additional financial resources which will increase competitiveness of higher education institutes in the market of high-tech products and educational services, will stand for the whole range of organizational, scientific, technological and educational and commercial measures which in combination will lead to innovation results.

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