

# ONLINE EDUCATION AS A DEVELOPMENT OPPORTUNITY FOR HIGHER EDUCATION INSTITUTIONS

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**Abstract** The COVID-19 pandemic has enforced significant changes in all types of organizations. This paper will examine digitalization in higher education and the effects it has caused. Educational institutions have been pushed to transform their traditional teaching models into hybrid digital systems, where students spend most of their time in online environment. With a goal to examine impressions of key stakeholders (students and teaching staff), research was conducted at the Faculty of Organizational Sciences, University of Belgrade, in order to review results of online teaching methods. Focus was on comparing success that students and teachers had before and during the COVID-19 pandemic. Further on, this paper considers contribution and development opportunities that online education can provide. Those benefits include but are not limited to: enrolling more students, significantly enhancing financial resources, possibility of opening international study programs which would contribute to international cooperation, greater reputation and prestige of these educational institutions.

**Keywords::** COVID-19, social changes, higher education, online teaching, hybrid models, Faculty of rganizational sciences (FOS).

## **1 Introduction**

The COVID-19 pandemic has caused numerous socio-economic changes that can be a threat, but also a development opportunity for organizations and companies. In order to successfully overcome the pandemic and its challenges, many governments have adopted epidemiological measures that significantly altered society and the economy. State aid packages have partially mitigated the risks, by balancing of consequences of protective epidemiological measures. With a goal of fully recovering all aspects of our society, we will need to come up with new ideas and innovations in formerly traditional industries.

Education is one of the key pillars of every society, because it is directed towards the youth - bearer of the future growth and development. As well as all the other elements of our society, it was affected by the COVID-19 pandemic and found its salvation in digital teaching methods. Online models have proven to be a good current alternative to traditional teaching models, but the question is whether they can be a longer-term solution. In order to give an answer to that question and examine the development potential of online teaching for higher education institutions, a research was conducted at the Faculty of Organizational Sciences (University of Belgrade, Serbia). Following paper examines the effects and impact of the COVID-19 pandemic on the economy and society, and presents the results and conclusions of the previously mentioned research.

## **2 Changes caused by the COVID-19 pandemic**

Pandemic and the changes it has caused have influenced outbreaks of major shifts in the world, but they have also brought on some new development opportunities. In order to recognize and use their full potential, it is necessary to get acquainted with those changes and explore all their effects on society and the economy.

### **2.1 Impact of the COVID-19 pandemic on Society**

The COVID-19 pandemic has certainly changed human lives and habits. Different epidemiological restrictions and months spent in lockdown, led to many people not being able to go to work or school, nor being able to see friends and relatives. These changes have significantly affected social and cultural elements of everyday living,

such as solidarity, cohesion, physical and psychological well-being, social inequality, lifestyle and culture.

The level of social inequality as well as its state has only gotten worse, since there is evidence of social gaps being deepened and reflected in even more highlighted vicious patterns of social inequality. Gender, ethnic and age differences in household chores, employment, and access to health and other forms of public services have greatly intensified.<sup>1</sup>

On the other hand, although COVID-19 has extended inequality in society, it has nevertheless increased solidarity among people and has initiated greater social cohesion. There are many examples of joint action of different social groups to overcome the problems of the pandemic. Young people have been helping the elderly, different countries helped each other, and greater connection within families has also become more noticeable. However, there are also statistics that show rise in the number of disagreements in the families and in some cases even domestic violence.<sup>2</sup>

The COVID-19 pandemic has also caused the disturbance of social welfare. Citizens' trust in the governments of their countries has decreased, so mass protests have often been organized as response to decisions of the governing bodies. Unfortunately, more often than not, there have been even violent outbreaks. Cybercrime is experiencing its bloom due to businesses moving to digital platforms and the Internet, and the mental health of citizens has been significantly damaged due to several months of lockdown. Anxiety, stress and depression have become increasingly common mental problems of people all around the world.<sup>3</sup>

The impact of COVID-19 pandemic on lifestyles and culture of the citizens is inevitable. Various researches show that shared beliefs, values and morals have changed considerably. The availability of cultural content has been significantly reduced due to the closure of numerous cultural institutions and the postponement of cultural events. The awareness of holistic approach to health has increased and healthy lifestyles have become even more popular during the COVID-19 pandemic.

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<sup>1</sup> (Grasso, Klicperová-Baker, Koos, Kosyakova, Petrillo, & Vlase, 2021)

<sup>2</sup> (Borkowska & Laurence, 2020)

<sup>3</sup> (Grasso, Klicperová-Baker, Koos, Kosyakova, Petrillo, & Vlase, 2021)

Sadly, on the other hand, there is a noticeable increase in obesity and inactivity caused by the closure of many recreational and sports facilities such as gyms.<sup>4</sup>

The COVID-19 pandemic, in addition to many shortcomings of modern society, has also shown us much advancement, which can be utilized for progress and improvement. In the years to come, working on overcoming and better understanding of social problems and alterations, as well as taking advantage of new development opportunities will enable the creation of a more capable, flexible and prosperous society.

## **2.2 Impact of the COVID-19 pandemic on the Economy**

The COVID-19 pandemic has caused great uncertainty in all industries around the world. This increase in ambiguity has forced organizations to rethink their traditional business models that rely on global supply chains and try to develop new digitalized and more flexible business models.<sup>5</sup>

It is also noticeable, that social distancing, self-isolation and travel restrictions have led to a reduced need for labor in all economic sectors, which has led to a large number of layoffs. Schools have been closed as a result of epidemiological restrictions, and the demand for goods and industrial products has been decreased. In contrast, the demand for medical supplies and products that are perceived as healthy has increased significantly, as has the demand for basic groceries, due to panic shopping.<sup>6</sup>

In order to stop or at least slow down the progress of COVID-19, governments have adopted various epidemiological measures that have also slowed down the economy. This consequently led to the collapse of financial markets, but also to the shutting down of a large number of companies that could not figure out how to fight the problems pandemic has inflicted. To help the economy, governments have given some incentives (interest rates have been kept low and moratoriums on loans and other liabilities have been approved). Despite all of the aid, even the world's strongest economies have taken a hit and entered a phase of recession. Hospitality,

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<sup>4</sup> (Reeskens, Muis, Sieben, Vandecasteele, Luijckx, & Halman, 2020)

<sup>5</sup> (Kilic & Marin, 2020)

<sup>6</sup> (Nicola, et al., 2020)

tourism, catering and the aviation industry have been hit hardest by the crisis, while pharmaceutical companies, delivery companies and all online shopping vendors have experienced their bloom.<sup>7</sup>

The full extent of COVID-19 pandemic consequences is still unknown. A new World Economic Crisis, energy crisis, major shortages and price increases are forecasted, but with the emergence of vaccines, the world economic recovery has begun. However, economic revival depends highly on the pace and efficiency of vaccination, which is not at an adequate level in all countries just yet. Therefore, interstate solidarity has never been more important and necessary. Economic upturn, in addition to relying on vaccination, should be based on developing digital and more flexible business models that will assure the advance of sustainable growth and healthy organizational environment.<sup>8</sup>

### **2.3 Impact of the COVID-19 pandemic on the Education**

The pandemic of COVID-19 inflicted changes on every aspect of education system, starting with kindergartens, then going through middle schools, all the way up to the high education institutions. Some countries have decided that the best way to stop virus from spreading is shutting down all schools at once, while others opted out for more selective approach. Furthermore, many scientific conferences were not realized as planned, which lowered exchange of knowledge and international academic collaboration even more. United Nations estimations are also worrisome as they predict major hit on general and specific knowledge of current students.<sup>9</sup>

Many educational institutions were pushed into online or at least hybrid model of teaching. Adapting to new ways of teaching wasn't such an easy task for many educators. This shift has caused lost of traditional interaction between teachers and students, but also among students themselves. Some schools were having problems with efficiency and effects of platforms they have chosen to implement. Additional problems have arisen because of insufficient financial funds or access to digital tech and the Internet. Both students and teachers also had obstacles at home, with roommates and family members barging into rooms, extensive external noise or

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<sup>7</sup> (Jones, Palumbo, & Brown, 2021)

<sup>8</sup> (Jackson, Weiss, Schwarzenberg, Nelson, Sutter, & Sutherland, 2021)

<sup>9</sup> (Nicola, et al., 2020)

other distracting factors. Furthermore, there are some subjects that are very difficult to adapt to online learning, and students are becoming increasingly more bored, unmotivated and uninterested in education.

Despite of all of its shortcomings, online education has brought on certain number of improvements. Information flow has been smoothened by current technologies and application software and digital platforms have pushed education further than anyone could have imagined. Additionally, both students and teachers, but also education organizations have been able to make considerable savings due to decrease in traveling costs, rent, utility management, etc. Another benefit that has become pronounced in this new environment is creation of audio and video materials, which can be accessed at any time. This provides certain flexibility and gives students the opportunity to listen to the same lecture as many times as needed, while simultaneously trusting them with control of their own time.

There is one segment of private education businesses that want to be part of online teaching industry and they are now threatening traditional organizations. Different online courses have been really emerging during this pandemic. However, this can as well be a good chance for those traditional institutions to alter some of rigid forms they have been inflicting for years and to transform themselves into better modern versions. Certainly, traditional teaching models will still be a main way to go, but there are a lot of opportunities in new models, given that organizations are able to keep the required level of quality. Development of online modules could provide better enlisting and testing systems, international modes of studies, deeper understanding of student habits and by extension greater yields and reputation.<sup>10</sup>

### **3 Hybrid teaching model at Faculty of Organizational Sciences**

In March 2020, a state of emergency was declared in Serbia and the government made a decision to completely lockdown in order to prevent the transmission of Corona virus. All institutions, companies and other public facilities closed their doors and were forced to transform their traditional model of functioning into a digital, online model. This same scenario also befell educational institutions, which had to fully transform the teaching process switching to online model. A few months

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<sup>10</sup> (Daniel, 2020)

later, primary and secondary schools, as well as some faculties, implemented a hybrid model, which means that one part of the teaching is realized live while the other part of the teaching is realized online. However, most faculties continued to teach exclusively online.

Among the first educational institutions in Serbia, FOS has successfully transformed from a traditional to an online model of teaching. The process of transformation lasted only a week, and students and professors quickly accepted and got used to this way of working. All subjects were conducted via online classes. Due to certain legal provisions, exams and colloquia still had to be organized live. This was a challenge for the Faculty due to the high risk of transmission, but everything was successfully organized with respect to the current epidemiological measures.

However, since the winter semester of the 2020/21 academic year, subjects for the first-year students were organized in hybrid regime. During only the first four weeks of the semester, some of the classes were organized live. The management of the Faculty made such a decision in order to enable the freshmen to better adapt and get acquainted with the way the faculty functions, which is quite different from the high school.

The process of conducting online classes was implemented through the platform for online conferences - *MS Teams*. For each subject, a team was created to which teachers were added (professors, assistants and associates). They were appointed as team owners and all students who enlisted for listening to that course for the current school year were team members. A new schedule for online classes was formed, and classes were conducted by creating meetings for lectures and practical exercises. There were also channels intended for teachers' consultations with students, as well as channels on which all important information related to the subject and taking exams or colloquia were posted. Professors taught online from their homes, or from their offices at the Faculty, and tried to engage students in the discussions as much as possible. Also, in order to improve the interactivity of teaching, teachers assigned different tasks with the help of the *MS Teams* tool called *Assignment*, but they also used other types of online tools to encourage student activities and improve the interactivity.

Classes at Faculty of Organizational Sciences were conducted according to the described model during four semesters, and due to the unchanged situation with the COVID-19 pandemic, it is very likely that the same model will be applied until at least the winter semester of the academic year 2022/23.<sup>11</sup>

## **4 Research on the Development Potential of Online teaching at Faculties**

### **4.1 Research Idea and Assumptions**

Based on four semesters of successful implementation of online teaching, there is an assumption that it can be a development prospect and a means of improving and enhancing the work of universities and other higher education institutions after the pandemic. The advancement of the online teaching model can be utilized for improvement of existing courses and creating new ones, especially when it comes to distant learning regime that FOS is already providing for some students. Also, online teaching can provide an opportunity for establishing international courses that will be enrolled by foreign students, including more guest lecturers and activating alumni network. All these changes and improvements can contribute to a better reputation of faculties and other higher education institutions, increase their status, but they can also provide them with higher earnings.

The successful implementation of online education by the Faculty of Organizational Sciences and lessons learned in this field, have sparked the idea of conducting research that will examine all the afore mentioned assumptions and answer the question of whether online teaching is a developmental potential for universities and other higher education institutions or not. In the following text, the description and manner of conducting the research will be presented, as well as its results and conclusions based on those results.

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<sup>11</sup> (FOS, 2021)



## **4.2 Research Design & Method**

The survey was prepared in Serbian language in accordance with the official language in use on classes in the FOS. This survey, translated in English, is attached in the appendix.

The research enrolled in two phases. In the first phase, a survey was conducted in order to determine the satisfaction and views of FOS students (Appendix 1) and teachers (Appendix 2) on the adequacy of the applied model of online teaching. The survey consisted of a dozen queries that requested from respondents to answer questions like how much online teaching saves them time and money or how good of a replacement it is for the traditional teaching model, and to give some suggestions and possible recommendations for improving the applied model.

In the second phase, a comparison has been made, between the average results of students in different subjects, before and after pandemic. The aim is to use such a comparison to determine the impact of online teaching on the quality of knowledge transfer and acquisition. This approach can be considered a good basis for comparison because the same material was taught in all years, using the same guidelines, by the same teachers. The only variable that has changed is the shift made from traditional model to the online one.

## **4.3 Research Results**

Analysis of the answers given in surveys, gave us some valuable insights from two different perspectives (students and teachers), on how do they perceive impact of pandemic on education methods.<sup>12</sup>

Students and teachers agree that with the transfer to virtual classrooms came significant savings in both time and money, which is very important given that 66.9% of questioned students think that studying in Belgrade is very expensive and 44.1% claimed that they know someone who had to drop out of college due to insufficient financial resources. They also agree that there are more technical problems during

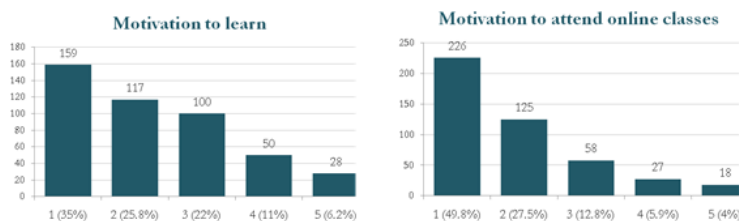
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<sup>12</sup> We've created two different surveys for teaching staff and students with questions addressing current state of education process at FOS. Survey was completed by 75 staff members (including professors, assistants and teaching associates), and 454 students.

lectures (such as internet or computer malfunctioning), but they as well agreed on the fact that those issues don't decrease quality of knowledge transfer significantly. This is why we can recognize virtual classrooms as an option for remote learning for the future, and we can create contemporary programs for international and domestic students that don't want or can't afford to come to Belgrade to study.

Another interesting point of agreement between teachers and students can be found in the fact that both of those groups found distribution of information related to pre-examination activities and examination obligations seamless. Information flow is more efficient, notifications are up to date and current and it's now more convenient for students to ask questions and have consultations with their teachers in real time than ever before due to utilization of modern technology and digital platforms. On the other hand, even though communication between staff and students is going great, there is mutual consensus that students are getting more and more distant among them. There are 53.9% of respondents who think relations and communication among their fellow colleagues deserves an average grade of 1 (126 students) or 2 (143 students), out of 5.

Usually, teamwork and cooperation among students outside of classes is very stimulated at FOS. There is a large number of group assignments, case studies done in teams, different kinds of discussions and tasks which are meant to develop necessary skills for their future careers and which have also proven to be very popular among students, giving them necessary motivation for productive learning. Without proper incentives and being astray from others, students have been reporting feeling isolated and secluded. Unfortunately, our research shows that because of those reasons there is a very concerning motivation deficiency among students for both attending online classes and preparing for exams, which is shown on the charts below (Figure 1).



**Figure 1: Motivation to learn and Motivation to attend online classes**

Another identified problem in virtual environment is creating stimulative enough possibilities for students to participate in classes. This challenge is even bigger in obligatory classes, where number of students listening to one teacher simultaneously can go up to 350; in elective courses, where the number of students is lower, the problem is much slighter. Couple of teachers suggested that we need to find a way to motivate students to participate more during lectures, thus improving the transfer of knowledge, which can be done even by some small tweaks like insisting on streaming with the cameras turned on. This would provide a feeling of connection, better understanding and the use of facial expressions and body language during communication. Moreover, this makes teachers better acquainted with students and could help avoid passive attendance at classes (when students enter a meeting and leave the computer), which have definitely intensified since the shift to online classrooms.

Regarding quality of online teaching model, answers have shown us that the average grade given by students was 3/5 (with symmetrical normal distribution of other grades), and the average grade given by teachers was 3.72/5 (without any 1/5 or 2/5), which hasn't been surprising. This is the main reason why we've decided to expand our research to include more objective data and analyze previous and current results of students at courses that we teach.

**Table 1: Student's results before and during the pandemic<sup>13</sup>**

Courses	Before Pandemic		During Pandemic	
	Passed	GPA	Passed	GPA
Management (I, 900)	84.17%	8.37	74.29%	7.72
Project Management (V, 350)	63.07%	8.02	61.97%	7.79
Investment Management (VI, 180)	70.18%	8.67	79.19%	7.75
Strategic Management (VIII, 180)	89%	9.56	93%	9.17

<sup>13</sup> Numbers in the brackets represent semester and average number of students attending the course; Data is from January 2020, January 2021, June 2019 and June 2020.

This final phase of research confirms our previous data, so we can conclude that even though the quality of impregnated knowledge hasn't radically suffered (approximately same number of students have passed the exams), the motivation of students for achieving superb outcomes has been diminished (we can see decrease in Grade point average (GPA) by at least half of grade in every course analyzed).

## 5 Concluding Remarks

Given everything that had been said, we can't claim that online teaching should be a substitute for the regular teaching process, because the goal of teaching is not only to pass on the substance from books, but rather to develop and nurture set of various skills with students (public speaking, critical thinking, expressing thoughts). To quote one of the teachers from the survey: "The knowledge acquired in the classroom is useful, but it cannot replace the knowledge acquired during the breaks".

However, we can conclude that digital platforms can enrich and improve the existing programs of higher education institutions. The application of on-line model similar to one that have been implemented at FOS (with several improvements) can contribute to expanding the capacity of existing and opening new remote programs, as well as international modules for foreign students. This will enable all higher education institutions to enroll a larger number of domestic and foreign students, which is important for their reputation, but also for earning additional income based on a larger number of tuition fees. Also, some elements of online teaching models can be applied to transform and digitalize traditional models. For example, creation of audio/video materials for students with an easy access can be introduced, one-on-one consultations can be moved to an online environment, as well as the simplification of information distribution and much more.

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## Appendix

The questionnaire is conducted in order to create a scientific research paper and analyze the opinion of students on the quality of online teaching at the Faculty of Science during the COVID-19 pandemic.

All answers are anonymous and will be used for research purposes only.

### Section 1

- 1) Year of study:  
 I;  II;  III;  IV;  Master studies;  Doctoral studies;
- 2) In your opinion, how expensive is it to study in Belgrade?  
Very cheap      Very expensive
- 3) Do you know anyone who dropped out of faculty for financial reasons?  
 Yes;  No;
- 4) Does online teaching brings you savings?  
 Yes;  No;

### Section 2

Evaluate the following items related to online teaching:  
(1-lowest rating, 5-highest rating)

- 5) Quality of knowledge transfer  
1  2  3  4  5
- 6) Possibility of student's participation in classes  
1  2  3  4  5
- 7) Communication and contact with professors  
1  2  3  4  5
- 8) Communication and contact with other students  
1  2  3  4  5
- 9) Availability and transmission of information related to pre-examination and examination obligations  
1  2  3  4  5
- 10) Motivation to learn  
1  2  3  4  5
- 11) Motivation to listen to classes  
1  2  3  4  5

### Section 3

- 12) Do you have more free time while listening to classes online compared to listening to live classes  
 Yes;  No;
- 13) If the answer to the previous question is "yes", how much is the increase?  
Insignificant 1  2  3  4  5  Very significant
- 14) Did you have any obstacles while listening to classes online (slow internet, poor IT equipment, noise at home, etc.)?  
 Yes;  No;
- 15) How much these barriers affect your listening process?  
Don't affect at all 1  2  3  4  5  Affect significantly

### Section 4

- 16) How satisfied are you with the online teaching?  
Very dissatisfied 1  2  3  4  5  Very satisfied
- 17) Comments and suggestions related to improving online teaching:

*Enter your answer here*

## **Appendix 2**

The questionnaire is conducted in order to create a scientific research paper and analyze the opinion of teachers on the quality of online teaching at the Faculty of Science during the COVID-19 pandemic.

All answers are anonymous and will be used for research purposes only.

### Section 1

Evaluate the following items related to online teaching:  
(1-lowest rating, 5-highest rating)

- 1) Quality of knowledge transfer  
1  2  3  4  5
- 2) Motivation for teaching  
1  2  3  4  5
- 3) Possibility of student's participation in classes  
1  2  3  4  5

- 4) Communication and contact with students  
1  2  3  4  5
- 5) Communication and contact among students  
1  2  3  4  5
- 6) Transmission of information related to pre-examination and examination obligations  
1  2  3  4  5
- 7) Student's motivation to learn  
1  2  3  4  5
- 8) Student's motivation to listen to classes  
1  2  3  4  5

### Section 2

- 9) Do you have more free time while teaching online compared to live classes  
 Yes;  No;
- 10) If the answer to the previous question is "yes", how much is the increase?  
Insignificant 1  2  3  4  5  Very significant
- 11) Did you have any obstacles while teaching online (slow internet, poor IT equipment, noise at home, etc.)?  
 Yes;  No;
- 12) How much these barriers affect your teaching process?  
Don't affect at all 1  2  3  4  5  Affect significantly

### Section 3

- 13) How satisfied are you with the online teaching?  
Very dissatisfied 1  2  3  4  5  Very satisfied
- 14) Comments and suggestions related to improving online teaching:

*Enter your answer here*