FORMS OF IMPLEMENTATION OF INTEGRATION OF EDUCATION, SCIENCE AND PRODUCTION IN UNIVERSITIES OF THE USA AND JAPAN

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Abstract. *In the modern conditions of development of national education, an important stage of modernization of the higher education system is being carried out, the priority direction of which is the integration of educational, research and production activities of students in the educational process.*

The bill "On Education in the Republic of Uzbekistan" on the form of implementation of the integration of educational and research activities in higher education states that the integration of educational and research activities in higher education is aimed at staffing scientific research, as well as the development and improvement of higher education by using new knowledge and achievements of science and technology.

Keywords: *integration, education system, science, technology, a cluster of research universities*

In the modern conditions of development of Uzbek education, an important stage of modernization of the higher education system is being carried out, the priority direction of which is the integration of educational, scientific research and industrial activities of students in the educational process. The integration of educational and scientific research activities in higher education has the goals of staffing scientific research, as well as the development and improvement of higher education through the use of new knowledge and achievements of science and technology. One of the most important areas of integration of educational and research activities in higher education is the creation of a cluster of research universities in various regions of the country. In this regard, the urgent task is to determine the forms of the educational process specifically in research universities (since there are also traditional universities), to establish the educational content specific to them and, most importantly, to implement the integration of education, science and production in them when training future specialists. This, in turn, actualizes the need to study the relevant foreign experience, where the activities of research universities have been carried out over the past decades, in order to determine the potential that can constructively contribute to the development of our own concept for designing paths for the development of national higher education. The forms of integration of education, science and production in each country, and partly in a separate university, are implemented in a specific way, which determines the need to study the diversity of integration forms. In this aspect, research on this issue is needed, carried out from various angles. The results obtained in such research can make a serious contribution to the development of a national concept of research universities. One of the most priority areas in this area is a set of studies on the forms of implementing the integration of education, science and production in universities in the USA and Japan. While recognizing the undoubted achievements of European universities, we emphasize that it is the tested models of

integrating education, science and production in universities in the USA and Japan that have proven their viability and, moreover, prospects. The American model of integration, being one of the most productive, is indicative in the aspect that graduates of research universities most often become Nobel Prize winners. It is their pilot developments that then grow into a conveyor flow in giant technology companies, providing both scientific and technical development and multi-million dollar profits.

Although the non-state education services of developed countries, including European countries Germany, Great Britain, and Asian countries China, Singapore, South Korea, and Japan, are organized differently, the organization of educational and methodological work in them also differs also it is distinguished by its positive aspects. Service characteristics of education, scientific research on educational services, management and marketing issues of non-state educational services are reflected in scientific research. Research in the field of integration of education, science and production, as well as capitalization of academic knowledge and problems of implementation of research into production have a fairly extensive array of studies abroad. To the greatest extent, this problem is devoted to the research of American scientists: I. Allen; P.G. Altbach; R. Atkinson; T. Bailey; D. Baker; D. Bok; S. Brint; R. Brown; B.R. Clark; J. Croissant; M. Crow; J. Davies; G. Drori; H. Etzkowitz; R. Florida; D. Frank; P. Galison; R. Geiger; M. Gibbons; S. Goldstein; H.D. Graham; D. Greenberg; P. Gumport; P. Healey; E. von Hippel; A. Irwin; M. Karp; D. Kirp; S. Krimskiy; N. Lacetera; L. Leslie; C. Limoges; M.I. Luger; J. Meyer; K. Mohrman; D. Mowery; H. Nowotny; R. Oaxaca; F. Ramirez; S. Restivo; G. Rhoades; J. Seaman.

Service characteristics of education, scientific researches on educational services, management and marketing issues of non-state educational services, reflected in the scientific researches of Ye.V.Burdenko , Sh.M.Aliyev and others . Systematic studies of educational services are reflected in the scientific research of foreign scientists such as Altbach P.G., Kelly G.P and , R.B. Sariyev one of the scientists of our country.

One of the most important areas of integration of educational and research activities in higher education is the creation of a cluster of research universities in different regions of the country. In this regard, an urgent task is to determine the forms of the educational process specifically in research universities (since there are also traditional universities), to establish the educational content specific to them and - most importantly - to implement the integration of education, science and production in the training of future specialists. This, in turn, actualizes the need to study the relevant foreign experience, where the activities of research universities have been carried out for several decades, in order to determine the potential that can constructively contribute to the development of our own concept for designing the paths of development of higher education. The forms of integration of education, science and production in each country, and partly in a separate university, are carried out specifically, which determines the need to study the diversity of integration forms.

In this aspect, research on this issue is necessary, carried out from various angles. The results obtained in such studies can make a serious contribution to the development of a national concept for the activities of research universities. One of the most priority areas in this area is a set of studies on the forms of implementing the integration of education, science and production in US universities. Recognizing the undoubted achievements of European universities, we

emphasize that it is the tested models of integration of education, science and production in US universities that have proven their viability and, moreover, prospects.

The American model of integration, being one of the most productive, is indicative in the aspect that graduates of research universities most often become Nobel Prize winners. It is their pilot developments that then grow into a conveyor flow in giant technology companies, simultaneously ensuring scientific and technical development and giving multimillion profits. The study of the forms of integration of education, science and production in Japanese universities is relevant because they adapted foreign cultural, primarily American experience. This adaptation model can be used in research universities when using foreign approaches to the process of integration of education, science and production.

The theoretical significance lies in the fact that:

1. The conditions for the development of optimally functioning integrated university models in the USA and Japan are determined, which enriches the theory of professional pedagogy.

2. The processes of development of integrated university models of the USA and Japan are characterized, which reflect both general and specific conditions for these countries of interaction between science, education and production focused on innovative development, which can contribute to the growth of knowledge in the field of higher professional education.

3. Scientific ideas are enriched and the scope of scientific and pedagogical knowledge in the field of educational management, and pedagogy of higher education is expanded on the basis of identified, systematized and substantiated trends in the development of integrated models in universities of the USA and Japan, which contributes to the growth of scientific potential in the field of comparative pedagogy.

The structure of the process of integration of education, science and production abroad includes research universities, technology parks and technopolises. Research universities provide for the existence of strong ties with industry; formation of the faculty based on the rotation of personnel covering the spheres of education, science and business; implementation of various programs based on an interdisciplinary approach; and multiple sources of funding. Technology parks (research parks) arise on or around the campus of the university and combine the availability of a technical base, the possibility of access to the latest scientific developments, rental benefits from the university, tax benefits from the government, as well as human resources in the form of university graduates and students. The forms of integration of education, science and business are determined by the diversity of technology parks. Technopolises are a specially created site with a concentration of universities, research laboratories and institutes to concentrate scientific forces and production capabilities for implementing and promoting innovations. The main stages of the process of integration of education, science and production in the leading universities of the world are:

-from the end of the 19th century to the beginning of the 50s of the 20th century - conceptual, which designated fundamentally new approaches to defining the role and function of universities: from the accumulator of knowledge (the previous European model) to the production of new knowledge.

-the 50s - 70s of the 20th century - differential. The creation and activity of research universities and technology parks. The development of scientific and technological achievements has strengthened the role of small businesses as a direct platform for the implementation of scientific achievements.

—the 1980s—early 21st century—integrative. The creation and development of the socio-cultural space of technopolises, large research sites, including universities, national research laboratories, and institutes, in which new knowledge is regenerated.

The leading trends in the development of the process of integration of education, science and production in universities abroad are: expansion of the spatial area, enrichment of the internal infrastructure, and increased variability of models and forms of integration. There are a number of contradictions in the process of integration of science, education and production in universities in the USA and Japan. The main one is the contradiction between the search for "truth" (universities serving society) and "academic capitalism" (receiving profits by universities). At the goal-value level, there is a contradiction between the socio-educational function of the university and the tasks of ensuring profit from scientific research and the activities of enterprises. At the institutional cluster, there is a contradiction between the main social institutions: the state, universities and business. Each of these social institutions defends its interests in the process of integration of education, science and production. At the subject level, there is a contradiction between the strengthening of the role of administrators and researchers in universities who bring in funding and the decreasing importance of university teachers. The conflict is resolved by strengthening the role of the state in the form of grants, when the state is the main customer of new knowledge and exercises control over business in the event of a violation of the principles of creation and dissemination of new knowledge, preventing individual private companies from taking a monopoly on new knowledge and turning it into a competitive advantage. Variable models of integration of education, science and production in leading universities in the USA and Japan are built on a hierarchy of the main components of the integration process: a model of integration where production dominates in relation to science and education;

a model of integration based on the priority of science in relation to education and production;

a model of integration based on the priority of science in relation to production and education.

The most effective forms of integration of education, science and production, as historical experience shows, are American forms of integration, when the main role in the integration process in one form or another is played by the university.

It is in the USA that various economic and social cooperation projects are carried out;

the orientation of the educational system on the development of the creative, versatile individuality of a future specialist is obvious;

the educational system of higher education in the USA is diversified and has a tradition of searching for new forms and methods of teaching. The achievements of American higher education in the field of functional and technical solutions, in the organization of the educational process, in its computerization, and in the training of highly qualified personnel are undeniable. The Japanese type of integration of education, science and production is indicative in that the creation of technopolises with the help of the state at the initial stage leads to the possibility of coordination of scientific processes by the state, creating a balance between the real need of the country for a particular innovative product and the channels for its implementation and serial production. However, with this form of integration, the university, even having the potential to create an absolutely new scientific product that can become a competitive advantage for the country, does not have the opportunity to develop and implement it precisely because of obligations to the state

in the form of grants and program guidelines. It is symptomatic that the Japanese government has decided to switch to American-type forms of integration of education, science and production.

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