Proceedings of the SMART–2020, IEEE Conference ID: 50582
9th International Conference on System Modeling & Advancement in Research Trends, 4th–5th, December, 2020
Faculty of Engineering & Computing Sciences, Teerthanker Mahaveer University, Moradabad, India

2020 9th International Conference System Modeling and Advancement in Research Trends (SMART) | 978-1-7281-8908-6/20/$31.00 ©2020 IEEE | DOI: 10.1109/SMART50582.2020.9337148

A Comparative Study of Implementing Innovation in Education Sector Due to COVID–19

Dr. Jitender Rai[1], Dr. R.C. Tripathi[2] and Ms. Nipun Gulati[3]
[1]*Associate Professor, Tecnia Institute of Advanced Studies, GGSIPU University New Delhi*
[2]*Professor PhD, Faculty of Engineering & Computing Science, Teerthanker Mahaveer University (TMU)*
[3]*Research Scholar, Department IEC University Himachal, IEC University, Himachal Paresh*
Email: [1]jitender12rai@gmail.com, [2]rctripathig@gmail.com, [3]gulatin20@gmail.com

***Abstract*–This paper focuses on a Comparative Study of Implementing Innovation in Education Sector due to COVID – 19. It focuses on the ability of Education Sector to change and adapt quickly, to be responsive to new technologies and methodologies and be flexible to the needs of the students, parents and government. Video meetings, online teaching, digital platforms, etc. are the technologies used to increase the growth of online education. So, I have defined the different analysis study based on earlier education system and new education system. A drastic change is predicted in the education sector.**

Keywords: Video meetings, online teaching, digital platforms, innovation, technology, etc.

I. Introduction

As per Oxford English dictionary, innovation means the introduction of new things, ideas, or ways of doing something, the action or process of innovating. It is an innovative idea, method or product etc. Innovation can be in any field like business, technology, education etc. The main driving force for innovation is often the thought, courage and energy to bring about a drastic change in the world. Innovation is done to create something new and innovative so as to make the world a better place to live.

A. History

We can take many examples from history, how innovation has punctuated and changed human history. Inventions of wheel, steam engine, electricity etc. are some of the innumerable innovative inventions made by man.

Traditionally the field of education was not open for trying new things. It was a closed system, dominated by the notion of a "one best way". Mostly lecture method was used to teach the students. Teachers were not innovative. They lectured the students; students passively copied from the blackboard; active participation of students was not encouraged. The need to be open for new models to appear and to spread, makes innovation a challenge in the field of education.

B. Digital Equity

Digital Equity means that equal and unbiased digital education is the right of every student. Every student should get digital education not considering the student's caste and creed. The socio – economic status of the student, his/her physical disability, the language which the student speaks, the race to which the student belongs, student's gender or any other characteristic should not be taken into account while providing digital education to the student. Students from every part of the globe should get the same opportunity to access the numerous information and communication technologies for their learning. In countries like India and other developing countries, distant areas are yet to have the full benefits of electricity and well-connected roads between villages and cities, but still people are very well connected to the outside world through their mobile phones. So, digital equity is now a prerequisite for India to be a part of the normal world.

C. Digital Divide

The digital age has so far reached the homes of only a miniature portion of the population of the world. Digital divide in India lies not only in the less urbanized states with conventionally weak infrastructure like Bihar and Orissa but also in new technologically developed states like Karnataka and Tamil Nadu. In 2020, the situation has changed and Internet has become an essential part of everyone's life because everything like teaching, learning, office work, etc. has to be done using internet, but still there is a digital divide. In India, states like Tamil Nadu, Maharashtra, Karnataka, and Andhra Pradesh are much more digitally sound than the states like Uttar Pradesh and Bihar. Moreover, within a state also, there is an urban–rural digital divide.

II. Role of Innovation

Gradually, the education system has been opening; unbundling. It has become more receptive to innovation. The aim of most of the talk about innovation is at improving learning. The old technology of teacher-instruction needs to be replaced by new and innovative systems. Moreover, innovation should aim at improving the job/career for teachers.

III. Role of Skills

The best practices used in various workplaces have significantly transformed in the last few months due to

the COVID - 19 pandemic. Due to lockdown, losses have incurred in various sectors of economy. As a result, there has been unemployment. The accrual of skills, qualification and knowledge is no longer the key precondition for employment, but an aptitude to become accustomed to new situations, to continue to learn autonomously, and to work cooperatively have become vital.

IV. Outbreak of COVID–19

The spread of COVID-19 has led to a considerable interruption in all educational activities across the world. Educational institutions had to be closed in March this year, to prevent the risk of children and staff contacting the virus.

As a result of the lockdown, there has been a significant loss of "learning time" for the students. Educationists feared academic loss and indefinitely long learning gap, so schools resorted to an apparently effective solution of online teaching. Schools started delivering classes through video calls, lectures over online platforms like Microsoft Teams, Google Duo, Google Hangouts, Zoom, and WhatsApp etc.

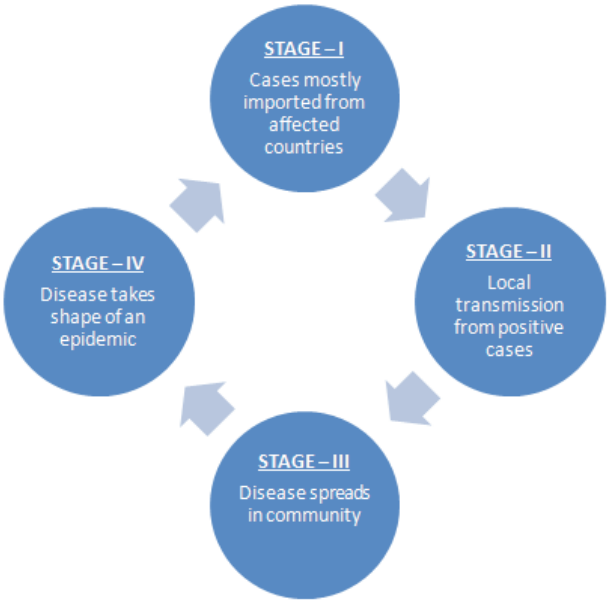

Fig. 1: Stages of Outbreak of COVID - 19

V. Effect of Online Classes

Online learning can be more efficient in numerous ways for those who have access to apt technology. In online classes, students have the ability to learn at their own pace. Students can revise the concepts, skip a topic, or speed up through concepts which they desire. The efficacy and benefits of online learning varies amid students of different age groups. To get all the benefits of online learning, there should be strenuous efforts to provide a structured environment to the students. Schools will have to use a range of collaboration tools, diverse methodologies and engagement methods that promote the important aspects like inclusion, personalization and intelligence.

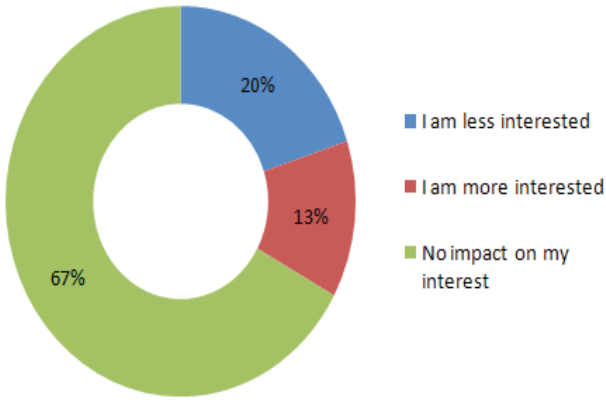

Fig. 2: Impact of COVID - 19 on Interest in Study6ing in U.S.

VI. Effect of Online Classes on Examination

Examination has been considered as feasible and acceptable instruments for measuring the various aspects of human potential. Schools are facing some challenges in conducting exams online. To overcome these challenges, new and innovative assessing techniques will have to be implemented. The assessment techniques should check active learning, conceptual understanding, contain multidisciplinary projects and life skill assessments. Moreover, these techniques must authorize teachers for co-scholastic assessment, grading, keeping records of assessment etc.

VII. Struggles in Education Sector During the Pandemic

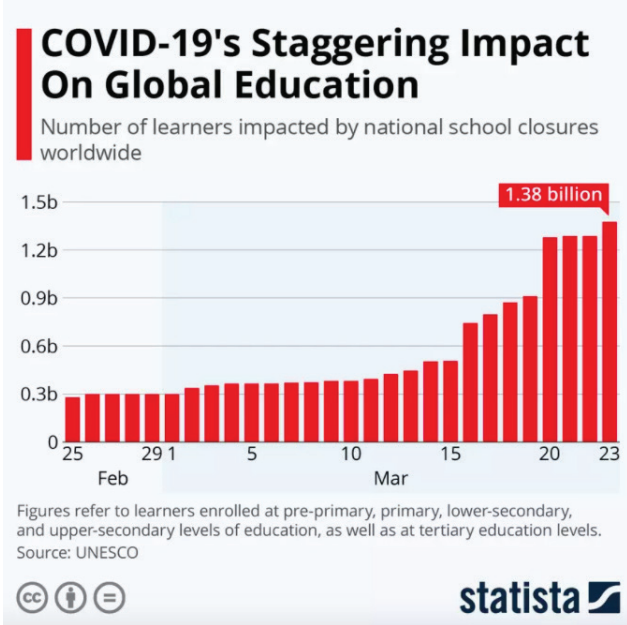

Fig. 3

Some challenges which India and other developing countries of the world face are:

Computer education is not up to the mark in the

schools situated in the distant villages. Educationists, teachers, students and parents have their various struggles while delivering classes as well as accessing these online platforms.

In many parts of the country as well as the world, due to financial limitations, students have limited access to electronic gadgets like laptop, phone, computer or even radio and television. They are not able to access the internet facility. Students from low background are not able to use computer, internet and other technologies in their online studies. Moreover, there is no electricity in many villages; the tele-density of India is one of the lowest in the world, despite deregulation of India's telecommunications sector.

Students who have facilities like computer, laptop, internet etc. to attend online classes have to face challenges like unavailability of physical space. In most of the houses, there is shortage of space, so there is a lot of disturbance from the family members during the online class. This problem of unavailability of space is equally applicable to teachers who are conducting online classes from their home. They have to manage household chores as well as take online classes. If they are parents themselves, the problem is aggravated as their children also have to attend their online class at the same time.

VIII. Role of Technology

Information and Communication Technology (ICT) is becoming more and more incorporated into people's lives nowadays. Technology is being used in almost every sphere of life. IT is the only area which has not been affected due to the pandemic. Most of the jobs related to IT sector can be done from home so, people are working from home and their job is secure. Technology and innovation play a vital role in the growth of a country as well as the world. More and more funds should be allocated to the Technology and IT sectors as they are the future.

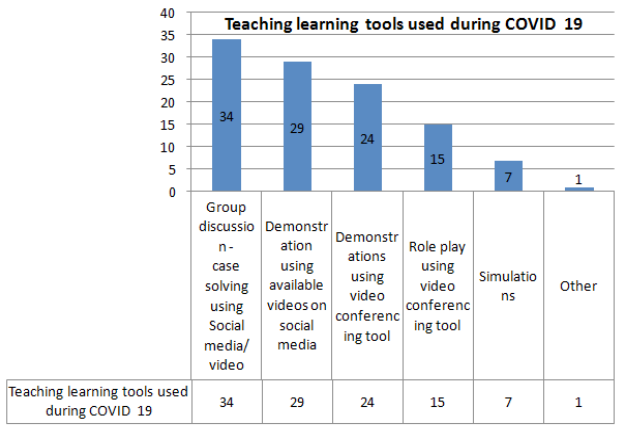

Fig. 4

IX. Remedies to Overcome Digital Divide

We should find real and practical solutions to triumph over the challenges of digital divide in India. More funds should be allocated to this domain. Computer education should be made compulsory as well as free for the students of government schools from class I onwards. To make our younger generation ready for the Information and Communication Technology (ICT) revolution, the curriculum should be centred around ICT. Great initiatives and steps have been taken in the New Education Policy like making coding compulsory at an early age. It develops the critical thinking, logical skills, analytical skills, etc. of a child. Moreover, the emphasis on skill development is also a very nice initiative.

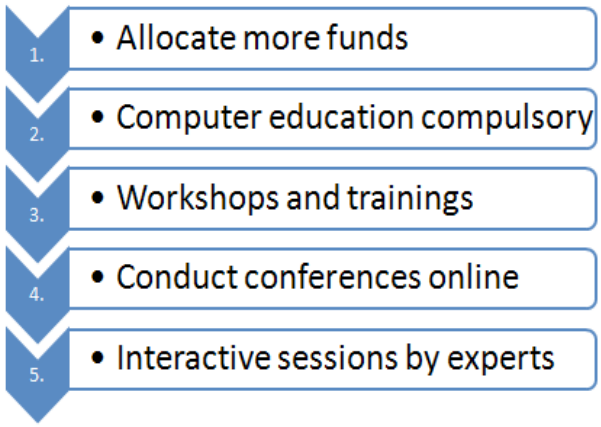

Fig. 5: Remedies to Overcome Digital Divide

The use of computers and internet facilitates students to expand imperative skills that many, if not most, will require in their careers in future. Internet and multimedia can offer students as well as teachers with access to prime source materials, ways of collaborating with students, teachers and experts from the world and opportunities to articulate understanding through images, sound and text.

Workshops and trainings should be formulated to reinforce the proficient credentials of educators at each and every level. Workshops and training programmes should be appropriate for pre-service as well as in-service teachers and targeted to specific curricular areas and grade levels.

As technology is becoming incorporated into every one's work- lives, more and more people should learn to converse and work collectively, using a number of technologies. Co-workers can correspond with one another through email, social networks, groups, blogs and tweets. Conferences, presentations, webinars and meetings can take place in cyberspace using various video conferencing platforms.

Students should also join chief experts on collaboration technologies and processes in interactive talks with virtual communities, online learning as well as knowledge management. In online classes, students can study and learn at their own pace, get research-based answers to critical questions. They can attend webinars on various topics which are organised by companies. Family, peers and community in which a child lives also play a vital role

in a child's life. So, there should be technology centers which provide access to information technology and other related learning services to children and adults. They can be priceless sources of information as well as technical support to educators, students and the families of students of low-income communities and neighbourhoods.

X. Conclusion and Future Scope

In the end I would like to conclude by emphasizing on the fact that people hold different views about how a school should be, what learning should be. The key solution to these questions is implementation of such an innovative policy which tolerates differences. As every child is different and unique, so different curriculum and learning experiences should be designed keeping in mind the abilities of every child. This is the digital age and we should try hard to make every individual technologically sound. Government, non – government organizations, private companies as well as educational institutions should work collaboratively to bring digital equity not only in India but the whole world as well. Students should be taught using various technologies. Focus of education should be on giving personalised teaching and learning experience to every student.

References

[1] https://sngul.blogspot.com/2020/06/implementing-innovation-in-education.html.

[2] Jung, I. (2019). Introduction of open and distance education theories. In Open and Distance Education Theory Revisited (pp. 1-9). Springer, Singapore.

[3] Steffens, K. (2015). and developments in MOOC lifelong learning, Competences, learning theories European Journal of Education, 50(1), 41-59.

[4] Agostinelli Jr, from online education to distance education: a review of the literature. Student submitted Dissertations, thesis & Professional Papers.

[5] Branch, R. M. R., & Stefaniak, J. E. (2019). Design Theory based on Open and Distance Education Theory Revisited (pp. 85-94).