Impact of COVID-19 Pandemic on Digital Transformation in Higher Education in India

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ABSTRACT : The COVID-19 pandemic has forced many sectors to shift their bases and way of working. Higher education is one of the important sector affected due to COVID-19. Around the world, in many educational institutions campuses are closed and numerous schools and colleges have started teaching their students through online platforms . The Higher Education Institutions (HEIs) have reacted positively and managed to ensure the continuity of teaching-learning, research and service to the society with ICT tools and techniques during the pandemic. The purpose of this study is to identify governments initiative for e-learning and ICT tools and technology adopted for teaching and learning purpose in higher education. It also discuss the problems of digital transformation of educational services . Some fruitful suggestions are also pointed to carry out educational activities during the post - pandemic situation.

Keywords: COVID-19; e-learning; knowledge; online learning; pandemic; skills

I. INTRODUCTION :

The covid-19 pandemic spread rapidly throughout the world, which represents a totally new type of crisis for everyone and a challenge for both public and private sectors. It has affected educated sector and a wide-ranging impact on the economy and society as a whole. In India, more than 32 crores of students have been affected by the various restrictions and the nation-wide lockdown for Covid-19. Most Governments around the world have temporarily closed educational institutions in an attempt to control the spread of the pandemic Covid-19.   All educational activities like examinations, school admissions, entrance tests of various universities and competitive examinations, others, are being held during this period. The COVID-19 pandemic has caused the largest disruption of education in history, and had a near-universal impact on learners and teachers around the world, across schools, institutions, universities, and skills development establishments.

The pandemic has been steering the education sector forward with technological innovation and advancements. Today more students are learning online and expanding the physical boundaries of digital learning in real-time. Today's education encouraged all teachers and students to become more technology savvy. In this pandemic situation , higher education institutions have started conducting orientation programmes, induction meetings and counselling classes with the help of different e-conferencing tools like Google Meet, Skype, Youtube live, Facebook live, WebEx etc. to provide support services to the students. This initiative has taken to create an effective virtual environment of teaching learning and to create motivation among students for online activities.

II. REVIEW OF LITERATURE :

McKibbin (2020) in the article, the global macroeconomic impacts of COVID-19: Seven scenarios argued that the evolution of COVID19 is uncertain and making it difficult for policy makers to formulate an appropriate macroeconomic policy response in a way to understand possible economic outcomes. McKibbin, (2020) explored seven different scenarios of how COVID-19 might evolve in the coming year using a modeling technique. It examines the impacts of different scenarios on macro-economic outcomes and financial markets in a global hybrid DSGE/CGE general equilibrium model. The study finds that even though the pandemic is contained, it could significantly impact the global economy in the short run. In their work **Wenham et al**. (2020) found that, there was gender analysis of the outbreak by global health institutions or governments in affected countries or in preparedness phases. It is pointed that the closure of schools to control COVID-19 transmission in China, Hong Kong, Italy, South Korea, and beyond might have a differential effect

on women, who provide most of the informal care within families, with the consequence of limiting their work and economic opportunities ported by data under consideration.

Richa Choudhary (2020) in the article, stated that he pandemic has significantly disrupted the higher education sector as well, which is a critical determinant of a country's economic future. A large number of Indian students enroll in universities abroad, especially in countries worst affected by the pandemic, the US, UK, Australia and China. If the situation persists, in the long run, a decline in the demand for international higher education is expected. **Dr. S. K. Agarwal, Anuradha Sharma** (2020) studied the digital transformation of education in India during the period of lockdown due to COVID-19. In essence, the study investigated how the education sector adopted the use of virtual tools during the COVID-19 lockdown period. The study was based on the reviewing of secondary data sources and finding is that in India, during the lockdown, the education

sector massively adopted different virtual tools (digital transformation) from primary education to higher and tertiary education. The lockdown motivated the creation of virtual learning and finally switched to online learning. **Impact of COVID-19 Pandemic on Teaching and Learning (2021) Sumitra pokhrel, Roshan Chhetri** study on the impact of the COVID-19 pandemic on teaching and learning across the world concludes that although various studies have been carried out, in the case of developing countries, suitable pedagogy and platform for different class levels of higher secondary, middle and primary education need to be explored further.

III. USE OF ICT TOOLS & TECHNOLOGY FOR TEACHING AND LEARNING IN HIGHER EDUCATION :

In Covid-19 pandemic situation, following tools and technology were adopted for teaching and learning purpose in higher education.

Table No 1 : ICT Technology & Technology for Teaching and Learning in Higher Education

Technology	Features
ZOOM	Cloud platform for video conferencing, web conferencing, webinars, unified communications. It has several service plans, including a free option, which allows meetings with up to 1000 participants at the same time, a wide selection of tools.
Microsoft Teams	Supports up to 300 attendees with guest access, one-to-one or group video and audio calls, file sharing (2GB per user and 10GB per team), screen sharing, and document coloring using online Office apps. Integrated with Skype, Word, SharePoint, OneNote, Power BI.
WebEx	Free video calls and screen sharing, unlimited conference calls and an interactive meeting experience with robust audio conference features, high-quality video . Works with all popular smartphones — iPhone, Android, Nokia, Blackberry
Linkchat	audio, video, chat, recording, and screen sharing. It supports multiple device types and operating systems. Works on mobile, desktop applications, or directly from the browser. Provides Cellular access in the absence of Internet access.
Google Meet	Android & IOS platform**.** Provision of 60 minutes per meeting with 100 participants, video and audio preview screen**,** compatible across devices, adjustable layout and screen setting, controls for meeting hosts, screen sharing with participants,
GoToMeeting	An online web conferencing service that allows you to hold an unlimited number of meetings for a fixed monthly fee. It integrates with solutions and platforms from Office 365, G Suite, Salesforce, Zoho, and Slack. In addition to the option of saving video, you can save presentation slides and share them in PDF format.

IV.   GOVERNMENTS EFFORT FOR E-LEARNING :

According to a survey report of the Ministry of Human Resource Development (MHRD), Government of India, conducted on higher education, it was observed that there are 993 universities, 39931 Colleges and 10725 stand-alone institutions listed on their portal. The MHRD and University Grants Commission (UGC) have made several arrangements by lunching of many virtual platforms with online depositories, e-books and other online teaching/learning materials, educational channels through Direct to Home TV, Radios for students to continue their learning.

i)ICT initiative of MHRD : It is a unique platform which combines all digital resources for online education. UGC has released guidelines on examinations and academic calendar in view of COVID-l9 pandemic and subsequent lockdown on 29thApril, 2020 (UGC notice).

ii)National Mission on Education Through ICT : It was a strong recommendation of the 11th five-year plan with satellite Instructional Television Experiment in the 1970s and educational broadcasting that happened over the radio were ways in which technology was used in the field of education, giving "equitable access" to all those learning through those mediums. The Union HRD Ministry had launched a TV channel for students to take online courses and at present 15 million students are enrolled with it.

iii) Swayam Prabha : The Union HRD Ministry also launched a subsidiary direct-to-home channel in 2019, called Swayam Prabha. The number of viewers have been doubled compared to its parent channel. It provides Massive Open Online Courses (MOOCs) with 140 universities approved credit transfer feature. Swayam Prabha provides high quality educational programs through 32 DTH channels transmitting educational contents. e-PG Pathshala (https://epgp.inflibnet.ac.in/) is for postgraduate students. Postgraduate students can access this platform for e-books, online courses and study materials.

iv)e-GyanKosh : It is a National Digital Repository to store and share the digital learning resources which is developed by the Open and Distance Learning Institutions of India. Items in e-GyanKosh are protected by copyright, with all rights reserved by Indira Gandhi National Open University(IGNOU).

v)Gyandarshan : It is a web- based TV channel devoted to educational and developmental needs for Open and Distance Learner. A web-based TV channel devoted to educational and developmental needs of the society

vi)Gyandhara: It is an internet audio counseling service offered by IGNOU. It is a web radio where students can listen to the live discussions by the teachers and experts on the topic of the day and interact with them through telephone, and through chat mode.

vii)National Digital Library of India (NDLI) : Developed at Indian Institute of Technology Kharagpur and is a repository of e-content on multiple disciplines for all kinds of users like students (of all levels), teachers, researchers, librarians, library users, professionals, differently-abled users and all other lifelong learners. It is designed to help students to prepare for entrance and competitive examinations, to enable people to learn and to facilitate researchers to perform inter-linked exploration from multiple sources. It is a virtual repository of learning resources with a single-window search facility and   also available to access through mobile apps.

viii) FOSSEE: is short form for Free/Libre and Open-Source Software for Education, which is developed to promote open-source software for education as well as professional use.

ix) 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 researchscholars.

V.   IMPACT OF COVID-19 ON HIGHER EDUCATION :

Pandemic has given positive and negative impact on higher education.

- Majority of faculty members have shared that the pandemic has changed the teaching style of faculty members in education sector.
- Majority of the students are considering that e-learning was considered less effective than face-to-face learning in terms of increasing skills and social competences . They are opined that they were less active during online classes compared to traditional classes.
- Majority of the students agreed that ease of access to educational materials and the ability to choose the time and place to study is the strongest advantages of online learning .

- Majority of the teachers agreed that , e-learning enables learning materials to be quickly delivered to students, standardized, and updated.
- Majority of the teachers and students improved the use of electronic media for sharing information by making use of WhatsApp, Google drive, Telegram, Twitter etc. They have been sharing important documents with the group members and creating online local repository also.
- Many institutions have been managing the internal assessments through online mode using different digital tools .
- Webinars and e-conferences became normal methods for sharing expertise among students and academicians around the globe with similar issues. They enhanced their technical skill and could get the scope for publishing articles in journals and publishing books in this free-time.
- Due to pandemic, many entrance tests and job recruitments got cancelled which created negative impact with a great challenge in the life of a student of higher education.
- Especially in rural area many students have limited or no internet access and many students may not be able to afford computer, laptop or supporting mobile phones in their homes, since online teaching-learning may create a digital divide among students. The lockdown has hit the poor students very hard in India as most of them are unable to explore online learning according to various reports. The people residing in rural areas are still very much deprived of the technologies and therefore discontinuing their education.

VI. FUTURE OF ONLINE LEARNING :

i)In classroom teaching, classroom time will be more productively utilized for discussion, debate and guided practice by teachers and students. It is not possible in online mode . But we can make doubt clear by using discussion forum.
ii) University should plan in the future that online education will be recognized for institutional resilience and academic continuity and is a potential source for new revenues. Hence online learning will be a strategic priority at every education.
iv)Majority of students and teachers in rural India have limited access to personal laptops or computers, and phone screens are not conducive to long learning hours
v) Majority of students face about data packs and their costs can be a big deterrent both especially for

live classes. Many students either don't have personal laptops/smart phones or they are available for a limited time. Hence, the learning remains restricted with the limited availability of technological devices.

VII. CONCLUSION

India's higher education system faces pressure to address digital inequality and ensure that students can access digital learning. In pandemic situation, there is no choice, either you decide to lose your year and come back when normalcy returns, otherwise, take the risk of going online. Sudden shifting to online education has brought inequalities between those students with resources and technological means at their disposal. Successfully implementing online learning into the curriculum requires a well thought-out strategy and a more active approach. There is also the need for more tech-savvy educational institutions putting in place a proper plan-of-action for students, teachers and institutions and ensuring teacher-training in the use of technology for education. Now a days more students are depending on technology and digital solutions for teaching learning, entertainment and connecting themselves with the outside world. Students will use internet technology to communicate virtually with their teachers and fellow learners through e-mail, WhatsApp, Videoconference, Instant message, webinar or any other tools. There is more demand for online modes of education and the same trend may continue in future also. Covid-19 has accelerated adoption of digital technologies to deliver education and encouraged the educational institutions to move towards blended mode of learning which combines both face to face and online learning modes.

REFERENCES :
[1]. A.Yu. Uvarova, I. D. Frumin, Monograph. (2019), "Difficulties and prospects of digital transformation of education", Scientific editors of the series : Russian education: achievements, challenges, prospects, 334.
[2]. DNS Kumar (29 April 2020). Impact of COVID-19 on Higher Education. Retrieved on May 25, 2020 .
[3]. Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing digital technology: A new strategic imperative. MIT Sloan Management Review, 55(2), 1.
[4]. Galina Timokhina1; Olga Popova2; Nikolay Perepelkin3; Taira Murtuzalieva4; Natalia Ivashkova5(2020), " Digital Transformation of Educational Services in COVID-19

Pandemia: Social and Technological Aspects", GEINTEC.

[5]. Kalvakunta Ramakrishna, "Impact of COVID-19 on Higher Education in India", International Journal of Multidisciplinary Educational Research, Vol.10, Issue 3(7) 2021.

[6]. Mukesh Rawal(2021),"An Analysis of COVID-19 Impact on Indian Education System", Educational Resurgence Journal Volum2,Issue Jan.2021.

[7]. MHRD notice (20 March, 2020). COVID-19 Stay Safe: Digital Initiatives. Retrieved on May 25, 2020. From https://www.mohfw.gov.in/pdf/Covid19.pdf

[8]. Sadeghi R, Sedaghat MM, Sha Ahmadi F. Comparison of the effect of lecture and blended teaching methods on students' learning and satisfaction. J Adv Med Educ Prof 2014;2:146–50.

[9]. Sansa, N.A. (2020). Analysis for the Impact of the COVID - 19 to the Petrol Price in China (March 2, 2020). Accessed 08/04/2020, available from https://ssrn.com/abstract=3547413.

[10]. Sophia Ansari, Kanchan Artani, Nikita Tiwari (2021), "FIGHTING COVID-19 THROUGH DIGITAL EVOLUTION AND TRANSFORMATION IN THE EDUCATION SECTOR", xIlkogretim Online - Elementary Education Online,2021; Vol 20 (Issue 1): pp.2512-2517 http://ilkogretim-online.org, doi: 10.17051/ilkonline.2021.01.284.

[11]. Varsha Meghani, (2020). Article published in Forbes India: Covid-19 lockdown gives e-learning a boost.

[12]. Willingham, D. (2009). Have Technology and Multitasking Rewired How Students Learn? American Educator, 34 (2), 23-28. http://er-ic.ed.gov/? id=EJ889151

Websites :
[13]. https://www.highereducation digest.com/impact-of- covid-19-on-higher-education/

[14]. http://www.education.ie/en/Schools-Colleges/Information/Information-Communications Technology-ICT-in-Schools/Digital-Strategy- for-Schools/ Building- Towards-a-Learning-Society-ANational-Digital-Strategy-for-Schools-Consultative- Paper.pdf

[15]. https://www.ugc.ac.in.

[16]. UGC notice (29 April, 2020). UGC Guidelines on Examinations and Academic Calendar in view of COVID-l9 Pandemic Retrieved on June 5, 2020. from https://www.ugc.ac.in/pdfnews/5369929_Letter- regarding-UGC-Guidelines-on-Examinations-and- Academic-Calendar.pdf

[17]. Wikipedia, Education in India Retrieved on May 24, 2020. from https://en.wikipedia.org/wiki/Education_in_I ndia