

Impact of COVID-19 on Higher Education in India: Enquiry on Effective Teaching and Learning- Paradigm Shift from Classrooms to Computers.

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Abstract

The deadly outbreak of corona virus (COVID-19) presents a host of challenges for different sectors of society .Corona has not spared any sections societies, nations, rich or poor. To which, Nations responded in an ambivalent ways. They leisurely understood the transformational challenges it has thrown to the Governments and society, and to what extent we are equipped to counter them. This paper would focus on implication on Teaching and Learning, especially the challenges the higher education institutions (HEI) faced during the pandemic period. The congregate settings of Indian universities are considered vulnerable to infection. At this juncture the government are left with no option than to declare lockdown entire nation and so-forth the HEI. With implausible virus (no treatment available), maintaining social distance in a populous country is out of thought. To overcome virus challenges, Indian universities with the Guidelines from Government of India (GoI) intensified online teaching using available online platforms. Learning through massive open online courses (MOOCs), web based live streaming sessions and apps, alongside assignments and examinations. This paper enquires the quality and quantity of paradigm shift in HEI.

Key words: Higher Education, Teaching, Learning, MOOCs, Web based live streaming.

Introduction

India has one of the largest higher education systems in the world consisting of over 1,352 universities according to UGC as on 2021. During the academic session 2018-19, the total students enrolment in all courses and levels in regular and distance education programmes was 373.99 lakhs including 181.90 lakhs women students, constituting 48.64%. With about 38 million student population 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 [1].

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In developing countries like India, where online education was not very common, the pandemic transformed the conventional chalk-talk teaching model to one driven by technology with the single stroke of a pen. The COVID-19 crisis forced a move towards online teaching and learning, thereby creating space for more flexible learning possibilities, exploring blended learning, and mixing synchronous learning with asynchronous learning. The pandemic has led to the capacity building of staff and faculty, compelling them to learn and test new tools and systems for online teaching and learning. This obviously will lead to an increase in innovation in teaching pedagogies, as well as delivery modalities. The pandemic has worked as a wake-up call and demonstrated the importance of technology in teaching, learning, and research. 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 Artificial Intelligence-enabled processes, the establishment of The Office of Digital Learning & Online Education, etc.

Digital initiatives increased in the country 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. The National Mission on Education through Information and Communication Technology (ICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in providing high quality personalized and interactive knowledge modules over the internet for all the learners in Higher Education Institutions in any time anywhere mode [2].

COVID-19 Impact on Higher Education Sector

The COVID-19, pandemic has forced the Indian education system to shift dramatically to virtual and blended modes of teaching and learning using various Information and Communication Technology (ICT) tools and has radically accelerated the pace and urgency of various ongoing technology-driven educational initiatives. Students and teachers are now relying on various online platforms to adopt new pedagogical methods to learn and teach. Educational communities across the world are coming together and figuring out various ways to support students and teachers with innovative platforms and strategies. The crisis has helped in the stimulation paradigm shift in the education mode of teaching and learning. India has also seen various ICT led initiatives to reach out to everyone in such difficult times, including the most marginalized populations who may lack access to adequate healthcare, and about education, lack access to devices and connectivity.

The shift from face-to-face lectures to online classes is the only possible solution. Indeed, academic institutions would not be able to transform all of their college curricula into an online resource overnight. Distance, scale, and personalized teaching and learning are the

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three biggest challenges for online teaching [3]. There has been a monumental rise in adopting widespread use of online tools like Zoom, Google Classroom, Blackboard, mobile applications to facilitate communication try to reach every learner in utilizing existing various national and state-level platforms like DIKSHA, National Repository of Open Educational Resources (NROER) [4].

It is for the first for India to experiment with the education system and make a paradigm shift to the virtual learning, blending classrooms with online learning. Transformation of education with technology and forming a collaborative strategy to tread ahead while providing online lectures will also enable the students to learn creatively. Boosting retention of the syllabus by using innovative technology, the universities are also engaging students to learn by choice and not just by their physical presence in a classroom. Moreover, providing AI-enabled learning by universities as they offer diverse courses in association with other collaborations is only making the country envision a new tomorrow based on educational reforms. Apart from interactive and virtual learning, the universities are teaching much more than just syllabus. They are sensitising their faculty to tackle the situation wisely.

Online support groups along with emotional help by lecturers 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 University Grants Commission's (UGC) guidelines of providing psychological support to students will transform the education system for good [5].

Developing effective responses to the pandemic will place even greater demands on government education budgets. Public funds will be needed to protect students, to minimize the learning losses associated with university closure. Development partners can also play an important role in supporting governments' pandemic responses and targeting resources to the most vulnerable. In the short term, development partners can provide emergency funding to support countries in their response to the pandemic. Minimizing learning losses due to COVID-19 and tackling the learning crisis will require better monitoring. The impact of the pandemic on public spending plans for education will vary according to the context and the policy choices made in the country. As the crisis unfolds and its impact becomes clearer, it will be important to track its effect on national spending plans.

The ongoing crisis further highlights the need to address these information gaps. Better data can also help countries to adjust and to develop more sustainable medium-term financing strategies for the sector. The impact of COVID-19 will throw the financing of future development plans for the sector off course. As countries move out of the first phase of crisis response and pressures on fiscal space ease, it will be important for governments to adjust their plans to ensure that national education goals can be sustainably financed. Credible financing strategies will be needed that identify funding needs, that include a medium-term outlook for sector financing, and that highlight actions to strengthen financial management. This will improve sector planning and facilitate more effective public financial management [6].

Online Teaching Learning Resources

The content of online learning is based more on materials readings, videos, exercises, than on direct personal interactions discussions, presentations, etc. On the one hand, this offers the opportunity to integrate more media video, images, audio, etc., the teachers should produce or find good materials and be able to leverage on them; on the other hand, it requires students to be more autonomous in reading meaning 'reading' all media. As for guidance, online learning relies on mediated communications, either synchronous or asynchronous [7].

The Ministry of Education, and its associated institutions are promoting digital education through online educational platforms and through digital mediums to contain the spread of COVID 19, immediate action was taken to intensify digital learning with equity so that students across the country could continue their learning even during the lockdown. The Ministry has, over the last few years, developed a rich variety of online resources that are available on a variety of platforms. While students and teachers can access these through their laptops, desktops and mobile phones, these resources are being reached to learners in remote areas through Television and Radio. The following are some of the higher education online resources developed by the Government.

1. NATIONAL REPOSITORY OF OPEN EDUCATIONAL RESOURCES (NROER): A portal equipped with best quality informational content on diverse topics in multiple languages a total of 14527 files including 401 collections, 2779 documents, 1345 interactive, 1664 audios, 2586 images and 6153 videos on different languages.

2. SWAYAM: This is the national online education platform hosting 1900 courses covering both school (class IX to XII) And Higher Education (both UG and PG) in all subjects including engineering, humanities and social sciences, law and management courses. A unique feature of SWAYAM is that, it is integrated with the conventional education . The courses are interactive and prepared by the best teachers in the country, and are available free of cost to any learner in the country. Credit transfers are possible for SWAYAM courses (max 20%). There has been a three time increase in access to the platform during the lock down period.

3. SWAYAM PRABHA -. Has 32 DTH TV channels transmitting educational contents on 24/7 basis. These channels are available for viewing all across the country using DD free Dish set top box and antenna. Now even the private DTH operators are telecasting these courses through their channels. The channels cover both school education (class IX to XII) And Higher Education in a wide range of subjects like engineering, vocational courses, teacher training, performing arts, social sciences and humanities subjects, law, medicine, agriculture and many more.

4. NATIONAL DIGITAL LIBRARY: This 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 life-long learners, all disciplines, all popular form of access devices and differently-abled learners [8].

Classroom to Computer Teaching

The coronavirus pandemic has created changes in the teaching-learning process in higher education institutions and has influenced the interaction between teachers and students. As a result, universities were constrained to carrying out their activity with students exclusively online while in general, internet-based learning is considered an option, an alternative to traditional learning, during the Coronavirus pandemic it became an essential element for maintaining the activity in universities.

The National Education Policy (NEP) 2020, has given a rare glimpse in what can be achieved through the transformation of education. The new NEP clearly states that it is time to take on a policy that is undoubtedly student centric. The time has indeed come to recognize the fact that the student is the main stakeholder and that efforts must be taken to make the system respond to their dreams and aspirations. In this line of thinking the new policy gives the acceptability of many modes of learning including that of face to face learning, online learning and distance or virtual mode. It also promotes use of vocational courses, multi-disciplinary courses and multi-modal approaches there by focussing on Blended teaching-learning. In the realm of educational the elbow room for many things, especially keeping in mind such areas as flexibility and quality; interests and needs, student centricity; the real worlds of study and taking up examinations when ready. In other words teachers and timings, framing their own courses, designing degrees, studying through any mode and with learning and examinations literally on demand and at will.

Post-COVID (2020 onwards), The India e-learning market is performing well with the support of GoI. It has developed the required technology and developed infrastructure. Many e-learning schemes have been introduced to address the digital divide gap. GoI has announced programs, such as DIKSHA and SHAGUN for under- and postgraduate students, which has gaining popularity across the country. Indian universities are encouraged to come forward to with collaborate with foreign universities to make the e-learning methods and technology more indigenous.

Figure.1, Blended mode of teaching learning: Concept note, ugc.ac.in



The approaches intended to be used in Blended Learning Model.

- (i) Face-to-face Video Lectures, shared to the students for the entire course (Pen Drive / CD) e-textbook experience but not dependent on broadband Internet Based Learning (IBL)
- (ii) Internet based projects (search & learn) to promote self-learning

- (iii) Project Based Learning, integrating multiple peer group for the project, students to collaboratively generate ideas
- (iv) TAB based remote learning, remote examination & evaluation, touch screens and digital pens appeal to tactile learners, portable learning
- (v) Satellite based TV Channel mass learning, adult education, farmer education (different timings)
- (vi) Online Assessments, Quiz, Assignments, Test, Examinations at regular intervals to measure learning outcome [9].

The technologies used to impart those methods via, Online e-learning, Learning Management Systems, Mobile e- learning, Rapid e-learning, Virtual Classrooms, etc.

In order to promote online learning it is decided by University Grants Commission (UGC) to make regulatory changes like enhancing the permissible SWAYAM Online component in conventional universities and Online Distance Learning (ODL) programmes to teach 40%, syllabus of each course other than SWAYAM course, remaining 60% of syllabus of course can be taught off-line. Liberalise open, distance and online education regulatory framework so as to empower/enable 25% of the universities to offer ODL and Online education, from next academic session if complying with quality provisions, integrating ODL and Online Regulations focusing on effective promotion, monitoring and regulation.

Statistics reveal that, the online education market projected to reach two million U.S. dollars by 2021, an increase from 250 Million Dollars from 2016. E-learning came as flexible option to students to access world class learning material with fraction of cost what Indian private institutions charge. A report by KPMG and Google highlights that by 2021 the Indian online education industry is likely to witness a 6X growth. The adoption of e-learning technologies is supposed to expand from 1.6 million users in 2016 to 9.6 million users in 2021. Global trend suggest an unrivalled alternative to traditional learning with access plenty of resources would sharpen students skills and make competent for global market. Governments should focus more on this opportunity which came as bee in disguise and explore maximum to increase the quality of traditional education and make suitable provisions to capture the e-learning market.

Enquiry into Online teaching and learning

As discussed in very beginning of this paper, as per the government records, the academic session 2018-19, the total students enrolment in regular and distance education programmes was 373.99 lakhs including 181.90 lakhs women students, constituting 48.64%. With about 38 million student population 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. The common challenges HEI faced initially are not different from any developing countries. Urban-rural divide over social-economic sense, Private-public institutions over infrastructural and quality sense, accessibility to gadgets, internet connection, quick adoptability to virtual teaching and learning methods (for both teacher and student), required skills for e-learning, Gender bias, no ready material available over internet, broadcasting and delivery challenges and many more.

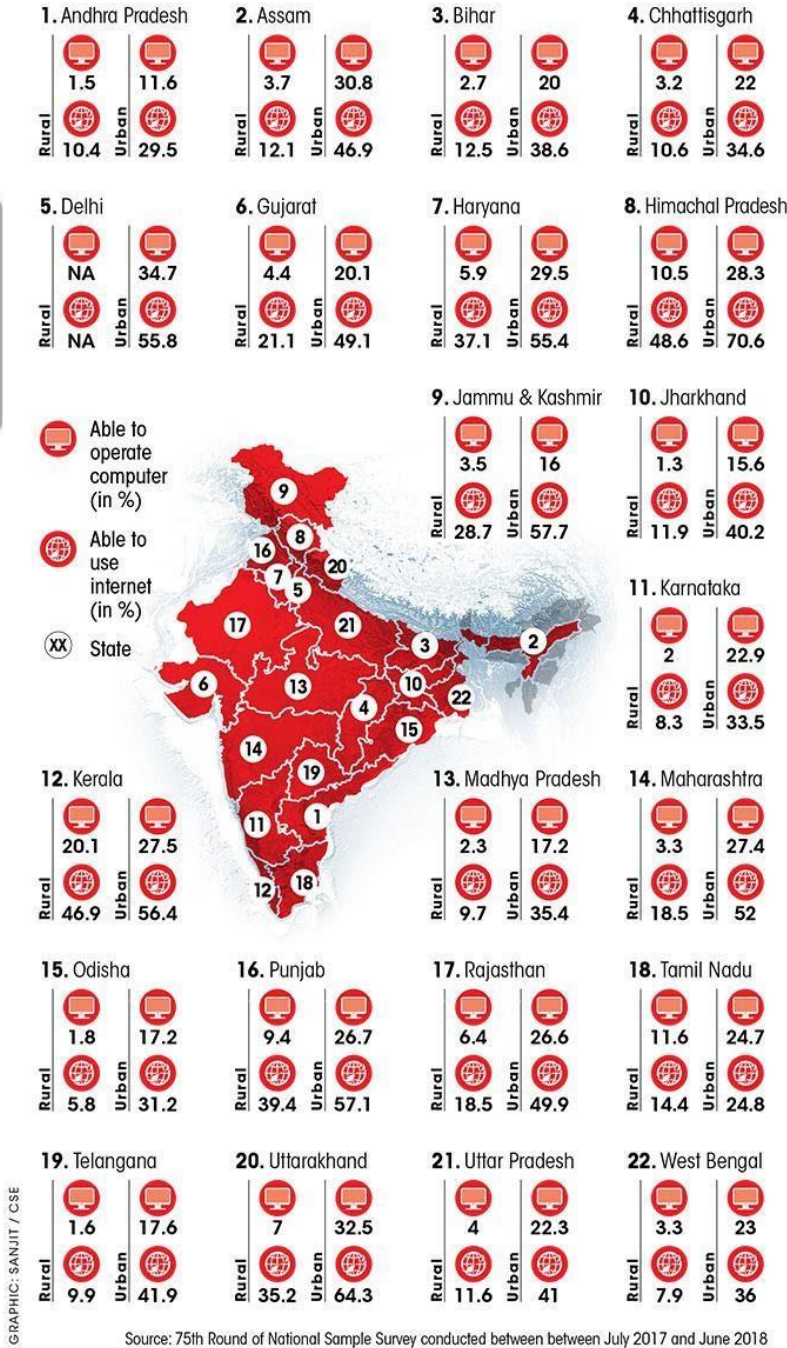
The below given figure gives a significant information to the regional disparities, differences among states in their ability to access computer and access to internet facility. With the given

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figures the poor performing states are leaving huge gap among the privileged and under privileged as well as urban and rural. The governments both central and state, serious efforts and involvement is required to bridge the gap without further expanding. Due to covid-19 the situation has much deplored the conditions of low socio economic stratum (SES). More than 400 million workers who work in unorganized sector are further pushed deeper into poverty. Un-employability in India has risen from 8.4 percentage to 23.4 percentage according to International labour organization. COVID-19 has more widely affected the health and nutrition indices. Due to the uncertainty surrounding the COVID-19, during the second wave, health and wealth exploitation has been at its peak. According to the world economic forum there has been significant fall in remittance flow (migrant Indian worker population send to home country) to home country (India). With people started working for low wages. The point of affordability, to buy computer is an out of question and facilitating internet in rural and urban areas.

Regional disparity

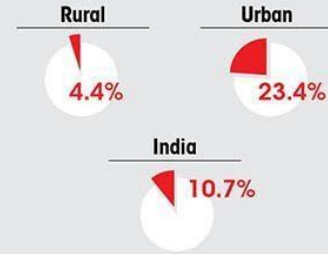
There is significant difference among states in their ability to access internet and operate computers



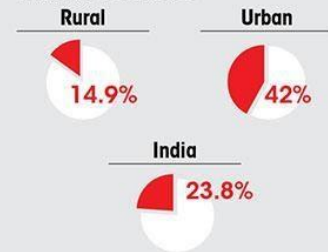
Network strength

Urban and rural India greatly differ in access to internet and computers

HOUSEHOLDS THAT OWN COMPUTER



HOUSEHOLDS WITH INTERNET FACILITY



PERSONS OF AGE 5 YEARS AND ABOVE WHO:

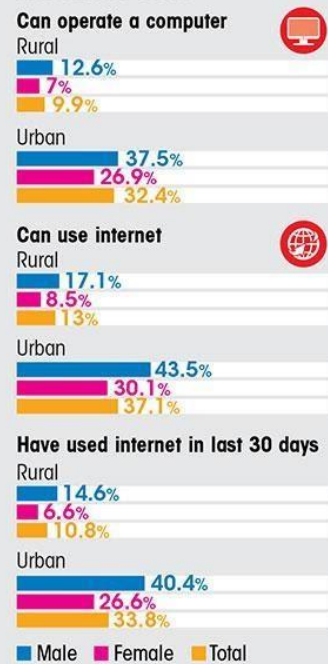



Figure.2, Regional disparities: Access to internet and computers in India.

According to a very recent study published by TeamLeaseEdtech, who surveyed the e-learning gaps in higher education institutions in 75 Indian universities (Public and Private) with the onset of pandemic, feel that 85% of Indian students have learnt half of what they are supposed to learn. And the 88% of the universities believe that it could take three years to

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bridge the gap in learning. Survey found out five factors for this gap: negligent learning content available online, pre-existing socio-economical and infrastructural deficiencies, lockdown, sluggish governance in decision making and implementation of the same and the most important is Digital divide. From the below figure, it has revealed the comparative analysis of major countries.

THE WORRYING FACTOR

Country 	No. of Universities	No. of students (in million)	Institution closure (in weeks)	Estimated learning loss (in %)
France	631	3	12	9.84
Germany	464	3	38	25
Italy	240	2	38	31.16
UK	282	2	27	20-31
US	3,254	19	58	13.8
India	988	35	60	40-60

Source: TeamLease EdTech

Figure.3, comparative analysis of e-learning gaps by TeamLease EdTech

The ministry of education which is responsible for higher education sector in India, both in terms of policy and planning has increased the access to digital initiatives and national online platforms to ensure students continue to learning from home during the lockdown period. Although the online teaching is no longer a novelty as not all the faculty as well as students who are not well adaptive in harnessing the technology based learning simple training session can bridge digital divide and also as demonstrated videos by expert in managing the virtual class room and adapt online pedagogy, the places where the students are with slow data connectivity the MOOCs digital platforms can provide them with lecture playbacks and course ware packages which can forge a strong sense of student participation, as the ICT based platforms offered by government in India are free of cost the students, the universities should adopt to the new environment by advocating and embracing ICT is a strategic imperative to transform themselves with innovative driven institutions [10].

The coexistence of opportunities and challenges has essentially put the effectiveness of online engagement to the forefront of policy design and practice of the higher education sector, so as to truly harness the opportunities and mitigate the undesirable tension and disappointment. Whereas existing research on effectiveness of online or distant education may provide some guidance to the current situation, it is far from adequate. Notably, existing

prescriptions largely focus on the pedagogical aspects, such as the role of online instructors and the learning community. Despite its importance, this focus leaves two important and interrelated policy inquiries under-explored, which the sector and its participants can nevertheless ill-afford in the current scenario. The first is the factors that facilitate or prevent effective participant engagement, such as their e-readiness, work style and work-life balance. The second is, accordingly, what higher education institutions and policymakers can do to support the participants.

Capturing a broader picture of what affects effective online engagement has great policy implications in the current COVID-19. Essentially, it highlights that policy support in this regard should look beyond technical assistance and include, for instance, due acknowledgement of the difficulties in students' and staff's work-life balance and visible efforts in maintaining their wellbeing. Yet for such support to materialize, many more questions need to be investigated with greater depth: whether and to what extent does prior experience/ exposure to online education contribute to effective online engagement currently? How do caring responsibilities add to the difficulty of effective online engagement? How do the challenges of effective online engagement compare with those in traditional classroom teaching? What are the good practices of institutional support that have emerged? Effective online engagement is thus no longer the exclusive concern for the few scholars or early adopters of education technology but has become a high-stake priority that deserves the attention of students, educators, university management as well as policymakers [11].

A total of 320 million learners in India have been adversely affected by the COVID-19 pandemic and have transitioned to e-learning. With huge regional and household disparities in access to the internet and technology, this transition has not been possible for all students and educators. The rapid shift to e-learning prompted by the pandemic has resurfaced long-standing issues of inequality and a digital divide in India that must be addressed by future economic, education and digitalization policies [12].

Conclusion

Information communication technologies (ICT) facilitate the distribution of content at the same time, to a large number of users; E-learning platforms offer many advantages to learners such as control over the content, control over the time spent learning, and thus the process can be adapted according to the learner needs and objectives of learning. This might contribute to better communication with the students and in spite of some inherent challenges brought by this time of crisis, E-learning might enhance the learning process for students. However, when using E-learning platforms there are also some elements that might be considered obstacles in students' process of learning, such as decreased motivation in students, delayed feedback or help due to the fact that teachers are not always available at the time students may need help while learning, or feelings of isolation due to lack of physical presence of classmates. However, these obstacles can be overcome with the help of teachers who should adapt their teaching strategies to the needs of students.

In order to do so, experience and knowledge about teaching in the online environment are necessary. Thus, we believe that these challenges and disadvantages could be more prominent while the educational process takes place exclusively online. This might happen due to the

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lack of teachers' experience in using E-learning and due to the short time in which they had to adapt their teaching style to the new conditions

Even though the country has been adapting to the new-age learning, but there still lies an obstacle in making the endeavours entirely successful. What still remains intact is that only 45 crore people of our total population of the country have access to the internet and thus to e-learning. The people residing in rural areas are still very much deprived of the latest advancements and therefore hampering the cause of online learning. Now, virtual classrooms are not only dependent on e-lectures but also require one to have access to the e-content and online study material, practise sheets etc. as well. And that's where we lag behind as India is not fully equipped to make education reach all corners of the nation via digital platforms or online classrooms. The students who aren't privileged like the others will be held back due to the current resort and there is no denying that. But universities and the government of India are relentlessly trying to come up with a solution to resolve this problem. The pandemic has been working as a catalyst for the educational institutions to grow and opt for platforms and techniques, they haven't used before.

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