CHAPTER-17

AUTHORS' INFORMATION





Dr. Evgeniy Solovyev, graduated from Novosibirsk State Technical University in 2003 with specialization of Machines and apparatuses of chemical engineering and construction materials enterprises. In 2008 he obtained his PhD in Production of hydrogen and nanofibrous carbon via selective catalytic pyrolysis of light hydrocarbons. He has core research experience in machine and engineering area. He has also published decent track of publication during his research studies and also was mentor for students at different institutes in Russia.

Alexander Danilov, Graduated from Krasnoyarsk Polytechnic Institute in 1978. In 2006, he defended his PhD thesis on "Improving the elements of drive systems for chain working bodies of trench excavators" with the degree of candidate of technical Sciences in the specialty 05.02.02 "machine science and machine parts". Specialist in theoretical mechanics and machine parts. Developer of drilling equipment and tools, gearboxes and mechanisms for transport and special machines. Winner of the title "Honorary inventor of the USSR" in 1982. Implemented 6 units of machinery and equipment for various purposes in operating organizations. Author and co-author of 80 publications, including more than 20 articles on the creation of allseason transport systems, 18 author's certificates and 4 patents. Professional skills: calculation, design and construction of machines and mechanisms, drives of technological installations, research and development, and launch of new non-standard production equipment, advanced user knowledge of computer applications COMPASS-3D, Solid Works. Research interests: gearboxes and drive systems, transport machines, drilling equipment and tools, mechanization of production processes, special types of transport.

CHAPTER-17

IMPACT OF COVID-19 ON ACADEMICS AND RESEARCH

Evgeny Soloviov^{1*}, Alexander Danilov²

¹Laboratory of Innovating Engineering, Krasnoyarsk, Russian Federation, ²Institute of Petroleum and Natural Gas Engineering, Siberian Federal University, Krasnoyarsk, Russian Federation

Corresponding author:

Evgeny Soloviov

Email:

e.a.solovyev. I @gmail.com

Keywords

COVID-19

RESEARCH

ACADEMICS

ABSTRACT

The present chapter focuses on the impact of COVID-19 on the activities of academics and research. The emergence of sudden pandemic outbreak of COVID-19, there has been completely paralysis of worlds activities. Majority of academic institutions are working online and research institutions are partially shut down in order to prevent the infections among the colleagues and workers. Keeping these points, the present chapter is designed to report the impact of COVID-19 and their influences.

I. Introduction

College campuses and universities are the places where a student lives and studies within close proximity of one another. These are also the buzzing hubs of a culture where the students have been brought together from different nations all across the globe (Surveying the impact of COVID-19 on Africa's higher education and research sector, 2020). As of recent times, the foundation of such a unique ecosystem has been impacted severely by that of the rapidly spreading COVID-19 or novel Coronavirus. This has created a lot of uncertainty in regards to that of the repercussions on higher education. It has severely propelled research however in regards to coming up with a vaccine that can cure the disease. In the past couple of months, officials in relation to education are being forced to be cancelling their classes and closing the campus doors all over the world as a

response to that of the growth in the outbreak of Coronavirus. Additionally in institutes of the U.S classes are being switched to being online in order to catch up with the learning (The impact of COVID-19 on student achievement and what it may mean for educators, 2020). The students are heartbroken over their spring breaks and trips getting cancelled as the students who are currently students in South Korea, China and Italy have been officially requested to be going back home for the completion of their studies. There are tremendous closures of classes along with dips in the enrollment, from that of the beginning of the brand new semester. The cancellations could be temporary and it is very hard to be able to foresee if the Coronavirus breakout will be resulting in a long-term inconvenience for that of the system of education. Impact on education also makes a huge impact on the economy and this is the main concern for this sector. They are wondering as to what will be the rate at which international students who consist of the markets of higher education that is domestic. Speaking of America alone, there are Chinese students who make up about 33.7 per cent of that of the foreign body of students along with 18.4 per cent of Indian students. There are serious travel restrictions from and to that of China which are helpful in the slowdown of the spreading of the disease leaving the foreign students to be stranded. As per the Institute of International Education (IIE), there are surveys being conducted that state that about 830 of the Chinese students have not had the chance to go back to America in order to attain their degree. This is, however, a very small number. The economic downturn that is inevitable intensifies if the number keeps increasing. The question that comes up is for what length of time this will go on and it remains unanswered. The restrictions are making sure that the economic downturn is called out to be the fault of America once it starts to happen. It is a lot of trouble retaining enrollment of student program while providing accessibility to the students in the wake of this crisis [1-3].

Online learning has been maximized keeping in mind the pandemic restrictions by most of the education institutes. One of the most effective tools for keeping a high rate of student retention along with the maintenance of access to learning has seen to be that of an online course. There are universities all over the U.S, particularly who have been able

to adjust their programs as a response to that of the spread of Coronavirus. The University of Stanford has cancelled the remnants of the 2 weeks of lectures to be held in classes encouraging the professors to be moving the remainder of the lessons online. The Washington University has announced a campus-wide ban on the classes to be held on campus until spring break is officially over and the staff members have been diagnosed with the disease in the past week. There are also other universities like the Hofstra University in New York, Princeton University in New Jersey along with Seattle University who has started making a move by shifting to that of virtual classes.

There is a maximum of colleges along with universities all around the world who have integrated one or the other form of education online into that of their coursework while having moved all the programs online is definitely a matter of feasibility and a challenge. There are some universities that have already online systems which are very strong but smaller universities are struggling to meet the need of the hour and succumbing to pressure [4]. The course creators of a university have to be working closely with that of their IT facilities so as to ensure that their programs can be supported virtually or online. There is one university that has currently undertaken all of the measures in Southern California and that is their bespoke university. They are currently testing the waters by trying to channelize their online platforms so as to ensure that their technology will be able to handle more than 7,000 of its lectures. Online learning is the best method for now as proven however the universities should additionally ensure the staffing and students are well-protected while they are on campus. COVID-19 is a great amount of risk for individuals who are over the age of 60 however the traditionally aged students of universities are facing lower risks from that of the disease [5]. In a recent few weeks, it has come to light that the novel virus can be spreading really quickly in an area having a higher concentration of population with the university campuses being no exception to that rule. The administrators should be undertaking simple measures so as to prevent spreading of the virus on the campus. There should be a strict following of instructions in the form of education regards to the protocols which are appropriate for the washing of hands, covering of coughs and sneezes with elbows and self-isolation if someone is

experiencing a cold or flu-like symptom. The educators should also bring these guidelines to the awareness of the students who have been travelling extensively throughout their spring break and reminding those of who have spent time abroad in places that are greatly affected to be minding hygiene habits if at all it is safe to return to campus.

The students who have a disability are the ones who are affected the most since they are in the requirement of some specific support along with that of teaching tools which cannot always be available in the distance learning mode. The chairs of UNESCO at that of the University of Padua in Italy along with the University of Zagreb in Croatia have reported some specific actions that have been set in motion by the host institutes [6]. Ever since the rector has announced in regards to distance learning the e-learning Center within the centre for computing in the University of Zagreb has monitored and supported lectures implementing the guidelines of teaching courses online. Inclusive learning that is in the distant mode ensures that the lecturers have been called forth to be applying specific recommendations and instructions like that of the guidelines that have been developed by that of the Office for Students with Disabilities [7]. This office had been established in the year 2007 has the aim to give an equal opportunity to the students who by sheer dint of their illness, disability or impairment are facing difficulties in the fulfilment of their day-today academic obligations. The Inclusion Office of that of the bespoke university at Padua had sensitised all of the lectures that offer classes online to that of the student's needs for the ones having a hearing disability that is the ones who would normally benefit from services of stenotypes. It has further been published on the website that there are specific guidelines on the ways of making tools for that of special teaching, such as PowerPoint presentations and videos that are accessible to the students with visual and hearing disabilities.

The endemic of Coronavirus has grown exponentially since the first phase of its outbreak all over the world. Doctors, technologists and researchers worldwide in collaboration with workers for healthcare have worked night and day for the developing of medicines and vaccines so as to treat and control the virus [8]. In light of the present situation, it is of utmost importance that people make adequate research on the topic

since SARS-CoV-2 is very lethal and infectious. The disease is highly contagious as people in even the most advanced countries are dying of the same [9]. This is an ideal opportunity for research to be conducted on the same, both practical and theory-based so that the virus is eradicated like the Spanish Flu of the 20th century. The cost involved is however very high and cannot be sustained by that of the wealthiest of nations. It has already come to light that several corporate houses and research laboratories that are large have been working as speedily as they can so that they are able to develop a vaccine or medicine for that of the preventing and the treatment of the same. Ever since The World Health Organization (WHO) has declared that the disease has reached pandemic levels on the 11th of March 2020, it has suddenly become very important to study and identify the areas of research made academically that can be affected by the disease.

Even after a lot of research scientists have not been able to identify the animal source of the agent that is infectious enough to cause a pandemic. It is also yet to be declared if the virus has a likeness with influenza and will recede with a change of seasons [10]. It may also be reemerging seasonally and the future global manifestations maybe even more virulent. Apart from that of development of the vaccine, the virus has also opened up avenues of research in the areas of therapy or medications [11,12]. There is also a specific need for Equipment and healthcare along with research on the lines of medication and therapy. Researches are also being thoroughly conducted on the norms of social distancing during the pandemic. The economic, environmental, sustainability, psychiatric sides are also being studies as well as monitored however most of the researches are based on the emerging of the new working culture alongside that of the workplace along with the revolution in the Information Technology or IT [13]. There are also other researches being made on the lines of online awareness workshops and that of capacity building, biological warfare, psychological issues, industry 4.0, the growing importance of having a life at home, global commerce and trade, chains of medical supply, Policies of Public Health. There is the requirement of immediate research for the sake of the revival rather that of the survival of the global economy. As of now, the topic is being embraced with a lot of jitters since it is a hefty and exacting topic [14].

2. Conclusion

The colleges and the universities are still yet to be implementing the changes to that of the campuses as a response to that of the massive outbreak of the coronavirus by taking cues from the others that have taken actions already as appropriate. They are expected to be analysing each step that has been taken by another educator so as to understanding it is working or not and in what ways to be effectively tackling any hiccups they may be facing along the way. The spreading of that of the disease is expected to be worsening even before they get better as the administrators should be taking quick actions for the safeguarding of the campuses along with the students preparing for closing that is imminent. The sector of higher education has withstood a lot of terrifying hurdles in the past along with tragic economic crises. In the world of rampant digitisation, colleges and universities are altogether better placed to be providing their students with easy access for the continuance of barrier-free studies online.

REFERENCES

- Africa Portal(2020). Surveying The Impact Of COVID-19 On Africa's Higher Education
 And Research Sector. [Online]Available from:
 https://www.africaportal.org/features/surveying-impact-covid-19-africas-higher-education-and-research-sectors [Accessed 4 July 2020].
- A. Banerjee, M. Katsoulis, A.G. Lai, L. Pasea, T.A. Treibel, C. Manisty, S. Denaxas, G. Quarta, H. Hemingway, J. Cavalcante. and M. Nousardeghi, 2020. "Clinical academic research in the time of Corona: a simulation study in England and a call for action". medRxiv, 2020
- Brookings (2020). The Impact Of COVID-19 On Student Achievement And What It
 May Mean For Educators. [Online] Available from:
 https://www.brookings.edu/blog/brown-center-chalkboard/2020/05/27/the-impact-of-covid-19-on-student-achievement-and-what-it-may-mean-for-educators/ [Accessed 4 July 2020].
- 4. E. Corbera, I. Anguelovski, J. Honey-Rosé. and I. Ruiz-Mallén, "Academia in the time of Covid-19: our chance to develop an ethics of care", 2020

- 5. L.R. Fortuna, M. Tolou-Shams, B. Robles-Ramamurthy and M.V. Porche, "Inequity and the disproportionate impact of COVID-19 on communities of color in the United States: The need for a trauma-informed social justice response". Psychological Trauma: Theory, Research, Practice, and Policy, 2020
- 6. E.J. Sintema, "Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education". Eurasia Journal of Mathematics, Science and Technology Education, 16(7), p.em1851,2020
- 7. J.L. Malisch, B.N. Harris, S.M. Sherrer, K.A. Lewis, S.L. Shepherd, P.C. McCarthy, J.L.Spott, E.P.Karam, N.Moustaid-Moussa, J.M.Calarco and L.Ramalingam, "Opinion: In the wake of COVID-19, academia needs new solutions to ensure gender equity". Proceedings of the National Academy of Sciences, 2020
- 8. C. Hepburn, B. O'Callaghan, N. Stern, J. Stiglitz, and D. Zenghelis, "Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?". Oxford Review of Economic Policy, 36, 2020
- S.S. Patel, R.K. Webster, N. Greenberg, D. Weston, and S.K. Brooks, "Research fatigue in COVID-19 pandemic and post-disaster research: causes, consequences and recommendations". Disaster Prevention and Management: An International Journal, 2020
- F. Staniscuaski, F. Reichert, F.P. Werneck, L. de Oliveira, P.B., Soletti, R.C. Mello-Carpes, C.I. Almeida, E. Zandona, F.K. Ricachenevsky, A. Neumann and I.V.D. Schwartz, "Impact of COVID-19 on academic mothers". Science, 368(6492), pp.724-724, 2020
- 11. H. Chu, J.F.W. Chan, Y. Wang, T.T.T. Yuen, Y. Chai, Y.Hou, H.Shuai, D. Yang, B.Hu, X. Huang and X. Zhang," Comparative replication and immune activation profiles of SARS-CoV-2 and SARS-CoV in human lungs: an ex vivo study with implications for the pathogenesis of COVID-19". Clinical Infectious Diseases, 2020
- 12. A. Sumner, C Hoy. And, E. Ortiz-Juarez," Estimates of the Impact of COVID-19 on Global Poverty. UNU-WIDER, April", pp.800-9, 2020

Soloviov and Danilov, 2020

- R.R. Nadikattu, S. M. Mohammad, and P. Whig, "Novel Economical Social Distancing Smart Device for COVID-19 (July 1, 2020)". International Journal of Electrical Engineering and Technology (IJEET), 11 (4),204-217, 2020
- 14. R.R. Nadikattu (2020) Information Technologies: Rebooting the World Activities during COVID-19 (June 9, 2020).[Online] Available from SSRN: https://ssrn.com/abstract=3622733 orhttp://dx.doi.org/10.2139/ssrn.3622733[Accessed on 14 Aug 2020]