

Interview of Academician Galym Mutanov, Rector of Al-Farabi Kazakh National University, to the «Journal of World Education» (PRC).

1. Al-Farabi KazNU is the largest higher education institution in Kazakhstan. Please tell us a little about the University, and what positions does the University occupy in the global scientific and educational space?

First of all, I would like to thank you for your interest in Al-Farabi Kazakh National University. It is a great honor for us to answer the questions of the «Journal of World Education», which is a leading informational and analytical publication known not only in the People's Republic of China but also abroad. Kazakhstan and China have a strong friendship and a solid strategic partnership, including in the fields of education and science. We are proud that Al-Farabi Kazakh National University is contributing to the strengthening of cultural and humanitarian relations between our countries.

Speaking of our University, I would like to note that Al-Farabi Kazakh National University was founded in 1934 and it is the oldest and leading higher education institution in Kazakhstan, with about 30 thousand students studying at 16 Faculties. Our University is located in one of the most beautiful places in the world at the foot of the Alatau Mountains – the city of «apples» in Almaty. The history of the University is closely linked to important milestones in Kazakhstan's statehood. Since Kazakhstan gained independence, the University has been named after Abu Nasr ibn Al-Farabi, the second teacher of mankind and a great thinker of world civilization, who was born over a thousand years ago on Kazakh soil. In 2003 KazNU was the first among the higher education institutions of Kazakhstan and Central Asia to sign the Great Charter of Universities (Bologna Process) and enter the world scientific and educational space.

Today the development of KazNU is connected with its primary goal – to enter the top 100 best HEIs in the world. In the conditions of the transformation from a classical university to a modern world-class research university, the important priorities of KazNU are the introduction of results-oriented process management, the digitization of all business processes, the introduction of innovations, and scientific developments in the real sector of the economy.

Consistently transforming itself into a world-class university, KazNU takes part in the global ranking of QS World University Rankings, one of the most influential in the world. Over the past 7 years, our University has made a huge breakthrough in the QS ranking, moving up almost 500 positions and taking 165th place this year. In the post-Soviet space, only two higher education institutions entered the top 200 – Lomonosov Moscow State University and KazNU. I would like to add that no other HEI in the world has ever achieved such rapid growth in such a period of time. We are proud that KazNU's unique breakthrough has received wide international response and is now referred to as the «Al-Farabi KazNU's phenomenon».

Our University, being the leader among the HEIs of the CIS countries, demonstrates good progress in other world ratings as well. Thus, in the global ranking of UI Green Metric Ranking of World Universities KazNU entered the top

200 most environmentally friendly and top 50 technologically advanced HEIs of the world. KazNU also received a high «AA+» rating from the European Scientific-Industrial Chamber and is thereby ranked among the leading universities in Europe. All this proves the high competitiveness of KazNU in the world market of education and science and the consistent progressive development of the University in various areas of activity.

Since 2014, KazNU has been entrusted with the high honor of leading the UN Global Hub on the Academic Impact Program for three consecutive terms. As the UN Global Hub, KazNU is guided by 17 sustainable development goals and actively works to involve the Universities in the promotion of 10 globally recognized values for peaceful and sustainable development. This honorable and responsible mission is another recognition of the reputation of our University in the global scientific and educational environment.

2. How do you envisage the internationalization of higher education? How does it develop in your University? How many foreign students are studying at KazNU, including from China?

The internationalization of higher education is one of the current trends. As a full member of the global scientific and educational community, we attach great importance to this process and aim to become a Central Asian Educational Hub.

In developing our internationalization, we build on our strengths: the development of the University infrastructure, implementation of the main parameters of the Bologna Process, many years of experience in international programs and projects, a high percentage of English-speaking professors, and over 70 educational programs in English. The 12 Centers of KazNU opened at the world's leading higher education institutions, where Kazakh culture and language are studied, also facilitate the attraction of foreign students to our University. In China, these centers operate at Beijing University and Shanghai University of Foreign Languages. Our University has extensive experience of participation in various international academic exchange programs and is one of the leaders in this area among the HEIs in the CIS and Central Asia.

Owing to the high position in world rankings, studying at KazNU becomes attractive for international students. Over the last year alone, the number of foreign students at KazNU has increased by 15 times. This is an indicator of confidence not only in the University but also in Kazakhstan as a whole and its higher education system. We are introducing flexible educational programs successfully accredited by international agencies, striving to adapt to current realities, and anticipate future trends. For instance, KazNU is currently developing brand-new educational programs such as «E-Commerce», «Digital Linguistics», «Bigdata», «Artificial Intelligence», «Geoinformatics», «Internet of Things», «Bioinformatics», «Islamic Finance», etc. They have been elaborated together with renowned companies and the leading Universities of the world.

At present, we have around three thousand international students from all continents, including over 500 Chinese citizens. They are studying at all Faculties and have a huge desire to study, learn, and succeed. Most of them have a strong preference for technical, economic, and natural sciences. At the same time, there is

interest in learning Kazakh and Russian languages. Students from China not only take courses but also actively participate in the social and cultural life of the University. Along with good knowledge and expertise, they gain new friends and learn about the customs and traditions of the Kazakh people.

In addition, the comfortable conditions for studying and living in KazNU also contribute to the attraction of foreign students. We are actively developing the infrastructure of the University campus. Over the last 5 years, the total area of infrastructure has grown by almost 50%. New study buildings and student residences, a swimming pool, one of the largest scientific libraries in the world have been built. We have established a unique «Virtuous House» – «Keremet» Student Service Centre, which has no analogs in the world and operates on the principle of one window. Here, our students, without leaving the campus, benefit from over 500 educational, social, cultural, and leisure services, including primary health care and diagnostics.

3. How is cooperation with Chinese universities developing? What prospects do you envision for its further enhancement?

The development of friendly relations with the People's Republic of China is one of the priorities of our country's foreign policy, and Al-Farabi KazNU is interested in active cooperation with the Chinese Universities, both within the framework of international scientific programs and at the inter-university level.

Over 40 cooperation agreements have been signed with the Universities and Research Centers of the People's Republic of China, and direct partnerships have been established with such institutions of China as Beijing University, Xinhua University, Lanzhou University, Xian University of Transport, Beijing University of Technology, Beijing University of Foreign Languages, Shanghai University of Politics and Law, Tianjin University etc.

Our collaboration includes a wide range of fields: student and faculty exchange, implementation of joint scientific projects and summer schools, the invitation of professors, supervision of Ph.D. students. Al-Farabi KazNU as the main coordinating university of the Shanghai Cooperation Organization Network University participates in the implementation of Master's programs in the following areas: «Ecology», «Regional Studies», «Nanotechnology», and many partner universities of China are involved in training specialists in these areas.

The largest Department of Chinese Studies at the Faculty of Oriental Studies provides training for specialists in Chinese studies. Over 100 professors and students of KazNU annually study and undergo internships at the universities of China under academic mobility programs. The largest Confucius Institute in Central Asia was established in cooperation with Lanzhou University, where everyone can study the Chinese language and explore the culture and traditions of the Chinese people. KazNU also opened the «One Belt – One Road» International Research Centre, which is successfully operating.

This provides us with a good basis for developing mutually beneficial cooperation with Chinese higher education institutions, which we are expanding in various directions. This undoubtedly meets the interests of our two friendly countries and strengthens trust and good neighborly relations.

4. What impact do you think the rapid development of large data, artificial intelligence and cloud computing has on KazNU? How does the University implement its digital development strategy?

One of the major components of the transformation of Al-Farabi KazNU into a world-class research university is the transition of all its activities into digital format. The introduction of cloud technologies in the automation of activities, smart technologies – in the management of campus infrastructure, Data technology – in the formation of an analytical system, and the development of IT services has brought the University to a qualitatively new digital level.

Our transition to cloud technology and the use of virtualization systems enabled us to organize a centralized system for managing computing resources. Artificial intelligence elements are used in the automation system of the learning process through our own development – the «Univer 2.0» platform. With the introduction of mobile technologies, we are developing services and personalized learning approaches for students and faculty. In the conditions of the coronavirus pandemic, we have shifted to full online education, and we are currently working on the introduction of digital services for cryptographic protection and verification of information using block-chain technologies. The University has initiated the creation of the National Open Education Platform in Kazakhstan. We are actively developing distance education, and we are ready for cooperation in this activity and aim to reach the international level in the provision of online services.

To ensure a comfortable environment, to eliminate bureaucratic barriers, and to provide services in digital format, there has been created a unique «Keremet» Student Service Centre, which provides students and teachers with more than 500 services for educational, social, cultural, and leisure purposes based on the «one window» principle.

The world-known high-tech companies such as «Hewlett-Packard», «Cisco», «Intel», «Konica Minolta», «Microsoft», «Huawei», and others opened their training facilities and laboratories at KazNU. In addition, we have signed a Memorandum of Cooperation with «INSPUR», a leading Chinese manufacturer of electronic computer equipment. The opening of such Centers and Laboratories creates a powerful impetus for the further introduction of the latest technologies in education, as well as for cooperation between science and business on a global scale.

The KazNU's achievements in digitization were highly evaluated by «Microsoft», a world-renowned company, as one of the best practices for effective business process automation. The experience of KazNU is being actively introduced and transmitted to other domestic and foreign higher education institutions.

5. KazNU also represents the largest science, technology and innovation Centre in Kazakhstan. What measures does the University take to develop its scientific and technological activities and innovations? What success have you achieved in this area? How does the University introduce scientific and technical achievements?

Al-Farabi KazNU is an intellectual corporation with a developed scientific and innovative infrastructure. By pursuing our transformation into a world-class research University, we seek to become a driver of the country's knowledge-based innovation economy.

The University has 13 R&D Institutes, over 30 Research Centers, business incubators, commercialization offices, and small innovative enterprises. Based on the cluster approach, an effective technological corridor has been created – «from the generation of an idea to its commercialization» – which makes it possible to introduce scientists' developments into real production. Every year, the University's scientists carry out about 500 research projects on fundamental and applied research. They also participate in more than two hundred projects involving foreign partners. At present, the Engineering and Science-Intensive Technologies Cluster, which includes the Science and Technology Park, the Process Innovation Centre and the Green Technology Centre, has been created and operates at KazNU, and more than 10 knowledge-intensive low-volume production facilities have been launched.

Every fifth scientific publication of Kazakhstani authors that are indexed in the international databases of Scopus and Web of Science is the contribution of KazNU scientists. It should be noted that about 60% of publications have been authored in collaboration with foreign scientists. Our University is the absolute leader in the country in terms of citations in such scientometric bases. In terms of all these indicators, we are already close to the level of world research universities.

We engage students actively in science. For this purpose, the University has developed an integrated system of education and research work of students, the themes of graduation works are synchronized with specific research and development projects. A good incentive to activate students' scientific work is to allocate 10% of the total amount of research funding to support student science. In addition, for the first time in Kazakhstan, KazNU became the first institution to open a postdoctoral program funded by the University's own funds in order to create a continuity of scientific talent and continue research of scientific schools.

This has resulted in the active participation of our students in a number of serious research projects. For example, the first Kazakhstani nanosatellites «Al-Farabi-1» and «Al-Farabi-2» have been constructed and launched with their participation. The University has more than 20 student business incubators, where 75 student start-ups and innovative projects are being implemented. It is extremely important that after completing their studies, the University graduates do not look for jobs, but create new jobs themselves by opening small innovative enterprises.

In the 1150th-anniversary year of the great thinker Al-Farabi, KazNU has initiated the creation of the «Al-Farabi Valley of Science and Technology». It would become a model for a new method of scientific management focused on the commercialization of scientific developments and based on the principles of scientific self-governance and economic self-sufficiency, promoting investment and economic diversification through the creation of high-tech and competitive industries.

The launch of the international IT-cluster «Alliance of New Silk Road Universities», which unites more than 130 leading higher education institutions of the world, will become the first step in creating the STV located in the KazNU campus. The agreement on this was reached at a meeting of the Executive Committee of the Alliance, and we invite Chinese Universities to take an active part in this project. The core of this project will be an IT-Technopark based on the «Silicon Valley» model as well as a Supercomputer provided to KazNU by a grant from the Chinese Government. An agreement on this was reached during the visit of President Tokayev to China in September last year. This project is designed to become a platform for attracting entrepreneurs and investors from around the world as well as one of the drivers of IT-technology development.

Furthermore, jointly with Chinese colleagues from the Research Institute of Aerospace Information of the Academy of Sciences of the People's Republic of China, a Remote Sensing Center was established on the basis of KazNU for the first time in Kazakhstan. The Center is used for scientific monitoring of the environment, the state of natural resources and agriculture, as well as for space imagery for research in geology and mapping, and for training specialists in «Cartography and Geodesy» and «Space Technology». Masters and PhD students of KazNU's undergo training and internships at the Research Institute for Aerospace Information in Beijing. The establishment of this Center is one of the most vivid examples of close and friendly relations between the higher education institutions of our two countries. I would also like to point out another promising project that our University is currently implementing. In cooperation with the Department of Science and Technology for Social Development of the Ministry of Science and Technology of the People's Republic of China, KazNU is working on the cultivation and preparation of plant materials for the manufacture of various medicines. Joint small-scale production of medicines based on the separation of new natural compounds from plant resources of Kazakhstan is launched at the campus of our University. For these purposes, the PRC has allocated 100 thousand dollars in total investment. Thus, our mutually beneficial cooperation is embodied in real promising projects and will be further enhanced.

6. As you indicated, KazNU is the Global Hub of the UNAI for Sustainable Development. Please tell us more about the main projects being implemented as part of this important activity.

In its capacity as the Global Hub, KazNU has developed and implemented a new generation higher education model – «University 4.0», which aims to broaden the scope of the universities' involvement from the role of producer and «guide» of knowledge and innovation to the mission of «transforming» the world through the civic qualities of their graduates based on high humanistic values. The University 4.0 model is based on the teachings of the great thinker Abu Nasr Al-Farabi, who was named in history as the Second Teacher of Humanity and whose name our University bears.

Reflecting on what a perfect society and a perfect person should be, Al-Farabi described a virtuous society a thousand years ago in which every person,

through mutual co-operation and assistance, seeks to achieve the common good – happiness. Why do we refer to this teaching today? It is primarily because of the deepest moral crisis that we are witnessing all over the world today. In the age of high technology, we are witnessing a threatening imbalance between unprecedented progress in science and technology and a dramatic spiritual and moral regression. We have experienced value disorientation of modern civilization, leading to a protracted spiritual crisis in our society. Under these circumstances, Al-Farabi's teaching of a virtuous society based on morality takes on a special meaning. Al-Farabi offers a single answer to any form of social destruction, aggression, and cruelty: virtue. It is the obligatory minimum, the severe necessity without which a society cannot function fully.

The thinker emphasized: «Knowledge without education, without morality, can do harm, not good». Al-Farabi's reasoning is similar to that of the wise Confucius, who also considered the main goal of education to be the spiritual growth of the personality, its improvement to the ideal of a nobleman «Junzi», the bearer of the highest moral qualities. As it is known, educational institutions have always been the centers of intellectual and moral education for the younger generation. In the Middle Ages, this mission was carried out by spiritual educational institutions and today by universities. A modern reading of Al-Farabi's teachings about virtuous society radically transforms the mission of universities in the world. Guided by this, as I have said earlier, KazNU as the UN Global Hub for Sustainable Development is implementing a new generation model of higher education institutions – «University 4.0». It is based on a symbiosis of high-tech and spiritual and moral platforms, which is essential in preventing the world of high technology from turning into a world without a soul. Konstantin Tsiolkovsky, the founder of cosmonautics, once said that: «I do not recognize technical progress if it exceeds moral progress». Albert Einstein developed this idea in his time: «I am afraid that the day will come when technology surpasses the simple human communication».

The global mission of modern universities should not be limited to the training of highly qualified specialists; it is much more important and involves the formation of citizens of the world with high spiritual and moral values capable of contributing to the sustainable development of modern society, who are responsible not only for their personal destiny but also for the future of all humanity.

The University 4.0 model has been introduced at the UN Headquarters in New York and is recommended for international dissemination as a promising model for university development that meets contemporary challenges. To further promote the idea of «University 4.0», our University, in collaboration with the UN Alliance of Civilizations, is implementing the international project «Formation of Citizens of a Virtuous Society. The Mission of Modern Universities». It aims to unite the spiritual potential of all universities in the world in order to jointly raise the citizens of the world – the creators of virtuous humankind. Today, Al-Farabi Centers in 12 of the world's leading universities have joined the broad dissemination of Al-Farabi's teachings on the peaceful co-existence of all

humankind and mutual assistance for the sake of happiness and on the unity of intellectual and moral perfection of the individual. There are around 30,000 universities in today's world, and I am sure that if each university realizing its global mission becomes an engine for progressive economic, social, and cultural changes in society, the task of making the world a more virtuous place will be realized.

7. In the context of coronavirus spreading around the world today, what role do you think the University should play?

The COVID-19 pandemic has severely damaged countries with even the most advanced healthcare systems, and continues to pose very difficult challenges for people around the world. Under these circumstances, we see an urgent need for the timely exchange of practical experience and the latest scientific and technological developments between countries in the fight against the spread, diagnosis and treatment of coronavirus.

At the same time, the crisis caused by the spread of the dangerous virus has increased the positive impact of unity, strength, and a sense of community. In every corner of the world, Universities, Research Centers, and other academic communities have joined the fight against the global COVID-19 pandemic at both local, national, and regional levels. The Universities have contributed their resources to support governments' efforts to prevent the pandemic, as well as to meet the needs arising from the effects of the crisis. This includes a wide range of activities, from conducting vital research to developing and producing personal protective equipment, providing access to relevant information and infrastructure for the needs of the population, and organizing volunteer activities. For example, in the laboratories of KazNU, the scientific development of hand protection products made of biodegradable material, antiviral drugs, and new immunostimulants is underway. To combat the coronavirus, chemical scientists of the University have developed an antiseptic designed to treat the hands of surgeons and medical personnel, as well as the skin of the operating and injection fields. A hydrogel antiseptic based on chlorhexidine has been developed, which, unlike water-alcohol solutions, has a prolonged effect. Our scientists also conduct research on the use of extracts of plants growing in Kazakhstan as a part of disinfectants and skin antiseptics to get new effective and user-friendly preparations. KazNU scientists are testing the radiation sterilization method developed by them for medical devices, as well as new modified polymer-based materials and composites for the production of latex gloves, diagnostic kits, and other medical devices.

KazNU has produced and donated a shipment of special protective helmets to medical institutions in Almaty. A provisory station for contact patients has been set up at the University's medical center. The medical lecturers provide medical assistance to the local population, and the University student volunteers in call centers and public support services.

We see from the example of the fight against the Coronavirus pandemic that the most important universal value of the «virtuous world» is relevant, on the basis of which mankind today joins its efforts. As Al-Farabi observed: «It is only by

uniting many people, who help each other, one can find the perfection to which he or she is destined by nature».

The crisis caused by the pandemic is a challenge for all of us. In Chinese, the word «crisis» is made up of two symbols, one meaning «danger» and the other meaning «opportunity». I am confident that the world will emerge stronger and more creative from the crisis.