

Application of innovative technologies at higher school: experience and prospects of the Republic of Kazakhstan

Aplicación de tecnologías innovadoras en la escuela superior: experiencia y perspectivas de la República de Kazajstán

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Contents

- [1. Introduction](#)
 - [2. Methods](#)
 - [3. Results](#)
 - [4. Discussion](#)
 - [5. Conclusion](#)
- [References](#)

ABSTRACT:

The problems of the modern state of the education system, characterised by an increase of the role of innovative training technologies, are touched upon in the paper. Theoretical aspects of innovations in education, which were defined by the authors as a process of improvement of pedagogical technologies, a set of methods, techniques and aids of training, were considered. The experience of Kazakhstan in development of its educational pathway, integration of education and science was analysed in application of western programmes, technologies and standards of education in the framework of the Bologna Process. It was noted in the paper that to realise a modern model of education, a State programme of education development in the Republic of Kazakhstan for the period of 2011-2020 was devised, a priority direction of which was development, introduction and distribution of innovative educational projects. It was concluded that integration of a higher school into scientific and technical space must be organised and stimulated by means of formation of innovative policy in development of a set of measures for the higher

RESUMEN:

Los problemas del estado moderno del sistema educativo, caracterizado por un aumento en el papel de las tecnologías de capacitación innovadoras, se abordan en el documento. Se consideraron los aspectos teóricos de las innovaciones en educación, que fueron definidos por los autores como un proceso de mejora de las tecnologías pedagógicas, un conjunto de métodos, técnicas y ayudas de capacitación. La experiencia de Kazajstán en el desarrollo de su vía educativa, la integración de la educación y la ciencia se analizó en la aplicación de programas, tecnologías y estándares de educación occidentales en el marco del Proceso de Bolonia. En el documento se señaló que, para realizar un modelo moderno de educación, se diseñó un programa estatal de desarrollo educativo en la República de Kazajstán para el período 2011-2020, cuya prioridad era el desarrollo, la introducción y la distribución de programas educativos innovadores. proyectos Se concluyó que la integración de una escuela superior en el espacio científico y técnico debe organizarse y estimularse mediante la formación de una política

education system.

Keywords: pedagogical innovations, innovative methods, innovative technologies, education, higher school, integration, professional training.

innovadora en el desarrollo de un conjunto de medidas para el sistema de educación superior.

Palabras clave: innovaciones pedagógicas, métodos innovadores, tecnologías innovadoras, educación, educación superior, integración, formación profesional.

1. Introduction

In the 21st century, reorientation of the higher education system to new values, determined by humanization of the pedagogical process and by interpersonal relationships, is being implemented. A higher school graduate must become a competitive personality, which implies a high level of the general development, mastery of communicative abilities, complete professionalism, abilities to make independent decisions, to think outside the box and to adapt under dynamic conditions. In connection with this, in the process of training at a higher school, creative activity, an individual approach implying development of activity, initiatives and self-government are of priority. A system of professional training of specialists must correspond to the needs of society, the consideration of which in professional training is connected with education (White 2013).

One of the tasks of the education system is raising a level of motivation and interest in training, an increase of intellectual capabilities, development of critical and creative thinking, activation of an ability to solve nonstandard tasks and problems. Therefore, today one of the most important problems of the education system is introduction of strategic research of new technologies into the training process for obtaining qualitative education of students (Choi and Nieminen 2013).

The modern state of the education system is characterised by the increase of the role of nontraditional training technologies. With their help, students master knowledge significantly quicker than by means of conventional technologies. These technologies change the nature of development, acquisition and dissemination of knowledge, allow deepening and expanding the content of the studied disciplines, renewing it quickly, applying more effective training methods, as well as enlarging significantly access to education of all persons interested (Guslova 2018).

In that way, the relevance of the research is conditioned by the social order of the modern society for harmoniously developed and professionally trained specialists and by one's own needs of each learning personality for acquiring competitive qualities, knowledge and skills.

2. Methods

A theoretical and methodological basis of the research includes fundamental proceedings of both Kazakhstan and foreign scientists on detection, qualification, analysis and introduction of modern latest training methods into practice of the educational and cognitive process of a higher school and their role in improvement of students' progress. Theoretical and methodological foundations of defining the content and the structure of training methods, developed by national and foreign scientists, are of great significance.

In the course of the research, the following methods were used: the study and analysis of philosophical, scientific, methodical literature and books on specialized subjects concerning the problematics of the research; study and generalization of experience; qualitative analysis of obtained results of the work.

3. Results

Innovations in education are the result of scientific searches, progressive educational experience of both separate teachers and entire teams. Many researchers relate the notion "education" to such terms as training, nurturing, development. In explanatory dictionaries, the term "education" is interpreted basing on the meaning of the verb "to educate", i.e. to create, to form or to develop something new. "In a broad sense, to create something new is the innovation itself" (Matiash 2018).

Innovation activity is a system of measures providing not only the educational level, but also the process itself with innovations. A transition to the innovative method of training is a natural stage in developing professional education in the country. In the first place, innovations in education must be directed to creation of a personality aimed at success in any field of application of one's capabilities.

Pedagogical innovations imply a purposeful, sensible, certain change of pedagogical activity (and management of this activity) through the development and introduction of pedagogical and managerial novelties to educational institutions: new content of training, nurturing, management; new ways of working; new organisational forms, etc.

Innovations in education imply "a process of improving pedagogical technologies, a set of methods, techniques and aids of training" (Panfilova 2018).

In educational activity, it is conventional to identify the following kinds of innovations:

- intersubject innovations: i.e. innovations realised inside a discipline, which is conditioned by the specifics of its teaching. A transition to new training packages and mastery of author's methodical technologies can serve as an example;
- general methodical innovations: they include introduction into pedagogical practice of nontraditional pedagogical technologies that are universal by their nature as their use is possible in any knowledge domain. For instance, these are development of creative tasks for students, project activity, etc.;
- administrative innovations: these are decisions made by managers of various levels, which facilitate eventually the effective functioning of all entities of educational activity;
- ideological innovations: these innovations are caused by renewal of consciousness, spirits of the time, are a fundamental principle of all the rest innovations since without awareness of the necessity and importance of primary renewals, it is impossible to proceed immediately to renewal (Sypchenko 2017).

The largest areas of innovations in the educational process of the Republic of Kazakhstan include:

- development of mechanisms of introduction and use of educational programmes for application of innovative methods of knowledge acquisition and rating of academic performance;
- control and introduction of the world experience in the field of innovative technologies to an educational process;
- creation of a motivation mechanism of involving teachers in the innovative process;
- seminars, master-classes in acquisition of skills and knowledge by teachers for using innovative training methods;
- provision of information-training materials for using innovations in the educational process;
- assistance in dissemination of the innovative experience of teachers and control of results (Mukhametkaliev 2012).

Thus, innovations in higher educational institutions of the republic are becoming increasingly necessary, being an important instrument of competitiveness among higher schools. This happens owing to the nature of their product as they train new specialists for different sectors of economy.

4. Discussion

Among the former Soviet countries, Kazakhstan has become one of the first participants of the Bologna Process and has gained a certain experience in development of its own educational path, education and science integration, in application of western programmes, technologies and standards of training, as well as in creation of scientific-research universities. Since 1998, Bachelor's Degree course has appeared in the republic, since 2002 – Master's degree course, and since 2008 – PhD doctoral studies. The teaching staff (TS) and students have gradually mastered educational programmes of western technologies, switched to the system of electronic control and students' knowledge evaluation; the degree of mobility of students and TS increases annually; the system of dual-degree education is mastered actively, etc. Certainly, all these instruments, indicators and mechanisms of functioning of the educational process deserve study of every kind, and, what is more

important, positive dynamics of quantitative indicators of growth of educational parameters are formed, which does not always correspond to the level of development of the same parameters (Nurasheva 2012).

Proceeding from these, it is desirable to dwell on the following questions:

- How have western training technologies influenced the quality of education in Kazakhstan?
- What positive or negative results are there?

Answering the first question concerning the influence of western technologies on the education quality in Kazakhstan, it is advisable to start by saying that advantages and disadvantages exist in any system of education and science, and it would be incorrect, focusing on one system or another, to criticize all the other ones. The point is that all existing models of education embody the diversity of spiritual world, quality of the human mind at different stages of its evolution (Thelin 2013). Thus, the Soviet system of education, rejected by all the CIS countries, including Russia, having become a basis of the educational model of China and South Korea, has led to an unprecedented breakthrough of science and education in these countries. Why did this happen?

The point is that the content of reforms in education as a rule corresponds to the level of socio-economic development of the country; it cannot be otherwise. The Soviet system of education was in competition with that of the West, first of all, in the field of fundamental sciences and had to prove its supremacy on a constant basis. But its distinctive feature was a compulsory nature of education, whereas western technologies of the education based on development of independent initiatives of learners; and this was their fundamental difference (Stukalenko et al. 2016).

However, after the breakup of the USSR, some countries of the former Soviet Union, being economically fragile, started to adopt western technologies of training, which only highly developed countries could handle, where from 5 to 10% of GDP was spent on science and education versus 0,8% in our country.

At that, absolute GDP indicators per capita in post-industrial countries exceeded and are still exceeding tens of times the similar indicators of post-Soviet countries. For some reason, the fact that the credit system of training was the costliest in the world was not taken into account; its high efficiency was conditioned by enormous investments and availability of their sources (Svirin et al. 2016).

Besides, there appeared inconsistency, although probably temporary, between the tasks of restructuring economy and the financing of science and education in conditions of investments' deficit, which gave rise to even more complex problems. First of all, contradictions between economic potentials of the country and scientific-and-technological advance, conditioning the quality of higher education, emerged. However, when proportions between volumes of financing and demands for the content of education and research works were disrupted, the tendencies towards lowering the training quality and effectiveness of research works were outlined explicitly, and this was natural.

What positive or negative results are there?

In this case, a positive moment is the fact that the students, when engaged in externships and probations in European universities, do not encounter particular difficulties in teach formats since they are familiar with requirements of credit technology. One should also stress the achievements of the students in the mastery of the English language owing to creation of motivation by means of the credit technology not only for studying the language, but also for conducting scientific studies. The credit technology has expanded the interests' horizons, and most importantly, it has liberated the students' thinking and initiates them into solution of specific practical tasks and, which is of no less importance, stimulates their efforts aimed at promotion track.

Yet weak practical skills, revealed when solving creative tasks, act as negative results; they manifest themselves more likely in the capacity of expert users of foreign programmes, conscientious executors than intellectual labour specialists endowed with skills of independent thinking, imitators of other's ideas at best.

Along with it, Kazakhstan higher schools have ranked quite high in different ratings.

Thus, according to the QS rating, Kazakh National University named after Al Farabi ranked 299th in 2013 among 500 leading universities of the world, being in the first ranks of 300; in 2014 it shifted to the 306th place, but in 2015 it moved up again to the 275th place (Reviews of National Policies for Education: Higher Education in Kazakhstan).

One should also note that to realise the modern model of education, the State programme of education development in the Republic of Kazakhstan for 2011-2020 has been devised, a priority direction of which is development, introduction and dissemination of innovative educational projects. Innovative educational projects contribute to formation of new criteria, principles and approaches for modernisation of the entire system of education, providing its harmonious development.

Along with employers, the development of professional standards and educational programmes on priority specialities in industrialization has been started. An important novelty in these programmes is an opportunity to increase study hours for hands-on training, addition of study hours for gaining new qualifications; besides, educational institutions can independently include disciplines in corresponding specialities based on employers' requirements.

Also, elements of theoretical and hands-on training are introduced into the training of personnel for transport, agricultural, machine building, metallurgical, chemical, oil-and-gas and mining branches of industry. Already in the current year, introduction of a similar dual system will allow involving more than 100 enterprises in personnel training. Personnel training in more than 120 specialities will be conducted according to a fundamentally new scheme accompanied by 70% of externship. In that way based on the mutually profitable partnership with educational institutions, enterprises will receive qualified specialists, specially trained according to their requirements.

5. Conclusion

Creation of high, knowledge-intensive technologies is possible only by means of accumulation and mobilization of intellectual capital of science and education institutions; at that, a fairly important part is assigned to a higher school in this process. An emphasis on high, knowledge-intensive technologies, being of great importance for the progress as a whole, determines the highest priority for the tasks of integrating science and higher education during innovative development.

An educational system must provide a high qualitative level of graduates, especially in the framework of the system of higher professional education. To improve the quality of human resource development and a level of integration of educational services' market into the labour market of high demand, it is important to choose an innovation-oriented path of education system development, which will allow reorienting the modern system of higher education to a scientific and technological system of the training and retraining of staff rather than to educational activity as such.

Information, scientific-research environment forms creative activity of higher educational institutions. Integration of a higher school into the scientific and technical space must be organised and stimulated by means of formation of innovative policy in development of a set of measures for the higher education system. Namely these processes of integration must serve as a basis of forming the tactics and the strategy of innovative development of the education system in the Republic of Kazakhstan.

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[Index]

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