

**THE IMPACT OF THE COVID-19 ACADEMY ON THE HIGHER
EDUCATION SYSTEM:
THE EXAMPLE OF THE UNIVERSITY OF DONJA GORICA**

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Abstract: *COVID-19 pandemic brought a series of changes in all spheres of human life. The context of education, business, movement, socialization and daily life has completely changed, which posed a challenge to almost the entire population – both in the world and in Montenegro. During 2020, over 190 countries were forced to temporarily close educational institutions and start applying the online teaching model, which affected almost 97% of the world's student population. The aim of this paper is to identify the processes and challenges faced by the Montenegrin higher education system during the COVID-19 pandemic. The paper describes the implementation of a hybrid model of curriculum implementation at the University of Donja Gorica, as well as the implementation of additional extracurricular activities in changed conditions. The achieved research results are presented in the form of proposals and examples of good practice in the implementation of teaching activities, which can affect the redefinition and improvement of the curriculum.*

Keywords: *education, pandemic, redefinition, hybrid teaching*

Introduction

According to UNESCO, on April 24, 2020, nearly 1.5 billion students across the planet, at all levels of education (from preschool to college age), faced the closure of their educational institutions due to the COVID pandemic¹⁹. That number accounted for approximately 85% of the total number of pupils and students at all levels of education worldwide. If we add to that the number of those pupils and students whose institutions functioned in a semi-open regime, we come to the conclusion that on that day almost 94% of the total student population in the world was exposed to changes in the educational process caused by the COVID¹⁹ pandemic (UNESCO, 2020). The closure of university buildings or the transition to a semi-open mode of operation did not mean the suspension of the educational process. Higher education institutions continued to carry out their core business trying to adapt to new circumstances and challenges. The transition of teaching from a traditional ex-chair or face-to-face model to one that is predominantly based on remote mode and digital technologies is the most obvious change in the higher education system in almost all countries of the world (Perrotta, 2020).

Although some predict that the COVID¹⁹ pandemic will end in 2021 (Powell, 2020), it is already clear that changes in higher education will “outlive” its life. From UNESCO data for 9.3.2021. year we can see that the dominant tendency is that educational institutions in all countries of the world are moving from closed to semi-open and open mode of operation. Thus, today 8.3% of the total student population attends classes at institutions that operate in a closed mode, while as many as 65% of them have switched to a semi-open mode of operation (UNESCO, 2021). The remaining 27% of this population, although they switched to open mode, continued to use the advantages of modern technologies in the educational process (Chaka, 2020). The tendency to gradually integrate new technologies into the educational process at higher education institutions existed even before the outbreak of the pandemic, but it was the pandemic that

imposed the need for a quick and agile response to which higher education institutions responded with varying degrees of success.

The challenges facing higher education institutions during the COVID¹⁹ pandemic have already been the subject of special scientific studies and research ventures by individual authors (Bhagat and J. Kim, 2020; Houlden and Veletsianos, 2020; Kandri, 2020; Leung and Sharma, 2020) as well as relevant international institutions and organizations such as UNESCO and the International University Association (IAU Global Survey Report, 2020; IAU Regional / National Perspectives on the Impact of COVID-19 on Higher Education, 2020).

Our goal in this paper is to identify those challenges faced by the University of Donja Gorica (UDG) in Montenegro during the COVID¹⁹ pandemic and to define how and how successfully this university responded to them. Therefore, the subject of our paper will be the analysis of the measures applied by UDG in its work in order to successfully achieve its mission in the conditions of the COVID pandemic¹⁹.

The paper is divided into three parts: in the first, based on a review of the existing literature, we will identify the challenges faced by higher education institutions during the COVID pandemic¹⁹; in the second part, we aimed to determine what measures and activities UDG has taken to respond to them; and the third part is devoted to the analysis of the achieved results.

1. Key Challenges

In its two reports from 2020, the International University Association highlighted the challenges that universities faced during the COVID pandemic¹⁹. First, the COVID Pandemic Impact Report¹⁹ on higher education worldwide, classifies the impact of the pandemic into five areas that are further subdivided into subgroups, and key challenges are defined within the subgroups. This report is the result of a survey conducted by the International University Association

in the form of a survey on a sample of 424 representatives of various universities from 111 countries. Surveys were mostly filled out by faculty members (20%), directors of institutions (17%), and persons in charge of international cooperation (16%). The challenges targeted by this study are the following:

General challenges: communication, enrollment in the new academic year, government support and partnership;

Teaching and learning: transition to remote work mode, quality of content, internationalization and student mobility, exam planning during the semester; Research activity: cancellation of scientific trips, cancellation of scientific conferences, started scientific projects are at risk of not being completed, complete cessation of research activity; Community engagement: degree of community engagement; Other challenges: financial, crisis management.

1.1. General challenges

This group includes those challenges related to communication, enrollment in the new academic year, government support as well as partnership with other higher education institutions during the pandemic. When it comes to communication, the survey found that although most universities had the infrastructure to enable communication between professors and students (91%), one of the most common challenges cited by respondents in open-ended questions was the problem of maintaining clear and effective communication between staff and students. This problem has a dual nature which is reflected in 1. Difficult communication of administrative and technical staff with students as well as 2. Difficult communication of professors with students (IAU Global Survey Report, 2020). In this case, these are usually problems that arise when students or professors do not respond to e-mails regularly or do not know who to contact in case they have a problem. Certain problems in communication in this case may also exist between the administrative staff of the university and the teaching staff. These

are most often cases when professors are not informed in time about the schedule of their lectures or the way in which classes, exam sessions, knowledge tests and the like will be realized.

When it comes to enrollment in the new academic year, almost 78% of respondents then (2020) predicted that the pandemic would negatively affect the number of enrolled students for the academic year 2020/2021. year. These predictions apply to both local and foreign students. Pacheco (2020) also states that some universities face a significant increase in the number of students (between 12 - 22%) who drop out. In this context, the lack of state aid during a pandemic can also be a significant challenge. According to the results of the survey, 48% of respondents said that their institutions expect help from their state, while the rest said that they do not expect (24%) or that they do not know whether they will have state support in overcoming the crisis (28%). The need to provide quality online teaching as well as to adapt the university premises for conducting such teaching, requires costs that universities are not always able to cover from their own sources (Pacheco, 2020).

More than half of those respondents who said the COVID19 pandemic had an impact on their partnerships with other higher education institutions said the impact was negative. Universities were forced to accumulate and concentrate their resources in order to perform the most necessary activities.

1.2. Teaching and learning

The first challenge from this group is definitely the transition to remote mode. Due to its complexity, this challenge is divided into three specific challenges:

- a) technological infrastructure and accessibility,
- b) The need for new competencies and a different pedagogical approach,
- c) the specifics of the scientific field.

The fact that not all students have the same access to technological instruments as the Internet has led to online teaching not being available to everyone. This problem is most

pronounced in poor countries as well as in developing countries while in developed countries universities have not reported this problem. Online teaching requires a different pedagogical approach as well as advanced abilities of the teaching staff in the use of modern technologies. However, universities did not have the opportunity to conduct special training for professors, so they were forced to learn and master new skills on the go. This circumstance created a difference between those professors who managed to adapt without difficulty and those who encounter greater difficulties in the process. In addition, online teaching has proven to be completely inapplicable in those scientific disciplines that require practical exercises. Thus, for example, studies of clinical medicine or veterinary medicine, where teaching depends on the possibility of conducting experiments in laboratories, are just some of the scientific disciplines that cannot be realized through online teaching. It is similar with studies in the field of art such as music, academic painting or design, where students need access to adequate equipment in order to improve their knowledge.

Bhagat and Kim (2020) would add to this the challenge of maintaining the quality of online lecture content. In their research, they find that students are less willing to attend online classes and that they believe that the benefits it brings do not match the price of these programs. Also, the conclusion of their study is that vulnerable categories of students have a problem taking exams in the remote mode, and there can be almost no talk of achieving significant success. This is primarily caused by the fact that only somewhere around 50% of the teaching staff has previous experience working in remote mode (Bhagat and Kim, 2020).

The challenge faced by almost 89% of all universities in the world is the limited internationalization and mobility of students. This challenge also had several aspects. The largest number of universities (47%) reported that a large number of foreign students found themselves in their dormitories without the opportunity to leave

the country. On the other hand, a large number of students who participated in exchange programs remained trapped abroad and there were also those who chose to drop out (IAU Global Survey Report, 2020). Universities have tried to overcome this problem by using the concept of virtual mobility, which allowed students to follow some of their subjects online at other, foreign universities.

Exam planning during the semester was another challenge faced by universities. Switching to remote mode for many also meant postponing the set deadlines for taking the exam (IAU Global Survey Report, 2020).

1.3. Research activity

The cancellation of scientific conferences and trips is another significant handicap for the development of scientific research at universities during the COVID pandemic19. Many universities, however, have rapidly developed alternative channels of communication and exchange of scientific knowledge. Online platforms have enabled cheaper and more efficient communication between researchers around the world. However, a bigger problem has arisen with those projects that have already been started and which were threatened with permanent suspension due to the impact of the pandemic (IAU Global Survey Report, 2020). Some scientific projects, especially those of an international nature, require the physical cooperation of researchers. would be realized. In these cases, the transition to remote mode was significantly more complex.

1.4. Community engagement

Many universities have used the COVID19 pandemic to increase their involvement in local communities. The IAU survey (2020) shows that as many as 58% of universities were involved in some way in community activities during the COVID pandemic19. Those universities within which medical faculties operate also provided direct health

services to citizens, some universities hired their medical students as auxiliary medical workers and students of other faculties as volunteers who had the task of delivering aid and food to the population during the period of isolation. In addition, scientific research at universities has in most cases focused on providing expert advice to policy makers during a pandemic. The challenge was to find the appropriate modality of university engagement during the COVID pandemic 19.

1.5. Other challenges

According to the court of the largest number of respondents, the financial challenge was the most difficult challenge this time. The problem with finances comes from three directions. The first is that a reduced number of enrolled students is expected in the new academic year. This particularly affects private universities, which predominantly rely on this source of income. The second is indirect and refers to the inability of students to work during a pandemic, which can lead to their dropping out of further studies because they do not have the opportunity to be financed. And the third concerns the unpredictable future. The major economic recession currently affecting the world could have far-reaching consequences that are difficult to predict. In such conditions, it is significantly more difficult for universities to plan and organize their activities (IAU Global Survey Report, 2020).

2. University Donja Gorica

The University of Donja Gorica was founded in 2007 and currently has 12 faculties, a Center for Foreign Languages and 19 study programs. Six faculties are registered scientific research institutions for performing scientific research activities in the field of international economics, law, information systems and technologies, humanities, as well as technical-technological sciences such as polytechnics and food technology, food safety and ecology. This university currently has about 3,500 undergraduate, graduate and doctoral students from both the country and abroad. The University of Donja Gorica is a signatory of about 150 bilateral agreements on cooperation with universities from around

the world and an active participant in a large number of international projects. In the last few years, the “Entrepreneurial Nest” has been opened within the University - a business incubator established with the aim of helping students develop their skills during their studies business ideas and provide support to start their own business, as well as several laboratories for research work of students (Laboratory for Food Quality and Safety, Laboratory for Chemical Analysis, 3D Laboratories, Computer Laboratory ...).

All study programs at the University of Donja Gorica are realized in accordance with the principles of the Bologna Declaration, which through a wide range of elective courses allows students their own independent program profiling and the possibility of studying in accordance with personal interests.

2.1. UDG responses to general health crisis challenges

The University of Donja Gorica, as well as other universities in the world and in Montenegro, in March 2020 faced a challenge, which involved a rapid transition to an online mode of knowledge transfer. UDG has an advanced information system and human resources that can bring its use and introduce into its work the regular use of modern information technologies that have not been part of teaching practice so far.

Given that the research began with an analysis of the challenges faced by the higher education system, in further research we will list the processes that took place at UDG, in order to ensure the smooth continuation of the work of this higher education institution and to respond to the challenges which imposed the spread of COVID19.

We start from the general challenges faced by universities, which consist of the above: communication, new generation enrollment and government support, as well as partnership with other institutions.

1. Communication: At the University of Donja Gorica, Almanac of Studies, adopted

in 2014, recommendations and guidelines for student development are defined. According to this document, one of the preconditions for the successful application of the principles on which the life of a successful man is based is reflected in his professionalism and dedication to work. This implies knowledge of the rules of business communication and their application. UDG students, upon enrollment, receive login information for the email address, within the platform used by both students and professors. From the first year of study, a rule was created that defines that "professors are not required to respond to emails from students who send them from their private addresses." This approach is especially demanding for first-year students, who face a completely different regime after high school. Thus, the communication challenge of second- and third-year undergraduate and graduate students had to be overcome during the first year of study. A serious challenge in terms of communication was the generation enrolled in 2019/20, which was still in the process of getting used to stricter working principles. In order to overcome this problem, "mentoring groups" have been created. Each UDG lecturer was given the names of 10 students, whom he had to contact and monitor during quarantine. Later, this practice continued with the enrollment of the new generation, which greatly reduced the workload of the University services, as students resolved minor ambiguities with their mentors.

2. Enrollment in the new academic year: For private universities, this event is a challenge every year. Universities are mostly working on creating enrollment campaigns from December to March, when the big promotion in high schools starts. The University of Donja Gorica organizes numerous events, which serve as a promotion of the educational system and study conditions offered by the University, such as: Winter School of Entrepreneurship and Innovation, Open Days of Science, numerous tribunes (depending on the topic of the enrollment campaign), round tables of current topics for that period) and visits of high school students. Also, the enrollment campaign is organized by the departure of associates, prominent students and partners to all high

schools in Montenegro, where on-site study programs and opportunities offered by the University are presented. The COVID19 pandemic marked the end of traditional marketing methods, which include sharing promotional materials, organizing presentations, fairs and face-to-face conversations. The University of Donja Gorica has also fully adapted its enrollment campaign to the online mode of operation. Thus, the use of social networks becomes one of the basic forms of communication with the target market. Activation of profiles on Instagram, Tick Tok, Facebook and LinkedIn is the basis of the University's worldwide marketing campaign, and UDG is not far behind. Another challenge arising from the time of the COVID19 pandemic relates to the cost of studying. In Montenegro, studying is free for all students of the State University of Montenegro. Considering the difficult economic situation in the country and in the region, it is clear that a serious obstacle in making a decision on the choice of faculty will be the financial factor

3. The last general challenge, defined in the first part of this paper, refers to the expectations of higher education institutions, and in this case - UDG, regarding state aid measures, as well as strengthening partnerships with other related institutions. Montenegro has undergone major changes since August 30, 2020, when the regime that ruled the state apparatus for thirty years was replaced. So far, private universities in Montenegro have not been funded in any part by state institutions - which has resulted in a change in government that will change this practice, especially during the global health crisis. However, assistance from state institutions did not follow. In addition, other institutions that form part of the higher education system have used their resources to overcome the challenges they themselves have faced. Numerous conferences, seminars, student and staff exchanges have been suspended, especially in 2020, without announcing their compensation in the next year, because new goals have already been created in it, which do not leave room for the old ones.

2.2. Fighting specific challenges

In the following, the problems and solutions that arose when facing the specific challenges defined in the first part of this paper will be highlighted.

1. Teaching and learning: The University of Donja Gorica has decided on a hybrid mode of operation. Given the number of students, it was not possible to conduct live classes, while respecting the measures to combat COVID19. Thus, it was decided that the faculties be divided into two groups (by number) and that one week one group of faculties (numbering about 1600 students) follow live lectures, while the other group follows online lectures and exercises. Then, the following weeks the groups take turns, to provide face-to-face contact with the students. This layout was feasible, taking into account the space capacities available to the University. Taking into account research that indicates that the online teaching regime is generally unsuitable for students, UDG has tried to make up for part of the lost quality with a hybrid model. The conduct of online lectures and exercises is monitored on a weekly basis - by controlling the publication of materials provided by the plan and program. This required greater engagement of the coordinators of individual study programs, who ensured the smooth functioning of the system according to previous standards. The university does not have its own platform for conducting online lectures and exercises, but alternative teaching methods have been used (Zoom, Microsoft Teams, Recorded Lectures, Webex, PPT with recorded voice, etc.). All online lectures were recorded and posted on a common cloud, in order to control the quality of the content. What UDG could not respond to in the short term is a challenge concerning specific cases

- for which he had to organize a permanent live performance. There are few such subjects and they are most often related to subjects that are performed in laboratories or under certain specific conditions or by using equipment located at the University. The Law on Higher Education of Montenegro does not allow taking colloquia and exams online, so all exams are organized in the

building, under strictly controlled conditions, when the conditions for their implementation have been met.

2. Research activity: Within the University of Donja Gorica there are several separate research units, such as: Center of Excellence Food Hub, Entrepreneurial Nest, Laboratory for Food Quality and Safety, PRODE Laboratory for Product Design and others.

All these research units had to stop their work, and the research activity of the University itself was reduced to the individual work of researchers, who now have an organic choice of research methods. Scientific projects are facing the risk of delaying funding, but everything is still going according to plan. All conferences organized by the University and organized at the University in cooperation with partners have been canceled from March 2020 until further notice.

3. Community engagement: The University makes efforts through educating students about the importance of their role in the process of combating COVID19. Through his activities, he includes students in events that he organizes on social networks.

3. Research - presentation and discussion of results

At the University of Donja Gorica, during May and June 2020, a survey was conducted on a sample of 1746 students from all university units via an online questionnaire. The research examined student satisfaction with the way online classes are organized during the summer semester of the 2019/2020 academic year. due to the application of temporary measures against the spread of the COVID 19 pandemic and the transition to online teaching. The primary goal of this research was to determine the attitudes of students as well as to identify areas within which in the coming period should work to improve the organization of online teaching.

When asked if they were satisfied with the quality of online teaching, students had the opportunity to choose three offered answers

(yes, partially and no) and thus evaluate the distance learning process organized during the summer semester (Table 1). Out of 1746 respondents, as many as 1036 answered that they were satisfied, 570 respondents partially and 140 that they were dissatisfied with the quality of online teaching organization. Based on the collected answers, we can conclude that the level of satisfaction is very high and that a large number of students assess that the quality of online teaching is at a satisfactory level.

Table 1: Results of the survey on the question of satisfaction with the quality of online teaching?

Yes		Partially		No	
Year of study	1	303	199	57	559
	2	271	162	36	469
	3	358	157	32	547
	4	91	50	10	151
	5	13	2	5	20
Total		1036	570	140	1746

Source : Authors

As one of the questions, a question was offered if they are not satisfied with the realization of online teaching, what is the reason for dissatisfaction. Respondents singled out the lack of organization of lectures (11.23%) and inadequate material for online teaching (5.33%) as the main reasons. Then they pointed out the poor quality of the Internet network for monitoring online lectures (3.55%) and the inadequate attitude of lecturers towards online teaching (4.52%). In the open part of this question, where the respondents had the opportunity to state their personal reasons for dissatisfaction with the quality of online teaching, they mostly stated: weak internet connection, unclear content, inadequate

learning material. As the most suitable way to follow online classes, students consider that these are online platforms such as ZOOM, Webex and the like (36.54%), followed by videos with the voice of a lecturer using PPT, spreadsheet, Excel or some other program (32.65%), and the use of PPT presentations with the recorded voice of the lecturer (26.96%). To a much lesser extent, there were answers that another type of teaching would be a more suitable solution (3.84%). When it comes to student workload and distance learning compared to the period when classes took place at the University, 39.92% of respondents pointed out that it was approximately the same as before while classes were held live in the amphitheater, while 34.99% of respondents stated that the workload is higher and that they need more time and commitment to learn. It is interesting that 25.09% of students stated that they were more burdened during their classes at the University, and that distance learning is a relief for them.

Conclusion

Educational institutions around the world are facing new globalizing educational trends, such as the application of digital technologies. The rapid development of information and communication technology has affected all spheres of human life, including education, which in recent years has increasingly used the possibilities of organizing online distance learning. Faced with the COVID-19 pandemic during 2020, many educational institutions around the world were forced to organize classes and extracurricular activities through the use of a model for the organization of distance learning.

Guided by the need to overcome the crisis caused by the pandemic, the University of Donja Gorica, through the implementation of a hybrid model for the implementation of teaching that contains two components that complement each other, live lectures in the amphitheater and online lectures, maintained continuous teaching and thus ensured the implementation of teaching and preservation student health and teaching staff.

It is believed that online learning will play a key role in education in the future, and that information technology will make it easier for students to access the necessary information, the learning process will be much faster and more interesting, and communication and teamwork among students will be facilitated. The University of the Future should provide the opportunity to study and acquire knowledge to all students who are considered to have their role in creating content in the future grow.

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