Research Article

COVID-19 PANDEMIC CRISIS: AN OVERVIEW OF ICT INITIATIVES IN HIGHER EDUCATION IN INDIA

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ABSTRACT

The global crisis of the COVID-19 virus has impacted the Education Sector tremendously. The Indian Education system has also experienced an irreversible learning crisis amid the pandemic. Information and Communication Technology (ICT) has helped the sector to survive and adapt to the new ways of online learning. This paper intends to discuss the impact of the Covid-19 pandemic on higher education and to explore the various ICT initiatives platforms providing by UGC and HRDC Government of India and others agencies. This paper examines a few such initiatives which have contributed significantly to making it possible for education to reach the remotest corners of the country with the help of technology-related tools.

Keywords: ICT, Covid-19, UGC, SWAYAM, MOOCs, NDL, VIDWAN.

INTRODUCTION

The COVID-19 pandemic has affected educational systems worldwide, leading to the near-total closures of schools, universities and colleges. The COVID-19 pandemic is widely considered to be the most challenging health crisis the world has ever faced, attacking societies at their core, as described by the World Health Organization (WHO) According to World Bank data, 190 countries have faced complete or partial school closure, affecting more than 1.7 billion students. India also began closing down schools and colleges temporarily during the second week of March. As per the present situation, there is still uncertainty about when schools and colleges will reopen.(Wikipedia, 2020) As libraries are dealing with information generation to the dissemination process, it definitely deals with the global crisis like Corona virus (COVID-19) of 2020. In such a scenario, it is challenging to give services to the users and to manage the natural process of information dissemination. Therefore, to cope up with this situation, librarians can take the initiative to promote their online service to the users. Because we are now living in the Internet age, with a single click user can get ample information. But it is very tough to recognize the authentic information sources from fake. Hence the roles of librarians are vital in information society for providing trustworthy information sources to the users. Libraries in different parts of the world are facing very different situations, from broadly maintaining a full service to complete closure. There are many academics libraries is dedicated to supporting its students and faculty during this time. To ensure the health and safety of staff and patrons alike, Library is providing limited face-to-face assistance. In emerging countries like India where education is primarily provided by the government, on-line can become a prevalent and consequential trend for future education. This epidemic is also an opportunity for students to make decisions in this uncertain world, to make informed decisions, to solve problems in a constructive way, and most importantly to adapt to situations where skills need to be learned. To ensure that these skills will be elementary for all students, flexibility must be developed in our educational systems. Online education system has also created lot of confusion in India and students are unable to follow their regular academic routines. To overcome

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these problems most of the institutions have taken initiative to facilitate telecommunication, Skype call, Zoom application, Google Class room and Microsoft Teams to reduce the distance in education. It is training students and teachers to use virtual classrooms and technology to facilitate the exchange of information. Undoubtedly, this is a very important time for students. Therefore, the objective of the study is studying Impact of covid-19 on education and different initiatives taken by government. (Dhillon, 2021).

REVIEW OF LITERATURE:

Jena, Pravat Kumar (2020) this study of pandemic Covid-19 has drastically disrupted every aspects of human life including education. In many educational institutions around the world, campuses are closed and teaching-learning has moved online. Internationalization has slowed down considerably. In India, about 32 core learners stopped to move schools/colleges and all educational activities brought to an end. Despite of all these challenges, the Higher Education Institutions (HEIs) have reacted positively and managed to ensure the continuity of teaching-learning, research and service to the society with some tools and techniques during the pandemic. This study highlights on major impacts of Covid-19 on HEIs in India. Some measures taken by HEIs and educational authorities of India to provide seamless educational services during the crisis are discussed. Manju Dhillon (2021) this study of the virus that is called as Corona virus now days, has started in Wuhan (China) and it has spread to develop and developing countries very fast. The corona virus has created greatest impact on the developed countries like America, Italy and France. Due to the corona virus the countries has to implement the Lockdown. The lockdown phase has created major Impact on the education system, the traditional education that we generally use that is now completely shut down. This study aims to assess the impact of lockdown on education system in India. The study also include various Initiatives taken by Govt. of India for education system during this pandemic. Sharma, A (2021) this study of the COVID-19 virus has impacted the Education Sector tremendously. It has presented the education community around the globe with numerous challenges in continuing the learning process. The Indian Education system has also experienced an irreversible learning crisis amid the pandemic. The pandemic has forced the sector to shift to a virtual and blended mode of learning. Information and Communication Technology (ICT) has helped the sector to

survive and adapt to the new ways of online learning. This study the examines a few such initiatives which have contributed significantly to making it possible for education to reach the remotest corners of the country with the help of technology-related tools. Dhoot, P. (2020) this study the impact of Covid-19 on the teaching – learning process in higher education. It is found that the gradual shift towards e-learning brings afloat few challenges such as technology up gradation needs investments, Network connectivity, lack of training to handle e-learning issues and mindset of entire stakeholders should align towards a common goal.

Objectives of the study

The primary aim of this study is to provide authentic sources of information about COVID-19 to the scientific community and people in India. The following specific objectives are formulated to achieve the target of the present research study:

- To discuss various ICT initiatives platforms providing by UGC and others agencies.
- To discuss the impact of Covid-19 on higher education in India.

METHODOLOGY

Various reports of national and international agencies on Covid-19 pandemic are searched to collect data for current study. As it is not possible to go outside for data collection due to lockdown, information are collected from different authentic websites, journals and e-contents relating to impact of Covid-19 on higher educational system of India.

Impact of Covid-19 on higher education in India

As India is a large and diverse country, with about 38 million student population in about 1000 universities and 47,000 colleges, the availability of technical infrastructure for imparting online education varies over the length and breadth, creating a digital divide and a sense of inequity in the minds of the students. Similarly, at students' end, access to devices, networks, and sufficient bandwidth is depriving a considerable portion of students from their studies and furthering this divide. Adopting complete online learning is also becoming a health hazard for students in terms of diseases like obesity, sleep disturbances, spinal problems, anxiety, and depression. The Indian Government, universities, and educational administrators are using a multipronged approach to cope up with the complexities of the situation and minimize the negative impact of the COVID-19 crisis. Pandemic Covid-19 has severely affected the total educational system of India as well as the globe but some of the most impacted areas of higher education of India are as pointed below.

Destabilized all educational activities

Outbreak of Covid-19 has compelled lockdown in every sector including education. The institutions got closed with cease of educational activities and created many challenges for the stake holders So, the various activities like admission, examinations, entrance tests, competitive examinations conducted by various boards/schools/colleges/ universities are postponed. Many entrance tests for higher study got cancelled which created a great challenge in the life of a student of higher education. The HEIs have started conducting orientation programmers, induction meetings and counseling classes with the help of different e-conferencing tools like Google Meet, Skype, and YouTube live, Facebook live, WebEx etc. to provide support services to the students. (Jena, 2020)

Impact on Academic research & Professional Development

Covid-19 has both negative and positive impacts on research. If we take the negative side, it has made impossible for researchers to travel and work together with others nationally and internationally. Some joint research work or project work are made complicated to complete. Some scientific laboratory testing/research work could not be conducted. If we look at the positive side, academicians got much time to improve their theoretical research work. Academicians got acquainted with technological methods and improved their research. Webinars and e-conferences became normal methods for sharing expertise among students and academicians around the globe with similar issues. They could get much time to concentrate on professional development by doing research and to improve knowledge by sharing ideas through webinars and e-conferences. They enhanced their technical skill and could get the scope for publishing articles in journals, publishing books in this free time. (Jena, 2020)

Severely affected the educational assessment system

Most of the external examinations have been postponed and almost all the internal assessments have been cancelled. The cancellation of assessments has negative impact on students' learning. Many institutions have been managing the internal assessments through online mode using different digital tools but the postponement of the external assessments, has a direct impact on the educational and occupational future of students' life. This uncertainty has created anxiety among students as they are stuck in the same grade/class without promotion. Similarly, many students who had appeared final/board examinations would suffer a lot as by the time they get their certificates, it might be too late for them to apply for the forthcoming academic year in other countries due to lockdown. (Jena, 2020)

Reduced employment opportunities: Many entrance tests

job recruitments got cancelled which created negative impact with a great challenge in the life of a student of higher education. The Indians who have been doing their jobs abroad became upset of their job withdrawal also. In India, there is no recruitment in Govt. sector and fresh graduates are in pressure offering withdrawal of job offers from corporate sectors because of the pandemic situation. Many students may lose their jobs from India and overseas. The pass out students may not get their job outside India due to various restrictions caused by Covid-19. All these facts imply towards increase of unemployment rate due to this pandemic. With increase of unemployment situation, the interest for education may gradually decrease as people struggle for food rather than education. (Jena,2020)

Increase in use of Learning Systems

Use of learning systems by educational institutions became a great demand. It opened a great opportunity for the companies those have been developing and strengthening learning management systems for use educational institutions (Misra, 2020).

Move towards Blended Learning

COVID-19 has accelerated adoption of digital technologies to deliver education. Educational institutions moved towards blended mode of learning. It encouraged all teachers and students to become more technology savvy. New ways of delivery and assessments of learning opened immense opportunities for a major transformation in the area of curriculum development and pedagogy. It also gives access to large pools of learners at a time.

Improvement in collaborative work

There is a new opportunity where collaborative teaching and learning can take on new forms. Collaborations can also happen among faculty/teachers across the world to benefit from each other (Misra, 2020).

Encouraged the use of soft copy of learning material

In lockdown situation students were not able to collect the hard copies of study materials and hence most of the students used of soft copies materials for reference. Enhanced Digital Literacy: The pandemic situation induced people to learn and use digital technology and resulted in increasing the digital literacy.

Demand for Open and Distance Learning (ODL)

During the pandemic situation most of the students preferred ODL mode as it encourages self-learning providing opportunities to learn from diverse resources and customized learning as per their needs.

ICT Initiatives of the Indian Government and Higher Education Institutions

Indian universities, realizing their commitment to students and the community, displayed adaptability, agility, and innovation in dealing with the pandemic. While academic continuity planning was of prime importance, they also understood the need for emotional support, healthcare infrastructure, building awareness, and creating new learning opportunities. Many key reform initiatives were undertaken by the universities to build resilience, ensure continuity, and create an impact in times of COVID-19. These included the transition to online classrooms to maintain academic continuity, knowledge creation through Webinars, ensuring emotional wellness by building strength, support, and awareness, the launch of online & blended learning mode degrees, learning and development by building access for student communities to online MOOCs and e-resources, healthcare infrastructure upgrade, creating scholarship opportunities, global immersion by expanding international collaborations, admissions mobility by adopting AI-enabled processes, the establishment of The Office of Digital Learning & Online Education, etc. The Ministry of AYUSH (MoA), Government of India has undertaken several initiatives under the program 'AYUSH against COVID-19' . AYUSH is an acronym that denotes Indian traditional systems of medicine including Ayurveda, Yoga, Unani, Siddha, Sowa Rigpa, as well as Homeopathy and Naturopathy. The MoA has setup an Interdisciplinary AYUSH Research and Development Task Force, which designed robust protocols for population-based prophylactic studies and add-on interventions in collaboration with the Council for Scientific and Industrial Research (CSIR), Government of India. Digital footfalls tripled in the country just a week after the lockdown on digital initiatives, like SWAYAM 'Study Webs of Active Learning for Young Aspiring Minds,' which provides an integrated platform for various online courses across educational levels and subject areas, including skill sector courses. SWAYAM hosted about 2000 complete courses, including teaching videos, weekly assignments, examinations, and credit transfers.

Following is the list of some of the initiatives along with their access links:

SWAYAM online courses: (https://swayam.gov.in)SWAYAM was launched on 9th July 2017 by the Ministry of Education. It is an initiative under the "Digital India" campaign undertaken by the Government of India in 2015. The platform has been designed to impart quality education to school students, undergraduate, as well as post-graduate students in India. The portal offers free printable and downloadable study materials, video lectures, discussion forums, and online tests from over 1600 courses. After successful completion of the course, students can get a certificate in exchange for a token fee. https://storage.googleapis.com/unique courses/online.html provides access to best teaching learning resources which were earlier delivered on the SWAYAM Platform may be now viewed by any learner free of cost without any registration. Students can access the web version at https://swayam.gov.in or download the mobile application from Google Play Store or App Store. Registration at Swayam is quite simple. You can simply register through a valid email ID or Facebook or Google plus account. The Swayam portal is accredited by: AICTE, UGC, INGOU, NCERT, CEC, IIMB, NIOS and NITTTR.

UG/PGMOOCs:
http://ugcmoocs.inflibnet.ac.in/ugcmoocs/moocs_courses.php hosts learning material of the SWAYAM UG and PG (Non-Technology) archived courses.

E-PG Pathshala: E-PG Pathshala is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC. http://epgp.inflibnet.ac.in/ hosts high quality, curriculum-based, interactive e-content containing 23,000 modules (e-text and video) in 70 Post Graduate disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences.,

E-Content courseware in UG subjects: http://cec.nic.in/The Consortium for Educational Communication, popularly known as CEC, is one of the Inter University Centers set up by the University Grants Commission of India. It has been established with the goal of addressing the needs of Higher Education through the powerful medium of Television along with appropriate use of emerging Information Communication Technology (ICT). Realizing the potential and power of television to act as a means of educational knowledge dissemination, UGC started the Countrywide Classroom Programmes in the year 1984. For production of such programmes, Media Centers were set up at 6 Universities. Subsequently CEC emerged in 1993 as a nodal agency to coordinate, guide & facilitate such Educational production at the National level. Today 21 Media Centers work towards achieving this goal under the umbrella of CEC.E-content in 87 Undergraduate courses with about 24,110 e-content modules is available on the CEC website at SWAYAMPRABHA: https://www.swayamprabha.gov.in/ is a group of 32 DTH channels providing high quality educational curriculum based course contents covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine, agriculture etc. to all teachers, students and citizens across the country interested in lifelong learning. It is the India's first Massive open online course platform which is a initiated by the Indian Government and specially designed to achieve the basic objectives of Indian Education Policy. The main objective of this platform is to provide the best teaching-learning platform and learning resources to students from class 9 to post graduation. This platform can be easily accessible anytime from anywhere. It gives a strong platform for knowledge society & also provides a digital revolution in the field of teaching. In this Covid19 situation this type of platform is a very essential commodity for national knowledge growth and provides a back bone support for young learners.

CEC-UGC YouTube channel: (https://www.youtube.com/user/ cecedusat) The Consortium for Educational Communication popularly known as CEC is one of the Inter University centers set up by the University Grants Commission of India. It has been established with the goal of addressing the needs of Higher Education through the use of powerful medium of Television along with the appropriate use of emerging Information Communication Technology (ICT). http://www.youtube.com/user/cecedusat provides access to unlimited educational curriculum based lectures absolutely free.

National Digital Library (https://www.ndl.gov.in/) NDLI is a digital repository of a vast amount of academic content in different formats and provides interface support for leading Indian languages for all academic levels, including researchers and lifelong learners, all disciplines, all popular form of access devices and differently-abled learners. Students of Science, Engineering and Social Science streams can get benefited by visiting https://www.ndl.gov.in/ or https://ndl.iitkgp.ac.in/ and clicking "Corona Outbreak: Study from home" button on top to access, free of cost, Video lectures, Web courses Notes, Questions, Solutions, etc., on various subject areas they are studying, from authoritative sources to continue their study effectively during this difficult situation arising out of suspension of classes and closure of libraries due to COVID-19 Lockdown.

Shodhganga: (https://shodhganga.inflibnet.ac.in/) Shodhganga is a platform for research students to deposit their Ph.D. theses and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, and store, disseminate and preserve Electronic Theses and Dissertations submitted by the researchers. https://shodhganaa.inflibnet.ac.in is a digital repository platform of 2, 60,000 Indian Electronic Theses and Dissertations for research students to deposit their Ph.D. theses and make it available to the entire scholarly community in open access.

E-Shodh Sindhu: (https://ess.inflibnet.ac.in/) E-ShodhSindhu is a collection of e-journals, e-journal archives and e-books on long-term access basis. It has 10,000+ e-journals, 31, 35,000+ e-books. It provides access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rate of subscription. https://ess.inflibnet.ac.in/ provides current as well as archival access to more than 15,000 cores and peer-reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions, including centrally-funded technical institutions, universities and colleges that are covered under I2 (B) and 2 (f) Sections of the UGC Act.

VIDWAN: (https://vidwan.inflibnet.ac.in) VIDWAN is the premier database of profiles of scientists / researchers and other faculty members working at leading academic institutions and other R & D organization involved in teaching and research in India. It provides important information about expert's background, contact address, experience, scholarly publications, skills and accomplishments, researcher identity, etc. The database developed and maintained by Information and Library Network Centre (INFLIBNET) with financial support from the National Mission on Education through ICT (NME-ICT). The database would be instrumental in selection of panels of experts for various committees, taskforce, established by the Ministries / Govt. establishments for monitoring and evaluation purposes.

National Educational Alliance for Technology (NEAT) (https://neat.aicte-india.org/) National Educational Alliance for Technology is an initiative for skilling of learners in latest technologies through a Public-Private partnership model between the Government (through its implementing agency AICTE) and the Education Technology companies of India. It brings the best technological products in education pedagogy on a single platform for the convenience of learners.

SAKSHAT (https://sakshat.ac.in/) SAKSHAT is one Stop Education Portal for addressing all the education and learning related needs of students, scholars, teachers and lifelong learners. The portal provides the latest news, press releases, achievements etc. related to Ministry of HRD. So one can visit SAKSHAT to know the world of online learning.

FOSSEE (https://fossee.in/) FOSSEE (Free/Libre and Open Source Software for Education) project promotes the use of FLOSS tools to improve the quality of education in our country. We aim to reduce dependency on proprietary software in educational institutions. We encourage the use of FLOSS tools through various activities to ensure commercial software is replaced by equivalent FLOSS tools. We also develop new FLOSS tools and upgrade existing tools to meet requirements in academia and research. The FOSSEE project is part of the National Mission on Education through Information and Communication Technology (ICT), Ministry of Education (MoE), Government of India.

Virtual Labs (http://www.vlab.co.in/) Virtual Labs has developed web-enabled curriculum based experiments designed for remote operation. It has over 100 Virtual Labs consisting of approximately 700+ web-enabled experiments which are designed for remote-operation. It provides remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs caters to students at the undergraduate level, post graduate level as well as to research scholars

DIKSHA (https://diksha.gov.in/) DIKSHA, an initiative taken by the Ministry of Education was launched in September 2017 to facilitate advanced digital learning for teachers from classes 1 to 12. The digital portal has been mainly designed for teacher education but is also available for students who want to connect to the teacher's community. DIKSHA offers training courses, worksheets, lesson videos, curriculum, and assessment tests for teachers. One of the unique features of this platform is the QR code which can be scanned to gain access to a plethora of learning materials and eBooks. More than 80,000 eBooks are available for class 12th students in multiple languages. Android and the iOS users can download the application from the Google Play Store and iOS app store. Web users can visit and register at the official website at disha.gov.in.

SwayamPrabha (https://swayamprabha.gov.in/) SwayamPrabha was conceptualized by the Ministry of Education that consists of a collection of 32 DTH channels that will telecast educational contents 24x7 for students across India. Each day, the channel will telecast a new content of 4-hours duration. The content will be shown 5 times a day so that students can select the time and watch the programs at their convenience. Contents are available for class 12th, UG, and PG students. Detailed courses are offered through SWAYAM on multiple disciplines as well as MOOCs courses. Students can visit www.swayamprabha.gov.in for details regarding the free installation of a set-top box and other information.

SAKSHAT (https://sakshat.ac.in/) SAKSHAT is one Stop Education Portal for addressing all the education and learning related needs of students, scholars, teachers and lifelong learners. The portal provides the latest news, press releases, achievements etc. related to Ministry of HRD. So one can visit SAKSHAT to know the world of online learning.

Spoken Tutorial: (https://spoken-tutorial.org/) The Spoken Tutorial project is funded by the National Mission on Education through Information and Communication Technology (ICT), launched by the erstwhile Ministry of Human Resources and Development, Government of India. Spoken Tutorial is a multi-award winning educational content portal. Here one can learn various Free and Open Source Software all by oneself. Our self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning, can learn from any place, at any time and in a language of their choice.

Baadal: (https://baadal.nmeict.in/) Baadal is a cloud orchestration and virtualization management software initiated by MHRD under NMEICT scheme and developed and maintained by IIT Delhi. It ensures optimum utilization of the infrastructure and speeds up the development and deployment of eGov applications for academic needs. As Baadal is open source project, we help institutes to setup their private cloud. It is hosted in NIC data-center. Some of the main features of Baadal are:

- Dynamic resource scheduling and power management.

- An integrated workflow system for request and commissioning of virtual machines.
- Facilities for suspend, resume, shutdown, power off, power on and specifying resource requirement of virtual machines.
- Dynamic resource utilization monitoring.

CONCLUSION

This study has outlined various impacts of Covid-19 on education system in India. The recent pandemic created an opportunity for change in pedagogical approaches and introduction of virtual education in all levels of education. As we do not know how long the pandemic situation will continue, a gradual move towards the online/virtual education is the demand of the current crisis. UGC and MHRD have lunched many virtual platforms with online depositories, e-books and other online teaching/learning materials. Combination of the traditional technologies (radio, TV, landline phones) with mobile/web technologies to a single platform with all depositories would enhance better accessibility and flexibility to education. India has taken sufficient steps to combat the impact of COVID-19, but it is felt that the government and institutions need to invest heavily in technical infrastructure to enable the shift from conventional to a blended education model. Learning assessment and examination approaches should also be reviewed in order to comply with online teaching and learning pedagogy. High quality Open Source Educational learning resources in various Indian languages should be developed, especially in subjects requiring practical skills. The developing and training of staff and faculty for online teaching and learning pedagogy through extensive capacity-building programs would go a long way in improving the quality of online teaching and learning.ICT will play a huge role in improving the inclusiveness, equity, and quality of education. The steps taken so far in this direction will help strengthen the country's digital learning infrastructure in the long run.

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