

# 23 Digital Onboarding of Russian Higher Education under Pandemic

Vladlena E. ZAREMBO

Daria A. STEPANENKO

Saint Petersburg State University of Economics, Russia

## 23.1 Abstract

The article describes research of education levels' rankings as a primary aspect of development of economics based on diverse indices. The conclusion of applicability of GII for evaluation of elements of higher education quality provision under pandemic was made. The higher education innovation research demonstrates predominance of innovations by necessity. The review of digital educational technologies speaks for their diversity and effectiveness under pandemic.

**Keywords:** innovations, innovation activities, higher education, quality, digitalization, pandemic.

The worldwide concerns of determination of the higher education quality under pandemic has raised especially badly under the pandemic. The research of education level is a primary aspect of indication for development of economics in any country. Since 1980, twice a year in line with the Development Program of the UNO the combined parameter of Education Index has been calculated. The Index considers education of adults (2/3 of the total weight) and total part of education of students (elementary, secondary and higher education) (1/3 of the total weight). It is widely accepted that the developed countries shall have minimum index value of 0.8, although many of those have 0.9 and beyond [6].

In 2018 (the data were published in 2019), Russia took the position 33 with the Index value of 0.832. It enables considering Russia as a developed country. But some other countries, for example, Lithuania (18), Estonia (19), Latvia (22), Georgia (26), Belarus (30) have higher positions in the ranking. It poses questions.

Practically, this Index has a row of restrictions:

- It does not reflect the quality of education itself. The latter may be in some cases very low or essentially restricted;
- It does not show complete difference in education availability due to age requirements' and tutorial duration difference;
- No average duration of education or expected duration of education is considered which is an important issue in evaluation of the education level;
- It does not consider students studying abroad, which may distort the data in some small countries.

Additionally, the Ranking of Countries in Global Education Expenditure may be applied [7]. It is subject to annual calculation as a total volume of state and private expenditures for education pronounced in percent of GDP.

Since 2012, several times a year, the British International Company Pearson has been calculation the Global Index of Cognitive Skills and Educational Attainment [8]. The proceedings developed by the company The Economist Intelligence Unit considers 2 groups of indices: cognitive skills and education level. With it, cognitive skills shall be evaluated by the

elementary school students and the educational attainment is subject of evaluation by educated students of secondary and higher education.

The level evaluation of digital transformation of higher education and education in general is difficult. The following rankings based on the following indices are mostly wide spread:

- The ICT Development Index — IDI;
- The Digital Economy and Society Index — DESI;
- The Economics Digitalization Index of the Boston Consulting Group (e-Intensity);
- The Networked Readiness Index — NRI;
- The Global Innovation Index — GII.

The analysis of the existing international indices and rankings enabled Goloventchik G.G. [1] to put Russia to the position 39.3 worldwide in 2018. Based on the GII data for the year 2020, Russia takes the position 17 with the subindex 2.2. Higher Education in close proximity to Switzerland (18) and Republic of Korea (16), and the United Kingdom (15). Figure 1 demonstrates the progress of the Subindex 2.2.

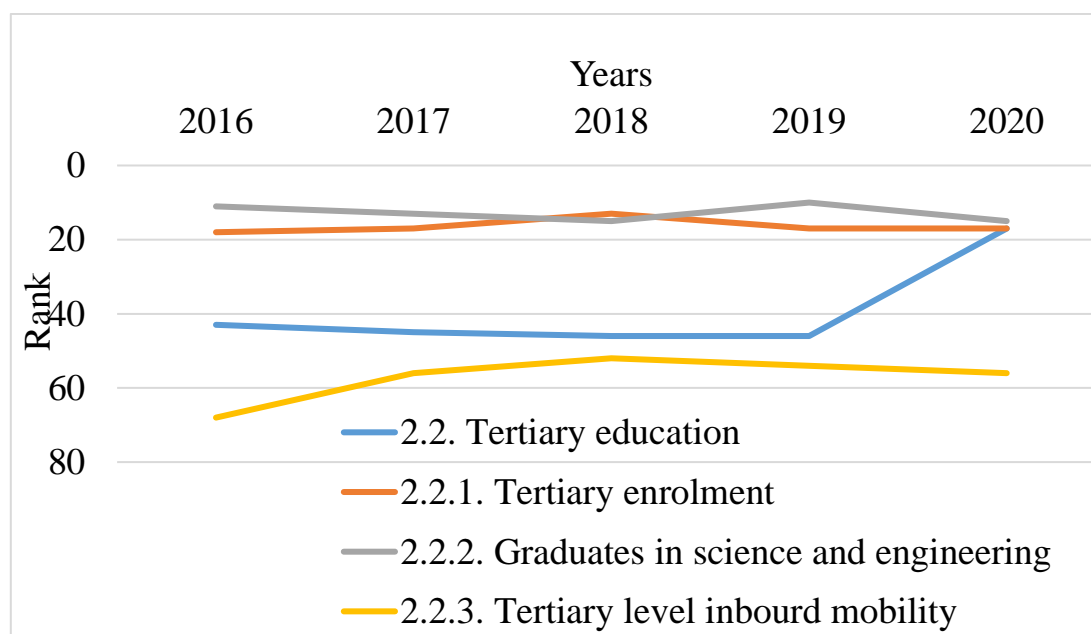


Figure 1: Russian Ranking with the Subindex of Higher Education for the period of 2016-2020 [9]

The figure shows that during the period of 2016-2019 the higher education system took the positions of 43 to 46, and in 2020 Russia raised to the position 17! The analysis of the components enables no detection of obvious reasons of this break, because the amount of matriculated, graduated students of technical and scientific directions and the part of foreign students studying in Russia do not demonstrate any rapid changes. The number of graduates of technical higher schools remains strength of the Russian higher education. In 2019, Russia took the position 10 in this index.

Under the pandemic, the influence of digitalization upon the level of development of higher education may be evaluated with application of digital technologies. One of the components of the evaluation of innovation activities of the regions is the Subindex 3.1. Information and Communication Technologies.

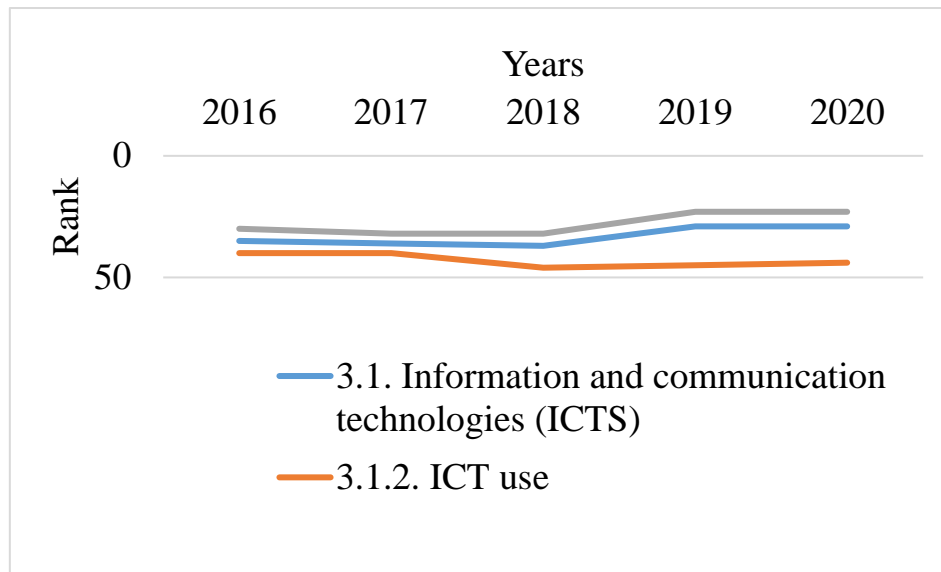


Figure 2: Progress of Russian Ranking with the Subindex of Information and Communication Technologies for the period of 2016-2020 [9]

The figure shows that within the last 2 years Russia has increased its ranking in application of ICT mostly due to the quality in the presence stage of e-government.

The research of innovations applicable in the system of higher education under the pandemic based on the classification offered by the authors [5] shows as follows:

- educational innovations by necessity, with their evaluation criteria and well determined tasks to be solved by the innovation;
- academical innovations: the innovation shall be created first and then it shall be determined where to apply it.

Due to the COVID-19 pandemic, the digital technologies in different spheres of activities gained rapid growth. The education sector demonstrates especially high growth. The modern educational establishments used to apply distant technologies. Their application although was a supplement to existing methods. For today, the distant learning made a break with implementation of innovations by necessity.

Y. Somov, the Director of the Mathematic Center of the Physics and Mathematics Lyceum N 239 [12, p. 85] acknowledges two models of the online-education: learning guides and services. The first type of learning guides provides quality during building of the contents. The second type of services means a process approach to building contents in higher education. The services contribute to provision of skills, competences and knowledge of students. Lectorium, Universarium, OpenEdu and partially Stepik represent the Russian market of higher education in the segment of massive open online courses. With it there is a trend to leave a part of education programs (not profile ones) for outsourcing. For example, Skyeng teaches English for the students of the Tomsk University [13].

No research of digital technologies for higher education is possible without consideration of influence of the state. In 2015, the project of Modern Digital Educational Environment in the Russian Federation started [11]. It could not attract enough users. But the higher education Figure 3 shows progress of managerial tasks' digitalization in higher professional education.

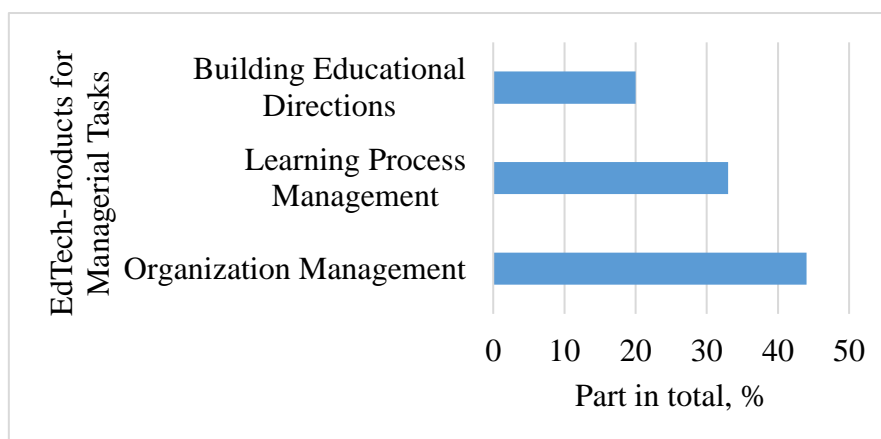


Figure 3: Progress of EdTech-Products for Managerial Tasks in Professional Education abroad, 2019 [7]

The higher education establishments in the Russian Federation have been using the software before too. But these products were of interest for just few of teachers. Now under the pandemic they gain more demand. The most popular software products for today belong the following: Zoom, Skype, Discord, Microsoft Teams. The analysis of the higher education efficiency online demonstrates that it depends on the feedback directly [4, 3]. This is possible in the service model only.

The understanding that the university online courses may become services turned to be false: The education quality through acquiring educational courses of other higher schools demonstrates negative results. For example, once the students of one regional higher school took part in the profile course purchased from a higher school in the capital, the students could demonstrate no good knowledge.

The research of the Russian online-education market demonstrates its diversity. The higher schools use the instruments of the massive open online courses and introduce actively simulators [14], adaptation courses [13], own systems of proctoring [10], analytics of digital traces and psychometrics [2]. Most of the higher schools which intended to comply with the modern trends of online-education created internal systems of digital learning with no innovative power at all. Gamification and VR-simulation are introduced in several high schools only.

Recent application of digital technologies has changed approaches to arrangements of educational process. Different education establishments did it their own way. Considering influence upon the quality of education one can trace direct dependency upon qualification of a teacher and how skilled he/she is in information services and also upon his/her learning abilities in this direction. Skills of rebuilding programs for distant classes matter too. There are many free of charge additional services, which may contribute to harmonization of the learning process and with its correct organization increase the interest of students. The current students belong now to so called Z-Generation raised in the information technology age. Once building classes, one has to consider their interests as much as possible. Application of online-technologies in education has brought its problems too: a teacher has to spend more time for monitoring and in front of a computer. But there is an option to supplement and enhance, and harmonize courses and create wonderful distant courses.

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