

Managing Education in the COVID-19 era

M. Bakator*, D. Radosav*

* University of Novi Sad, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia
mihalj.bakator@uns.ac.rs, radosav@tfzr.uns.ac.rs

Abstract – The COVID-19 pandemic has brought tremendous changes in all socio-economic and political domains. The educational system worldwide has stopped for a few months due to the high-risk environment that is present in pre-schools, schools, and universities. A difficult task was put in front of government and educational institutions: reduce face-to-face exposure between educators and learners but maintain the quality and integrity of individual curriculums, and the quality of education overall. In this paper the impact of COVID-19 on education is analyzed. Additionally, future trends and education reform is discussed. The main goal of the paper is to provide sufficient insight into the changes and challenges of COVID-19 regarding the educational system, and to discuss potential solutions when it comes to education reform that would be in accordance with social distancing and preventive measures against the COVID-19 pandemic. The paper manages to concisely tackle this "issue", and provides an adequate basis for future research in this domain.

Keywords: COVID-19, education reform, online platforms, distance learning

I. INTRODUCTION

Due to the COVID-19 pandemic high schools and universities all over the world are developing strategies for the upcoming school year. Some of these strategies include social distancing measures, while others include rapid development and infrastructure implementation for online teaching. Now, due to the emergency status of the pandemic, universities are don't have long-term fully planned strategic plans for online learning, but rather its response time over quality of the online platform. Therefore, existing platforms are used for online communication and teaching. These measures and reforms in the education system vary across countries [1]. It also depends on the type of course and level of education. For example, the training of physicians is severely impacted as traditional didactic learning, and the crucial traditional model of person-to-person communication and teaching is compromised [2, 3]. It is evident that the current pandemic puts a huge strain on education governing bodies as well as on educators (teachers, professors) and learners (high school and university students). Schools and

universities have to take into consideration the potential dramatic negative effects of online learning. Some of these negative effects may manifest themselves in the form of academic failure, poor culture and networking habits, decreased collaboration, and higher rates of school dropouts [4]. This is one of the main reasons why education governing should be intensified and a clearly defined strategic plan should be introduced on national scale.

During the peak of the COVID-19 pandemic, students and educators used various online platforms for learning. This included the Zoom app, Youtube live, Team link, Google hangout, Skype, Google classroom etc. The learners used one or more of these application for distributing, haring and acquiring learning materials [5]. The questions is: *Should educators continue to use various available platforms or should there be a unified education platform?* The main issue is that the majority of educational institutions are not technically equipped, thus the employees (teachers, professors) use platforms which require the "least hassle". This approach is practical in the short-term, however in order to effectively and efficiently report on the status of the educational institutions, it is necessary to develop a unified and centralized platform.

Certainly, the shift to digital technologies in education has raised concerns among educators regarding the heavy reliance on technological solution. More precisely, ethical and moral concerns arise, as the face-to-face and traditional approach to teaching is tremendously hindered by the COVID-19 pandemic and the massive transition to online learning solutions [6].

In this paper the impact of the COVID-19 pandemic on education is addressed. In addition, education reform and future trends in education are analyzed. The main goal of the paper is to propose suggestions and guidelines regarding solutions for the educational system in the Republic of Serbia. The paper includes three main sections (excluding the Introduction and Conclusion sections). The first section addresses

the impact of COVID-19 on the educational system around the globe. The second section discusses the education reform and future trends in education. Finally, potential solutions and guidelines for effective COVID-19-era education management are presented.

II. IMPACT OF COVID-19 ON EDUCATION

As noted in the Introduction section the COVID-19 pandemic has tremendously affected in various intensities a wide array of courses across educational institutions of all levels (schools, undergraduate and graduate programs etc.). In the field of medicine, institutions face challenges as physical teaching and communication is handicapped. Telemedicine and virtual meetings are in place to fill the gap of social distancing measures. However, accreditation organizations have to optimize between flexibility and adaptability, and upholding specific rigorous standards [7]. This further indicates that education reform cannot happen spontaneously, but must be in accordance with a developed strategic plan. Without such a long-term plan, first efficiency will "suffer" and afterwards effectiveness and quality of education will deteriorate. It can be argued that exactly this, the deterioration of education quality is one of the most negative impact of COVID-19 on education. However, this impact is somewhat a "silent impact", as it will not manifest itself immediately, but later on, possibly after graduation of students. This draws further issues, as half-skilled graduates flood the job market (which already negatively hit by COVID-19). Saturation on the job market and high unemployment rates would heavily annul the benefits of a degree. Therefore, it can be argued that the COVID-19 pandemic has a direct and indirect impact on education as well. The indirect impact comes from the biased and saturated job market that reduces the need for certain professions. The direct impact is more evident and more direct and it includes the educational institutions and curriculums.

During the pandemic, it was almost impossible to conduct meaningful and effective education as there were no strategically implemented online learning platforms. [8]. Educators had difficulties in the process of implementing online solutions. The main issues included the lack of facility availability, the high demand and insufficient coverage of network and Internet usage, the lack of collaboration with parents, and the process of planning and evaluating the teaching and learning

process [9]. Evidently, educators and learners have to acquire adequate teaching and learning equipment. Now, besides the impact on education, the COVID-19 pandemic has negatively affected national economies as well. This affected a large number of household due to job loss and overall higher unemployment rates. Therefore, countries worldwide have to implement sustainable strategic plans that take into consideration the hardships of many households and that they will consider helping in the process of attaining adequate technical equipment for distance learning.

The consequences of the COVID-19 are evident in all fields of education and expertise. For example, a hassle-free, continuous education is disrupted and the economic damage to educational and science institutions is big. From here, the application of modern ICTs in education and science is becoming and imperative, and the main goal is to provide the same experience and educational and scientific performance as traditional teaching [10]. In the era of the COVID-19 pandemic, teachers face difficulties as they can drastically change activities regarding the existing and pre-COVID-19 established curriculum [11].

As noted earlier, one of the factors that hinder a "smooth" distance learning and online education platform implementation is the lack of technical equipment and even the lack of skills and knowledge to use that equipment. Therefore it is necessary to evaluate educators in every institution, as well as to gather information from households regarding the ability to acquire the minimum necessary equipment for distance learning. In the next section, the process education reform and future trends in the educational system are analyzed.

III. EDUCATION REFORM AND FUTURE TRENDS

The whole concept of education will endure changes and reforms. It was argued that curriculums in the future have to focus on four main elements. These are content, approach, goal and evaluation. The new post-COVID 19 educational system has to address the positive and negative aspects of online teaching. Strategic plans should be implemented in order to maintain and even improve the quality of education on all levels [12]. This further implies that there should be a strategically developed unified plan regarding educational institutions, and that only smaller

changes should be introduced by individual institutions.

Furthermore, e-learning or more broadly digitalized education which would characterize the new educational system around the world should be evaluated from three aspects. The first aspect is the level of adequacy of online learning and the necessity for implementing systems, which would encourage effective learning systems. Such effective learning systems should involve content presentation, collaboration, timely feedback and learning structure. The second aspect includes the convenience factor for learners when it comes to access to teaching material. Namely, teachers, or more broadly, educators should optimize teaching and learning content in accordance with the students' behaviors, motivation and goals. In addition, analytical tools should be introduced to students as these are often not sufficiently represented in curriculums. Finally, the third aspect is the completeness of the whole online education systems. More precisely, it is necessary to provide the best combination of conventional teaching and online ICT-based learning [13].

Besides the negative aspects and challenges that educators and students face due to the fast transition to online learning, parents are also experiencing difficulties as not every household has an adequate environment for online learning. Various factors can affect the student's "classroom at home" including disabilities in the family, not enough space, inadequate or non-existing equipment that is necessary for online learning etc. [14]. This issue was noted in the previous section, and surely, this is an important aspect of a digitalized education system, where "no learner left behind" policy should be nurtured. In this case, the "learner" can be a student or pupil on all levels of education.

One the most important things and hardest one is to maintain academic integrity and an adequate level of quality of education for learners. This requires a strategic approach with continuous monitoring and evaluation of standards of the newly implemented online education system [15]. The evaluation process should be thorough and independent from the specific institution that is being evaluated. The reason behind this is the possibility of malpractice, especially in the domain of undergraduate and graduate degrees.

Furthermore, it is important to note that there are teachers and educators who are not skilled for online teaching and don't possess the necessary technical knowledge to conduct any form of digital

education. [16]. Faculties resisted to fully transition to online education solutions. However, as the COVID-19 pandemic lingers, virtual teaching and virtual classrooms should be viewed as an opportunity and solution, rather than as a burden or unnecessary transition and adaptation [17]. As for the future, educators and students have to be equipped with adequate technical tools for online teaching and learning. Further, the inexperience of teachers and the high possibility that not every household will be able to ensure an adequate learning environment, has to be addressed. A national strategic plan is needed, with detailed planning of massive online education which will tackle challenges and barriers that educators and learners face [18]. This way, a structured approach to education would be achieved. Organizing sustainable and quality curriculums in the new era of COVID-19 is challenge that has yet to be passed.

IV. POTENTIAL SOLUTIONS

Based on the reviewed and analyzed literature in the domain of COVID-19 impact on education, and after evaluating possible future trends in education, the following potential solutions and guidelines for effectively "tackling" the COVID-19 era challenges in the domain of education are proposed:

- institutions have to develop long-term detailed plans regarding their curriculums and courses;
- these courses and course schedules have to be in-sync with social distancing measures in manner that will not have a severe detrimental effect on the quality of education;
- national projects should be initiated where financially struggling educators and learners would have a chance to get the necessary technical equipment for conducting online teaching and learning;
- a multiple scenario strategic plan has to be developed after operational plans are put in place;
- a unified platform should be used for reporting on the status of courses, curriculums, staff and students in educational institutions;

- rigorous standardization and accreditation should be conducted in order to maintain or even improve education quality.

Overall, the main principles for the COVID-19 era education reform is to maintain education quality without breaking social distancing and other safety and prevention measures.

V. CONCLUSION

In this introductory review paper, the impact of COVID-19 on the education system in general is analyzed. In addition, education reform practices and future trends in the domain of education are reviewed. The goal of the paper was to discuss potential solutions and guidelines for an effective education reform in accordance with the COVID-19 pandemic measures. The proposed guidelines are mainly aimed at the education system in the Republic of Serbia. However, the review of literature provides a sufficiently strong basis for these guidelines to be relevant in some degree in other countries (depending on the situation with the COVID-19 pandemic). Based on the review of literature it can be concluded that in order to effectively conduct an education reform, collective strength and actions are needed. More precisely, the collective planning and implementation of operational solutions should be conducted not only by individual institutions, but by institutions on all levels of education and governance.

The main limitation of this paper is the lack of an empirical study that could include educators, learners and government officials. Such an empirical study would provide additional significant insight into the complexity of the COVID-19 pandemic from the aspect of education. For future research it is recommended to conduct a meta-analysis of various studies in this domain and compare results with the empirical study. This current paper provides a solid basis for this future research.

REFERENCES

- [1] Crawford, Joseph, Kerry Butler-Henderson, Jürgen Rudolph, Bashar Malkawi, Matt Glowatz, Rob Burton, Paulo Magni, and Sophia Lam. "COVID-19: 20 countries' higher education intra-period digital pedagogy responses." *Journal of Applied Learning & Teaching* 3, no. 1 (2020): 1-20.
- [2] Almarzooq, Zaid, Mathew Lopes, and Ajar Kochar. "Virtual learning during the COVID-19 pandemic: a disruptive technology in graduate medical education." *Journal of American Coll. Cardiology* vol 75 no 20 (2020): 2635-2638 doi: 10.1016/j.jacc.2020.04.015
- [3] García Vazquez, Alain, Juan M. Verde, Francesca Dal Mas, Mariano Palermo, Lorenzo Cobiánchi, Jacques Marescaux, Benoit Gallix, Bernard Dallemagne, Silvana Perretta, and Mariano E. Gimenez. "Image-Guided Surgical e-Learning in the Post-COVID-19 Pandemic Era: What Is Next?." *Journal of Laparoendoscopic & Advanced Surgical Techniques*, vol 30, no 9 (2020). doi.org/10.1089/lap.2020.0535
- [4] Azorin, Cecilia. "Beyond COVID-19 supernova. Is another education coming?." *Journal of Professional Capital and Community* (2020). doi: 10.1108/JPC-05-2020-0019
- [5] Kapasia, Nanigopal, Pintu Paul, Avijit Roy, Jay Saha, Ankita Zaveri, Rahul Mallick, Bikash Barman, Prabir Das, and Pradip Chouhan. "Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India." *Children and Youth Services Review* 116 (2020): 105194. doi: 10.1016/j.childyouth.2020.105194
- [6] Kumar, Rahul. "Assessing Higher Education in COVID-19 Era." *Brock Education Journal* 29, no. 2 (2020): 37-37. doi: 10.26522/BROCKED.V29I2.841
- [7] Shalini Shah, MD¹, M. D. Sudhir Diwan, M. D. Lynn Kohan, M. D. David Rosenblum, M. D. Christopher Gharibo, M. D. Amol Soin, and M. D. Adrian Sulindro. "The technological impact of COVID-19 on the future of education and health care delivery." *Pain Physician* 23 (2020): S367-S380.
- [8] Ariawan, Sandy, and S. T. I. P. A. K. Malang. "Building Critical Thinking in Covid-19 Pandemic Era: Impossible or I am Possible?." 2, no. 6 (2020): 127-130.
- [9] Fauzi, Irfan, and Iman Hermawan Sastra Khusuma. "Teachers' Elementary School in Online Learning of COVID-19 Pandemic Conditions." *Jurnal Iqra': Kajian Ilmu Pendidikan* 5, no. 1 (2020): 58-70. doi: 10.25217/ji.v5i1.914
- [10] Porpiglia, Francesco, Daniele Amparore, Riccardo Autorino, Enrico Checcucci, Matthew R. Cooperberg, Vincenzo Ficarra, and Giacomo Novara. "Traditional and Virtual Congress Meetings During the COVID-19 Pandemic and the Post-COVID-19 Era: Is it Time to Change the Paradigm?." *European Urology* vol 78 no 3 (2020): 301-303 doi: 10.1016/j.eururo.2020.04.018
- [11] Harrington, Deirdre M., and Michelle O'Reilly. "The reimagining of school-based physical activity research in the COVID-19 era." *PLoS medicine* 17, no. 8 (2020): e1003267. doi: 10.1371/journal.pmed.1003267
- [12] Cahapay, Michael B. "Rethinking Education in the New Normal Post-COVID-19 Era: A Curriculum Studies Perspective." *Aquademia* 4, no. 2 (2020): ep20018. doi: 10.29333/aquademia/8315
- [13] Wargadinata, Wildana, Iffat Maimunah, Eva Dewi, and Zainur Rofiq. "Student's Responses on Learning in the Early COVID-19 Pandemic." *Tadris: Jurnal Keguruan dan Ilmu Tarbiyah* 5, no. 1 (2020): 141-153. doi: 10.24042/tadris.v5i1.6153
- [14] Dooley, Danielle G., Joelle N. Simpson, and Nathaniel S. Beers. "Returning to School in the Era of COVID-19." *JAMA pediatrics* (2020). doi: 10.1001/jamapediatrics.2020.3874
- [15] Dwivedi, Y.K., Hughes, D.L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J.S., Gupta, B., Lal, B., Misra, S., Prashant, P. and Raman, R., 2020. Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, p.102211. doi:10.1016/j.ijinfomgt.2020.102211
- [16] Mulenga, Eddie M., and José M. Marbán. "Is COVID-19 the Gateway for Digital Learning in Mathematics Education?." *Contemporary Educational Technology* 12, no. 2 (2020): ep269. doi: 10.30935/cedtech/7949
- [17] Shenoy, Veena, S. Mahendra, and Navita Vijay. "COVID 19 lockdown technology adaption, teaching, learning, students engagement and faculty experience." *Mukt Shabd Journal* 9, no. 4 (2020): 698-702.
- [18] Zhang, Wunong, Yuxin Wang, Lili Yang, and Chuanyi Wang. "Suspending classes without stopping learning: China's

education emergency management policy in the COVID-19
Outbreak." *Journal of Risk and Financial Management* vol 13

no 3 (2020): 55. doi: 10.3390/jrfm13030055\