Research Article

Higher Education during and after COVID-19: Is Online Education the New Normal?

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Abstract

The Covid-19 pandemic has transformed Indian education into a new phase with technology coming upfront. All educational institutions from primary to universities have adopted technology-mediated education. It has opened up new directions in the education arena and online education becomes the 'new normal. Many EdTech Startups have also boomed in this period to capitalize on the market for online education. It is in this context that this study analyses the impact of online education on Indian higher education during this pandemic through a case study of the learning experience of a Central University in India. The study was limited to the discipline of social science. Out of the 182 students of the School of Social Sciences and Policy of the Central University of South, Bihar contacted through Google Form, 100 forms have been rated in proper order. So these 100 students constituted the sample for this study. Being a new platform for education, the students have faced some difficulties in coping with it. However, it was found that despite the challenges and limitations, the students experienced online education as an alternative to conventional education.

Keywords: Online education, digital divide, EdTech startups, SWAYAM

Introduction

Covid-19 has brought about an unprecedented crisis across the world economy. It has affected all sectors of the economy. The production and services sectors have been affected badly during this pandemic. Governments all over the world are in a dilemma on how to combat the hither-to-unknown crisis. Among the various sectors seriously impinge on during the Covid -19 crisis is education in general and higher education in particular. The day when education was restricted to clearly delineated rooms, frequently called classrooms, is passed, right? A person may study everything they want now with the aid of technology, at their own pace, at a time that works for them, and all with the press of a button. Similarly, various institutions, autonomous bodies, and even private players have come forward with solutions to mitigate the problem of education during these difficult times.

Online education is the most sought-after mechanism adopted by and large by most countries. As an illustration, after

the World Health Organization declared the new coronavirus a pandemic on March 11, universities all over America closed their doors in an effort to stop the virus' spread. The University of Washington took the initiative on March 6, 2020, by canceling all in-person classes Chiodini, J. (2020). A wave of colleges and universities around the nation soon followed suit, including Duke, Stanford, Harvard, Columbia, Barnard, N.Y.U., Princeton, and Stanford. Both wealthy and emerging nations share a similar situation UNESCO Report. (2020). All these universities have shifted to virtual class classrooms Sun, L., Tang, Y., & Zuo, W. (2020).

To capitalize on the increasing demand for online education, many EdTech startups have been emerging across the world Naylor, R. (2020). The EdTech industry is expected to grow and generate close to $2 billion by 2021, according to reports by KPMG and Google. Famous EdTech startups include Byju's, Adda247, Alolearning, AptusLearn, Asmakam, Board Infinity, ClassPlus, CyberVie, Egnify, Embibe, ExtraaEdge, iStar, Jungroo Learning, GlobalGyan, Lido Learning, Pesto, Vedantu, Edubrisk, ZOOM Classroom, ZOOM Business, Toppr, Unacademy, Coursera Zheng, B., Hsi Lin B, C., & Kwon, J. B. (2020). Some of the Digital e-Learning Platforms in India like SHAGUN Online Junction, National Repository of Open Educational Resources (NROER), DIKSHA, e-Pathshala, SWAYAM, Swayam Prabha, Other Online Platforms for Education Approximately 55 school boards, 359 state universities, 123 deemed universities, 47 central universities, and 260 private universities are affiliated with the National Academic Depository (NAD), which is controlled by the UGC. To give content to students pursuing higher education and doctoral degrees, the National Digital Library of India is administered by the Ministry of Human Resource Development (MHRD) as part of the National Mission on Education through Information and Communication Technology (NMEICT). Another important project of the MHRD and GoI is called Virtual Labs, and it is administered by NMEICT. It is a partnership between 12 IITs that aims to offer online courses and study materials via virtual laboratories, where 700+ virtual experiments are created and promoted for candidates to study and comprehend.

Review of Literature

Before and after the outbreak of the pandemic, a few attempts were done by scholars to understand the effect and problems of online education on different levels of education across the world. As a preface to this paper, it is meaningful as well as helpful to go through such studies. It will also provide a proper guideline to frame the present study on sound footings. The learning and teaching environment have undergone a noticeable transformation thanks to web technologies. Supporters of online learning have observed that it can be efficient in possibly removing barriers while providing more convenience, flexibility, current content, personalized learning, and feedback compared to a typical classroom teaching environment. (Harasim, 1990; Matthews, 1999; Swan et al., 2000) Brown, G., & Wack, M. (1999) Matthews, D. (1996). Rivals, however, are worried that students in an online setting may feel alone (Brown, 1996), confused, and disappointed (Hara & Kling, 2000), and that student's interest in the subject and learning effectiveness may be diminished (R. Maki, W. Maki, Patterson, & Whittaker, 2000).

(Bhushan, 2020) carried out a survey to learn more about the realities of the online alternative and other approaches to opening higher education institutions. The survey's findings support the absence of

internet access. It was challenging to conduct online classes. The ability of the teachers to use IT resources needs to be developed. There is a problem with students access to online classes that have to be resolved. Many private unaided institutions believe that there will be a significant drop in enrollment, a hike in fees that will shift the incidents to students, and a decrease in the employment of contract teachers and temporary teachers. The government may offer a financial stimulus package in the situations mentioned above. The University Grants Commission may provide the university more freedom to make judgments that are appropriate for the situation.

200 university administrators from 53 different countries participated in a survey by Times Higher Education (2020). One hundred per cent of university instruction has been or will be relocated online, according to 53 per cent of respondents. According to 33 per cent of respondents, COVID-19 has caused or will cause the relocation of more than 75 per cent of university instruction online. The main reason people do not intend to migrate online is not a lack of resources, technical expertise, or availability; rather, it was because specific disciplines or modules cannot be taught online. More than 80 per cent said the move was successful. Only 9 per cent firmly concur that online instruction is of a higher caliber than instruction provided before the Covid amendment. For classes that had to be moved online, 79 per cent of respondents said they would ask students for course evaluations. Sixty per cent of respondents felt that in at least some subjects, a continuous evaluation is a valid substitute for online final exams. They also mentioned how difficult it is to transfer all applied disciplines and professional courses to online teaching and learning.

A study was done (Vaccani, 2016) to determine whether webcast lectures are equally effective as live lectures as a teaching tool in medical school. Third-year medical students were given three lectures on otolaryngology-head and neck surgery (OTO-HNS) as part of their usual academic program; one group attended live lectures, and the other group watched webcasts of the lectures. The same instructor delivered the same content in all lectures, whether broadcast live or online. A student satisfaction survey, performance on the OTO-HNS portion of their written exam, and performance on an OTO-HNS OSCE station during the general end-of-year OSCE assessment session were employed as the three outcome measures. Study results showed that both sets of students performed equally well on the written test. Performance in the OSCE station's webcast group was superior to that of the live lecture group. In the opinion of most students in the webcast group, it was a useful educational tool. The majority of participants reported that they found it helpful to watch the lectures more than once.

(Litao Sun et al., 2020) discuss their experience with statewide distance learning in Chinese institutions during the COVID-19 pandemic. We examine the findings of a statistical survey done among 39,854 students at Southeast University in China to have a better understanding of the efficacy of such extensive online education. About 50 per cent of students thought the intended learning objectives had been fully accomplished, and 46 per cent thought they had been mostly attained. Intriguingly, most students concurred that, in addition to ensuring continuity in the classroom, teachers contributed a pleasant vibe to help pupils deal with the stress of being in quarantine. However, when asked about "focus and restraint," students were less enthusiastic and

gave it a relatively low score. This indicates that there is a greater need to improve self-discipline and concentration in the face of distractions like sluggish network speed, a noisy environment, and a lack of professional equipment. To lessen the effects of unreliable networks and boost student engagement, students suggested mixing recorded films and live classes with greater online interactivity. One of the most popular recommendations was to offer a unified teaching platform with playback features and an adequate quantity of homework.

According to the (KPMG, 2017) survey study, online education will continue to grow in popularity among prospective students, professionals, and others driven by features like simple and on-demand access to content, self-paced learning opportunities, and interactive and modular learning modes. Due to the lack of connection with peers and instructors, roughly one-third of online students also hold the view that online learning cannot replace traditional learning.

(Saxena et al., 2016) believed that the educational system is transforming. There is a growing understanding that education must be regarded from the perspective of lifelong learning. People are starting to take control of their education. As a result, "e-Learning," a new educational phase, has emerged. The term "eLearning" describes creative ways to use technology to share information and provide more people access. Through the development, application, and management of suitable technology processes and resources, online education's primary goal is to facilitate learning and enhance performance. By removing the barriers between students and the rest of the world, these eLearning techniques are converting the static learning environment into a dynamic one. The main barrier to the widespread adoption of this technology-driven learning, despite encouraging trends in India as a whole, is the lack of internet connectivity in smaller towns and semi-urban areas. Only once these problems are resolved can the enormous promise of learning tools like gamification, video-based learning, competency training, etc. be realized. It is anticipated that India would see a profound transition in the upcoming ten years, driven by companies that are bringing technology-driven education to a pan-Indian scale through digital learning.

(McGrath, 2020) a study by Britain's Open University found that compared to traditional face-to-face courses, preparing and delivering e-Learning courses uses an average of 90 per cent less energy and generates 85 per cent less CO2 emissions per student. According to data on the state of eLearning in corporate education published by CertifyMe.net, 72 per cent of the firms surveyed felt that eLearning gives them the ability to maintain their competitive edge by keeping up with developments in their particular industry Dash, S. K., & Sidharth, R. (2022, July 19). The same IBM study from 2014 found that investing in online training boosts productivity by $30 for every dollar spent, mostly because workers can quickly resume their jobs and put their newfound knowledge to action. After introducing an eLearning programme, IBM discovered that participants retained roughly five times as much information without having to spend additional time in training. Companies can cut expenses by reducing the time employees spend in training by teaching more material in a shorter time and allowing them to return to work sooner.

The Research Institute of America discovered that eLearning enhances retention rates by 25 per cent to 60 per

cent, whereas face-to-face training has far lower retention rates (8–10 per cent). This is because eLearning gives students more control over the learning process and allows them to review the material as much as necessary. Compared to learning the same subject in a traditional classroom setting, e-learning often consumes between 40 per cent and 60 per cent less employee time, according to a Brandon-Hall Study. This is because it may be completed whenever the student needs it and asynchronously, preventing interruptions to workflow.

Some students find it difficult to engage in digital learning when they lack reliable internet access and/or technology. According to OECD data, only 34 per cent of students in Indonesia have access to a computer for schooling, compared to 95 per cent of students in Switzerland, Norway, and Austria (http://www.oecd.org/pisa/). In the US, there is a noticeable difference between those from rich and poor families: although almost all 15-year-olds from a privileged family reported having a computer to work on, only around 25 per cent of those from underprivileged backgrounds did.

Only 23.8 per cent of Indian families, as reported in the Key Indicators of Household Social Consumption on Education in India report based on the 2017–18 National Sample Survey, have access to the internet (NSSO, 2018). Furthermore, only 4.4 per cent of rural homes have computers, compared to 23.4 per cent of urban households. Only 33 per cent of women have internet connectivity, according to IAMAI's (Internet and Mobile Association of India) 2019 India Internet report Bolliger, D. U., & Halupa, C. (2018). This ratio is even more alarming when one realises that 67 per cent of men in the same nation have internet access. in rural areas, only 28 per cent of women and 72 per cent of men have access to the internet, respectively.

(Joshi, 2017) provides evidence that student performance as measured by grade is independent of the mode of instruction by comparing student performance measures and assessments of learning experience from online and traditional sections of a required Quantitative methods & techniques course taught by the same instructor. In quantitative techniques classes more so than in other subject areas, persistence in an online environment could be difficult. Online classes may also see a decrease in participation aggression and a change in the type and volume of engagement.

In this light, it is relevant to look at how beneficiaries in the Indian setting view online education. Reviews of the experience with online education shed information on the system's strengths and weaknesses. However, further study is necessary for this innovative field of teaching. This study describes the models and issues of online education provided by a Central University in India in the context of its student body.

Research Questions

1. What is the role of online education in the aftermath of Covid-19?
2. What are Socio-economic features of online learners?
3. What is the online education endeavor in India?
4. What are Learners' Perceptions of Problems of Online Classes?
5. What is the experience of learners about online education?

Objectives of the Study

The general objective of the study is to examine the trend and experience of online education in the country. The specific objectives of the paper are:

1. To understand the role of online education in the aftermath of Covid-19.

2. To review the online education endeavor in India, and

3. To analyse the experience of learners with online education

Methodology

The study has used both primary and secondary data. Primary data were collected from a randomly selected 100 Post Graduates currently undergoing education through online mode. The students belonged to the School of Social Science and Policy of the Central University of South Bihar[1]. The survey was conducted in April-May 2021 using a structured questionnaire. Secondary data were collected from various published and unpublished sources.

Empirical Experience

We have conducted a quick survey among the postgraduate students who were undergoing online learning during the COVID-19 period at the Central University of South Bihar. The following paragraphs portray the information collected from them.

Socio-economic features of the online learners

In any social science study, the demographic and other social features are to be understood to carry out any serious research. So, we have endeavored to do that exercise first. The socio-economic features of the sample students are given in Table 1.

Table-1: Socio-Economic Characteristics of the Sample Population

Sl.No.	Characteristics		Number	Percentage
1	Gender	Male	16	16.0
		Female	84	84.0
2	Residential Status	Rural	54	54.0
		Semi-urban	24	24.0
		Urban	22	22.0
3	Caste	Forward	59	59.0
		Backward	35	35.0
		SC/ST	6	6.0
4	Marital Status	Married	4	4.0
		Unmarried	96	96.0
5	Monthly Income (Rs.)	Below 10000	48	48.00
		10000-20000	26	26.00
		20000-3000	19	19.00
		Above 30000	7	7.00

Source: Sample Survey

The gender-based distribution of the sample reveals that 84 per cent are females. On the basis of residential status, 78 per cent of the sample beneficiaries are from rural and semi-urban areas. Caste-wise, 59 per cent are from the forward community, 35 per cent are from backward castes and only 6 per cent of the sample is from SC/ST. According to marital status, 96 per cent are unmarried. The financial status of the sample students reveals that 48 per cent of them have a monthly income of less than Rs.10,000. Similarly, about 26 per cent of students have a monthly income between Rs.10,000 and 20,000. A general conclusion of the discussion is that on average the students who undergo online education belong to all income classes, caste, and gender groups.

Technology and Platforms Used for online learning

Online education requires technological support. So, equipment is a prerequisite for successfully completing the program. An inquiry in this regard has been conducted among the sample learners. The results are provided in Table 2. The main equipment for online learning is desktop computers, laptops, smartphones, tablets, etc. It is seen that 80 per cent of learners use their smartphones for online learning. Around 15 per cent use desktop computers and only 5 per cent have laptop availability. The second important requirement is internet connectivity for accessing classes. The learners can go for broadband connection or major other companies. In the case of Bihar students, it is seen that the majority are using the Jio network followed by Airtel. As 80 per cent of the learners learn through smartphones, a question was asked about the trademark of the phone. It is seen that Realme, Samsung Galaxy, and Oppo are the major brands used by learners. To the question on the data pack used by the learners, it is seen that 60 per cent purchase 1.5. GB daily package and 20 per cent 2 GB daily data package.

Table-2: Platforms Used for online learning

TYPES OF EQUIPMENT USED FOR ONLINE LEARNING			
Desktop Computers	Laptops	Smartphone	Tablets
15.0	5.0	80.0	0.0
INTERNET NETWORKS USED FOR ACCESSING CLASSES			
Airtel	Jio	Vodafone	BSNL
20.0	78.0	1.0	1.0
BRAND NAMES OF SMARTPHONES USED			
Realm	Samsung Galaxy	Oppo	Others
67.0	17.0	14.0	2.0
DAILY DATA PACK USED			
1 GB	1.5 GB	2 GB	3 GB and above
10.0	60.0	20.0	10.0

Source: Sample Survey

Expenditure for Data packs

To stand the monthly expenditure for using the internet for online education before and after online education, it is revealed that before online education was mandatory, 78 per cent were using a below Rs.149 pack. But its share decreased to 23 per cent after online education started. While the monthly expenditure was between Rs.150-249 pack, earlier only 16 per cent were the users, but after the online education, the share of this group has increased to 56 per cent. In conclusion, the monthly expenditure for using the internet after online education has increased considerably.

Table-3: Monthly expenditure for the Internet before and after online education

(Figures are Percentage users)

Sl.No.	Range of Expenditure (Rs.)	Before	After
1	<149	78.00	23.00
2	150-249	16.00	56.00
3	249-399	6.00	15.00
4	>399	0.00	6.00
	Total	100.00	100.00

Source: Sample Survey

Location of online classes

An inquiry was carried out to understand the accessibility of online education location-wise. It is really interesting to see that 81 per cent of them access online education from their own home. Only 6 per cent uses neighbors' home and 9 per cent relatives' home and 4 per cent use public institutions like the public library, Anganwadi, etc.

Table-4: Location of accessing online classes

Location	Male	Female	Total
At own home	9.00	72.00	81.00
Neighbours' home	3.00	3.00	6.0
Relatives home	4.00	5.00	9.00
Public institutions	0.00	4.00	4.00
Total	16.00	84.00	100.00

Source: Sample Survey

Opinions about online classes

Information has been sought from the learners about the different dimensions of online support. The information in this regard is presented in Table 5. The learners' perception of online classes revealed that 40 per cent perceive it as 'good', while 28 per cent feel it as 'average' and 11 per cent consider it as 'excellent'. But it is serious to see that about 21 per cent perceive that online classes have only 'poor' standards. Regarding the quality of study materials, 35 per cent grade it as 'very good and 29 per cent 'good'. But at the same time,

28 per cent find the study materials as 'average', and 8 per cent see it as 'poor' only. Regarding satisfaction with online classes, 16 per cent are 'highly satisfied, and 42 per cent have stated 'satisfied'. At the same time, it is seen that 31 per cent are 'dissatisfied' and 11 per cent are 'highly dissatisfied' about online classes. Video classes are the most preferred medium for online classes.

Table-5: Opinion about online- study support (Figures are in percentages)

PERCEPTIONS ABOUT ONLINE CLASSES			
Excellent	Good	Average	Poor
11.00	40.00	28.00	21.00
QUALITY OF STUDY MATERIALS			
Very Good	Good	Average	Poor
35.00	29.00	28.00	8.00
SATISFACTION LEVEL OF ONLINE CLASSES			
Highly Satisfied	Satisfied	Dissatisfied	Highly Dissatisfied
16.00	42.00	31.00	11.00
PREFERRED MODE OF ONLINE CLASSES			
Video classes	WhatsApp	Audio Clips	Email
84.00	16.00	6.00	4.00

Source: Sample Survey

Learners' Perceptions of Problems of Online Classes

In accessing online classes, the learners are confronted with various constraints. An inquiry in this regard was conducted among the sample learners and their opinion is presented in Table 6. In the rural areas, the learners were assigned irregular power supply as the first rank followed by low internet bandwidth. The third and fourth ranks assigned by them are low voltage and technical errors. As far as urban learners are concerned technical errors were assigned the first rank followed by long hours of online classes. The third problem they feel is the absence of peer groups.

Table-6: Major problems in proper access to online education (Rank)

Sl.No.	Problem	Rural	Semi-urban	Urban
1	Low Internet bandwidth	III	VIII	VI
2	Irregular power supply	IV	VII	V
3	Voltage instability	V	V	VII
4	Technical errors	VI	IV	I
5	Long hours of online classes	VIII	VI	II
6	Lack of interaction with faculty	I	II	IV
7	Absence of peer group	VII	I	III
8	Data shortage	II	III	VIII

Source: Sample Survey

Discussion

The aforesaid discussion on the impact of online education during the period of Covid-19 Pandemic has brought out some revealing facts. Countries all over the world have come forward to promote education through online platforms. Though it is new to India, Indian universities have picked up fast. Even the governments have come forward with exclusive education channels like the KITE-VICTORS Channel of Kerala. Similar to that many universities have started various types of Learning Management Systems (LMS). The most popular Learning Management System adopted by educational institutions in India is INFLIBNET LMS (ILMS). Similarly, various teachers have used Google Meet, Zoom, WebEx, Jitsi Meet, etc., for delivering online classes.

As our study reveals online education has both positive and negative features. On the positive side, in times of a pandemic like Covid-19, online education is a blessing. As students and teachers cannot move from their homes, but to continue their education, online is the only medium. It will prevent the spread of disease. Secondly, online education provides learners with the classes of the best teachers. Also, they can use different courses offered by SWAYAM and other online learning structures. On the negative side, online education has innumerable issues. First, in developing countries like India with a high digital divide, online education is not at all accessible to large numbers. Secondly, online education requires some basic infrastructure at the disposal of learners like computer/ smartphone, internet connectivity, regular power supply, high bandwidth of internet, etc. These requirements demand that the learners should have enough income to make these facilities available. Moreover, the major problem as revealed by our study is that in rural areas most online learners face low bandwidth connectivity and irregular power supply. Thirdly, in a family with more learners who venture into online learning, some of them have to forgo online classes someday as the family may not have adequate gadgets. Fourthly, the majority of people still adhere to the traditional model of learning and think that employing technology in the classroom is confined to PowerPoint presentations, even though a small number have adapted to the new ways of learning. So, these flipsides of online learning are also seriously looked into. Most of the findings of the present study conform to the findings of the recent studies on online education referred to in the literature review.

Conclusion and suggestions

The present scenario of the pandemic due to Covid-19 has forced society and administration to abruptly close academic institutions, basically non-operating the face-to-face mode of teaching, for more than five months now. The prevailing situations also clearly indicate the non-opening of the face-to-face mode of teaching for at least one more semester i.e., the odd semester of 2020-21. Therefore, in this critical situation, there is a need to transform our teaching, learning, and assessment approaches by using quality online resources, strategies, and digital platforms.

The global footprint of the digital world and e-learning is growing. With the advancement of technology, online education in India has advanced significantly. India is one of the countries where technological development is accelerating exponentially. India boasts the most technologically savvy people with a population of more than 1.3 billion with access to high-speed internet and smartphones. India's way of life has changed as a result of the internet's growth. Many people in India prefer to

learn online due to the abundance of online courses and the ever-growing knowledge available. The advantages of online education are the same: classes can be attended anywhere, not having to commute allows for more time for studying or other responsibilities, and the structure is more accommodating to students with physical disabilities or illnesses.

The survey conducted by the author found that Online classes are no better than regular classes because of the absence of peer groups, lack of interaction with teachers, and inexperience with the online experience. Similarly, the teachers are not well trained in online teaching which results in the supply of long notes which are difficult to read on mobile phones. Some students are unable to access classes due to the sparing of the same phone as other members of the family. The slow speed of networks, irregular power supply, and lack of adequate study infrastructure at home make the continuity of online classes very difficult to use effectively. In a poor country like India, these problems are very serious in the case of marginalized communities and Dalits. So, adequate Information and Communication Technologies (ICTs) should be ensured to make the online classes functional. Similarly, broadband connectivity, subsidized data packs for students, and other measures should be implemented to ensure the participation of weaker sections in the online platform. Otherwise, our inclusion agenda will be questioned and polarization in society will happen.

A few suggestions are here for the practitioners. Before going for any pre-scheduled online class in real-time synchronous mode, faculty members are required to provide e-material to the students through LMS and/or using other asynchronous modes like email, WhatsApp, Google Meet, etc. The e-materials should preferably be in the form of self-instructional handouts/ concept notes/key points/short videos/ small excerpts/preloaded material LMS. The faculty members will avoid giving long readings/full PDF books as e-material. Once the students have gone through the shared e-materials, an online synchronous video interaction session of a maximum of one hour in one go will be advisable by the concerned teacher on a particular topic/or group of topics. - Instead of delivering a lecture like a face-to-face class using video meeting technology, the session should focus to discuss critical highlights of the topic and taking the questions/doubts of the students. If required, video lectures may be recorded and uploaded on the Learning Management System (LMS) beforehand so learners can view them before and after the class. If these types of measures are introduced, there is no doubt that online education will be the new normal in the Indian educational sphere.

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