

UNDERSTANDING THE COVID-19 IMPACTS ON HIGHER EDUCATION: THE UNIVERSITY OF EAST SARAJEVO, BOSNIA AND HERZEGOVINA

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Abstract: The emergence of the COVID-19 pandemic has resulted in sudden and dramatic changes in our daily lives. The pandemic's immediate impact on the university higher education sector is felt by various actors (students, teachers, non-teaching staff), institutions, and the system as a whole. The pandemic complicates higher education even more because the temporary closure of higher education institutions has had a serious influence on their core functions - teaching, research, and community service. Due to the suddenness of the university closures, teachers had little time to prepare and shift to the use of the various online and distance education tools. Having in mind that teachers' levels of familiarity with the use of technology for teaching differed, the shift to distant education was neither easy nor smooth. On the other side, students have also experienced a lack of digital competencies as well as a lack of technology or connectivity. Evidently, the sudden transition from traditional methods of teaching and learning to new methods, such as distance and online education, proves to be quite challenging for teachers, students, and higher education institutions. Universities in Bosnia and Herzegovina, like many other higher education institutions around the world, are dealing with the same pandemic-related issues. This paper presents an attempt to understand the impact of COVID-19 on higher education at the University of East Sarajevo (UES), East Sarajevo, Republic of Srpska, Bosnia and Herzegovina. The study's goal is to identify and discuss the challenges and responses to the UES's abrupt closure and transition to online and distance learning, as well as changes in teaching, research, and exams after reopening, emphasizing the differences from traditional teaching and research.

Key Words: COVID-19/higher education/UES

1. INTRODUCTION

The pandemic of COVID-19 has had the most devastating influence on educational systems in a century. With the lockdown, social distancing measures, and sudden closure of a higher education institution, dramatic changes in higher education emerged. According to UNESCO, on April 1, 2020, schools and higher education institutions in 185 countries were closed, affecting 1 542 412 000 students, or 89.4% of all enrolled students [1]. To avoid disruptions of the academic calendar, classroom teaching had been abruptly replaced by distance teaching and learning. Higher education institutions were compelled to establish the technical systems required to move courses, examinations, research, and administrative activities online in a very short period of time [2]. The transition from face-to-face to distance and online teaching was not easy nor smooth due to access to technical infrastructure, distance learning competencies and pedagogies, and the requirements of specific fields of study (e.g. science, technology, mathematics, and field courses have presented more challenges in the virtual adaptation process [2]). Hence, the forced shift to distance teaching and learning was quite challenging for both, teachers and students. International student and researcher mobility, as well as research at higher education institutions, were affected by COVID-19 as well. Undoubtedly, the pandemic's changes have posed a number of challenges to the right to higher education in terms of accessibility, discrimination, equality, and quality [3].

The University of East Sarajevo (UES), as one of the higher education institutions in the Republic of Srpska, Bosnia and Herzegovina, was severely impacted by the COVID-19 pandemic. Moving to an emergency online education was quite challenging for this institution which is consisted of fifteen faculties and two academies. During the COVID-19 pandemic, the UES follows the Institute of Public Health of the Republic of Srpska's recommendation for teaching at higher education institutions. This paper attempts to provide an overview of how UES responded to sudden closure and transition to distance and online teaching and learning, as well as what has changed since UES reopened. Therefore, the paper is organized as follows. After the Introduction part, Section 2 emphasizes the general impact of COVID-19 on higher education, while Section 3 summarizes the influence of pandemic on teaching and learning at the UES as well as UES responses to the new situation. Finally, Section 4 summarizes performed study.

2. THE EFFECTS OF COVID-19 ON HIGHER EDUCATION

COVID-19 had an impact on teaching and learning in almost all higher education institutions. The authors of [1] showed how has COVID-19 affected teaching and learning (Fig. 1). To respond to the need to continue teaching and learning activities, in Europe, in 85% of higher education institutions, classroom teaching was replaced by distance and online teaching and learning. At the same time, higher education institutions postponed the majority of the practical and clinical work as well as exams until the end of the semester, hoping that the situation would have improved by then.

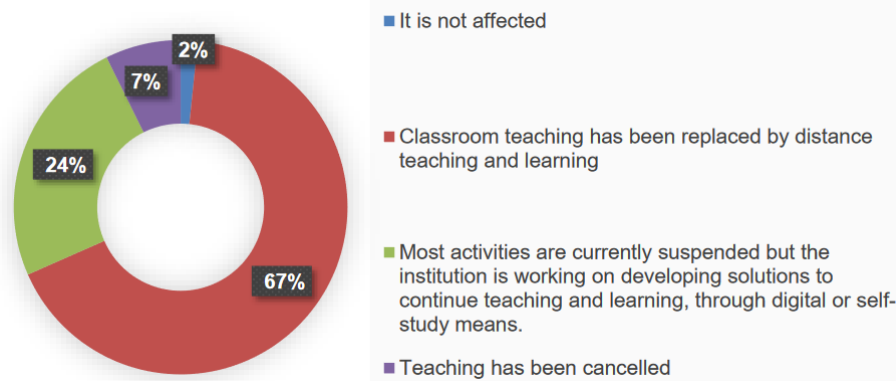


Figure 1. The effects of COVID-19 on teaching and learning [1]

Due to the sudden closure of most higher education institutions, they were confronted with an unexpected and unprepared shift to online teaching. The challenges can be divided into three categories [1]:

- Technical infrastructure and accessibility as a requirement for transitioning to distance teaching and learning,
- Diverse distance learning competencies and pedagogies,
- The field of study requirements.

The abrupt closure of higher education institutions had a significant impact on teachers and students. Virtual education is not new for most large higher education institutions but without prior experience with similar situations, the forced shift from face-to-face to distance and online teaching and learning was challenging for most of them. In such a short period of time, most higher education institutions did not have sufficiently mature virtual education systems for all courses for all students. Adequate infrastructure, both in apps and platforms, as well as online access, were required for the online learning and teaching process to run smoothly [4]. Undoubtedly, the intensive use of technology has redesigned the teaching and learning processes.

Due to the lack of time to prepare for the pandemic-related issues, teachers were challenged to find an innovative and creative solution to act and learn on the fly, flexibility, and responsiveness in the contents and models of the courses for learning in the various study areas [4]. Each teacher's ability to continue teaching is largely determined by their prior experience with the various online and distance education tools. In other words, the willingness of teachers and their familiarity with online tools is more important than ever before in determining the quality of a class. The quality of the classes has been determined by whether teachers use creative resources and adapt their offline teaching to an online format, or whether they simply upload or send via e-mails the subject materials or powerpoint presentations, hence limiting interactions with the students [5]. Evidently, the main challenges for the majority of teachers were their lack of experience with online education (e.g. virtual learning platforms, conferencing tools), converting offline teaching into online teaching material, and ensuring high-quality online education [6]. Hence, improving the infrastructure of online teaching and increasing teachers' skills and competencies are two major areas in which higher education institutions must invest. Development and adoption of new technologies and transition to blended learning, which combines online and offline learning methods, was predicted to be the most long-lasting post-pandemic change.

On the other hand, in order to adjust to a COVID-19 situation, students' daily lives had to be rearranged. The vast majority of students who had been separated from their families but remained in the same country have returned home. The pandemic had a significant impact on international student and researcher mobility. Due to the airport and border closures, many students and researchers abroad were unable to return home. Students, too, have had to work hard to adjust to new teaching and learning methods. Other major prerequisites to continuing teaching and learning from home, were access to online learning infrastructure, and a reliable internet connection. However, many students have struggled with technical issues and a lack of connectivity in low- and middle-income countries [4]. Furthermore, limited student-teacher interaction, absence of traditional classroom socialization, and an unfavorable home study environment were mentioned as challenges that students encountered while participating in remote learning [2]. Students also require more time to comprehend and assimilate information, which increases the overall workload. All of this has weakened students' ability and motivation to attend online classes and succeed in their studies, and some students have developed a sense of inferiority [3]. Hence, reopening higher education institutions is the most effective way to start reversing learning losses (any loss of knowledge or skills, as well as any slowed or stopped academic advancement). Recent pandemic-related data suggests that, with adequate safety measures in place, health hazards to students and teachers can be reduced [7].

3. THE UNIVERSITY OF EAST SARAJEVO'S RESPONSE TO THE COVID-19 PANDEMIC

The Institute of Public Health of the Republic of Srpska regularly gave recommendations for teaching at higher education institutions during the COVID-19 pandemic, with the application against epidemic measures. In addition to general recommendations for employees and students, the recommendation for vaccination also includes recommendations for organizing and holding classes, organizing and holding exams, library work, informing students, and how to act in case of

COVID-19 disease. In the organization and holding of theoretical classes at the faculties, it was possible to apply one of the following models, each model implying the use of different measures to protect against COVID-19: complete distance learning, combining online lectures classes and live lectures. Classes could not be organized in a unique way for all higher education institutions: all universities and members of universities and colleges. The model for holding theoretical and practical classes was determined by the institution's information-technology capabilities, spatial capacities, and the number of students enrolled in specific subjects. Depending on the feasibility of implementing the recommended measures, each higher education institution of the UES had to decide which model to use in its work during the second half of the 2019/2020 academic year, as well as the entire 2020/2021 and 2021/2022 academic years. Due to the high level of COVID-19 transmission, The Institute of Public Health recommended that all theoretical and practical classes that can be organized online should be organized in this way. On the other hand, the Ministry of Scientific and Technological Development, Higher Education and Information Society gave instructions to all higher education institutions in the Republic of Srpska on how to maintain the distance learning process during the period of emergency. Distance learning took place through electronic means of communication (specialized distance learning platforms and other digital platforms), and students were provided with access to teaching materials. The exams were held regularly with the obligation to respect the conclusion of the Emergency Situations Headquarters of the Republic of Srpska and the health recommendations of the Institute of Public Health of the Republic of Srpska. During the emergency, it was forbidden to hold professional and scientific conferences and other gatherings and it was recommended to hold them via digital platforms. The COVID-19 pandemic had also a negative impact on international exchange programs for students and teachers, as well as joint research activities. When the situation during the COVID-19 pandemic improved, members of UES reopened, but the reopening was not as abrupt as the closure, nor did it imply a return to normal teaching and research as it had been before the pandemic.

Given that the UES has fifteen faculties and two academies, it was not easy for all organizational units to organize classes entirely at a distance because many faculties conduct practical and laboratory exercises during the teaching process. Each faculty had the opportunity to form an individual approach to teaching during the COVID-19 pandemic to comply with the recommendations received from the competent health authorities. During the emergency, classes were held entirely online, while after the emergency, each faculty organized sessions of the Scientific-Teaching Council every week, where council members, taking into account the epidemiological situation, decided whether classes would be online or held in the next seven days in a classroom. Whether classes were held online or not, it was assumed that all practical exercises and exams were held traditionally, in labs or classrooms. Also, each teacher had the opportunity to give a written explanation to state whether he/she wants to hold classes online if he/she belongs to the risk group of the population, regardless of the final decision of the Scientific-Teaching Council. Although the UES has allowed the faculties and academies to choose the way of teaching, the way of teaching at a distance has been precisely defined at the university level.

The UES has chosen to use the Moodle platform with Jitsi video conferencing software for distance learning. Moodle is free software, a learning management system providing a platform for e-learning and it helps the various educators considerably in conceptualizing the various courses, course structures, and curriculum thus facilitating interaction with online students. Moodle was devised by Martin Dougiamas and since its inception, its primary agenda has been to contribute suitably to the system of e-learning and facilitate online education and attainment of online degrees. Moodle actually stands for Modular Object-Oriented Dynamic Learning Environment and statistics reveal that about 14 million consumers are engaged in about 1.4 million courses propagated by this learning management system [8]. Video conferencing plays a vital role to ease the educational process for learners. Although Video conferencing tools were used on large scale many years ago, their usage increased in the last few months because of COVID-19 and curfew in most of the countries. These tools minimize the distance, time, and cost of the meetings. Many universities and educational centers activate the use of Videoconferencing tools to provide the students and learners with the benefit of the learning process even if they are staying at home especially in remote places. The UES used Jitsi as its video conferencing tool. Jitsi is a group of open-source projects that enable the user to easily build secure video conferencing solutions. It supports many chats, encryption, media, and communication protocols. It also provides a Firefox extension and a video chat engine for software developers. The initial release of Jitsi was in 2003. The features of Jitsi include: better quality video conference that shares everyone's video and audio to all participants, rather than mixing them first. It is compatible with WebRTC (the open standard for Web communication). It also has advanced video routing. Jitsi supports Windows, macOS, Linux, Android, iOS, and F-Droid. In 2020, Jitsi exceeds 10 million monthly average users [9]. In addition to the listed tools for distance learning, teachers are allowed to choose whether to use other tools such as Google Classroom, Teams, Yammer, Zoom, etc., and UES has created its e-learning platform that also offered the possibility to be downloaded as a mobile application [10].

In a short time, the UES, with the help of professional teaching associates, conducted training for teaching staff to learn how to use the distance learning platform. UES also provided continuous technical support to both teachers and students. Students had constant communication with teachers through distance learning platforms and e-mail, and they were allowed to listen to lectures through live sessions. In addition, students got all the learning materials in electronic form and had all other forms of learning support. Returning to the traditional way of working, students pointed out the lack of motivation to work in lockdown mode and the absence of discipline in work, preferring to work traditionally. Currently, the recommendation of the Institute of Public Health of Republika Srpska is online learning wherever it is possible. Most faculties have decided to continue teaching traditionally, while respecting preventive measures to combat the spread of the COVID-19 virus pandemic, which includes: maintaining personal hygiene and space hygiene, providing hand sanitizers, regular ventilation, disinfection of surfaces and objects in classrooms and amphitheatres, maintaining physical distance, measuring body temperature when entering the faculty building, as well as the mandatory wearing of protective masks indoors. To ensure compliance with these measures, the faculties have appointed COVID-19 wardens to monitor compliance with these

measures. In case of the increased number of infected students or professors, faculties would again use distance learning platforms.

4. CONCLUSION

The COVID-19 pandemic revealed structural flaws in today's higher education systems such as inadequate infrastructure, incompatible teaching materials, and a lack of skills, emphasizing the need to develop and adopt new technologies and make the transition to a more flexible, digitally enhanced, and personalized learning environment. However, based on the performed research, it is possible to conclude that, despite the challenges of adapting to a completely different teaching methodology, the UES, as well as other higher education institutions around the world, demonstrated agility and resilience in order to find solutions to the pandemic's challenges as well as to continue teaching and learning in a very short timeframe. Because some of the effects of COVID-19 on higher education are not immediately apparent, it will be interesting to conduct a more in-depth investigation into how the shift from classroom to distance and online teaching affected learning quality, particularly after the reopening of the UES, from both teacher and student perspectives. This will be the focus of our future research.

5. LITERATURE

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