

IMPACT OF CORONA VIRUS ON HIGHER EDUCATION IN INDIA

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The severe impact of Covid-19 has shaken the world to its core. The worst affected sector by this pandemic is education sector. Corona pandemic had affected almost more than half of the student population all over the world. This worst pandemic had forced the schools and colleges to shift from traditional learning system to advance learning system or e-learning. Students are getting their education by sitting at home.

The paper intends to critically understand the issues related to the impact of the covid-19 pandemic on higher education and the sudden shift of education to the online mode of teaching and learning, opportunities and challenges of online mode of education largely around the issues of digital pedagogy. The paper also aims to explore the issues of social justice in the context of the divide in India. It enlists the post covid-19 trends of HEIs. The paper reveals few suggestions for the continuation of educational activities of HEIs facing the challenges created by covid-19. The paper is based on review based analysis with careful consideration of the quality of the information sources. Relevant literature has been reviewed from reliable sources to make vigorous and effective arguments in the paper.

HIGHER EDUCATION IN VIRTUAL MODE

A virtual learning provides higher education programs through electronic media, typically the internet. The goal of this virtual higher education is to provide access to the part of the population who would not be able to attend a physical campus, for reasons such as covid-19 in which students stay in the home and live too far from a physical campus, there were no way to enter in to campus to attend regular classes.

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The e-learning is not a new phenomenon; the outbreak of covid-19 and country going under lockdown shifted the whole education system into a virtual mode. Learning from home always offers a pleasant place to focus, as students can determine the best environment for themselves. The significance of virtual learning is rising, as the academic year has been radically disrupted due to covid-19. Online teaching brings a lot to the learning table for all students because they are from pre-school or graduate level. Numerous digital tech companies have played a significant role in the change like Google classroom, zoom, Microsoft teams, and blackboard (Adeoye 2020).

According to a latest report, the Indian e-learning market size was USD 247 million, comprising 1 – 6 million users in 2016. It is expected witness an 8x growth to reach US D 1.96 billion and the current user base will grow at 44 percent CAGR to 9.6 million users by 2021.

In fact, India's e-learning market is the second largest after the USA which is forecasted to grow by 15.64 percent and exceed \$48 billion by 2020.



Figure 1 The Internet in India by 2020

Internet Users: 730 Million

New User from Rural India: 75%

New User to consume data in vernacular language: 75%

CAGR Mobile Video Content Growth: 83%

Online Shoppers: 175 Million

eCommerce Transaction via Mobile: 70%

Travel Transactions via Mobile: 50%

According to a report of the Ministry of Human Resource Development of India conducted a survey on higher education and observed that there are 993 universities, 39931 colleges and 10725 stand alone institutions listed on their portal, which contribute to education. These institutions further reflect the students density of India as the total enrolments in higher education every year are nearly 37.4 million, reflecting the expanding horizons of the education industry. The sector was seen catching pace by the passing day until corona virus impacted the country intensely.

Apart from interactive and virtual learning, the universities are teaching much more than just syllabus. They are sensitizing their faculty to tackle the situation wisely. Online support groups along with emotional help by lectures are only strengthening the system. Educating the students simultaneously about their anxiety the current state of chaos, fears and emotions is not only preserving their sanity but also making them aware of how it is only natural for them to be in such distress amidst the crisis. Improving their emotional intelligence, this, coupled with the UGC's guidelines of providing psychological support to students will transform the education system for good.

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, informational are collected from different authentic websites, journals and e-contents relating to impact of Covid-19 on higher educational system in India.

OBJECTIVES

1. Highlight the impact of Covid-19 on higher education sector.
2. Enlighten various emerging approaches of India for higher education.
3. Enlist post Covid-19 trends of HEIs.
4. Reveal few suggestions for the continuation of educational activities of HEIs facing the challenges created by Covid-19.

IMPACT ON HIGHER EDUCATION

The petrifying and the extreme impact of covid-19 has shaken the world in its core. Additional, the higher a pact of the governments across the globe have quickly closed academic establishments making an attempt to comprise the unfold of the covid-19 pandemic. The covid-19 crisis has resulted in India going into an unprecedented nationwide lockdown in the months of March and April 2020. The effect of the pandemic is being felt across all aspects of the economy with multiple agencies such as Moody's expecting GDP Growth to fall to as low as 2.5 percent in this calendar year. The Indian government has responded to this by providing several guidelines including restricting movement of people and social distancing.

University Grants Commission (UGC) and other apex education bodies have also issued covid-19 specific guidelines for Indian higher education institution (HEIs) resulting in ~ 1000 universities and ~ 40,000 colleges temporarily closing, students being asked to go home, and efforts being asked to go home, and efforts being undertaken to move classes online. The measures will have varying degrees of impact on ~ 3.75 crore students enrolled in a ~14 lakh faculty employed by the system. Higher education leaders are also concerned that an

extended lockdown due to the pandemic could have a deeper impact for the sector, as covid-19 has disrupted the current admissions cycle and might have an effect on enrolments, create a cash flow crunch, slowdown research.

This year, close to 1.44 crore students are appearing for their school leaving exams and close to 50 lakh of these students will be looking to enroll in a higher education institution in this academic session.

a) Effect on Enrolments

The University Grants Commission has set a target to increase the Gross Enrolment Ratio (GER) in higher education 30 percent by 2020 from the present 25.4 percent. The number of students enrolled in higher education system has gone up to about 366 crore in 2017-18. The GER rose to 25.4 percent in 2017-18, while the aim is to increase it to 30 percent by 2020. GER is the ratio of students enrolled in the age group of 18-23 years to the population in that age group.

Currently the total enrolment in higher education is estimated to stand at 37.4 million. Below statistics identify the corresponding diversities of hits large students' pool.

Gross Enrolment Ratio (GER)

The GER across Indian HEIs currently stands at 26.3%.

Even while dealing with the consequences of this pandemic on the ongoing education of the current students, HEIs still need to consider the challenges of resources associated with expanding Indian higher education to increase the GER in medium to long run.

Distance Enrolment

Distance enrolment is about 10.62% of the total enrolment.

Majority of the students among the total enrolment have enrolled in non-distance format of education and will therefore be majority impacted by the disruption caused by the closing of physical campuses during the ongoing pandemic. Therefore, continuity education is critical since it will affect most of the existing student base.

Enrolment in the Under Graduate Studies

About 79.8% enrolment is for undergraduate studies. Of this, the split across disciplines is as follows.

- Arts/Humanities/Social Science – 35.9%
- Science – 16.5%
- Engineering and Technology – 13.5%
- Commerce – 14.1%

Less than 0.5% enrolment is for Ph.D. studies.

Based on this we can infer that the majority of the students who are affected in the current crisis are in their undergraduate studies (UG). Studies need to be a critical focus while planning the academic continuity of the Indian HEI context.

The GER in higher education for India is marginally low at 26.3 as compared to global average (29.0) and substantially lower as compared to the developed countries, USA (88.2), Germany (70.3) UK (60.0). It is low even in comparison with other emerging economies such as Brazil (51.3) and China (49.1).

Troubling economic and other stressors may affect students in the fall as they return to college. One probable reason is inequities in the impact of COVID on household expenses and responsibilities. Now, covid-19 is forcing parents to become tech-savvy in a short span of time to help their children learn. This may become the new normal with far reaching implications, for students from lower economic groups. Its effects need to be studied further so that the experience becomes valuable in overhauling the Indian higher education system. Unlike the west, we have never developed a backup online education dissemination plan.

According to the 2018-19 All India Survey on Higher Education (AISHE), there are 993 universities, 39,931 colleges and 10,725 independent institutions nationwide.

Unfortunately, higher education institutions are concentrated mostly in urban areas, and that is the reason for the poor Gross Enrolment Ratio (GER). However, the GER has increased during the last five years, from 24.3 in 2014-15 to 26.3 in 2018-19. An effective online education system can mitigate this challenge, bring more objectivity and transparency and GER can reach beyond 80%. There are challenges as well. Many students today travel abroad to get a good education, primarily due to the lack of globally ranked education institutions in India. Harvard University has around 21.1% international students in its entire student body in both undergraduate and post graduate programmes.

At Oxford this number is 43% with students from more than 150 countries. Almost 30% of the student body of the National University of Singapore, included among the league of Premier Asian Universities, comprises International Students. In contrast, the rate of enrolment of international students in Indian institutions is considerably less. At the Indian Institute of Science, Bengaluru, the member is only one percent; Jamia Hamdard recently recommended as an Institution of Eminence: (IOC) by the Ministry of Human Resources Development has about 7%.

According to the 2018-19 All Indian Survey on Higher Education (AISHE), a total of 47,427 international students are enrolled in different Indian universities. The majority belong to India's neighbouring countries. covid-19 will definitely limit their international travel and the proportion of foreign students enrolled in Indian universities will also reduce.

The above description is an argument towards the Indian education system waiting for a revamp. If India is to be featured on a larger scale on the global education platforms, this is the time. Significant focus needs to be laid on technology and innovation with improvisations in the IT infrastructure.

Such a crisis can be turned into an opportunity to align with upcoming prospects. This is the perfect occasion to understand possible threats, spot loopholes and work on capacity buildings. The finance minister has announced that the top 100 universities in the country will be permitted to start online courses by May 30, 2020 which is a welcome step. This will help in increasing the GER substantially with increased enrolment from tier 2 and tier 3 cities. We have never given online or distance mode of education as much weightage as the regular mode. This is the right time to change this mindset.

b) Creating a cash flow crunch

The corona virus pandemic has upended business as usual for colleges and universities. Not only have campuses shifted to remote learning almost overnight, but institutions are also suddenly grappling with grave financial challenges as the domestic and global economies may now face what looks to be a major recession.

The most immediate challenge for most institutions involves cash flow. As institutions lose packing fees, dining outlet sales, and auxiliary revenues, they also face unexpected expenses, including partial refunds on fees, room and board, and the need to scale virtual engagement modalities. To ensure continuity in the short term, some institutions will likely need to rapidly restructure their operations.

Further, compounding the cash flow challenge is the uncertainty surrounding fall enrolment. If students are unable to return to campus this fall, colleges and universities could face unanticipated and historic attrition from students who are either unsatisfied with their distance learning experience or whose ability to afford tuition in the current economic climate will be inhibited; others may simply decide to stay closer to home in uncertain times. Even well resource institutions will find it hard to forecast enrollment for the 2020-21 academic year.

For institutions that were already financially stressed or operating from a deficit position prior to the pandemic, short term unanticipated expenses and longer term enrollment declines will likely threaten their solvency, potentially forcing numerous closures and mergers.

c) Slowdown Research

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.

Higher education sectors are also disrupted which again pave an important pave an impact on the country's economic future. Various students from India took admissions in abroad like the US, UK, Australia, China etc. And these countries are badly affected due to

covid-19. May be there is a possibility that students will not take admissions there in future and if the situation persists, in the long run then there will be a decline in the demand for international higher education also.

Another major concern is employment. Students those have completed their graduation may have fear in their minds of withdrawal of job offers from the corporate sector due to the current situation. The centre for monitoring Indian Economy's estimates unemployment shortage from 8.4% in mid March to 23% in early April. In the urban unemployment rate is 30.9%.

ONLINE EDUCATION MARKET: GOVERNMENT INITIATIVES TOWARD DIGITALIZATION IN EDUCATION

Digital initiatives taken by the Government of India is one of the factors fueling the growth of online education. Initiatives such as ePathshala, which hosts educational web resources for teachers, students, parents, researchers and educators, have helped the rural population to get familiarized with online education. For higher education segments, the Indian government has come up with virtual labs and virtual classes to provide remote access to labs in various disciplines of science and engineering with participating institutes such as Its, IITs, and NITs. The virtual labs cater to students at the undergraduate and post graduate levels as well as to research scholars.

Such government initiatives have created a surge in demand for online education from users and institutions in rural and urban areas.

The online education market in India will grow by \$ 14.33 by during 2020-2024, according to @ Technavio. Education industries are adopting the technologies available such as digital video conferencing platforms like Zoom, Microsoft Platform, and Webes Blackboard and Google Classroom (Larry 2020).

Downloads in India

| Productivity apps | Educational apps. |
|--------------------------------|--|
| Microsoft Teams | Biju's |
| 86.6% increase Week-on-week | Unacademy |
| Zoom : 84.3% | Connects Q & A Homework Help: 392,000 Downloads since Feb. |

GOVERNMENT INITIATIVES TOWARDS DIGITALIZATION IN EDUCATION

Many challenges are created by covid-19. The HEIs have responded positively and adopted various strategies to face the crisis during the pandemic. The government of India has also taken number of preventive measures to prevent spread of pandemic covid-19. The MHRD and UGC have made several arrangements by launching of many virtual platforms with online depositories, eBooks and other online teaching/learning materials, educational channels through direct to home TV, Radios for students to continue their learning. During lockdown, students are using popular social media tools like WhatsApp, Zoom, Google Meet, Telegram, Youtube live, Facebook live etc, for online teaching, learning system. ICT initiative of MHRD (e-Broucher – <https://Mhrd.gov.in/ict-initiatives>) is also a unique platform which combines all digital resources for online education. UGC has released guidelines on examination and academic calendar in view of covid-19 pandemic and subsequent lockdown on 29th April, 2020 (UGC Notice). All terminal examinations have been postponed and shifted to July 2020 and suggested commencement of classes from August 2020. UGC has also prepared complete calendar for the academic session 2020-2021, with new dates keeping in view of the lockdown. Some of the digital initiatives of UGC & MHRD for higher education during covid-19 are pointed as below.

- **3-Gyankosh:** (<http://egyankosh.ac.in>) 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, will all rights reserved by Indira Gandhi National Open University. (IGNOU).

- **Gyandharshan:** (<http://www.ignouonline.ac.in/gyandarshan>) 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.
- **Gyandhara:** (<http://ignaionline.ac.in/Gyandhara>) 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, e-mail (gyandhara@ignou.ac.in) and through chat mode.
- **Swayam** provides massive open online courses (MOOCs) with 140 universities approved credit transfer feature. Swamyam Prabha provides high quality educational programs through 32 DTH channels transmitting educational contents. E-PG Pathshala (<https://epgp.inflibnet.ac.in/>) is for post graduate students. Post graduate student can access this platform for e-books, online courses and study materials.
- **E-Adhyayan (e-books)** is a platform that provides 700 + 3-books for the Post Graduate courses. All the e-books are derived from e-PG Pathshala courses. It also facilitates play list of video content.
- **E-Pathya** (offline Access) is one of the verticals of e-PG Pathshala which is software driven course/content package that facilitates students pursuing higher education (PG level) in distance learning as well as campus learning mode. It also facilitates offline access.
- **National Digital Library of India (NDLI):** (<https://ndl.iitkgp.ac.in/>) 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, able users and all lifelong learners. It is being developed at Indian Institute of Technology Kharagpur. It is designed to help students to prepare for entrance and competitive examinations, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform interlinked exploration from multiple sources. It is a virtual repository of learning resources with a single window search facility. It is also available to access through mobile apps.
- **E-Yantra** (<https://www.e-yantra.org/>) provides hands on experience on embedded systems. It has about 380 lab and made 2300 + colleges benefited.

- **Fossee** (<https://fossee.in/>) 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.
- **Virtual Labs:** (<http://www.vlab.in/>) 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 under graduate level, post graduate level as well as to research scholars.
- **E-Shodhsinghu** (<https://ess.inflibnet.ac.in/>) is a collection of e-journals, e-journal archives and e-books and long term access basis. It has 10,000 + e-journals, 31,35,000 + eBooks. It provides access to qualitative electronic resources including full text, bibliographic and factual databases to academic institutions at a lower rate of subscription.
- **Shodhganga** (<https://Shodhganga.inflibnet.ac.in/>) is a platform for research students to deposit their Ph.D. thesis and make it available to the entire scholarly community in open access. The repository has the ability to capture, index, store, disseminate and preserve electronic thesis and dissertations submitted by the researchers.
- **VIDWAN:** (<https://vidwan.inflibnet.ac.in/>) is a premier database and national research network which has profiles of scientists/researchers and other faculty members working at leading academic institutions and other research and development organizations in India.
- **National Educational Alliance for Technology:** (NEAT) (<https://neat.aicte-India.org/>) 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 produces in educational pedagogy on a single platform for the convenience of learners.
- **Sakshat** (<https://sakshat.ac.in/>) is one stop educational portal for addressing all the educational and learning related needs of students, scholars, teachers and lifelong learners. The portal provides the latest news, press releases, achievements of related to Ministry of HRD. So one can visit SAKSHAT to know the world of online learning.

POST COVID-19 TRENDS OF HIGHER EDUCATION

History has testimonies of calamities like wars, genocides, and natural disaster that was responsible for destruction to humankind. There occurrences have altered the course of history, like the Bubonic plague that is believed to have paved the way for the rise of the Renaissance in Europe. Covid-19 and its aftermath will alter the lives of the common man and will also change the world order in many ways. This is seen as a historical divide, BC (before corona) and AC (after corona).

- ❖ The format of e-learning as well as online delivery of education virtual classroom need to be blended with on-campus class room to the education system more vibrant and students centric.
- ❖ Educators need to think out of the box to evolve a new model of testing and grading for the online mode of the education system. It is a fact that an online model will shift the on us of learning onto learners; assessment will have to be conducted in a secure and trusted mode that requires strict invigilation.
- ❖ The centre for monitoring Indian economy's estimates on employment shot up from 8.4% in mid March to 23% in early April and the urban unemployment rate to 30.9%. There is a strong need to evolve a comprehensive strategy for the higher education sector to handle the current demand of the students for higher studies in india. Further, immediate measures are required to mitigate the effects of the pandemic on job offers, internship programs, and research projects. In this critical time, a well rounded, resilient and effective educational practice is needed for the capacity building of human resources with strong technical skills and strong research potential. This, in turn, will drive the employability, productivity, health and well being of graduate/undergraduate students in the decades to come and ensure the overall progress of India.
- ❖ The new, total technology medicated education can be termed as education 2.0, after the first three waves of education systems that evolved over 2000 years of civilization the Gurukula System (one master to a few pupils), the traditional university system (one to many learners) and distance learning (one to very many learners across the spectrum).

The good news is the mainstream institutions are willing to move to online, and there's a possibility of habits changing to enable education 4.0.

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- ❖ The Covid-19 pandemic has put every international student's study abroad plan on hold. However, despite the risks involved, over 91 percent of Indian students expressed a strong interest in studying abroad as soon as they were allowed to do so. The only questions that are left to ask are, when will the travel can be lifted and which study destination should they consider knowing the current economic/political impact?

According to UNESCO, there were 5 million international students across the globe in 2018, and 750,000 of those happened to be from India. However, Covid-19 has forced students across India to rethink their decision to study abroad and even where they do so.

iSchool connect surveys shows that a whopping 91 percent of Indian students are concerned about their future, post Covid-19. However, at iSchool connect, observed that it had hardly reduced international students' interests to study abroad, states Ashish Fernando, CEO and founder of iSchool connect Inc.

PROBLEMS FACED BY INDIAN EDUCATION SYSTEM IN LOCKDOWN

Internet Connectivity

In lockdown bringing the education system online was the 1st step took by many universities/colleges/schools but internet connectivity is one of the major problems faced by education bodies and students. According to 2017-18 National Sample Survey report on education, only 24% of Indian households have an internet facility. While 66% of India's population lives in villages, only a little over 15% of rural households have access to internet services. For urban households, the proportion is 42%.

According to Telecom Economic Times, India report by the Survey with over 7,600 respondents found that to use the internet at home, 72.60% of the respondents use mobile hotspot, 15% PC usage broadband, 9.68% PC use wifi dongle and 1.85% pc have poor to no internet connectivity.

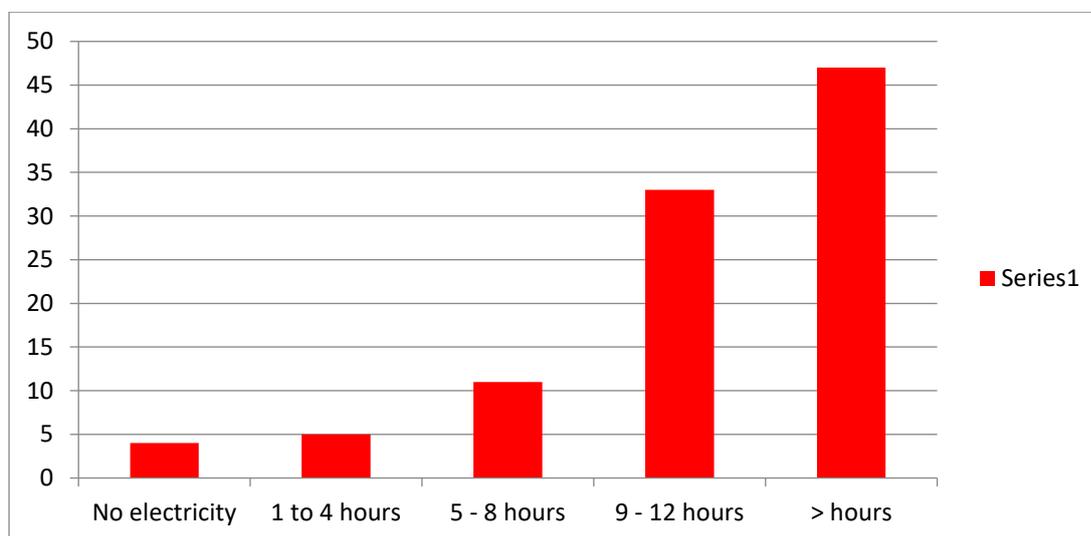
Computer / Laptop/ Smart Phones

While a computer would be preferable for online classes, a smart phone could also serve the purpose. However, the phone could be convenient for apps, but not for completing lengthy assignments or research. While 77% of Indians own a smart phone (2019), only 11% of households possess any type of computer, which could include desktop computers, laptops, notebooks, net books, palmtops or tablets.

Power Supply

Less than 50% of households have access to electricity for more than 12 hours.

Figure 2 Shared of households surveyed



Source: Ministry of Rural Development, Andyodaya Survey.

Data from the Mission Andyodaya, a nation wide survey of villages conducted by the Ministry of Rural Development, also points to those differences. Around 20% of India's households received but shows of electricity and only 47% received quite 12 hours.

SUGGESTIONS

1. The UGC should allocate specific funding to provide financial help to students in need and timely reimbursement of funds.
2. Inclusive learning solutions, especially for the most vulnerable and marginalized need to be developed.
3. Strategies are required to prepare the higher education sector for the evolving demand supply trends across the globe particularly those related to the global mobility of students and faculty and improving the quality of and demand for higher studies in India. Further, immediate measures are required to mitigate the effects of the pandemic on job offers, internship programmes, and research projects.
4. Higher education in India needs to be more international, more flexible (curriculum), should be innovative and should be open for more collaboration.
5. Proper counseling services provided by the university in order to maintain the mental health of student in this pandemic which support our findings that for sound mental health and well being of students, counseling services is needed.
6. The major challenge while teaching online was the unstable network connection. If the videos and audios of the students were kept off, the connection remains more stable, but that mode of teaching seems to teach to a blank wall. So the governments must ensure the availability of reliable communication in urband and rural areas.

CONCLUSION

Post Covid-19 is an opportunity to transform the higher education system. Institutes/universities should utilize this opportunity to transform itself. This is the right time to strengthen online education to be prepared for any future pandemic situations. The entire education system has to undergo changes with the active involvement of faculty. The tremendous use of technology in teaching amidst crisis will lead to a new era in the education sector where in the best of faculty will be available from across the globe to students. Quality of faculty, quality of IT infrastructure and familiarization of the faculty with digital teaching technologies to deliver education are important parameters foreseen in the future. This is no

doubt that the crisis has accelerated the adoption of technologies to deliver education and will help strengthen the country's digital learning infrastructure in the long run.

With the Covid-19 putting a halt on classroom learning has paved a new way to retain normally for students and teachers. It is heartening to see that not only urban educational institutes, but the state run schools in rural areas have also gone digital and resorted to online classes to avert academic losses. Although, not every village and town in India is infrastructurally developed to sustain online education, it is motivating to see many rural schools and colleges adapting completely to e-learning during these times. Also, many affordable and low-bandwidth e-learning solutions are coming up with multi-lingual platform to facilitate easy and convenient online learning classes in rural India.

In the last few years, we have observed substantial changes in rural India regarding education, infrastructure and other facilities. With the continuous support from government and innovations coming up in digital technology, online learning will be made affordable and accessible.

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