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Integration of scientific and educational space in the Republic of Kazakhstan

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autonomy, academic freedom, the state, civil society, market, education, research, scientific and educational complex

Introduction

The president and government of the Republic of Kazakhstan have been paying serious attention to the development of the national system of education and science, including the development and implementation of policies, programmes, concepts, their interaction, financial support for research and education, and infrastructure upgrades. One of the most important strategic goals of the reforms is the integration of research and education infrastructure, through the formation of a unified scientific and educational complex. The 'Kazakhstan – 2050' strategy emphasizes that 'institutions of higher education should not be limited to an educational function. They need to create and develop applied and research divisions. Higher education, which we guarantee academic autonomy, should not be limited to the improvement of its educational programs and it should actively develop its research activities'[1].

The development of Kazakhstan's educational research complexes is a strategic goal achievable through the integration of the national education system and the network of institutions conducting basic and applied research. This is a model frequently employed for developing the infrastructure of reproduction and use

[1] N. Nazarbayev, *Message from the President of the Republic of Kazakhstan – The Leader of the Nation NA Nazarbayev to the People of Kazakhstan. Strategy 'Kazakhstan–2050'. The New Political Course Held by the State*, *Kazakhstan Pravda*, December 15, 2012.

of intellectual resources in countries that are global scientific leaders. However, the creation of educational and scientific complexes cannot solve the problem of the real integration of science and education if their organizational forms and management structures are linear and mechanical.

Intrinsically, the essential link between science and education is undeniable. The underlying principle of higher education is the inseparability of research and teaching, as was fully justified by Von Humboldt and Leibniz. Universities inherently have an indivisible unity of teaching and research, interacting on the model of 'communicating vessels'. Meanwhile, the line between teaching and research cannot be completely erased, ignoring the differences between scientific research and the educational process. The interaction of science and education functions to—mostly indirectly, but also directly—preserve the specific characteristics of scientific and educational processes[2].

A variety of institutional forms for integration of science have been adopted as priorities for further restructuring of the research/education sphere of the republic. A strategic priority, however, for all concepts and reform programmes of Kazakhstan's scientific and educational infrastructure is the imperative autonomy of academic science and teaching. In a market economy, 'knowledge-based' systems featuring production agility, flexibility, quick response to the emergence of new risks and threats, and constant work to stay ahead are crucial to the success of research and education centers.

Methods

Methodologically, the main problem of research is the comparative analysis of international experience of integration of University education and research activities and evaluation of its applicability in Kazakhstan.

Comparative studies use a variety of models and typologies of education systems. Given the fundamental cultural and civilization differences, it is logical, following Nathalie Bulle[3], to identify five 'ideal–typical' or generic educational

[2] 1. For example, Hessen in his 1923 work *Fundamentals of pedagogy. Introduction to Applied Philosophy* – one of the deepest in the world literature on the philosophy of education – wrote: 'Professor, that [devotes] too much time and energy to teaching – a bad professor' (Hessen [1923] 1995, 311). Thus, the professor will rob his research work by orienting himself too completely towards teaching. On the other hand, the world – and in particular the American – experience in the development of research and educational facilities shows that an overemphasis on university R&D can lead to skimping on the direct duties of the teacher, especially at the undergraduate level.

[3] N. Bulle, *Comparing OECD Educational Models through the Prism of PISA*, «Comparative Education» 2011, Vol. 4, p. 506.

models: Northern (Denmark, Finland, Iceland, Norway, Sweden); Anglo-Saxon (Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States); Latin (France, Greece, Italy, Spain); Germanic (Austria, Belgium, Germany, the Netherlands, Switzerland); and East-Asian (Japan, South Korea). However, the purpose of this article is not so much to weigh the considerations for the selection of ideal–typical models of higher education systems as to introduce more specific criteria: characteristics or structure of relationships of public administration authorities, market mechanisms and university management. The use of these criteria in the analysis and assessment of national education systems in terms of methodology will help avoid the 'methodological nationalism'[4] inherent in comparative studies of traditional education systems, based on evaluation of the cultural and civilizational types of these systems.

Public management in science and education

The influence of new political and economic mechanisms for education in the modern world leads not only to changes in the functional and organizational principles of the education system. According to Stephen J. Ball, this impact 'also changes the meaning of education and what it means to be educated and what it means to learn'[5]. Yet, the education system has no less of a reverse impact on the transformation of social, economic and political structures of modern society. These mutually conditioned processes largely determine the dynamics of development in the Kazakh society of today. Reforming the research complex and the higher education system of Kazakhstan takes into account the priority of strengthening the interaction of science and education. It includes the establishment of a modern scientific and educational complex that is aimed, ultimately, at the modernization of society through the formation of a qualitatively new scientific and educational space.

The system of internal and external management of science and education is undergoing substantial transformation. The Science Committee of the Ministry of Education and Science of the Republic of Kazakhstan has a number of administrative functions. The Graduate Science and Technology Commission (HSTC) under the national government of the Republic of Kazakhstan was created specifically to determine the priorities of state policy on scientific and technological development in the country. The HSTC International Expert Council conducts examina-

[4] B. Lingard, S. Rawolle, *New Scalar Politics: Implications for Education Policy*, «Comparative Education» 2011, Vol. 4, p. 489.

[5] S. Ball, *Big Policies. Small World: An Introduction to International Perspectives in Education Policy*, «Comparative Education» 1998, Vol. 2, p. 128.

tion of scientific and technical programmes. Since 2011, new specialized scientific councils have been created in connection with the cancellation of the previous system of training, the protection of theses and the transition to an all-European system of training and certification of scientific and pedagogical workers. The government is taking measures to diversify the sources of funding of research and education activities.

Stephen J. Ball points out that 'the new rules of wealth creation are replacing the logic of Fordist mass production with new "knowledge-based" systems of flexible production'[6]. Without autonomy and a wide degree of independence for universities and scientific institutions, the central government's task of adhering to the new rules of wealth creation will be impossible to achieve.

The tradition of academic autonomy has long and strong cultural and historical roots. Medieval universities were endowed with 'privileges' legislating their autonomy (their own court and management, the right to award academic degrees and release students from military service, etc.). Academic freedoms were first constitutionally fixed in Germany in the second half of the 19th century and included three main types of university freedoms: freedom of teaching, freedom of learning and freedom of research.

In the 21st century, the tendency is towards increased autonomy for universities. Academic autonomy is a prerequisite for the ability of universities to respond to rapid changes in education and research, with the prompt adoption of institutional measures to support innovative research promising the significant theoretical and practical results that have become vital in today's mobile and fiercely competitive world. Michael Shattok notes that 'both Oxford and Cambridge retain minimal lay representation in their governance but remain the two highest-ranked universities in the UK system and undeniably world-class institutions'[7].

The Magna Charta Universitatum declares that 'the independence and autonomy of universities provide assurance that the system of higher education and research will continuously adapt to changing needs, the demands of society and to the need for the development of scientific knowledge'[8]. Full independence of university research and education activities includes the choice of directions, themes, methods of research activities and evaluation of results. It should involve the most talented and promising professionally trained scientists and researchers, employ them through an open and transparent competitive process, and guarantee the opportunity for professional growth and career justice.

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6 Ibidem, p. 120.

7 M. Shattok, *UK University Governance under Stress*, «International Higher Education» 2010, Vol. 59, p. 23.

8 Great Charter of Universities (Magna Charta Universitatum) 1988, http://flot2017.com/item/file/26808 (accessed: 21.12.2017).

In recognizing the universal validity of the principle of autonomy and academic freedom, it is necessary to take into account the concrete historical conditioning that underlies it. During the Enlightenment, there was no institutionalized system of social organization of knowledge, which ensured a certain autonomy to agents of spiritual and intellectual production. But the situation radically changed with the transformation of the ontological foundations for the organization of social interactions, with the main mechanism of regulation being directed influence on individual and mass consciousness. The transition to manipulative techniques of regulation of social behaviour and the exercise of political power demanded the creation of 'liberal professions' institutes: special 'consciousness industry' factories whereby a symbolic universe could be introduced into the mass consciousness. In the 20th century, instead of free scientific inquiry we have seen the rise of the 'science policy' of the nation state, which becomes a form of planning for science, and its subordination to 'national interests'. Science is now subject to state or social control on the basis of formal hierarchy and impersonal rules that form characteristics of social division: 'Today, science is *Gemeinschaft*, and *Gesellschaft*. There is a scientific community, the system recognition of the authority of outstanding discoveries that have charismatic qualities of creative endeavors and meet the standards of impartial knowledge. But there is a "professional society" – a large-scale economic structure, whose norm is the "net output" for the society or enterprise (non-profit or profit-oriented), and which is becoming more and more threatening to engulf the scientific community'[9].

The degradation of science and education threatens to undermine the very basis of the viability of modern society. Thus, the willingness and ability of authorities to create the necessary social, economic, legal, organizational, etc. conditions for the functioning of science and education systems becomes the criterion for professional suitability, competence and solvency of the government itself.

Government intervention in research is inevitable and necessary. Equally necessary is the freedom of scientific research. The challenge is to find the optimal mechanism – in the particular circumstances – to reconcile these principles. State policy in the field of science (as well as the arts, culture and education) tends to follow one of three basic models or concepts: 1) providing 'full front' research; 2) supporting research priorities; and 3) the market orientation of science.

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[9] D. Bell, *The Coming of Postindustrial Society. Experience in Social Forecasting*, Moscow 2004, p. 512. Much the same situation exists in the field of education, as for example was clearly demonstrated in the Bologna process. The principle of autonomy and academic freedom runs through the entire text of the Magna Charta Universitatum, accepted and signed by the rectors of European universities. The Bologna declaration strongly accented principles of uniformity, unification of common rules, standards and criteria to be adopted by the respective Ministers of Education.

The concept of 'full front' research is almost unanimously supported by representatives of the scientific community, which is understandable in itself, taking into account the corporate ideology. This approach assumes that science should serve only as knowledge or truth – no staining the 'white robes' of pure scientific mind with considerations of public benefit. Thus, the State refrains from exerting administrative and political control over any scientific definition of objectives and priorities, and serves only to allocate a certain budget to be distributed by scientists at their own discretion to finance various research activities.

In the second model, supporting research priorities is justified by the impossibility of a full-scale (primarily financial) support of science in our time because of limited budgetary possibilities. The main proponent of this model is the scientific bureaucracy, which controls science through administrative approval and prioritizing the areas of research.

Finally, the concept of market orientation of science, based on the ideology of market liberalism, asserts that the sole criterion for conservation of a particular scientific field or school is neither the real social needs nor the needs of the internal development of science, but the mechanism of market competition. Responsibility for science funding is transferred from the State to the scientific community itself, led by the demands of a specific market. In harmony with this approach, an analysis of major social and political documents shows that government officials in Kazakhstan believe scientists and teachers are required to ensure the development of science and education in the country – and at the same time to earn a living – through 'market entry' scientific and educational services.

In practice, though, none of these models can be realized in a unilateral abstraction. In Kazakhstan, the state policy on science (as well as education, education, the arts, engineering and technical creativity, health, etc.) is constructed – and in the foreseeable future will continue to be built – on a combination of the second and third models. To create a better balance and mitigate the potential adverse effects of this more pragmatic approach, the hybrid model might do well to ensure the involvement of scientists themselves (the arts, culture, education, engineering and technical specialists) in developing programmes and strategies for their respective spheres of intellectual and spiritual activities; and to look towards a situation in which the State becomes a universal client and the purchaser of the results of intellectual labour at market prices.

In most scientifically leading countries of the world, science has been concentrated at university research and development centers and laboratories. Universities and public research institutions implement the most fundamental and socially meaningful research and a substantial part of applied research and experimental development. Higher education as a whole must be a scientific and educational

complex, in which the training is based on the involvement of the entire cohort of students in a self-sufficient research and development task.

The integration of scientific and educational space is a major trend in countries of the world community. On 12 March 2010, at the Budapest Forum of Ministers of Education of European countries – participants in the Bologna process – Kazakhstan signed the Bologna Declaration. This meant the formal recognition of the higher education system of the Republic of Kazakhstan under European standards. The Bologna participants developed a common scientific and educational policy with a long-term restructuring plan for a pan-European system of higher education, research and innovation. This 'Single Infrastructure' for European scientific and educational space is rapidly and successfully developing. However, the optimistic scenario in general does not negate the existence of unsolved problems. In particular, the Communiqué of the European Commission (2003) noted a number of points on which the European system lags behind US universities. European universities attract a much smaller number of students and highly qualified scientific and pedagogical staff compared to the USA. The administration of European universities – unlike their overseas counterparts – discourages cross-border mobility and the use of foreign grants. Europeans face many unsolved problems in the creation of a single labour market for researchers. There is an issue of backwardness of the European system of education and R&D organizations which is particularly noticeable in the area of cooperation between universities, science and industry.

The world practice of management in higher education at the present stage is characterized by competition and the complex interplay of two main trends: 1) the trend towards consolidation of university autonomy and the preservation of traditional academic freedoms; and 2) the trend towards the institutionalization of external management, as opposed to the academic self-governance of universities.

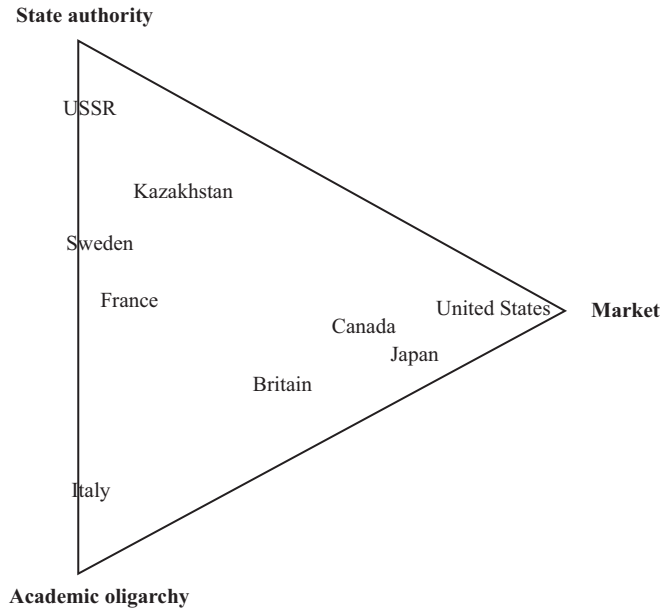
In many countries, universities are given the status of state and public organizations. The state retains the task of developing and implementing the national scientific and educational policy, but the majority of operational management responsibilities are delegated directly by universities[10].

[10] 3. Within the framework of the general trend, models vary in distributing management authority between state structures and the administration of universities:
a) In countries such as the UK, Australia, India, Pakistan and South Africa, special intermediary institutions have been established for the operational management of higher education.
b) In the United States, Australia, Germany, Canada and some other countries with a federal system, many of the functions and powers to monitor the activities of universities are delegated to regional governments.
c) In the third model the university is provided with core powers in the implementation management of education and research activities, while the national Ministry of Education retains the functions of strategic management and control.

Models of interaction between the state and scientific and educational institutions

Graphically, the ideal–typical model of university management, established in the world practice, can be represented by a 'triangle of influences' developed on such basis as the distribution of the predominant influence on the organization and management of the educational process in higher education[11] (see Figure 1).

Figure 1. Distribution of predominant influence on the system of higher education (B. Clark's "Triangle influences")



The interpretation of this scheme is very simple: the location of the education system in the 'triangle of influences' determines the dominance among the poles of influence and, accordingly, places the system in one of three ideal–typical models: a) the model of greatest university dependency on state (administrative and political) power; b) the market model; c) the model of greatest academic sovereignty. We shall therefore examine each of these models more closely.

[11] B. Clark, *The Higher Education System: Academic Organization in Cross-National Perspective*, University of California Press 1983, p. 143.

University dependency on state power

In countries (France, Spain, Portugal, the former USSR) where this model has been realized, universities are strictly subordinated to the centralized control system and all-enveloping state regulation. Under this model the state has the widest possible direct and indirect control over the education sector, allowing it only strictly limited areas of autonomy and self-government. Market affects the management of higher education to a small degree, and universities' own academic governance structures range between small and medium along the scale of what is possible. It is clear that the structural and functional relationships inherent in this bureaucratic–state model are typical of the higher education system in modern Kazakhstan.

Market model

The market (Anglo-Saxon) model is the most consistently implemented in the US higher education system and in a number of Asian countries adhering to the ideology of neo-liberalism in the organization of higher education, and is prevalent in countries such as Australia, the UK, Denmark, Ireland, Finland and Sweden. This model is characterized by the following distribution of influence on the world of higher education:

– the crucial role of the market in determining the strategic goals of higher education institutions to develop and implement programs;
– the significant role of academic governance;
– the minor role of the state, taking on the function of the common legal regulation of education.

The organizational and legal form of US universities is that of nonprofit corporation (not-for-profit corporation or not-for-profit foundation). Universities in the USA exercise independence in decisions concerning internal management, finances, formation and implementation of policy on education and research, including exploration, expansion and other components of the research and educational process. Each university determines its own mission, goals and structure. Universities also independently determine the academic programme, set requirements for admission and selection of students, establish terms of employment, and so on.

However, a high degree of formal independence in relation to the state still does not solve the question of the substantive content of the principle of university autonomy. In this regard it should be noted that, as in the concept of Von Humboldt and in the modern interpretation of the principle of university

autonomy, participation of professors in university management is not seen as a necessary component of academic freedom. The chief editor of the magazine *International Higher Education* published by the Center for International Higher Education (CIHE), and Director of the Center for International Higher Education at Boston College (USA), world-renowned scientist Philip G. Altbach underlines that 'academic freedom protects professorial freedom of teaching, research, and expression – and nothing else'[12].

Louis M. Benedict[13] notes that many US universities apply the hierarchical governance model whereby the university administration makes decisions without actually listening to the opinion of the faculty. A similar pattern is typical of many universities in Kazakhstan. And in the Kazakhstan situation implementation of the principle of autonomy is complicated by the fact that the restriction of coordination and control asserted by the Ministry of Education and Science has the effect of almost automatically strengthening authoritarian tendencies in the activities of university administration. After all, public control over the education system by consumers of educational services is effective in the presence of a mature, institutionally formalized and effectively self-governing civil society. In the absence of such (or at the stage of its formation), a high degree of independence from the central-governmental administrative courts is perceived by the academic leadership of a number of higher schools not as an opportunity to choose their own means of implementation of national development goals and priorities, but as a kind of sanction for the lack of control, and permissiveness.

Model of greatest academic sovereignty

This final model cedes paramount importance to the principle of academic autonomy and academic freedom of the university and self-regulation of higher education in general. This form of control dates back to the medieval collegiate management model practiced by the Sorbonne and the University of Bologna (and continued by some older universities such as Oxford and Cambridge), and resonates with the 'Humboldt' concept of the university. Under this framework a wide range of powers in management decisions on all aspects of research, education and development activities is provided to the academic elite — from university administration to faculty housing.

[12] P. Altbach, *Academic Freedom: A Realistic Appraisal*, «International Higher Education» 2009, Vol. 57, p. 3.

[13] L. Benedict, *Crossroads in the United States*, «International Higher Education» 2009, Vol. 57.

The powers exercised by other centers of influence on the education system are characterized by the following distribution: a) average or little influence of the state, regardless of whether it is a public or private institution of higher learning; and b) minimal market impact.

Here the American or Anglo-Saxon model of the university holds the position of undisputed leadership. For example, in the Shanghai ranking of top universities[14], 17 US schools were among the 20 best universities in the world. The only other institutions on the list were University of Cambridge (5th position in Academic Ranking), University of Oxford (10th position) and the Swiss Federal Institute of Technology in Zurich (20th position). In the ranking published by the London edition of 'Times Higher Education'[15] supported by Thomson Reuters, the list of the top 20 universities included 15 American and 5 European universities (including 4 UK universities: Oxford 2nd, Cambridge 7th, Imperial College, London 8th and University College, London 17th; the only other European finalist being the Swiss Federal Institute of Technology, Zurich in 12th place). In the same rankings for 2013–2014 University College, London had slipped from the top 20, and the Canadian University of Toronto had risen to 20th position[16].

The view gaining dominance among European experts is that the European scientific and educational space should shift to the Anglo-Saxon system in order not to lose ground in the global competition of institutions of higher education. This space of primacy is increasingly occupied not only by American universities but also by institutions of higher education in several countries of Southeast Asia. In this regard it should be noted that, despite the full-scale entry of Kazakhstan in the Bologna process, the founders and trustees of the flagship national school, Nazarbayev University, have chosen the Anglo-Saxon or the American model.

However, the advantages of the Anglo-Saxon model with respect to the classical university are not absolute and are hardly surviving in the present situation where the principles of the market economy are increasingly being given priority over traditional academic values. E. N. Ruzaev and P. E. Ruzaeva[17] claim that the 'High School, which is one of the most important links in the creation and

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[14] Shanghai Jiao Tong University 2013, *Academic Ranking of World Universities 2013*, http://www.shanghairanking.com/ARWU2013.html (accessed: 21.12.2017).

[15] *World University Rankings 2012–2013 Powered by Thomson Reuters*, http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking (accessed: 21.12.2017).

[16] *World University Rankings 2013–2014 Powered by Thomson Reuters*, http://www.timeshighereducation.co.uk/world-university-rankings/2013-14/world-ranking (accessed: 21.12.2017).

[17] E.N. Ruzaev, P.E. Ruzaeva, *Management of Quality Educational Services and Knowledge Management in High School*, http://www.quality.edu.ru/quality/sk/menedjment/420 (accessed: 21.12.2017).

management of knowledge in society, must have an analogous management system if the management system which cannot meet the latest requirements of the world market cannot effectively seek to create new knowledge and manage it'.

Most supporters of the American system of 'effective teaching management' (termed 'managerialism') would agree that the system of government based on traditional academic freedom is much more democratic and in the answer-guide spirit of classical university education. However, in a highly competitive struggle this system loses out to a clear focus on the dynamics of supply and demand.

Integration of science and education in the context of diversification of the higher education system of the Republic of Kazakhstan

Each of these models has its pluses and minuses. The effectiveness of a particular model for the organization of education and research in the higher education system of each country is determined by a whole set of factors: the established traditions of university education; features of national culture and mentality; the nature of the political system and its relationship with civil society; the level of economic, scientific, technical and social development; state educational and research infrastructure; the degree of integration into the global scientific and educational space, etc.

Without dwelling on the analysis of each of these factors, we note that, given their entirety for the system of higher education of modern Kazakhstan, the current trend is towards the middle area of the 'triangle of influence'. The relative balance of centers of domination provides the greatest freedom of tactical manoeuvre and adjusts the way forward to new types of the management system in higher education to meet the challenges of integration of science and education, as well as to set the agenda for the modern era. The trend seems a reasonable compromise between the ideal of service to the fundamental values of classical university education and the reality of market relations. As evidenced by a number of official documents, the policy adopted in recent years by both the government and industry has laid the strategic course for the further reform of the national education system. In exchange for the loosening of excessive centralized control and monitoring, research and education university complexes must take full responsibility for the results of their activities in relation to society in general as well as specific consumers of educational services, development activities and research products.

Meanwhile, adopted on 18 February 2011, the Law of the Republic of Kazakhstan 'On Science' and the Law of the Republic of Kazakhstan 'On Education' lay

the foundation of a legal framework for the state policy on science and education, significantly limiting the autonomy and academic freedom of universities. In particular, although competition for scientific projects is derived from the system of public procurement, public authorities retain the right to determine who and how it will fund as the national science baseline, including the earmarking of grants. The term 'autonomy' is notably absent from the text of the law. It is therefore necessary to continue the legislative activity regulating science and education, focusing on principles of university autonomy and academic freedom recognized by the world community. In particular, in assessing the quality of any education system, according to Frans A. van Vught and Don F. Westerheijden, there must be an 'independent meta-level agent' who 'should be the coordinator of the quality assessment system, acting independently of the government politics and policies and not having the task to impose upon the institutions an approach that the government deems to be necessary'[18]. Meanwhile, there must be a clear policy of quality control for education while developing according to the new model. For example, the National Education Report for 2012 specifies 'ensuring interaction between education authorities at various levels through the creation of a single vertical line of quality education'.

The President's decree and his Address to the Nation entitled 'Building the Future Together' promise to make a 'good education[al] foundation for industrialization and innovative development of Kazakhstan' through a holistic structural transformation of the national education system. One of the directions of this transformation is the diversification of the higher education system, addressed by the President as follows: 'By 2020, the share of universities that have passed independent national accreditation according to international standards will be 30 percent. There will be up to a five percent increase in the share of universities implementing innovative and absorptive research results into production. At least two higher education institutions will be marked in the ranking of the best universities in the world'[19].

The former Minister of Education of the Republic of Kazakhstan Bakhytzhan Zhumagulov said that Nazarbayev University 'becomes a reference point for raising the level of our entire high school, for the new system of classifi-

[18] F. van Vught, D. Westerheijden, *Towards a General Model of Quality Assessment in Higher Education*, «Higher Education» 1994, Vol. 3, p. 365.

[19] N. Nazarbayev, *Let's Build the Future Together! Message from the President of the Republic of Kazakhstan Nursultan Nazarbayev to the People of Kazakhstan*, January 28, 2011. http://www.akorda.kz/ru/page/poslanie-prezidenta-respubliki-kazakhstan-n-a-nazarbaeva-narodu-kazakhstana-28-01-2011-g (accessed: 21.12.2017). Similar patterns of diversification of higher education systems are presented in the State Program of Education Development of the Republic of Kazakhstan for 2011–2020 (see extensive quotations from the document on page 15).

cation of universities'[20]. However, the process of diversification of the higher education system produces a range of issues, including legal ones. For example, in its 'Standards and Guidelines for Quality Assurance in Higher Education in the European Space' the European Association for Quality Assurance in Higher Education (ENQA) argues that educational institutions must have their own policies and procedures for quality assurance and standards for ongoing programmes, and qualifications. To fulfill these recommendations and requirements the ENQA proposes a system of administrative and legal norms governing the functioning of domestic institutions of higher education, although these are clearly not ready for implementation. National legislation thus becomes an obstacle in the transition of the system of higher education of Kazakhstan up to world standards of quality scientific and educational activities. This is clearly demonstrated in the recent history of the adoption of a special law 'On the Status of "Nazarbayev University", "Nazarbayev Intellectual Schools" and "Nazarbayev Fund"'.

Nazarbayev University was created and is developing as a unique institution of higher education, with the mission, goals and objectives unattainable by other universities for logistical and financial reasons, including the selection of teaching staff, etc. However, each institution should be able to create its own forms of organization for education and the research process. Of course, to solve this problem it is necessary to create appropriate conditions and prerequisites, both legal and administrative, regulating the activities of higher educational institutions. The special legal status of the flagship of higher education, Nazarbayev University, must cease to be exclusive and must become normative for the whole system of higher education. After amendments to the legislation introduced in connection with the adoption of a special law 'On the Status of "Nazarbayev University", "Nazarbayev Intellectual Schools" and "Nazarbayev Fund"'[21], only

[20] B. Zhumagulov, *Modernization of Education: Time Requirement*, «Kazakhstan Pravda» 2011, November 10.

[21] To provide a legal framework to implement the articles of the Law of the Republic of Kazakhstan 'On the Status of "Nazarbayev University", "Nazarbayev Intellectual Schools" and "Nazarbayev Fund"', a number of changes and additions have been made, not only to the Law 'On Education', but also in the civil Budget and Tax Code of RK, the Code addressing 'On People's Health and the Health Care System' and in the Law of RK 'On Noncommercial Organizations', 'On Employment', "On Joint Stock Companies' and 'On Licensing'.

Similar problems arise in other countries. For example, in Russia a special federal law 'On the Moscow State University Named after MV University and Saint Petersburg State University' enacted on 21 October 2009 creates an exclusive legislative framework for the educational and research activities of these universities as a unique scientific and educational complex. The law also defines the structure of the complex, especially the implementation of its educational and research activities and their financing. However, other basic provisions on the activities of the University prescribe rules on the statute of the university. In addition, the Russian Federal Law 'On the Innovation Centre "Skolkovo"' of 28 September

a single institution in Kazakhstan has standards that meet the present level of legal support for innovative educational and research activities.

The State Program of Education Development of the Republic of Kazakhstan for the years 2011 through 2020 provides for the following measures to ensure the autonomy of universities:

> Principles of autonomy of universities [will be developed], which is understood as autonomy in the implementation of educational, scientific, financial, international and other activities, based on the model of Nazarbayev University. Public universities will become autonomous nonprofit organizations. At the same time boards of trustees will be created, which will report to universities, as well as mechanisms for transparency of higher education institutions. For public universities there will be improved appointment of rectors. There will be created the conditions for the gradual granting of autonomy to universities of the country. Starting in 2015 autonomy will be given to national research universities, in 2016 to national institutions of higher education, and in 2018 to the rest of higher education institutions.

Our analysis provides reasonable grounds for concluding that this situation encompasses mutually exclusive demands. The diversification of higher education is incompatible with the use of a single model of university autonomy for qualitatively different types of higher education institutions. Institutions focused on mass higher education, elite universities and those set up to innovate and implement research results into production (research universities) are qualitatively different types of higher education institutions. Their learning processes are built on different bases, with different goals and objectives, with qualitatively different types of motivation and therefore different principles of formation of the student body and faculty members.

Conclusion

According to the results of research the following general conclusions can be made:

1. The findings of the article based on official documents and materials suggest that the Republic of Kazakhstan's transition proceeds towards a qualitatively differentiated or diversified higher education system, in which high-status research universities focus on elite education and innovative research

2010 grants broad autonomous powers to this innovative complex, including in the field of education, medical and scientific activities.

and development, while other universities remain geared towards mass higher education and research of regional significance. In this situation, each higher education institution must articulate its actual capabilities and claims to a certain level (status, location) in the national system of higher education. Based on this kind of positioning it can be determined exactly which models of interaction between science and education will be established in each institution.

2. The process of diversification of the higher education system largely determines the optimal means of creating the scientific and educational complex. The process of integration of science and education should not, firstly, be considered as an end in itself, and secondly, use command-administrative methods to solve this problem. In most countries science is concentrated in university research and development centers and laboratories, or in the scientific and educational complex. However, in the present circumstances the effective integration of science and education in Kazakhstan through the merger of universities and research institutes is problematic for several reasons. Chief among them are the excessive academic workload of faculty members; inadequate funding of university research, especially in private universities; and the small number of highly qualified scientists in university departments.
3. Most appropriate for Kazakhstan in the present conditions is the integration of existing scientific and educational institutions through the pooling of resources of individual research institutions and related institutions of higher education in a common research and education centre, providing them with maximum independence. Thus, we should follow the path of entitlement by the scientific and educational organizations to decide on the appropriateness of various forms of integration on the basis of bilateral or multilateral agreements.

Résumé

This article examines the experience connected with reforming the scientific and educational infrastructure of Kazakhstan from the standpoint of compliance with the principle of autonomy of academic science and teaching. First, the authors conduct a comparative analysis of international experience of integration of university education and research models and evaluate their applicability in Kazakhstan. Second, they discuss measures taken by the authorities, aimed at the creation of Kazakhstan's shared scientific and educational space in terms of diversification of the higher education system. Third, they argue the need for strategic integration of the national education system with a network of institutions conducting basic and applied research. Finally, they suggest there is a need to combine the resources of individual research institutions and related institutions of higher education into a joint research and education center given maximum independence.

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