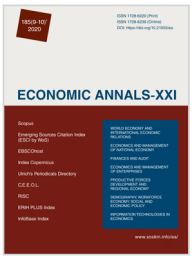

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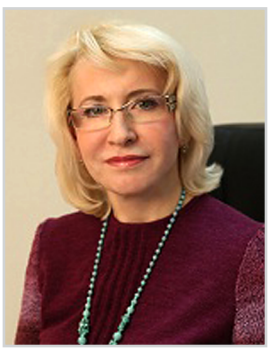

Analysis of the situation in higher education during the COVID-19 pandemic in the world: opportunities and threats of online training

Abstract
Introduction. The essence of the situation in education during the COVID-19 pandemic in the world is quite complex: due to the large number of restrictions in some countries, education is conducted completely remotely or hybrid. In the period of 2020, medical university students were forced to practice in hospitals in the context of the pandemic, helping local medical staff, which helped to fill the shortage of specialists.
The quality of education will inexorably fall due to low involvement in remote education as well as many distractions which have already proven many researchers.
Universities were not ready for mass digitalization due to government restrictions and social distancing, so the quality of material transfer cannot match the classical education.
The purpose of the study is to examine the impact of the pandemic COVID-19 on the medical education market and its stakeholders.
Results. Universities were not ready for the transition to online (distance) education, as evidenced by the decline in the quality of education, based on surveys of the faculty of some universities. As a result, on the one hand, you can get higher education online while in your country, on the other hand, the quality of education falls without an adequately commensurate practical part (for example, medical education cannot be of high quality when it is taught online).
Over time, only the year 2025 is expected to surge technologies to improve online education and the full transfer of many universities to provide distance learning; it is a good chance to get an education to those who previously could not obtain it, including for economic reasons.
Conclusion. The global COVID-19 pandemic has become a catalyst for global processes of digital transformation in all spheres of life. In such circumstances, the role of digital technologies in education has become extremely important. Among the many technological advantages, their ability to protect human lives and at the same time ensure the implementation of the educational process remained almost unnoticed. Current situation has accelerated the mass transition to the use of digital technologies, including digitalization of education, its technologization and standardization.
Keywords: Medical Education; COVID-19; Digitalization of Education; Technologisation; Standardization
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Аналіз ситуації в вищій освіті в період пандемії COVID-19 у світі: можливості та загрози он-лайн навчання

Анотація

Вступ. Ситуація в освіті в період пандемії COVID-19 у світі досить складна: через велику кількість обмежень у деяких країнах навчання ведеться повністю дистанційно або в змішаній формі. У період 2020 року студенти медичних університетів змушені були проходити практику в лікарнях в умовах пандемії, допомагаючи локальному медичному персоналу, щоб заповнити нестачу фахівців.

ВНЗ не були готові до масової цифровізації через урядові обмеження й соціальне дистанціювання, тому якість передачі матеріалу не може відповідати класичній освіті. Якість освіти буде невблаганно падати через низьку залученість у процес віддаленої освіти, а також багато відволікаючих чинників, як зазначається в сучасних дослідженнях.

Мета дослідження полягає у вивченні впливу пандемії COVID-19 на ринок медичної освіти та його стейкхолдерів.

Результати. Університети не були готові до переходу в сферу освіти онлайн (дистанційної), про що свідчить зниження якості освіти, виходячи з опитувань професорського складу деяких вузів (Beaunoyer et al., 2020). В результаті, з одного боку, можна отримати вищу освіту онлайн, перебуваючи в своїй країні, а з іншого – якість освіти падає без адекватно порівнянної практичної частини (наприклад, медична освіта не може бути якісною при викладанні онлайн). Із плином часу, до 2025 року очікується сплеск технологій для поліпшення онлайн-освіти й повноцінного переходу багатьох ВНЗ на надання можливості дистанційного навчання. Це є хорошим шансом отримати освіту тим для тих, хто раніше не міг її отримати, у тому числі з економічних причин.

Висновки. Глобальна пандемія коронавірусу COVID-19 стала каталізатором глобальних процесів цифрової трансформації в усіх сферах життя. У таких умовах роль цифрових технологій в освіті стає надзвичайно важливою. Серед безлічі технологічних переваг їх здатність захищати людські життя й у той же час забезпечувати здійснення освітнього процесу залишалася практично непоміченою. Сучасні обставини прискорили масовий перехід до використання цифрових технологій в освіті (цифровізація освіти, технологізація та стандартизація).

Ключові слова: ринок освіти; COVID-19; цифровізація освіти; технологізація; стандартизація.

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Анализ ситуации в высшем образовании в период пандемии COVID-19 в мире: возможности и угрозы он-лайн обучения

Аннотация

Вступление. Ситуация в образовании в период пандемии COVID-19 в мире достаточно сложная: из-за большого количества ограничений в некоторых странах обучение ведется полностью дистанционно или в смешанной форме. В период 2020 года студенты медицинских университетов вынуждены были проходить практику в больницах в условиях пандемии, помогая локальному медицинскому персоналу, чтобы восполнить нехватку специалистов.

ВУЗы не были готовы к массовой цифровизации вследствие правительственных ограничений и социального дистанцирования, поэтому качество передачи материала не может соответствовать классическому образованию. Качество образования будет неумолимо падать по причине низкой вовлеченности в процесс удаленного образования, а также множества отвлекающих факторов, как обозначается в новейших исследованиях.

Цель исследования заключается в изучении влияния пандемии COVID-19 на рынок медицинского образования и его стейкхолдеров.

Результаты. Университеты не были готовы для перехода в сферу образования онлайн (дистанционного), о чем свидетельствует снижение качества образования, исходя из опросов профессорского состава некоторых вузов. В результате, с одной стороны, можно получить высшее образование онлайн, находясь в своей стране, с другой – качество образования падает без адекватно соизмеримой практической части (например, медицинское образование не может быть качественным при его преподавании онлайн). С течением времени, до 2025 года ожидается всплеск технологий для улучшения онлайн-образования и полноценного перехода многих ВУЗов для предоставления возможности дистанционного обучения. Это является хорошим шансом получить образование тем, кто ранее не мог его получить, в том числе и по экономическим причинам.

Выводы. Глобальная пандемия коронавируса COVID-19 стала катализатором глобальных процессов цифровой трансформации во всех сферах жизни. В таких условиях роль цифровых технологий в образовании становится чрезвычайно важной. Среди множества технологических преимуществ

их способность защищать человеческие жизни и в то же время обеспечивать осуществление образовательного процесса оставалась практически незамеченной. Современные обстоятельства ускорили цифровизацию образования, его технологизацию и стандартизацию.
Ключевые слова: рынок образования; COVID-19; цифровизация образования; технологизация; стандартизация.

1. Introduction

News regarding the outbreak of a new coronavirus pandemic in China was gradually spreading around the world, covering more and more regions and areas of people's activities with alarm. Education and science, as one of the most mobile and globalized sectors of economic activity, have been significantly affected and expect extraordinary results from unprecedented restrictions in human history. Given the situation with the development of the COVID-19 pandemic, it is unlikely that national and international restrictions on the normalization of life, travel and social gatherings, meetings will have been lifted so far.

In the early days of the crisis, concerns focused primarily on the serious disruptions caused by the pandemic in the direction, structure and volume of student flows from China and the economic impact on the higher education systems of all partner countries of the People's Republic of China. Efforts to prevent the spread of the virus have ranged from extending, delaying, or postponing academic deadlines to banning students from participating in educational and academic programs.

When the wave of coronavirus infection in 2019 reached Europe, there occurred a difficult situation. Gohar Hovhannisyan, Vice President of the European Student Union (ESU), which unites national unions, called the situation «very, very chaotic». Member unions were flooded with requests to find out answers that did not exist. One problem arose because many countries ordered their students to return, said Kostis Giannidis, president of the Erasmus Student Network (ESN), but some students felt trapped after host countries announced they were closing their borders.

Even worse, it became too difficult to return home, as there were restrictions on entry, and this led to problems with airports - entering some countries was prohibited, while students in some countries could only leave on a plane chartered by the government, and not commercially. At the same time, prices for flights increased. Consequently, every international student had a high risk of not coming back home.

The Scholarships for international students in Germany (DAAD) programme in 2020 provided about 145,000 scholarships to students in Germany and abroad, but it cancelled all grants for the summer semester of 2020 due to the coronavirus. German students returning from abroad may end up in quarantine, and even in the absence of exact figures, most wanted to stay and finish their studies. There were not a large number of refusals and those who wanted to leave Germany. (MyGU, 2020)

Consequently, DAAD promised its fellows that it would financially support any decision they made. The ESU believed that students should have the right to go home if they wanted to. And the European Commission said it would provide «maximum flexibility» for Erasmus+ programs to determine which ones to extend or postpone. It is important that universities for the remaining students provided assistance in maintaining the psychological state. Some universities provide online mental health support, but this was not «common».

The international consulting company Quacquarelli Symonds (2020) published a report «The impact of coronavirus on Global Higher Education», compiled based on the results of a survey of about 11,000 international students, which was conducted from the second half of February to the end of March 2020. Almost half of potential international students intended to postpone their studies due to the pandemic, while only one in ten said that they no longer wanted to study abroad.

The report notes that higher education institutions are responding to the expected decline in the number of international students by adapting regulations on English language testing, postponing admission start dates, and changing application deadlines. Most of them offered to conduct digital events (75%), digital marketing (73%) and online meetings (70%).

Within a month and a half, the number of students confirming the impact of the pandemic on their plans has increased.

One positive finding of Quacquarelli Symonds (2020) is that the proportion of students who believed the pandemic had forced them to cancel their studies abroad has declined in the six weeks since the survey was conducted.

As for distance learning, although 58% of potential international students expressed some interest in it, 42% said that they do not want to study via Internet.

As for the new academic year admission campaign, 50% of institutions said that the pandemic would have a «detrimental impact on the number of applications from students»; 26% said that the figures would remain the same; about a third (34%) of them said that they would seek to diversify the source countries for recruitment.

Among the new countries mentioned were Brazil, Colombia, France, India, Indonesia, Kenya, Malaysia, Mexico, Pakistan, Philippines, Republic of Korea, Saudi Arabia, South Africa, Thailand, Turkey, United Arab Emirates and Vietnam.

At the same time, the crisis in the educational sphere due to the COVID-19 has become an opportunity to work out online training. Due to the coronavirus epidemic, most universities in the world are switching to distance learning. For the first time in history, when traditional university education on their own campus has been completely moved to the Internet, teachers offer their lectures teaching through online learning platforms and video conferencing, as well as introduce various technologies to ensure better interaction with students. So far, the entire teaching program on the Internet passes without extreme problems in many specialities thanks to the huge efforts of each of the stakeholders - university management, lecturers, teachers, staff and students.

Such an unusual natural experiment provides educational researchers with an excellent opportunity to gather evidence and solve important questions that were not previously answered. Whether online education can change the paradigm of education will depend on people's experience and their views on it.

Student experience and learning outcomes are among the most important factors in evaluating the quality of online education. According to several surveys, such as those conducted by various colleges in China, students reported very positive learning experiences. Between 40% and 55% of students believe that online learning and traditional classroom learning are equivalent in terms of overall teaching quality. Between 15% and 30% of students reported that synchronous online learning is better than traditional learning. About 30% of students believe that traditional learning is superior to live online learning (OECD, 2020).

2. Brief Literature Review

The most useful component of synchronous online learning is viewing video or audio recordings provided by online learning platforms along with slides and interacting with instructors through online tools such as quizzes (Ayebi-Arthur, 2017), Danmaku (a horizontal text display of comments in real time with subtitles) or through virtual interaction in video conference rooms. Students note a more comfortable viewing of courses on their laptops compared to watching the display in the classroom (Xi Lin et al., 2018; Basilaia et al., 2020).

There are two key factors that affect the quality of training - Internet speed and software reliability (Briana et al., 2019). However, it is still too early to determine the quality of learning outcomes in this way (Carey, 2020). It is quite difficult to track students who have difficulties with technology (Favale et al., 2020), because teachers are not able to quickly monitor their progress (Huang et al., 2020).

After getting acquainted with various online tools, many teachers, especially those of advanced age, were very worried during real-time online teaching (Liguori et al., 2020). Of course, now the teachers need to work hard to adapt the course design to the new context, and spend a lot of time learning online technologies. Most teachers have a strong motivation to update their study material to make it more accessible to both students and colleagues (Martin, 2020).

Course assessments, especially some types of tests, are not so easy to transfer in the online form. A particular problem is caused by disciplines related to conducting laboratory experiments. Although some may involve modelling systems (Singh et al., 2019).

University administrations and management can benefit from online education and online office technologies (Beaunoyer et al., 2020). Taking advantage of the consensus on online education, the educational institution's management system, including regular meetings and administrative procedures, can be fully connected to the Internet and can become more efficient and easier.

Universities may need to provide more professional support to students and ongoing support for the professional development of teachers to help them adopt the new environment for organizing activities. As for education, online learning does not guarantee the quality of knowledge.

University leaders should also be aware of the challenges of the digital divide and equity in access to education for disadvantaged students (Cao et al., 2020).

The most significant advantage of online education can be the removal of boundaries between elite universities and society. Xinhua University has offered some of its courses to Huazhong University of Science and Technology (HUST) in Wuhan, and now HUST students can enjoy courses from Xinhua at home. Better educational resources will be more accessible, improving the accessibility of higher education for the whole society (Carroll et al., 2020). Citizens' lifelong education will also be made easier. However, a good online learning model is extremely expensive when it comes to installing online systems and engaging teachers (Dhawan, 2020).

Summing up the above, the crisis has given elite, traditional universities on their own campuses a unique opportunity to get a full online education system. If not for the crisis, such a test would not have been possible. In general, the positive experience of stakeholders is very valuable if you want to develop a new paradigm of education, but you need to put a lot of effort into solving the problems - both existing and possible (Kaparounaki et al., 2020).

3. The purpose of the study is to examine the impact of the pandemic COVID-19 on the medical education market and its stakeholders.

4. Materials and Methods

We use materials of foreign scientists, as well as online conferences over the past year. All relevant information is collected exclusively for scientific purposes from open sources and is up to date at the time of publication of the paper.

5. Results and Discussion

5.1. Impact of COVID-19 on the Global Higher Education Market

The COVID-19 virus epidemic has driven the use of the latest technologies in education and caused a revolution of internationalization, which in fact has not existed so far. The coronavirus crisis has had a huge impact on higher education - as well as on the economy and the lives of millions of people around the world:

- universities are closed, and teaching is cancelled or carried out online via the Internet;
- conferences are not held or switched to remote mode via the Internet;
- prospective students cannot pass exams, and international students cannot reach their campuses or return home;
- study abroad programs were cancelled or postponed;
- teachers were asked not to travel to the affected countries or to completely avoid travelling abroad.

The estimate of the accumulated number of students and teachers affected by the suspension of face-to-face classes during the month of March 2020 in Latin America and the Caribbean is presented as an example of pandemic's devastating impact in Figure 1.

The immediate consequences and inconveniences are expected to increase, as the coronavirus has spread to almost all countries and is affecting an increasing number of people. However, the medium-and long-term consequences of the coronavirus crisis cannot be evaluated now when its time horizon is not clear.

Some host countries, especially Australia and the United Kingdom, as well as some colleges and universities in the United States, have become financially dependent on international student tuition fees. After all, international education is valued at USD 300 billion worldwide. The coronavirus crisis shows that the institutions dependent on this income will face significant challenges.

Today, the impact of technology on mobility is increasing. Many universities now teach their students remotely, as campuses in many places are closed. However, the quality of online education is still insufficient and students are not always satisfied. Most teachers around the world are not trained to conduct distance learning courses, do not have the advanced technology necessary for high-quality teaching and learning, and have not adapted their curricula to the features of the Internet. There are many aspects and ways to consider, namely: asynchronous or synchronous learning, effective management of group discussions on the Internet, organization of tasks and exams using the Internet. The main difficulties faced by students in higher education during the pandemic are shown in Figure 2.

Thousands of students from North America and Europe who studied according to carefully planned, semester-long or shorter study programs abroad were returned home. Currently, there are a lot of problems, but it is unlikely that these programs will undergo a long-term reduction. The trend towards short-term travel (less than eight weeks) is expected to increase. As we have already seen, France and Spain soon regained their pre-emptive status after the terrorist attacks they suffered, and the same will happen to Italy.

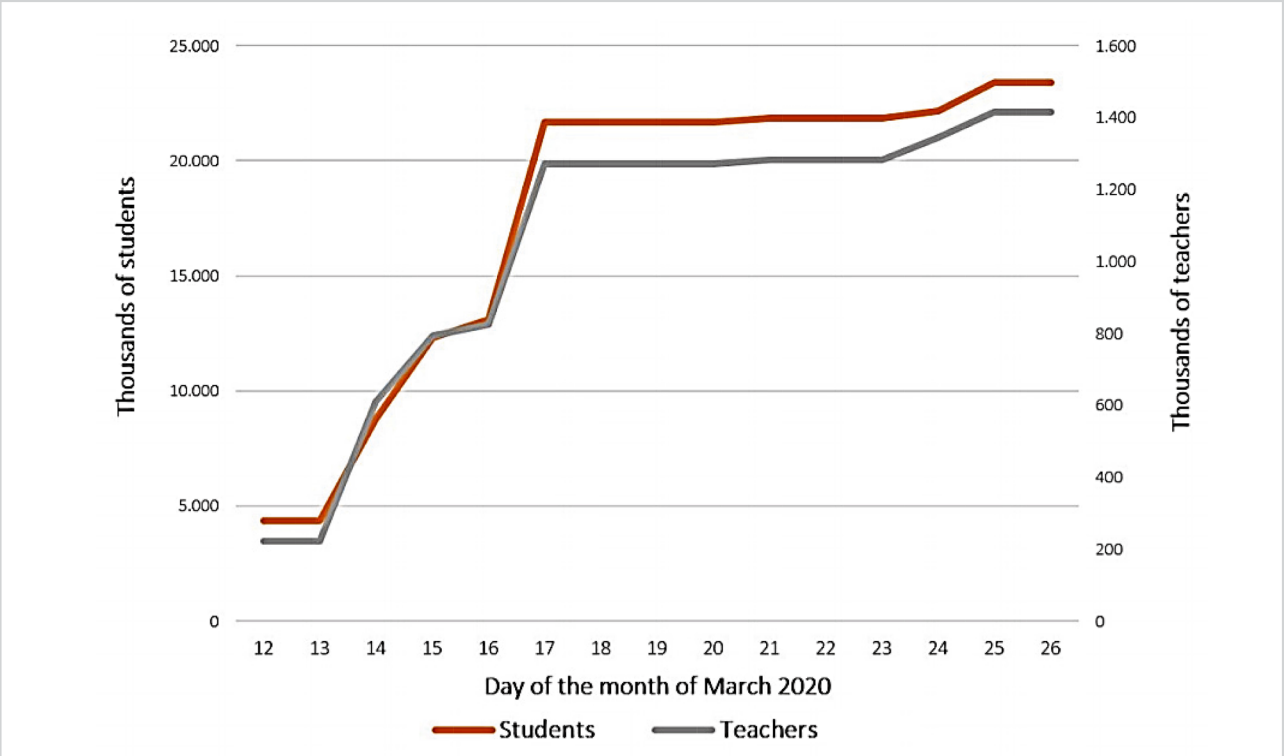

Figure 1:
Estimate (in thousands) of the accumulated number of students (GiNi 5, 6, 7 and 8) and teachers affected by the suspension of face-to-face classes during the month of March 2020 in Latin America and the Caribbean
Source: UNESCO IESALC (2020)

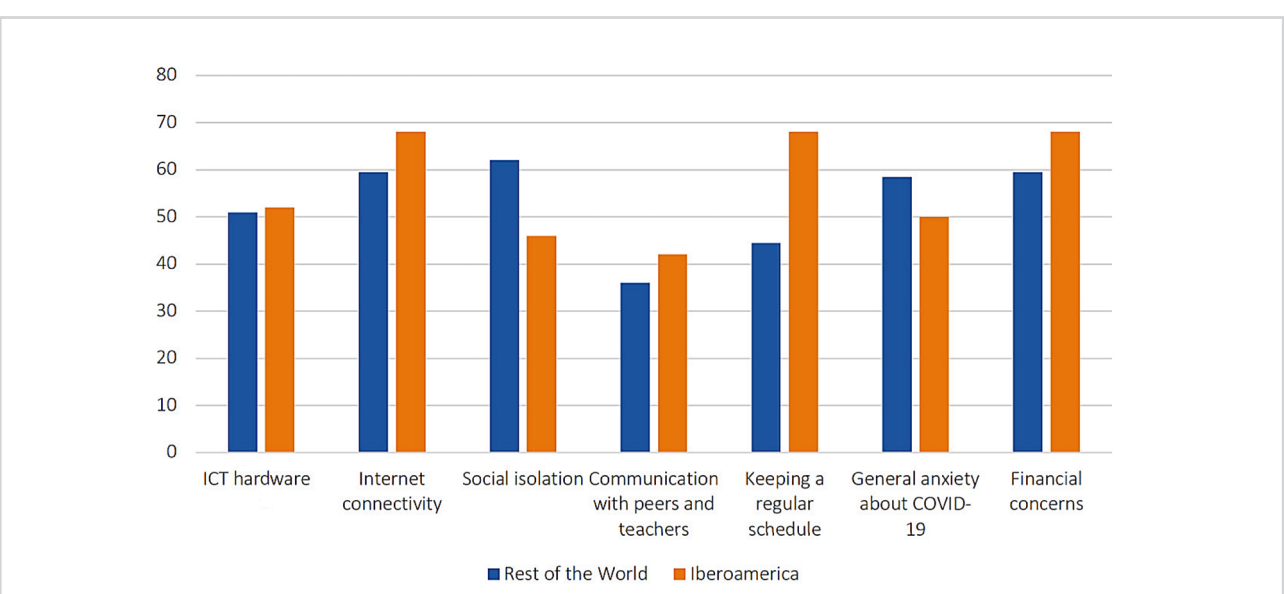

Figure 2:
The main difficulties faced by students in higher education during the pandemic in the World and Iberoamerica
Source: UNESCO survey of UNITWIN Chairs (2020) (cit. by UNESCO IESALC, 2020)

Dr. Nicholas Majors, a methodologist at the Southern Baptist Theological Seminary (USA), editor at JBTS, cites practical factors that cannot be ignored. Educators and institutions thought they had many years before remote measures were implemented, but COVID-19 has shown that best practices are needed now. The virus has forced many institutions to physically close their doors to students and teachers (and most employees). There are four consequences of this decision that are important for students and teachers (cit. by Bohlinger, 2020):

1) online classes have become the standard format for all forms of teaching, not just distance learning;
2) classes from the campus classrooms were moved to an online format through the web conference function. This led to a reduction in teaching facilities, which institutions, teachers, and students perceived as an emergency. Many teachers and students are not used to the online format, but they were forced to get used to it in a few weeks or even days;
3) students and administrators took this situation for granted during the first unprecedented semester with pandemics, but if the transition continues in the summer and fall, then students and administrators expect a higher quality of teaching than was initially possible. If an educational institution does not prepare its teachers for a full-fledged transition, then many homeschooling students may be challenged to complete a new online degree at their current institution;
4) the impact on support staff remains to be generalized, but many support staff are well equipped for the online format. The biggest concern for methodologists will be whether the institutes will offer more contracts for summer and fall. Some institutions have already refused contracts for summer, but so far there have been no massive cuts. If social distancing continues, institutions may review contracts and positions. Institutions that do not have an Internet department should immediately start reorganizing their budget to overcome the potential crisis. This may open up new positions for support staff that will need to be filled. In an ideal scenario, the effects of the pandemic will benefit support staff, bringing them more leverage and popularity in academia, changing the current trajectory that oppresses higher education support staff.

5.2. Analysis of the Situation in Online Education Worldwide

Almost all countries classified as advanced economies report a large number of COVID-19 cases per million of the population. Nevertheless, none of them has taken the approach of creating a semester break, and most authorities have decided closing campuses and switching to online classes, with the exception of the United States. In contrary, most developing countries have closed their educational institutions. Brazil and Singapore continue to have localized closures, rather than nationwide policies. According to UNESCO (2020), there is no nationwide policy to close schools for Brazil, Canada, Greenland, the Russian Federation and the United States. Universities in China, Hong Kong, India, the Republic of Korea (South Korea) and the Republic of South Africa have chosen to introduce changes in the semester (continuation or early start). Of these, China, Hong Kong and, to some extent, South Korea and South Africa have implemented online learning strategies to support students' continuing learning.

With the exception of Malaysia, the Republic of Korea (South), and Indonesia, the analysis also shows that countries closer to China or with more COVID-19 cases per million of their population have implemented a digital higher education strategy across the country. Interestingly, in Malaysia, the reaction was to switch to the Internet, but higher education providers have now been instructed not to provide online training to restrict traffic. In countries that have not yet achieved pandemic peak, there is an opportunity for higher education providers to create their own online learning strategy.

However, the transition from traditional or blended learning to a fully virtual and online service delivery strategy will not occur at once and is associated with many challenges at this stage, such as: lack of infrastructure for the Home Office (do the research and teaching staff have enough recording equipment and Internet bandwidth?), shortcomings with student infrastructure (how can students access the Internet and virtual content from remote locations? How to organize access to content from jurisdictions where Internet access is controlled and restricted by the government?) and, in general, absence of sufficient skills required for professional design and online / virtual education.

The analysis highlighted the variability within countries regarding higher education organizations when implementing digital strategies, which are largely based on available resources for the organization and the cohort of students attending the organization. This was more noticeable in

countries classified as emerging economies. For example, several low-tech solutions to support online classes have been reported from Jordan, including PowerPoint presentations and free programs such as Skype, Google Classroom, Moodle, and Facebook. They can use their students' available resources to minimize the negative impact on learning where possible. Although many educational institutions in countries where many of them were closed initially focused on the transition to an online environment, now the focus is on online pedagogy in the Internet. Never before has there been such a timely, collaborative and collectively global response and unanimous appeal to the principles of best practices in online learning. And in times of global crisis, there is an opportunity to share resources and expertise around the world to ensure that students continue their education in the face of COVID-19.

Unfortunately, it is necessary to recognize the lack of verified information today about pedagogical approaches and principles adopted in the rapid transition to digital education. This can be the potential for applying more flexible and innovative digital learning methods, but it can also lead to lower quality while the focus is on lower income. Universities that are rapidly switching to new tools for implementing their activities need to be aware of their ability to constantly monitor the quality of the educational process.

If more accurate data were available, it would be possible to reflect the pace of technological re-equipment among universities since the beginning of attempts to wait out the two-week quarantine period. As a result, two extremes are defined: on the one hand, the minimum response according to government requirements (for example, 1.5 meters of social distance, reduced social fees), and on the other hand, there are universities that quickly closed their activities in real life and switched to digital education. Some educational institutions were already partially prepared for this, given that they had blended learning or even full online offers. Thus, the opportunity for further development of the education sector is to support knowledge sharing with the sector's requirements: students will be able to receive digital, but high-quality education, without compromising the academic quality and standards of the curriculum. The position of universities on the introduction of certain digital tools will change significantly in the near future, in particular, when governments issue various directives regarding restrictions on meetings, social events, etc. Universities have a significant role to play in supporting society in the transition to limited social communication, humanity will still have to stay at home for a long time, and higher education institutions can be a valuable addition to their productive home environment in both the short and potentially medium term.

How to reduce the impact of the coronavirus crisis on universities? Flexibility and distance learning are offered. According to experts, to reduce any potential negative consequences of the coronavirus crisis, universities should focus on implementing more flexible admission processes and strengthening their communication strategies.

5.3. Modification of Online Education for Students Worldwide

1. We consider it necessary to develop the University's educational ecosystem, which provides for the integration of e-learning technologies, mixed learning models, virtual and augmented reality into the educational process. This enables universities to respond efficiently to modern challenges in higher education, namely: quality control of the educational process; student-centred learning; academic integrity; improving rating indicators.
2. An effective educational process requires significant investment and resources, and a lot of time and effort is spent on creating, searching, updating educational materials, and adapting them to learning. This process will not decrease in the future, but will only become more intensified if the educational institution wants to remain competitive in the global educational space. And this should be taken into account when determining the teacher's workload.
3. There must be a single information and search engine that allows you to quickly find open educational resources, both at your university and abroad. The search engine should include, in particular, a search based on competencies and learning outcomes.
4. Determine the state minimum required standard of distance learning and basic training procedures. Develop recommendations for its use.
5. Develop regulations and hold annual competitions for the best distance learning courses in various categories.
6. Teachers of distance and mixed learning (tutors) must have a certificate of advanced training in distance learning and a certified distance learning course.

7. It is necessary to create a university social network for conducting on-the-job training, which provides for several thematic areas with those responsible (for example, e-learning tools, library network resources, blended learning, dual learning, etc.), other areas will be formed by the participants of this network.
8. It is necessary to develop a methodology and appropriate software for conducting inter-university online conferences with advanced communication opportunities for the exchange of experience.
9. It is necessary to create propaedeutic courses for students to master distance and cloud technologies at universities or on an independent platform.
10. The planned internship of teachers includes advanced training courses on creating distance learning courses or training tutors.
11. The teacher has the right to take advanced training in distance learning at any certified centre at a convenient time.
12. Strategy, methodology and personnel training for distance learning should be supported and developed at the institutional and state levels.

5.4. Experience of the Transition of Universities to Online Education in Different Countries of the World

1) University of Oxford

Oxford is one of the oldest universities in the world, consistently occupying the first place in various rankings of European universities in Europe.

The cost of studying at Oxford is highly dependent on the direction. For students from the UK and the EU, it varies from USD 3.5 to 94 thousand per year, for international students - from USD 9 to 94 thousand. The most expensive areas are business administration, law, international relations, economics and finance, international business, and clinical embryology. From 2021, the same rate will apply to students from the EU as to foreign students.

The autumn term at Oxford will begin on October 11 of 2020 - almost as usual. The only difference is the increased security measures, namely: the wearing of masks which will be mandatory inside all buildings, the organization of training events so that it is possible to observe social distance, accessibility of the sanitizers in all rooms. Some issues will be solved technologically: for the sake of social distance, the number of seats in libraries will be reduced, so that a visitor can check the availability of free seats and book one for a certain time using a special application. In addition, on August 20 2020, Oxford opened its own laboratory, where one can take a test for coronavirus.

2) Swiss Higher Technical School of Zurich

On September 14 2020, the fall semester began at the Swiss Higher Technical School in Zurich. According to the university administration, this year the number of students increased by 7.4% despite the pandemic. At the same time, the number of foreign students decreased slightly: from 14.5% to 13.3%. Of course, among those who entered the first year - students exclusively from European countries. Admission of applicants from all other countries to the Swiss Higher Technical School is closed this semester.

According to several ratings, the school in Zurich is the best university in Switzerland, as well as among the best university in Europe in the field of technical sciences. The largest academic areas are mechanical engineering, information technology, architecture, medicine and technology, and physics. The cost of studying for a bachelor's or master's degree is 730 Swiss francs per semester, and for a doctor's degree - 1500 Swiss francs per semester.

3) Cambridge university

Back in May 2020, the famous Cambridge University was the first university in Britain to announce that all lectures in the next academic year will be held virtually. Many British universities soon followed suit to varying degrees, effectively switching to the remote system. At the same time, in different cases, personal communication with the supervisor or teacher «one-on-one» is allowed, but most of the communication will take place virtually. Some universities have announced that a student, for example, will be able to communicate in person only with their supervisor no more than once a week and no longer than half an hour.

5.5. Resume

The COVID-19 pandemic has led to the largest ever disruption to education systems, affecting nearly 1.6 billion students in more than 190 countries across the planet. The closure of schools and other educational institutions has affected 94% of the global student population, with 99% in low-income and lower-middle-income countries.

The crisis is exacerbating a long-standing problem of inequality in education, preventing a significant proportion of the most vulnerable children, young people and adults - those living in poor or rural areas, refugees, the disabled and forcibly displaced - from continuing to study. In addition, educational losses threaten to reach future generations and reverse decades of progress, not least in promoting girls' and young women's access to and continuation of education. If we talk only about the economic consequences of the pandemic, then about 23.8 million more children and young people (from preschoolers to students of higher educational institutions) may drop out of school next year or find themselves without access to education.

Moreover, the disruption of the educational process has and will have serious consequences beyond the educational system. The closure of educational institutions makes it difficult to provide important services to children and communities, including adequate nutrition, affects the ability of many parents to do their jobs, and increases the risk of violence against women and girls.

As fiscal problems increase and the burden on development aid systems increases, education funding may be seriously threatened, exacerbating the huge shortfall in education funding that existed before COVID-19. For low-income and lower-middle-income countries, for example, this deficit was USD 148 billion a year, and in the current environment, this staggering amount could increase by almost a third.

At the same time, it should be noted that the crisis has served as an incentive for innovation in the field of education. Innovative approaches are being used to ensure the continuity of education and training, from radio and television broadcasts to the provision of home study kits.

Ensuring continuity of learning in the face of school closures has become a priority for the governments around the world, many of which have deployed ICTs and required teachers to teach online. In areas with limited Internet access, the governments use more traditional methods of distance learning - often a combination of educational television and radio broadcasts, as well as the distribution of printed materials.

6. Conclusion

The global coronavirus pandemic COVID-19 has become a catalyst for global digital transformation processes in all spheres of life. In such circumstances, the role of digital technologies in education becomes extremely important. Among the many technological advantages, their ability to protect human lives and at the same time ensure the implementation of the educational process remained almost unnoticed. This has accelerated the massive transition to the use of digital technologies, including in vocational education. At the same time, current trends in the development of professional education (digitalization of professional education; technologization of vocational education; standardization of vocational education) are marked by a significant mutual influence.

For professional education, the dual form of education is now recognized as a priority, but at the present stage its implementation is not possible without the involvement of digital technologies. All theoretical training of future qualified workers (and this is from 30% of the study time) can be carried out in a remote format using specialized distance learning systems, and for certain specialties (Web Designer, Graphic Designer, etc.), digital tools can provide training of qualified employees completely remotely.

References

1. Ayebi-Arthur, K. (2017). E-learning, resilience, and change in higher education: Helping a university cope after a natural disaster. *E-Learning and Digital Media*, *14*(5), 259-274. https://doi.org/10.1177/2042753017751712
2. Basilaia, G., Dgebuadze, M., Kantaria, M., & Chokhonelidze, G. (2020). Replacing the classic learning form at universities as an immediate response to the COVID-19 virus infection in Georgia. *International Journal for Research in Applied Science & Engineering Technology*, *8*(III), 101-108. http://doi.org/10.22214/ijraset.2020.3021
3. Beaunoyer, E., Dupéré, S., & Guitton, M. J. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Computers in Human Behavior*, *111*, 106424. https://doi.org/10.1016/j.chb.2020.106424

4. Bohlinger, T. (2020, March 28). *The Future of Higher Education After COVID-19.* The Logos Academic Blog. https://academic.logos.com/the-future-of-higher-education-after-COVID-19
5. Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, *287*, 112934. https://doi.org/10.1016/j.psychres.2020.112934
6. Carey, K. (2020, March 13). *Everybody ready for the big migration to online college? Actually, no.* The New York Times. https://www.nytimes.com/2020/03/13/upshot/coronavirus-online-college-classes-unprepared.html
7. Carroll, N., & Conboy, K. (2020). Normalising the «new normal»: Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, *55*, 102186. https://doi.org/10.1016/j.ijinfomgt.2020.102186
8. Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5-22. https://doi.org/10.1177%2F0047239520934018
9. Donahoe, B., Rickard, D., Holden, H., Blackwell, K., & Caukin, N. (2019). Using EdTech to enhance learning. *International Journal of the Whole Child*, *4*(2), 57-63. https://libjournals.mtsu.edu/index.php/ijwc/article/view/1599
10. Favale, T., Soro, F., Trevisan, M., Drago, I., & Mellia, M. (2020). Campus traffic and e-Learning during COVID-19 pandemic. *Computer Networks, 176,* 107290. https://arxiv.org/abs/2004.13569
11. Huang, R. H., Liu, D. J., Tlili, A., Yang, J. F., Wang, H. H., Zhuang, R., & Chang, T-W. (2020). *Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisrupted learning in COVID-19 outbreak*. Smart Learning Institute of Beijing Normal University. https://iite.unesco.org/wp-content/uploads/2020/03/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak-SLIBNU_V2.0_20200324.pdf
12. Kaparounaki, C. K., Patsali, M. E., Mousa, D. P. V., Papadopoulou, E. V., Papadopoulou, K. K., & Fountoulakis, K. N. (2020). University students' mental health amidst the COVID-19 quarantine in Greece. *Psychiatry Research*, *290*, 113111. https://doi.org/10.1016/j.psychres.2020.113111
13. Liguori, E. W., & Winkler, C. (2020). From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic. *Entrepreneurship Education and Pedagogy*, *3*(4), 346-351. https://doi.org/10.1177/2515127420916738
14. Martin, A. (2020). *How to optimize online learning in the age of coronavirus (COVID-19): A 5-point guide for educators.* https://www.researchgate.net/publication/339944395_How_to_Optimize_Online_Learning_in_the_Age_of_Coronavirus_COVID-19_A_5-Point_Guide_for_Educators
15. MyGermanUniversity (MyGU). (2020). *Scholarships for international students in Germany (2021/22).* https://www.mygermanuniversity.com/articles/scholarships-in-germany
16. OECD. (2020). *Education in China. A Snapshot*. https://www.oecd.org/education/Education-in-China-a-snapshot.pdf
17. Peters, M. A., Wang, H., Ogunniran, M. O., Huang, Y., Green, B., Chunga, J. O., & Khomera, S. W. (2020). China's internationalized higher education during COVID-19: Collective student autoethnography. *Postdigital Science and Education, 2,* 968-988. https://doi.org/10.1007/s42438-020-00128-1
18. Quacquarelli Symonds. (2020, May 19). *How Universities can Clearly Communicate to Prospective Students During the Coronavirus Outbreak.* https://www.qs.com/how-universities-can-clearly-communicate-to-prospective-students-during-the-coronavirus-outbreak
19. Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, *33*(4), 289-306. https://doi.org/10.1080/08923647.2019.1663082
20. UNESCO IESALC. (2020, May 13). *COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations.* https://www.iesalc.unesco.org/en/wp-content/uploads/2020/05/COVID-19-EN-130520.pdf
21. Xi Lin, Mingyu Huang, & Leslie Cordie (2018). An exploratory study: using Danmaku in online video-based lectures. *Educational Media International, 55*(3), 273-286. https://doi.org/10.1080/09523987.2018.1512447

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