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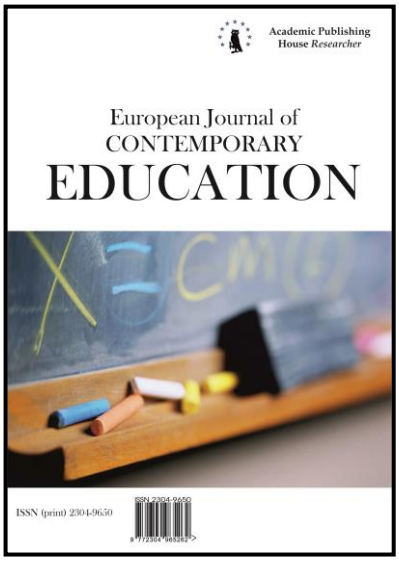


# The Formation of the Eurasian Research-and-Education Ecosystem and the Internationalization of Educational Platforms: the Case of Russia and China

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**Abstract**

The object of this study is to assess the potential for the development of the Russian market for educational services as a component part of the present-day process of internationalization of science and higher education in the countries of Eurasia, above all China and Russia. The paper describes Russia's and China's unique unifying and coordinating role in the development of a common educational space, which must result in the creation of a Eurasian research-and-education ecosystem. The authors conducted an analysis of the current structure of the ecosystem. The authors conducted an analysis of the current structure of the education ecosystem. The authors conducted an analysis of the currents structure of the sector of joint Russian-Chinese education institutions. The paper describes the current state of affairs regarding, and prospects for, the development of the government's digitalization program that is based on the concept of Digital 4.0, a paradigm that is increasingly becoming a natural environment for society to function and develop in. The authors explore some of the key trends and risks inherent in the development of the global market for educational platforms. The paper provides a rationale for the need to create a joint Russian-Chinese educational platform – one can hardly overestimate its role in the implementation of the Belt and Road Initiative transnational project. The study employed a set of traditional methods of research, including classification, comparative analysis, summarization, juxtaposition, and forecasting. In addition, it incorporates a sociological survey of students at Russia's leading universities. The authors made use of data from the Ministries of Education of China and Russia and various open-access statistics websites, as well as data from a sociological study of their own. The authors' assessments of the current potential of and trends exhibited by the Russian market for

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online education, as well as the fact that Russian students are interested in and prepared for active participation in online projects, helped put together a set of recommendations for boosting the competitiveness and efficiency of the Russian market for educational services and those for developing an international educational platform as part of the Eurasian educational ecosystem.

**Keywords:** Network University, research-and-education ecosystem, educational platform, e-learning education.

## 1. Introduction

Issues related to internationalization and globalization in the global system of education, the interrelationship between them, and their characteristics have been explored in numerous works by Russian and foreign scholars (Filippov, Sun, 2015; Pestereva, Krechetnikov, 2016; Collins et al., 2017; Krechetnikov, Pestereva, 2017; Altbach,2018; Ma, Zhao, 2018; Donetskaya, Zhan, 2019). These works analyze the multifaceted nature of the terms 'internationalization of education' and 'globalization of education', and show that the key subjects of the processes of internationalization and globalization are students, instructors, research associates, a university's administrative staff and members of non-governmental organizations and associations, while their key objects are research studies, international joint educational programs, resources invested in international activity, the international service system, international enterprises, networks and partnerships, and intercultural exchanges.

Research indicates that Russia embarked on the path of education internationalization and globalization later than most of the leading world nations did. However, the Russian educational system has high potential and good prospects in terms of the development of international educational projects. The market for exported educational services has grown considerably, and currently Russian educational institutions are attended by nearly 240,000 foreign students. Russia is currently in the world's top 6 for attractiveness for foreign students, and by 2025, based on projections from the UNESCO Institute for Statistics, the number of foreign students in Russia must increase to 710,000 (MESRE). However, it has been a failure trying to come across any official sources that would substantiate these figures. Based on which international projects and agreements, business processes, educational programs, and technologies will the nation be able to achieve promising results like those in the foreseeable future? A possible source of increase in the number of foreign students in Russia is the CIS, BRICS, and SCO Network Universities (Pestereva, Kholina, 2019), with Russia and China playing a key role in this area (Project 5-100, 2019; Decree, 2017). At present, the process of inter nationalization of Chinese education takes on the following forms: sending Chinese students and instructors abroad; enlisting foreign instructors, professors, and research associates; attracting foreign students into China, both at one's own expense and via a vast system of grants; developing joint educational programs in association with foreign colleges; implementing a system of double diplomas; implementing a system of modular learning abroad; implementing the use of foreign textbooks and bilingual curricula in the educational process; setting up foreign language centers (MEC – Ministry of Education of China).

Education globalization and the role of Network Universities. Globalization in the area of education has taken on the form of international integration based upon the convergence of the education systems, their inter complementarity, and their interdependence (Pestereva, Krechetnikov, 2016; Sun, 2017). In a climate of globalization, the system of higher education can directly and indirectly contribute to the development of national, regional, and global strategies on creating a globally-competitive services sector as a new value-base for the developed economies (Wu, Zha, 2018). In October of 2019, China celebrated two major events – the 70th anniversary of the founding of the People's Republic of China and the 70th anniversary of the establishment of diplomatic relations between Russia and China. It is worth noting that over the last decade the process of education internationalization between the two nations has developed not only actively but quite effectively as well, which can be illustrated by the following accomplishments: creation of the Shanghai Cooperation Organisation Network University (SCOU, 2011), the BRICS Network University (2014), joint educational institutions (JEIs), joint educational programs (JEPs), and joint research-and-education clusters (IRECs); expansion of the geography of colleges participating in the implementation of joint Russian-Chinese programs; development of academic mobility; implementation of research projects.

1.1. The current structure of the BRICS Network University. Russian and Chinese BRICS Universities Participating are presented in Table 1. The BRICS seeks to develop joint initiatives in education and through network implementation of collaboration Master and PhD programs, short courses and seminars for students, conferences and joint publications. All joint actions of the BRICS in education and research are aimed at: contributing to the production of knowledge relevant to the betterment of living conditions in BRICS countries; achieving open architecture of programs in interdisciplinary research areas and educational programs; suggesting innovation and outstanding courses only; designing new competencies for professionals in BRICS countries; integrating methods and discipliners from humanities and social sciences (https://nu-brics.ru).

**Table 1.** Russian and Chinese Universities Participating in the BRICS Network University

| Russian universities | Chinese universities |
|---|---|
| 1. Moscow State Institute of International Relations (MGIMO University) | 1. Fudan University (复旦大学) |
| 2. Lomonosov Moscow State University | 2. Zhejiang University (浙江大学) |
| 3. Moscow Institute of Physics and Technology | 3. Hunan University (湖南大学) |
| 4. MISiS National University of Science and Technology | 4. Jilin University (吉林大学) |
| 5. National Research Tomsk Polytechnic University | 5. Sichuan University (四川大学) |
| 6. Higher School of Economics | 6. Huazhong University of Science and Technology **(华中科技大学)** |
| 7. Moscow Power Engineering Institute | 7. Beijing Normal University **(北京师范大学)** |
| 8. National Research Tomsk State University | 8. Southwest University (西南大学) |
| 9. Peoples' Friendship University of Russia | 9. Henan University (河海大学) |
| 10. Saint Petersburg State University | 10. Northeast Forestry University **(东北林业大学)** |
| 11. Saint Petersburg National Research University of Information Technology, Mechanics, and Optics (ITMO University) | 11. North China University of Water Resources and Electric Power **(华北水利水电大学)** |
| 12. Ural Federal University named after the First President of Russia B.N. Yeltsin. | 12. Harbin Institute of Technology **(哈尔滨理工大学)** |

Joint educational institutions of China and Russia. Based on data from the website of China's Ministry of Education, China is currently home to a total of four Chinese-Russian joint educational institutions (displayed in the order created): (1) Jiangsu Normal University–Peter the Great St. Petersburg Polytechnic University; (2) Beijing Normal University–Lomonosov Moscow State University; (3) Weinan Normal University–Moscow State Pedagogical University; (4) International Arts Institute of Harbin Normal University–Surikov Moscow State Arts Institute.

1.2. Joint educational institutions of China established in association with foreign partners. In addition to those listed above, China is home to eight joint educational institutions with legal-person status (Table 2) and 72 joint educational institutions without legal-person status.

**Table 2.** China's Major Joint Educational Institutions with Legal-Person Status

| Name of the joint educational institution | Partners | Year established |
|---|---|---|
| University of Nottingham Ningbo China **(宁波诺丁汉大学)** | Zhejiang's Wanli Education Group; University of Nottingham (UK) | 2005 |
| Beijing Normal University–Hong Kong Baptist University United International College (**北京师范大学 - 香港浸会大学联合国际学院**) | Beijing Normal University; Hong Kong Baptist University | 2005 |
| Xi'an Jiaotong University–Liverpool University (西交利物浦大学) | Xi'an Jiaotong University; Liverpool University (UK) | 2006 |
| New York University Shanghai **(上海纽约大学)** | East China Normal University of Shanghai; New York University (USA) | 2012 |
| Duke Kunshan University (昆山杜克大学) | Wuhan University; Duke University (USA) | 2013 |
| Kean University Wenzhou (温州肯恩大学) | Wenzhou University; Kean University (USA) | 2014 |
| Chinese University of Hong Kong, Shenzhen (香港中文大学 (深圳) | Shenzhen University; Chinese University of Hong Kong (Hong Kong) | 2014 |
| Guangdong Technion-Israel Institute of Technology **(广东以色列理工学院)** | Shantou University **(汕头大学)**; Israel Institute of Technology (Israel) | 2015 |
| Shenzhen MSU-BIT University (深圳北理莫斯科大学) | Beijing Institute of Technology; Lomonosov Moscow State University (Russia) | 2017 |

The countries currently engaged in educational activity in China include the UK (19 educational institutions), the US (15), France (11), Germany (9), Australia (6), Hong Kong (5), Russia (4), and South Korea (3). With each of the following nations China has one joint educational institution in place: Ireland, Poland, Japan, Holland, Taiwan, Canada, Israel, New Zealand, Denmark, Belgium, and Finland. Also, there are two trilateral educational institutions in place: (1) an institution formed between China, the US, and the UK; (2) an institution formed between China, the US, and Canada.

In the last decade, competition in China's educational market has stiffened as a result of the emergence of "strong players" in it. To be able to expand the sphere of their influence upon the Chinese market for educational services, the Russians need to develop new strategies that will help boost their competitive edge and ensure the provision of quality education and attraction of Chinese students.

1.3. In February of 2019, the Russian government adopted the Strategy for Spatial Development (Resolution, 2019). It covers a set of regions' economic specializations which it has been recommended to take into account in putting together federal and local target programs. There are plans to create, by facilitating cooperation between science institutions and educational organizations of higher learning and the business sector, including by way of setting up new ones, no fewer than 15 world-class research-and-education centers, which in the Russian Federation will bring together educational organizations of higher learning and science institutions, research centers (including mathematics and genome-related ones), centers running as part of the National Technological Initiative, as well as innovation-focused scientific-technological centers. These plans envisage creating and developing, based on this kind of world-class research-and-education centers

and innovation-focused scientific-technological centers, a cutting-edge research-and innovation infrastructure which will incorporate a number of unique, MegaScience-type, research facilities (http://government.ru/projects/selection/740/35565/).

1.4. Another major project with a regional focus is a state project known as 'Flagship Universities in the Regional Economic Systems'. At present, the project involves 33 colleges, mainly institutions with a technical or technological specialization. The mission of a university of this kind is to facilitate the innovation-driven development of enterprises within the real sector of the regional economy based on advanced training of manpower for the regions, factoring in transformations in their needs for manpower and for innovative technology. Certain researchers (Ivanov, Sokol-Nomokonov, 2018) are of the view that this government program must result in a system of integrated educational and scientific space in the regional, interregional, and international aspects that will help ensure the stable operation and development of the economy in every region of Russia. Major significance is attached to issues of networked interaction among technical, pedagogical, and medical colleges, with a focus on speeding up integrated innovation-driven development in the regions.

1.5. In the last decade, as part of the process of education internationalization, the Eurasian space has witnessed the establishment of several network universities (the CIS, BRICS, and SCO Network Universities), a few dozen international joint educational institutions (e.g., those in China), a number of regional and near-border educational and scientific-technological clusters, and a number of international specialized clusters (e.g., those focused on culture and arts), etc. The result of this close international cooperation was the creation of a modern Eurasian scientific and educational ecosystem.

As commonly known, the terms 'ecosystem' and 'ecosystemic approach' emerged in the mid-20th century in the Earth sciences (geophysics, geoecology, and biology), and were later adopted by sociologists and economists. Afterwards, in 1993, economist James F. Moore (Moore, 1993) introduced the term 'business ecosystem'. The business-ecosystemic approach helps achieve better-quality and more credible assessments of parameters for the development of the socio-economic environment in all its diversity by focusing primary attention on a specific spatial-temporal context. This makes it possible to take account, in a dynamic and integrated fashion, of the following: the nature of interaction between economic and social agents; models of their business, investment, and innovation activity; their relationship with the natural environment; their relationship with the surrounding operational environment – the business ecosystem. Today, the term 'educational ecosystem' is used widely at both the international and national (and regional) levels (Kondakov, 2019 and etc.).

1.6. Internationalization of Educational Platforms. Online educational projects within the system of international education. In 2012, online learning was recognized in Russia as a form of education that can be employed as part of higher education programs (Federal Law..., 2012). This made it possible to officially grant distance learning program graduates the same kind of state diploma as the one granted to full-time students. It is known for a fact that combining school with major-related work helps boost a graduate's competitiveness in the labor market, as that helps acquire additional competencies in the actual workplace (MESRF, 2019).

Based on data from certain experts, Russia is currently experiencing a boom in the development of online technology, not only based on domestic educational platforms but foreign ones as well. Already today there are over 100 foreign companies operating in Russia that provide instruction by way of electronic technology, with their clientele currently numbering over 350,000 Russian citizens. At present, nearly 90 % of all educational institutions around the world are prepared to provide instruction in online form. Unfortunately, in this area Russia is five-to-seven years behind the rest of the world at the moment (http://hr-media.ru/19-krupnejshih-rossijskih). A possible way to boost the competitiveness of the internal and external markets for educational services is to develop online learning – as a variety of the latest digital technology which includes the Internet of Things (IoT), Big Data, AR and VR technology, etc.

The findings from a survey of the Russian market for online education indicate that most users are in the 16–19-years age group. This is testimony that in the near future for prospective students who finished high school during the Industry 4.0 era digital technology will be a natural environment to live and develop in. It is quite logical to venture the assertion that digital-era

prospective students will make their choice in favor of educational institutions that will be able to offer them a wider spectrum of various educational online programs and particular online courses.

Russian colleges which are key players in Russia's present-day market for online education technology. These, above all, are Lomonosov Moscow State University (based on the Universarium platform); Higher School of Economics (based on the National Platform for Open Education); Saint Petersburg State University; Moscow Institute of Physics and Technology (based on the Coursera platform); Russian Presidential Academy of the National Economy and Public Administration (based on the Uniweb and Hexlet platforms).

Some Russian universities are keenly creating content of their own for online courses that are based on the Coursera international educational platform. For instance, over the last six months the Higher School of Economics has launched as many as 12 educational courses, which have drawn over 100,000 enrollees. This is five times the number of full-time students attending the school's Moscow, Nizhny Novgorod, Saint Petersburg, and Perm branches (https://elearning.hse.ru/mooc).

Another argument in favor of creating a new educational platform for the SCO Network University is the findings from a study by a group of research associates and professors at Lomonosov Moscow State University (Anosov, Bryzgalina, 2018). The study has helped accomplish the following: (1) explore comparative statistics related to implementing online learning technology in the educational process; (2) establish the key differences between the domestic and foreign online learning systems; (3) establish some of the potential risks inherent in the use of foreign educational platforms within the Russian system of education.

## 2. Materials and methods

2.1. The work's source information is grounded in open data from the official websites of universities in Russia and China, national websites on education, articles from journals indexed in WoS and Scopus, and a scientific electronic library built based on the Open Science paradigm.

2.2. The authors also made use of data from the websites of the following organizations:

– Ministry of Education of China (http://www.crs.jsj.edu.cn/index);

– Shanghai Cooperation Organisation University in China (www.usco.edu.cn);

– Shanghai Cooperation Organisation University in Russia (http://uni-sco.ru);

– Ministry of Education and Science of the Russian Federation (https://minobrnauki.gov.ru/ru/activity/statan/stat/highed);

– National Bureau of Statistics of China (http://www.stats.gov.cn/english/Statisticaldata/AnnualData).

2.3. To study the attitude of Russian students to the model of online learning, the authors conducted a sociological study in the form of questionnaires. First of all, the authors were interested in students' awareness of the existence and possibility of obtaining education or individual courses on the basis of online platforms. The questionnaires were compiled by professors N.M. Pestereva (PFUR, Russia) and Sun Yuhua (DUIA, PRC).

2.4. The work employed a set of traditional methods of research, including classification, comparative analysis, summarization, juxtaposition, and forecasting.

2.5. To ensure the veracity of the results, the authors employed statistical analysis. The significance level (p-value) was calculated for each correlation using Pearson's $\chi 2$ test (Chi-square Goodness of Fit tests).

## 3. Results

Globalization in the area of education has taken on the form of international integration based on the convergence of the education systems, their inter complementarity, and their interdependence (Dreval, 2018; Guruleva, Bedareva, 2019). In a climate of globalization, the system of higher education can directly and indirectly contribute to the development of national, regional, and global strategies on creating a globally-competitive services sector as a new value-base for the developed economies. The number of participants in the educational process is constantly growing, with new joint educational programs and research projects getting implemented, the process of the academic mobility of students, instructors, and educational programs gaining momentum, new forms and types of knowledge transfer emerging, the learning process getting transformed, and cross-border cooperation expanding (Research..., 2019).

A result of these transformations and innovations is the creation of new educational platforms **which** will be seen as an innovative form of organizing the learning process i**nvolving** the use of online learning technology and resources associated with distance, open, electronic, networked, and virtual (AR and VR-based) learning technology (Pestereva et al., 2019). In the view of a group of researchers from Lomonosov Moscow State University (Anosov et al., 2018), mankind is currently witnessing the emergence of a new economic paradigm – Industry 4.0. Today, the global market for educational platforms, as an innovative form of organizing the learning process, is developing at a rapid pace, with many phenomenal vistas of opportunity opening up along the way. At the same time, the process of creation and adaptation of a new learning platform is attended by a number of risks which are based on the equivocal nature of their long-term cumulative effect, as projected through the prism of the cultural, humanitarian, socio-economic, and other dimensions of social life.

Foreign educational platforms are currently used in the Russian education system for the following key reasons:

- to help familiarize students and instructors with top international scientific schools (65 %);
- to help promote Russian educational programs within the international educational space (30 %);
- to help implement in the nation's educational space the latest teaching concepts and ensure the implementation of top learning courses by way of online learning (36.7 %);
- to get to know various Russian scientific schools and search for and select talented youth (15 and 13.3 %, respectively).

At the same time, there are a number of possible threats and risks that are inherent in the use of foreign educational programs, which are as follows:

- traditional learning modules getting mechanically converted to distance learning format, with the focus shifting to the development of online courses;
- content-related risks (e.g., the course's content and design, insufficient depth of knowledge, lack of the ability to discuss an issue, etc.);
- socio-economic and political risks (e.g., the risk of the pedagogical load being redistributed in the direction of increase, changes in the role of the instructor, personal data issues, etc.);
- socio-psychological and pedagogical risks (e.g., incorrect forms of control, problems with motivating one to study, and declines in the value of knowledge, etc.);
- organizational-managerial risks (e.g., insufficient control of knowledge, technological risks, longstanding principles of classic pedagogy getting stifled, etc.);
- threat of the use of the Russian language getting suppressed in the domestic educational space and that of a brain-drain of the nation's more talented youth to other countries;
- unfair competition, unsubstantiated preferences in favor of the use of foreign systems, etc.

While the implementation of online learning is a global process, there is, however, a concern that fostering all-out openness and adopting uniform global standards may result in the loss of the very traditions in particular scientific schools which, combined, have formed the basis of basic education in a nation (Romanova, Gasanova, 2017). A group of researchers at the RANEPA's Federal Institute for the Development of Education led by V.I. Blinov (Blinov et al., 2019) and researcher V.V. Korovkin, of the Skolkovo business school (Korovkin, 2019), have suggested that the current transformation of the educational process taking place as a result of the Digital 4.0 revolution implies changes in the activity of students and instructors and the creation of a digital educational environment and will naturally require new forms of methodological and instructional support. At the same time, the processes of creation and adaptation of a new educational platform come with a number of risks associated with the equivocal nature of their long-term cumulative effect, as projected through the prism of the cultural, humanitarian, socio-economic, and other dimensions of social life.

The Eurasian research-and-education ecosystem (EREES), which brings together peoples with a common culture of long standing, common national values, a common mentality, and a common aspiration toward sustainable socio-economic development in their regions (Figure 1) and is oriented toward resolving both regional investment-related (Decree, 2018) and national (Decree, 2017) and cross-border projects and programs, including the global transnational project 'Belt and Road Initiative' (International Students (2019), Joint Statement (2015) has all it takes to develop an online learning platform of its own. This should help pool resources and design a single

integrated strategy for the implementation of online education in the SCO Network University, which, in turn, should help boost the competitiveness of the SCO, CIS, and BRICS Network Universities in the Eurasian market for educational services.

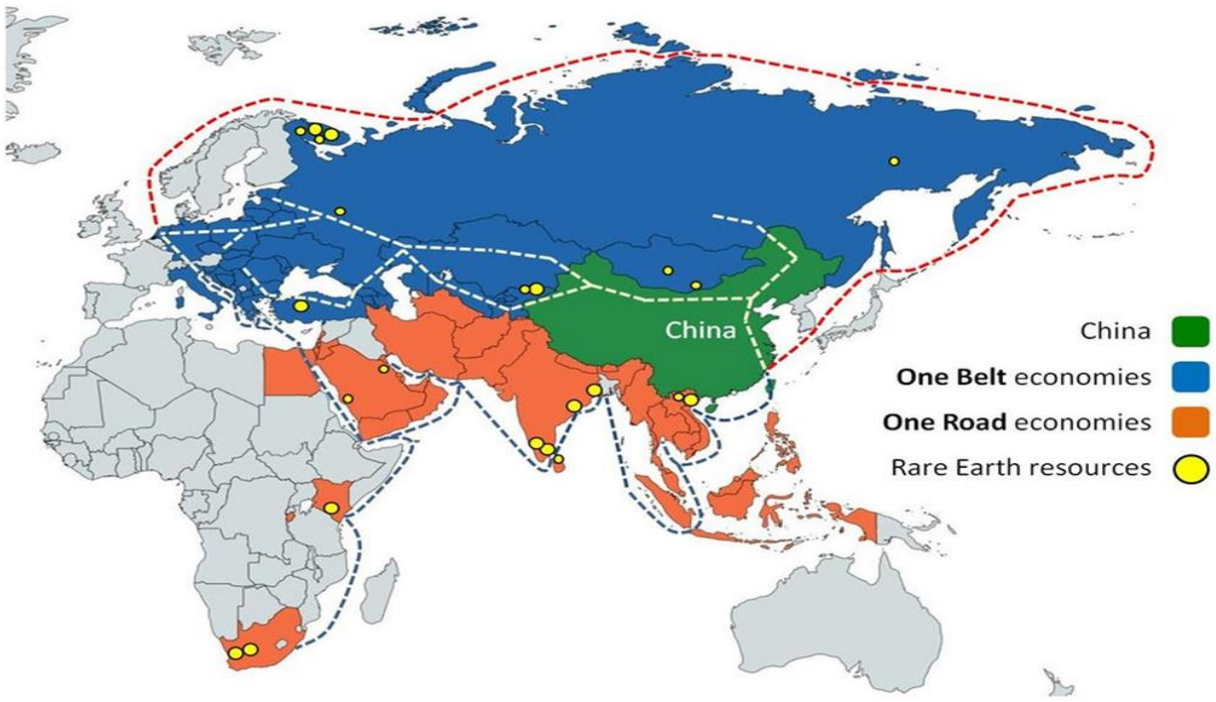


**Fig. 1.** Flowchart Belt and Road Initiative participating economies and transportation corridors

In the first stage, the pilot project will involve the creation of an educational platform that will feature the more keenly cooperating Russian Chinese colleges that are part of the SCO Network University. Below are some of the key principles that form the basis for ensuring the high quality of online-courses offered as part of a new educational platform:

• ensuring conformance with requirements set out in the state educational standards established by Russia's Ministry of Education and Science and China's Ministry of Education;

• researching the mechanics and characteristics of the market for exported educational services in both countries;

• conducting a segmentation of the market for educational services;

• in putting together priority joint educational programs, one must take account of recommendations and expert assessments from employers implementing transnational projects;

• a possible basis for developing real online courses is the outcomes from scholarly and ranking-based research on demand for joint educational programs;

• preference is mainly given to joint educational programs that offer two diplomas (bachelor's and master's degrees), as well as joint programs on the retraining and advanced training of personnel from key countries participating in the Belt and Road Initiative transnational project;

• special consideration will be given to the quality and effectiveness of online courses, as well as procedures for assessing the learning outcomes;

• online courses will be designed by top instructors at each college;

• the quality of the learning material will be guaranteed based on the outcomes from internal examinations conducted at a college participating in the pilot project or research by a joint international assessment center;

• assessment aids will undergo examination by an educational-and-methodological association, while user identification will be done via proctoring or biometric technology;

• special consideration will be given to the development of two-diploma programs for students attending a partner college and willing to receive a diploma from a university (or a secondary vocational institution) in the country which they are a resident of;

• following the quality assessment procedure, online courses offered via the new educational platform will be recommended for inclusion in the individual learning plans of students at any college in Russia or China;

• there are plans to develop interactive online courses based on the use of AR and VR technology;

• online courses offered via the new educational platform will be developed in Russian and Chinese, and later they will be translated into the language of each nation participating in the SCO Network University;

• the project will be oriented toward wide cooperation between Russian and Chinese partner universities.

It may be worth providing those willing to have an online course credited while pursuing a bachelor's or specialist's degree at a college with the opportunity to receive a special certificate as part of a project implemented by Russian and Chinese colleges. It could be possible to grant this kind of certificate to a student if they meet a set of requirements related to taking the online course (e.g., student identification checks and control over compliance with the terms and conditions for the activities). It could also be possible to let one receive certificates from two universities – a Russian one and a Chinese one.

Organization and results of the sociological study. Of interest is the degree to which students are aware of, interested in, and prepared for learning by way of the online course system. To assess it, the study incorporated a short survey of students pursuing Bachelor's and Specialist's degrees in Economics at two Russian universities. The survey engaged a total of 80 students, 40 from each college.

It should be noted that the creation of the CIS, BRICS, and SCO Network Universities has provided a substantial impetus for the process of internationalization of higher education in the countries participating in these international projects. A project that has facilitated major boosts in the mobility of students, instructors, and educational programs (Pestereva, Kholina, 2019) is Russia's 5-100 Project. This undertaking has helped enhance the competitiveness of the Russian market for exported educational services in the international arena. However, the results are far from desired for now. Today's trends in the development of the process of education internationalization are indicating a steady focus on the use of e-learning (online learning) technology in the educational process with all forms of learning. As evidenced by the experience of foreign educational institutions, as well as that of top universities in Russia (e.g., Moscow State University, Higher School of Economics, and Russian Presidential Academy of the National Economy and Public Administration under the President of the Russian Federation), online learning *is* in demand today within the higher education system (Anosov, 2018). Success in implementing online learning requires the availability of one's own resources or access to recognized international educational platforms.

What potentially can help enhance the competitiveness of universities within the Eurasian educational ecosystem, where a key role is being played by Russian and Chinese colleges, is a single educational online platform. This paper represents an attempt to assess the degree to which Russian students are aware of, interested in, and prepared for learning by way of the online education system. To this end, the study incorporated a sociological survey of students pursuing Bachelor's and Specialist's degrees at the Peoples' Friendship University of Russia (the Department of Economics) and the Russian Presidential Academy of the National Economy and Public Administration under the President of the Russian Federation (the Institute of Finance and Sustainable Development). The questionnaire-based survey engaged a total of 80 individuals (40 from each institution). The queries in the questionnaire were designed by Professor N.M. Pestereva.

The outcomes appear to be quite promising. Most Russian students *are* familiar with the term 'online education' (90 % of the respondents), with around a third of them aware of the Russian system of and Russian platforms for online learning (Table 3). Having said that, 60 % of the respondents are not familiar with foreign online systems and platforms. Almost half of the respondents (49 %) are interested at least in partial use of online courses offered by the educational institution they go to.

**Table 3.** Degree to Which Russian Students are Aware of and Interested in for Learning by Way of the Online Learning System

| No. | Question | Possible respondent answers | | | | |
|---|---|---|---|---|---|---|
| | | Yes | Rather 'Yes' | Undecided | Rather 'No' | No |
| 1 | Are you familiar with the term 'online learning'? | 72 | 5 | 0 | 3 | 0 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =246.126; $\chi^2$ 0.01 = 13.27 | | | |
| 2 | Are you familiar with the Russian system of online learning? | 27 | 19 | 5 | 21 | 8 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =21.25; $\chi^2$ 0.01 = 13.27 | | | |
| 3 | Are you familiar with any Russian platforms for online learning: | 29 | 15 | 13 | 11 | 12 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =21.25; $\chi^2$ 0.01 = 13.27 | | | |
| 4 | Are you familiar with any foreign system of online learning? | 9 | 11 | 5 | 9 | 46 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =71.50; $\chi^2$ 0.01 = 13.27 | | | |
| | | Yes | Rather 'Yes' | Undecided | Rather 'No' | No |
| 5 | Are you interested, at least partially, in taking online courses provided by your educational institution? | 39 | 7 | 23 | 7 | 4 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =55.25; $\chi^2$ 0.01 = 13.27 | | | |
| 6 | Are you interested, at least partially, in taking online courses provided by other educational institutions? | 28 | 9 | 9 | 13 | 21 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =17.25; $\chi^2$ 0.01 = 13.27 | | | |

Over half of the students surveyed (52 %) believe that the system of online courses will enable them, during the period of their study via the core curriculum, to get a second higher education diploma, a diploma of professional retraining, or a diploma of advanced training, including from a foreign partner college (Table 4). The form of study can vary (e.g., internal study mode, external study mode, and blended study mode).

**Table 4.** Degree to Which Russian Students are Prepared for Learning by Way of the Online Learning System

| No. | Question | Yes | Rather 'Yes' | Undecided | Rather 'No' | No |
|---|---|---|---|---|---|---|
| 1 | Are you prepared to receive education by way of online learning? | 18 | 13 | 5 | 19 | 25 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =14.00; $\chi^2$ 0.01 = 13.28 | | | |
| 2 | Do you see promise in the use of the online learning system? | 42 | 0 | 23 | | 15 |
| $H_j$ [i] | | $H_1$ [0.01], | $\chi^2$ *emp* =77.37; $\chi^2$ 0.01 = 13.27 | | | |

*Note.* Acronyms in Tables 3 and 4: results from the authors' survey of students at the Peoples' Friendship University of Russia and the Russian Presidential Academy of the National Economy and Public Administration under the President of the Russian Federation.

Designations in Tables 3 and 4: $H_j$ – null hypothesis (j = 0, difference between the distributions is not statistically significant, $H_0$; j = 1, difference between the distributions is statistically significant, $H_1$); $\chi^2 emp$ – empirical frequency, $\chi^2 0.05$ – critical value of the theoretical frequency, significance level P – 0.05; $\chi^2 0.01$ – critical value of the theoretical frequency, significance level P – 0.01.

Since the samples were not large enough, statistical analysis was employed so as to ensure the veracity of the results. The significance level (p-value) was calculated for each correlation using Pearson's $\chi^2$ test (Chi-square Goodness of Fit tests). As commonly known, the difference between two distributions can be regarded as significant if $\chi^2_{emp}$ is equal to or greater than $\chi^2_{0.05}$, and it is all the more significant if $\chi^2_{emp}$ is equal to or greater than $\chi^2_{0.01}$ (the $H_1$ hypothesis). The distribution of $\chi^2$ statistics does not depend either on the expected value of the chance quantity X or the dispersion $\sigma^2$ but depends just on the size of the sample N. The results from the authors' assessment of the null hypothesis based on Pearson's chi-squared test (Table 3 and Table 4) are quite satisfactory and, thus, confirm the advisability of taking the approach adopted by them.

Currently, the best-known and most recognizable Russian educational platform among Russian students is Open Education, with Khan Academy and Coursera taking the cake among the foreign ones. Many Russian students are prepared right now to receive basic education via online technology. As evidenced by the survey's results, some do not rule out the possibility of going for a second education, including a Master's degree by way of blended or external study mode, with elements of online learning technology.

As evidenced by earlier research into the subject, one of the commonest forms of student mobility today is that of students who are actively engaged in sports, are keen on arts, take an active part in various contests and Olympiads for talented youth, and engage in volunteering activity (Pestereva, 2015). Students of this kind tend to be successful and rank high academically. The availability of online courses in educational institutions will help open new vistas of opportunity for students. Anywhere around the globe will they be able to make use of electronic learning aids, complete their assignments on time and in line with the curriculum, and, based on a set of assessment criteria, get an objective grade for their knowledge. If desired, a student can receive a special certificate.

Online courses will enable students to design on their own an individual learning path within colleges partnered with network universities and the Eurasian research-and-education ecosystem as a whole, which will make it possible for them to engage, without detriment to the core learning process, in cognitive, sports, cultural, and social mobility, as well as work activity.

## 4. Discussion

The active processes of internationalization and globalization of higher education witnessed over the last few decades and trends toward the creation of network universities, which bring together various nations and peoples, have resulted in the emergence of national and international research and education clusters. The implementation of one of the major global cross-border projects, China's Belt and Road Initiative, has resulted in the creation of the Eurasian research-and-education ecosystem, which brings together universities and educational institutions across a number of nations and entire continents – Asia, Europe, America, and Africa. Today, there is a unique opportunity to capitalize on pooling resources, knowledge, innovations, and technologies. Based on data from the UN, at present nearly 90 % of all educational institutions around the world are capable of offering online education in various forms. At the moment, in Russia education by way of electronic technology is provided by over 100 foreign companies, with their clientele numbering over 350,000 Russian citizens.

As our pilot case study showed, the Russian student community as a whole is ready to master modern digital education technologies.

## 5. Conclusion

The key trends in the development of the global and Eurasian market for online learning include mobile education and integration with social services. The rapid development of the market for smartphones, PDAs, and tablet PCs is helping generate new innovative ideas and technologies, which includes plans for the keen use of AR and VR technology within the educational environment. As evidenced by a set of sociological surveys of Russian students at colleges within

**the CIS, BRICS, and SCO Network Universities** (the Eurasian educational ecosystem), most students are interested in and prepared for receiving education, either in part or in full, in online form. A noteworthy fact is that many students who currently are being taught without the use of online course technology have displayed quite a high degree of knowledge about domestic and foreign educational platforms. Nearly 40 % of the respondents are, to one degree or another, knowledgeable about major Russian educational online platforms, while 11% are familiar with foreign ones. Over half of the students surveyed (52 %) consider the online learning system to be promising and are prepared to be educated this way.

Thus, the availability of a cross-border, multinational Eurasian research-and-education ecosystem, existing trends in education (including those based on Industry 4.0), as well as the willingness and preparedness of youth and students to employ in their individual educational process various models, forms, and types of online education, provide the basis for speeding up the process of designing a general concept and implementing a pilot project on the development of a new educational platform, one that will be known as 'Eurasia'.

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