

COVID-19 and EdTech Sector

COVID-19 education disruption impacting almost 70 percent (~1.2 billion children and youth across 150 countries) of the world's student population

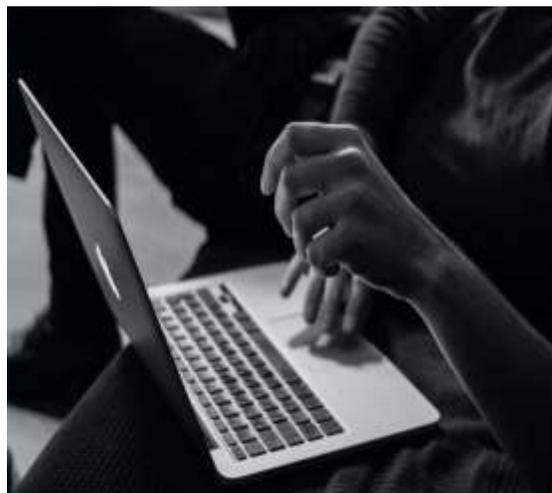


COVID-19-specific guidelines for Indian higher education institutions (HEIs) resulted in a *temporary closure of ~1,000 universities and ~40,000 colleges, impacting ~3.75 crore students enrolled and ~14 lakh faculty employed in the system*



In India, ~320 million students are impacted by COVID-19 school closure

Countries exploring *options for remote learning* and use of other educational resources to mitigate the loss of learning





FOREWARD

Since the first outbreak of the Novel Coronavirus (COVID-19) in Wuhan, China, in December 2019, today it has expanded to nearly every corner of the world and has taken a massive toll on the global economy. COVID-19-induced lockdown has come with a serious economic cost that will begin to show its effect in times to come. With the rapid spread of the virus in India since the beginning of March, the Indian economy, which was projected to grow at 1.9 percent (as per the International Monetary Fund) this year, has slumped dramatically.

By the end of May 2020, the epidemic had spread to over 150 countries and resulted in the closure of over 70 percent of all schools, colleges, and universities impacting close to 1.2 billion students. Clearly like other sectors, the education sector has been impacted as well.

The rapidity with which the infection has spread causing the closure of educational institutions and the transition to online teaching has been so instantaneous that it has left no time to evaluate or reflect on the potential risks or opportunities that such a sudden change could bring to the forefront.

The pandemic lockdown has caused disruptions in the academic year plans. It has also affected the paying capacity of several people in the private sector, which is catering to a sizeable section of the students in the country. Parallel educational institutes used for student counselling services have also been affected. Overall the industry's recruitment plans of skilled personnel have also affected the quality and excellence of learning outcomes. Technology will play an important role in the creation and dissemination of educational content via e-learning platforms.

This report, therefore, attempts to collate the EdTech scenario from the government and private-sector perspective and how the COVID-19 crisis is an opportunity for the EdTech ecosystem to scale up and become the new normal.

Table of Contents

COVID-19 Impact on Global Education System	4
COVID-19 Impact on Indian Education System.....	6
EdTech Opportunities and Challenges: <i>A Perspective</i>.....	11
Potential Challenges in EdTech Space – Schools	12
Potential Challenges in EdTech Space – Higher Education.....	14
Government Response to Pandemic.....	15
EdTech Industry Response to Pandemic	17
Conclusion	18

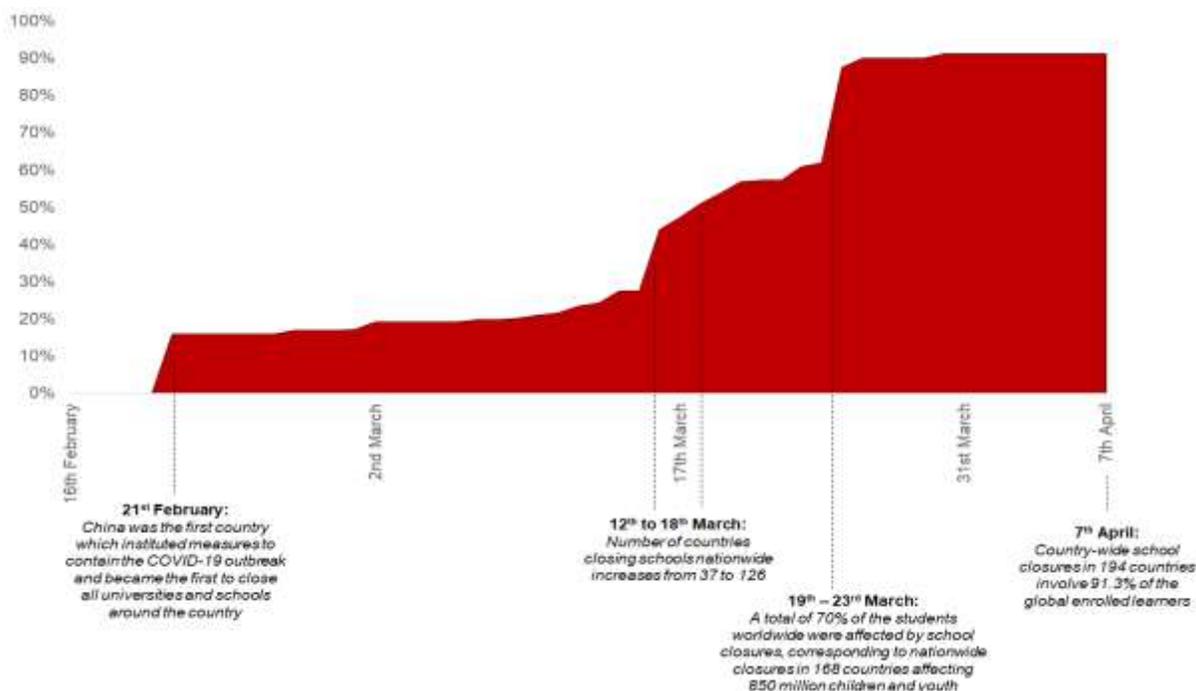
COVID-19 Impact on Global Education System



Even before the COVID-19 pandemic, the world was living a learning crisis. Before the pandemic, ~258 million children and youth of primary and secondary school age were out of school. The Learning Poverty rate in low- and middle-income countries was 53 percent — meaning that over half of all 10-year-old children couldn't read and understand a simple age-appropriate story¹. Even worse, the disruption was not equally distributed: The most disadvantaged children and youth had the worst access to schooling, highest dropout rates, compromised nutrition, and interrupted learning. All this means that the world was already far off track for meeting Sustainable Development Goal 4, which commits all nations to ensure “inclusive and equitable quality education and promote lifelong learning” for all by 2030.

The COVID-19 pandemic has already had profound impacts on education by near-total closures of schools, universities, and colleges. Educational institutions' closures in response to the COVID-19 pandemic have shed a light on numerous issues affecting access to education, increased dropouts, and higher inequality as well as broader socioeconomic issues including student debt, digital learning, food insecurity, and homelessness, as well as access to childcare, health care, housing, the internet, and disability services.

Figure 1: Percentage of students affected by COVID-19 educational institution closures, global²



¹ The Covid-19 Pandemic: Shocks To Education And Policy Responses, The World Bank, May 2020

² UNESCO, Global monitoring of educational institute closure caused by COVID – 19, accessed on 25th May 2020; Note: Figures correspond to the number of learners enrolled at pre-primary, primary, lower-secondary, and upper-secondary levels of education, as well as at tertiary education levels

Without aggressive policy action, the shocks to schooling and the economy will deepen the learning crisis. Children and youth forced out of school may not return; those who do return will have lost valuable time for learning and will find their schools weakened by budget cuts and economic damage to communities. Many students would have lost their most important meal. And with the poorest households hit hard by the ensuing economic crisis, the opportunity gaps between rich and poor will grow even larger. Beyond these short-run impacts on schooling and learning, countries will ultimately suffer significant long-term losses in education and human capital. Some of the immediate challenges would be:

- Girl education getting impacted, particularly in countries where limited social protection measures are in place, economic hardship caused by the crisis will have spill-over effects as families consider the financial and opportunity costs of educating their daughters.
- Learning will decline and dropouts will increase, especially among the most disadvantaged and displaced children to support the family for income generation. Higher dropout will likely be accompanied by increased child labour, crimes, violence, and child marriage for children and adolescents.
- Ensuring access to nutritious meals as many children and youth, especially those coming from disadvantaged backgrounds, rely on free or discounted school meals for healthy nutrition.
- Enhancing preparedness by opening schools and enforcing protocols to manage and contain infection, adhering to social distancing norms and reducing social and extracurricular activities.
- Alleviating the burden of distance and home learning on parents and caregivers. Many are struggling to support children in their new learning environment, often juggling between supervision, their work, and house chores.
- Using technology for remote learning to ensure continuity in education.

But there is much that can be done to reduce these immediate challenges, and ultimately to turn the crisis response into long-run improvements in education.



COVID-19 Impact on Indian Education System

The COVID-19 crisis has resulted in India going into an unprecedented nation-wide lockdown in March, April, and May 2020. The effect of the pandemic was being felt across all sectors of the economy with multiple agencies such as Moody's expecting GDP to fall to as low as 5 percent³ in this calendar year. The Indian government has responded to this by providing several guidelines including the restricting movement of people and social distancing.

The COVID-19 pandemic has confronted the Indian education system with an unusual set of circumstances, impacting an estimated 320 million students in India. With respect to primary and secondary education, approx. 276 million students are impacted whereas approx. 34 million students are impacted in tertiary/higher education⁴.

The situation is set to have a lasting impact on a child's socio-emotional and mental health as well as on overall learning outcomes, with the potential to widen the disparity for children from disadvantaged backgrounds. Also, concerning adversity, the maximum impact in terms of dropouts, violence, or mental health is on marginalised groups, especially adolescent girls, that will further entrench gender gaps in education and lead to increased risk of sexual exploitation, early pregnancy, and early and forced marriage.

The pandemic has forced the system to concentrate its resources on establishing guidelines for health and safety, implementing fast and agile measures, and designing ways to minimise the effects on student learning in the short and long run.



³ <https://www.firstpost.com/business/covid-19-lockdown-impact-fitch-ratings-says-indian-economy-to-contract-5-in-fy21-forecasts-global-gdp-to-fall-by-4-6-in-2020-8413991.html>

⁴ "[COVID-19 Educational Disruption and Response](#)". UNESCO, accessed on 25th May 2020

The University Grants Commission (UGC) and other apex education bodies have issued COVID-19 specific guidelines for Indian higher education institutions (HEIs) resulting in ~1,000 universities and ~40,000 colleges⁵ temporarily closing, students being asked to go home, and efforts being undertaken to move classes online. These measures will have varying degrees of impact on ~37.5 million students enrolled in and ~1.4 million faculty employed by the system.

HEIs are also concerned that an extended lockdown due to the pandemic could have a deeper impact on the sector. Flat enrollments, intense competition over students, increasing tuition discounting, rising costs, and shifting demand preferences were among the myriad challenges Indian HEIs have already started facing.

COVID-19 has also impacted students plan to study abroad. As of 2018, the number of Indian students who pursue higher education abroad totals more than 7000,000. Incidentally, a vast majority of these students choose to study in the countries that today are most affected by the corona outbreak including the US. It is no surprise that the prospective Indian students looking forward to studying abroad are facing various problems related to the pandemic. Findings suggest that COVID-19 has impacted the decision of 48.46 percent of Indian students who aspired to study abroad in the recent past. The significantly lower return of investment in an already expensive international higher education domain coupled with further reduced chances of employability in the post-COVID-19 world has a key role to play in this shift.



Table 1: Adverse consequences of higher education institution closures

Areas	Consequences	Overall Impact	
		Short Term	Medium to Long Term
Impact on Students, Teachers and Non-Teaching Staff			
For students, personal adjustment to daily life	Students have had to adapt to a daily life of physical isolation, resulting in loss of social contact and routine campus life experience. Increasing probability and added burden of mental disorders related to anxiety and depression.		
For students, financial costs and burden	Students and their families will have to continue to bear the costs associated with their higher education, student loans, accommodation, and living expenses.		
For students, temporary cessation of face-to-face teachings	Students have to adapt to new methods of teaching and learning. The impact of this disruption is highly variable and depends, first, on their ability to remain active in their academic activities and, second, on their financial sustainability.		
Students to push their academic plan	Lockdown affecting planned admission campaigns – students recruitment fairs, school outreach, etc.		

⁵ All India Higher Education Survey, accessed on 25th May 2020

Regional and international diversity affected – students reconsidering migration for education	Many students who were currently in higher education programs have had to come back to India/respective home towns, uncertainties on course continuation in campus and disruption in internships/academic discourse.		
Effect on health and safety	Students' mental health may also suffer, due to isolation during social distancing and the traumatic effects of the crisis on families. Youth out of school may engage in more risky behavior, and adolescent fertility may increase.		
For teachers, non-continuity of teaching activities	The most evident impact on teachers is the temporary termination of contracts and expectations, if not the demand, of the continuity of teaching activity using a virtual modality.		
Reduction in the number of jobs for non-teaching staff	Non-teaching staff constitutes the most vulnerable sector in terms of the possible reduction in the number of jobs that private universities, for example, would have to affect in the face of possible financial curtailment due to the cancellation of fees or reduction in student enrolment.		
Impact on Institutions			
Institutions facing financial challenges	Lost revenue from canceled university/college programs & increased operating costs		
Reduction in number HEIs in near future	Around 600 HEIs across the states converted into quarantine centres, meaning reduction in number of HEIs in near future		
High investment for digital infrastructure upgradation	Universities especially private sector need to invest huge amounts to establish a tech-enabled teaching-learning network		
Impact on Stakeholder Ecosystem			
Drastic changes in student mobility for higher education	STEM and non-STEM students opting out to study abroad due reduced chances of employability and lower return of investment		
Low investment and revenue losses in student accommodation sector	High revenue loss and reduced investment for student housing operators catering to domestic and international students		
Impact on training partners and networks	Estimated revenue loss for Training Partners (TPs) (loss of training revenue under short-term training)		
Impact on certification and assessment agencies	Loss for assessment and certification agencies for both private and public sector		
Impact on placement agencies due to uncertain employment and job losses	Placement loss for candidates who could join the workforce (placements deferred/cancelled)		
Impact on student loan/debt	Reduced private funding for higher education from households, firms, and third parties is likely. A specific complication relates to student loans/debt.		

Economic Impact			
Student talent pool impacted	Students to postpone full-time college, especially if their families' circumstances demand it		
Loss to exchequer due to delayed/cancelled plan	Countries like Canada, Australia, UK and USA posing severe financial and job loss hit due to loss of Indian students		

Table 2: Adverse consequences of school closures⁶

Areas	Consequences	Overall Impact	
		Short Term	Medium to Long Term
Impact on Students, Teachers and Non-Teaching Staff			
Interrupted learning	Schooling provides essential learning and when schools close, children and youth are deprived of opportunities for growth and development. The disadvantages are disproportionate for underprivileged learners who tend to have fewer educational opportunities beyond school.		
Poor nutrition	Many children and youth rely on free or discounted meals provided at schools for food and healthy nutrition. When schools close, nutrition is compromised.		
Gaps in childcare	In the absence of alternative options, working parents often leave children alone when schools close and this can lead to risky behaviours, including the increased influence of peer pressure and substance abuse.		
High economic costs	Working parents are more likely to miss work when schools close to take care of their children. This results in wage loss and tends to negatively impact productivity.		
The unintended strain on health-care systems	Health-care workers with children cannot easily attend work because of childcare obligations that result from school closures. This means that many medical professionals are not at the facilities where they are most needed during a health crisis.		
The rise in dropout rates	It is a challenge to ensure children and youth return and stay in school when schools reopen after closures. A long period of disengagement can further increase the dropout rates.		
Increased exposure to violence and exploitation	When schools shut down, early marriages increase, more children are recruited into militias, sexual exploitation of girls and young women rises, teenage pregnancies become more common, and child labour grows.		
Social isolation	Schools are hubs of social activity and human interaction. When schools close, many children and youth miss out of on social contact that is essential to learning and development.		

⁶ ["COVID-19 Educational Disruption and Response"](#). UNESCO, accessed on 25th May 2020

Adoption and upskilling to use technology and digital learning	Training of Trainers (TOT), adoption of smart classrooms (use of technology) will pose a challenge for teachers accustomed to the old method of teaching.		
Teaching quality will likely suffer	Various channels will reduce the availability and quality of teaching. Salary delays and cuts may reduce teachers' motivation and devote time to teaching.		
Impact on Schools			
Logical and operational challenges	Prolonged closing of the school may result in a loss of up to 12 months of education, contributing to significant learning disruption.		
Changes in the academic calendar	Postponement/cancellation of exams leads to challenges in admission as well as promotion of students at critical stages.		
Heavy investments in digital infrastructure	Quality internet connectivity and affordability from both ends, i.e., the institutions and beneficiaries, remains a challenge.		
Fiscal pressures will lead to a drop in education investments	The supply of schooling may contract as a lack of revenue forces private schools out of business.		

What's Next?

The COVID-19 pandemic has resulted in chaos and several shocks for the education sector. National and state governments are acting to support learners to ensure continuity in education. The pandemic lockdown has forced several schools and parallel education institutions to shut business – leaving students no option but to access virtual setups of learning.

Although challenges exist in every aspect for all stakeholders (school authorities, parents, and students), as highlighted in tables above, these can be overcome with strengthened collaboration with government, private-sector players/start-ups, and non-profit organizations to ramp up digital infrastructure that is affordable, accessible and user-friendly. The pandemic has acted like a catalyst to bring in all these changes and make learning more modern and fun for students. Age-old methods of learning can be unlearned by everyone engaged in the EdTech space.

Government strategies to strengthen digital infrastructure via Bharatnet optical fibre network, launching of various e-learning platforms (DIKSHA portal, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), PM eVIDYA) are here stay and build more accessibility to education. Several EdTech companies and e-learning platforms are using the “Content, not Container” approach, i.e., enhancing content accessibility through more easily available technology. The companies are deploying EdTech applications with focus on offline regional content that can be reviewed without a stable internet connection by the learners in the remote corners of India. The pandemic also offers opportunities to reduce the Gender Divide in education. India, ranking a 112th in WEF’s Gender Gap Index educational attainment component, can leverage the digital solutions to enrol out-of-school girls.

The digital medium of education is transformative for the differently-abled people unable to attend classes due to geographic remoteness and other vulnerabilities, adult education, education for girls, and women who were previously unable to go out. Coupled with a national awareness campaign, advocating the benefits and the flexibility of e-learning solutions, the education system can be made more inclusive.

Finally, after decades, India will experiment by transforming its education system and making it more modern and dynamic with online learning. *The next section, therefore, highlights the challenges and opportunities available for the EdTech market to scale up from the government and private-sector perspective and how the COVID-19 crisis has made us re-evaluate the way systems should function efficiently through technology for improved learning outcomes.*



EdTech Opportunities and Challenges: *A Perspective*

The India EdTech market is a vast and rapidly growing industry with 327 EdTech start-ups, accounting for 10 percent of the global EdTech companies and second biggest industry in the world⁷. According to reports, the EdTech Industry in India was estimated to be USD 247 Mn and had a potential opportunity to reach ~USD 2 Bn by 2021⁸. With a massive portfolio of EdTech solutions for early-childhood learning, K-12, Higher Education and STEM, and online skilling and certification courses, the space is also a hot hub of venture capital investments with USD 655 Mn funding received by the Indian EdTech sector players in 2018. The growing interests of stakeholders such as

students, parents, governments, and funders has fueled the growth of EdTech industry with increased consumer adoption supported by macroeconomic changes, improved product offerings, and disruptive changes in business models.

During these unprecedented times of grave uncertainty, the EdTech industry came to the rescue of the governments, educational institutions, parents, and students with the disruptive technological innovations in education. The various governments, development organizations and industry players have been working together synchronously in upgrading existing digital infrastructure, producing new content, and making the learning solutions accessible to the masses.

As the COVID-19 pandemic spread, there has been massive shift to online learning in Indian education system from April onwards and boosted the demand for the online education. With the progression of lockdown, major private schools and universities have switched to the online classroom model with faculties delivering lectures through Google Meet and Zoom apps. Similarly, the government and municipal schools have been delivering lectures to students in rural villages through WhatsApp and electronic media, television and radio.

Similarly, the higher education sector went through a rampant change during the lockdown by shifting to online classroom learning in universities and training institutes from March onwards. For

Key messages

- *During this time of crisis, education will not be business-as-usual, and EdTech alone cannot close the learning gap. It will be dedicated teachers and resilient educators who will ensure learning doesn't stop — but they could be helped by the right EdTech tools*
- *Governments can provide immediate support by informing teachers about simple grassroots platforms where they can share their own EdTech solutions*
- *Educational television and radio broadcasts in combination with SMS are effective communication channels between educators and students when the internet connectivity is poor or not available*
- *It will be important for education authorities to begin planning how in 12 months' time they will diagnose and treat the learning gaps that have emerged during the crisis*

instance, the Ashoka University, Haryana shifted to online mode of teaching from mid-March 2020 wherein the faculties are delivering lectures online through Google Meet/ Zoom platforms. Massive Open Online Courses

⁷ Indian Education Diary Bureau, India's EdTech industry is the second biggest in the world, February 14 2020, can be accessed [here](#)

⁸ KPMG, Online Education in India 2021, May 2017, can be accessed [here](#)

(MOOCs) has gained momentum with higher education institutions developing the recorded lectures for public during the lockdown. For example, The National Law University of Delhi launched the first open MOOC for public to avail study materials in law in March with the onset of lockdown.

The EdTech industry players have played a pivotal role in amplifying the efforts of the governments and educational institutions for providing streamlined experience to students in holistic learning and supporting parents in monitoring the progress of their children during the home-schooling. A wide range of platforms have been launched, upgraded, and reformed their services to become more accessible to the average student from middle-income household and meet the growing demands. The governments, schools, and universities, as well as the for-profit and the non-profit industry players, have played an exemplary role during the time of crisis in combatting the learning discontinuity caused due to closure of academic institutions and leveraged technology in bringing knowledge at the students doorstep, during the lockdown period.

However, there are several structural challenges and external factors causing hindrance in the path of expansion of e-learning in India and reducing the accessibility of e-solutions to marginalized communities deepening the urban-rural divide. EdTech alone cannot close the learning gap. It will be dedicated teachers and resilient educators who will ensure learning doesn't stop — but they could be helped by the right EdTech tools.

Potential Challenges in EdTech Space – Schools

A. Private Schools

Although majority of private schools have switched to the online classroom model to complete the coursework and curriculum for this year's session, there are significant challenges faced by teachers and students in adopting to the new mode of learning.

- **Lack of e-curriculum:** Most private schools were dependent on the physical classroom teaching pedagogy in the pre-COVID-19 times and had designed their curriculum without consideration of the digital component. With the advent of the pandemic and the Central government's notification on switching to online teaching, most schools are struggling with upgradation of their digital infrastructure and developing e-curriculum for implementing classroom teaching online without the blackboard in the limited time period and rushing through the lessons.
- **Teachers and students lack digital training:** It is observed that the students and teachers are not tech savvy or trained to use the digital resources for teaching and are dependent on the family members support for conducting streamlined sessions. The students and teachers have reported being burdened with the ongoing change in the teaching methods.
- **Poor monitoring of learning outcomes:** Most while in a physical classroom, setting face-to-face interaction is more dynamic and teachers were able to stimulate feedback from students more easily; now, however, they are finding it difficult to engage the interests of students and doubt clearing sessions with online classes.

B. Municipal and Government School

The low-income private and government school students in both rural and urban India are the most affected vulnerable communities severely impacted by the national lockdown with no means and digital infrastructure in place to ensure learning during the closure of the school.

In India, the new education model of online learning and EdTech innovations are being accessed by the privileged private school children in urban households and unable to reach the marginalized community students of low-income private and government schools in rural areas. There are several hindrances in the way of scaling up the technologies and reaching the deprived students in remote areas of the country:

- **Digital Divide:** There is limited access to smartphones and computer devices supporting EdTech solutions, poor availability and quality of electricity coverage and penetration of quality internet (the 2017-18 National Sample Survey reported only 23.8 percent of Indian households had internet access. In rural households, only 14.9 percent had access, and in urban households only 42 percent had access) in rural areas. For example, municipal schools in Amravati district of Maharashtra created a WhatsApp group of all the parents in respective classrooms for sharing video lessons to support the learning of students during the lockdown. However, ~2,500 out of 9,000 students from poor families have access to android phones, accounting for

27 percent of the student population. Thus, ~73 percent of municipal school students in the Amrawati district are missing out on education during the national lockdown⁹.

- **Limited resources to maintain continuity of learning:** The students in rural areas have limited resources at their disposal for learning. In most cases, the students are unable to download the video lectures on the handsets due to incompatibility with the device or poor internet. They have to rely on the textual notes sent in the form of SMS and messages to study. Students from extremely poor economic households are not able to access even the radio or television lessons due to lack of devices.
- **Limited opportunity for monitoring learning and doubt clearing:** There is lack of mechanism for monitoring the student's progress of studies and holding doubt clearing sessions by teachers during the lockdown.
- **Poor concentration amongst students due to external factors:** Most students, especially from the poor-economic households, are unable to attend and concentrate on the lessons as they must support families in household chores or in agricultural farms.

The comparison between the private school and government school education system in urban and rural observed during the lockdown are:

Category	Urban Private School	Rural Government School
Mode of teaching	<ul style="list-style-type: none"> • Online classrooms through Zoom, Microsoft Teams, Google Hangouts conducted by teachers • Teachers send interactive worksheets and videos for learning 	<ul style="list-style-type: none"> • Sharing lecture notes and learning videos through WhatsApp Groups through voice and text messages • Radio lessons through AIR • Television lessons through Swayam Prabha
Access to devices supporting online education	<p>High Students can access online classrooms and learning resources on devices of their parents</p>	<p>Low No access to students from extremely poor economic households with no phones, radio, and television</p>
Facilitating practical learning in STEM subjects	<ul style="list-style-type: none"> • Few schools are using virtual STEM labs for practical training 	<ul style="list-style-type: none"> • No facility
Focus on holistic development	<ul style="list-style-type: none"> • No virtual lessons provided for physical education to students • Limited teaching hours allocated to theatre and art lessons 	<ul style="list-style-type: none"> • No physical education, art lessons for students
Evaluation/assessments	<ul style="list-style-type: none"> • Online assessments conducted for students through quizzes in e-classrooms 	<ul style="list-style-type: none"> • Assessments sent to students through mobile SMS and WhatsApp messages
Monitoring of learning outcomes	<ul style="list-style-type: none"> • Supervision and Doubt clearing sessions during the virtual classrooms • Through continuous assignments, quizzes, and online tests 	<ul style="list-style-type: none"> • Teachers connect with students through regular calls, SMS, and WhatsApp groups • Able to evaluate the homework in a few areas
Engagement of parents in the learning of the student	<p>Very High. Most parents attend online classes with students and support with homework</p>	<p>Very Poor Most parents are uneducated and unable to support children with learning</p>

⁹ CNBC18.com, Digital education during COVID-19 lockdown not for all, April 27 2020, <https://www.cnbc18.com/technology/digital-education-during-covid-19-lockdown-not-for-all-5785491.htm>

Potential Challenges in EdTech Space – Higher Education

A. Colleges and Universities

Although majority of colleges and universities have switched to the online classroom model to complete the coursework and curriculum for this year's session, there are significant challenges faced by them in new mode of learning.

- **Poor digital infrastructure and e-curriculum:** Most institutions struggled to switch to the online teaching with poor digital infrastructure incompatible with the existing learning material of textual lecture notes. The pandemic has shifted the focus of institutions to upgrade their digital infrastructure and strengthen the e-curriculum by developing digital content.
- **Teachers lack training in delivering online lectures:** Teaching a course online course ideally requires preparation, such as designing a lesson plan and preparing teaching materials such as audio and video contents. This has posed new challenges for many lecturers.

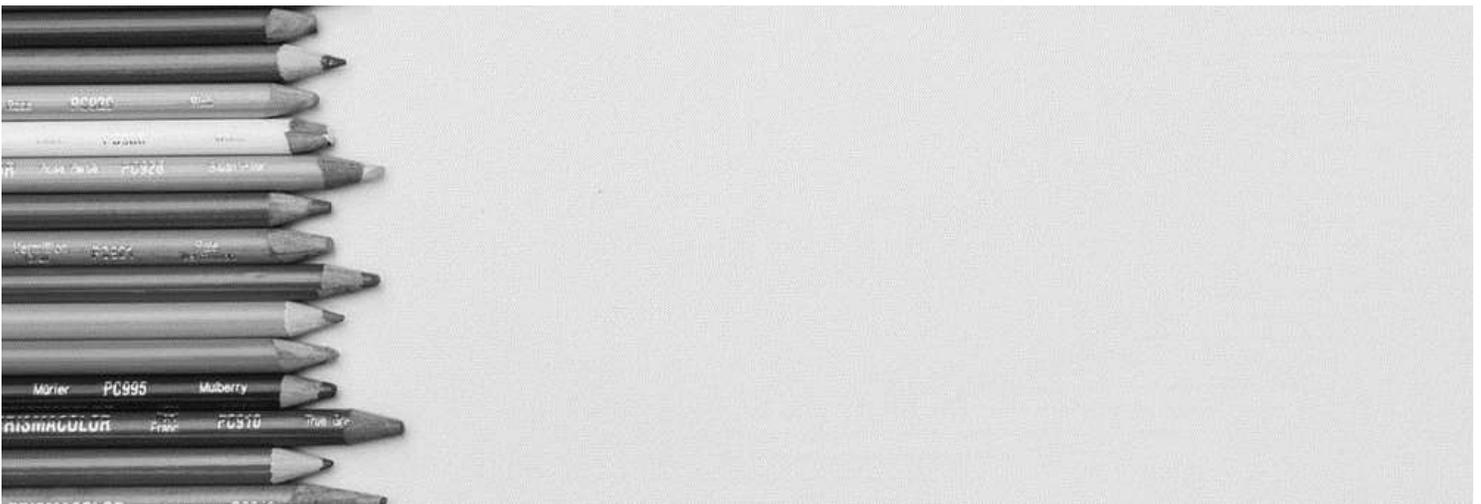
B. Competitive Test Preparation Coaching Institutes

The coaching institutes have shifted to online teaching by holding lectures on Zoom, sharing lecture notes on their existing platform, emails, and WhatsApp groups. However, this has put a tremendous pressure on their existing digital infrastructure as they are catering to thousands of students preparing for competitive studies.

- **High pressure on teachers:** Teachers in coaching classes are working overtime in delivering lectures to students in multiple batches to maintain the continuity of learning.
- **Limited opportunity for monitoring learning and doubt clearing:** Although teachers are trying to maintain the streamlined communication with students through frequent online lectures, phone calls and WhatsApp messages, there is limited opportunity for monitoring the performance of the students and hold frequent doubt clearing sessions.
- **Poor concentration amongst students due to external factors:** Most students, especially those who tend to give the competitive exams, have complained that they are unable to concentrate of the studies due to uncertainty around COVID-19 pandemic.

Summarizing, the COVID-19 pandemic has become a major positive disrupter to the age-old traditional Indian Education system. It has paved way to the exponential growth of the EdTech sector with a vast majority of educational institutions relying on technology for delivering learning and students switching to the EdTech platforms for a holistic learning experience during the lockdown.

Although this change comes with its own set of challenges that will definitely be addressed in the post COVID-19 world, the positive outcomes overshadows the challenges. The digital medium of education is transformative for people unable to attend classes due to geographic remoteness and other vulnerabilities, adult education, education for girls, and women who were previously unable to go out. Therefore, this section focuses on the best practices adopted and responses of the government and industry players during the pandemic in India and globally, trends, and new opportunities.



Government Response to Pandemic

A. Central Government

The Central Government announced new initiatives and efforts to empower youth by offering them quality education free of cost at their doorstep during the lockdown. On 23 March 2020, the Ministry of Human Resource and Development (MHRD) released a list of e-learning resources for the students that can be accessed free of cost as the first response to the COVID-19 pandemic¹⁰. Some of the e-learning resources and portals launched by MHRD included:

- **SWAYAM** is an e-learning platform providing more than 1,900 courses of engineering, humanities, social sciences, law, and management courses for both school and higher education. It also lets students transfer their credits (maximum 20 percent) to their conventional streams.²¹
- **SWAYAM Prabha** includes 32 DTH channels that are developed to telecast high-quality educational programmes for both schools and higher education courses on a 24x7 basis using the GSAT-15 satellite. These channels are free of cost and are made available to students through DD Free Dish Set Top Box and Antenna. For school, students from class 1 to 12 are provided with educational programmes. For higher education, it telecasts educational courses and content for undergraduate, postgraduate, engineering, out-of-school children, vocational courses, and teacher training. It also provides higher education courses in different streams like arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine, and agriculture²¹.
- The **National Programme on Technology Enhanced Learning (NPTEL)**, a project of Ministry of Human Resource and Development (MHRD) initiated by seven Indian Institutes of Technology (IIT), along with the Indian Institute of Science Bangalore, provides higher education courses in science and technology, recorded the peak traffic and downloads of educational content videos due to disruption caused by COVID-19 and suspension of classroom programs¹¹.
- **DIKSHA** is an initiative in digital learning by the Ministry of Human Resource Development (MHRD) in association with the National Council for Teacher Education (NCTE) in November 2017 for school education for students, teachers, and parents. It has become one of the most popular and easiest modes of digital education tool available post lockdown, to ensure continuity in learning processes among students. The main objective of this Diksha e-learning portal is to assist teachers and the students to maintain their study routines normally but in a different mode of learning. This portal is a step to achieve comprehensive learning for both teachers and students by accessing a holistic learning environment¹².
- **Vidyadaan 2.0**, the national education programme, was launched by the Ministry of Human Resource and Development aiming to bring academicians and organisations together to develop holistic and engaging e-learning content for the students in the form of explanatory videos, animations, teaching videos, lesson plans, assessments, and question banks in the prescribed format. The content will be first reviewed by a panel of academic experts and then it will be released for use on the DIKSHA app to impart quality education to millions of students studying from home¹³.
- **e-Pathshala** is an app developed by the CIET, NCERT, which was initiated jointly by the Ministry of Human Resource Development and CIET, NCERT, and launched in November 2015. The digital resource offers educational resources for teachers, students, and parents. Like other apps, it can be accessed online and is easily available on all mobile operating systems. The material is available in multiple languages and offers a collection of around 1,886 audios, 2,000 videos, 696 e-Books and 504 Flip Books for classes I to XII in different languages¹⁴. These materials can be downloaded for offline use too.

¹⁰ Shiksha.com, COVID-19: MHRD releases list of e-learning resources for college students, March 23 2020, can be accessed [here](#)

¹¹ Business Standard, Education in the time of COVID 19: How institutions and students are coping, May 1 2020, can be accessed [here](#)

¹² The National Portal of India: <https://www.india.gov.in/spotlight/diksha-national-digital-infrastructure-teachers>

¹³ Shiksha.com, COVID-19: MHRD launches VidyaDaan 2.0, asks people to contribute e-learning content for students, April 23 2020, can be accessed [here](#)

¹⁴ National Council of Education Research and Training: <https://epathshala.nic.in/>

Figure 2: e-learning timeline – initiatives taken by government of India



B. State Government

The state governments launched innovative educational initiatives and programmes in response to address the problems of learning continuity amongst the students in government and private schools during the lockdown. Some of the best practices adopted by the state are:

State	Initiative
Bihar	Bihar Education Project Council has launched the initiative of delivering lectures to the students of government schools in rural areas through radio and television broadcasting for classes. It has also launched a mobile app named as " Unnayan-Mera Mobile Mera Vidyalaya " for classes to the students of VI to XII in the government-run schools to support digital learning in the state ¹⁵ .
Chhattisgarh	The Chhattisgarh Government launched the online school portal ' Padhai Tunhar Dwar ' (education at your doorstep) for classes 1-10. The portal provides more than 150 videos and other course materials to support learning for students and teachers ¹⁶ .
Himachal Pradesh	The Himachal Pradesh Government launched the " Har Ghar Pathshala ", a formal online education program for all grades in government schools in the state. Under this initiative, a drive was launched to collect phone numbers of students to create school-level WhatsApp groups and connect as many schools and students as possible through WhatsApp. According to state statistics, 95 percent of nearly 15,000 schools related to the Department of Education and close to 70 percent of 8 lakh students related to their teachers. The government is leveraging freely available online resources from academic partners Pratham, TicTac Learn, and Sampark Foundation ¹⁷ .

¹⁵ The New Indian Express, Covid 19 lockdown has given a major boost to online classes in Bihar, April 6 2020, can be accessed [here](#)

¹⁶ The Hindustan Times, Chhattisgarh gov launches online school portal for Class 1-10, April 8 2020, can be accessed [here](#)

¹⁷ News18.com, 'Har Ghar Pathshala': How Himachal Govt Made Online Classrooms Accessible as Schools Shut, May 28 2020, can be accessed [here](#)

Maharashtra	Maharashtra State Education Department has launched an initiative of delivering lectures to students through electronic media – television and radio. Under this, the Department has booked two slots per day in Doordarshan to telecast lectures for classes I to IX. Audio lectures will also be broadcasted through radio for classes VIII, IX, and X ¹⁸ . The content is referred from the available videos on the Diksha Platform.
Nagaland	Nagaland Directorate of Education has directed the district administration to facilitate the exchange of lessons for classes 8, 9, 10, and 12 through Doordarshan Kohima and All India Radio in rural areas across the state ¹⁹ .
Odisha	Odisha Department of Education has launched Mission e-SuVidya , a programme envisaged to provide online education to all the tribal students in the state. Under this initiative, more than 6 lakh students in 1,731 schools, including Ekalavya Model Residential Schools (EMRS), will be taught with the help of technology online. ²⁰
Punjab	The Punjab Government has launched a new initiative “ Ghar Baithe Sikhiya ” programme through Mobile application to cater to the educational needs of students in the state. In this initiative, the application allows teachers and students to attend a virtual classroom, access e-books, learning through television, radio, and WhatsApp. ²¹
Rajasthan	The Rajasthan Government launched Project SMILE to connect students and teachers online during the lockdown. In this initiative, the study material is sent through specially formed WhatsApp groups. For each subject, 30-40-minute content videos have been prepared by the Education Department. More than 20,000 WhatsApp groups have been formed under this initiative covering 95 percent of schools and their students and parents ²² .

EdTech Industry Response to Pandemic

A. Response by For-Profit and Not-for-Profit Organisation

In the current scenario, the advent of the COVID-19 pandemic has boosted the demand for online education. During this unprecedented and unparalleled global health crisis, the technology and EdTech industry players came to the rescue of the educators, students, and parents to support learning continuity.

1. For-Profit Organization Trends

Existing for-profit EdTech platforms such as Byjus, Catalyst, Vedantu, UpGrad, Imarticus Learning, Simplilearn, CL Educate, and Toppr have witnessed a sharp increase in the number of users from March 2020 onwards. Some of the recent trends observed in the EdTech industry during these unprecedented times are:

Category	Company Name	Response/Initiative
Primary and secondary	Byjus ²³	Announced in March 2020 to make all its learning programmes for students in classes 1 through 12 free until April-end 2020.

¹⁸ *Economic Times, Maharashtra Education Dept turns to TV, Radio to reach rural students, April 16 2020, can be accessed [here](#)*

¹⁹ *The Morung Express, Lockdown lessons: Educators in Nagaland share online teaching experience, May 21 2020, can be accessed [here](#)*

²⁰ *The New Indian Express, Mission e-Suvidya for Odisha tribal students amid coronavirus lockdown, May 18 2020, can be accessed [here](#)*

²¹ *Punjab Tribune, Punjab Education Dept. emerges as a trendsetter in launching Ghar Baithe Shikhiya, May 21 2020, can be accessed [here](#)*

²² *PRS Rajasthan, can be accessed [here](#)*

²³ *Invest India, Understanding industry trends after COVID 19: EdTech, April 27 2020, can be accessed [here](#)*

Supplemental education		<i>The platform recorded a 60 percent rise in new student registration since the announcement.</i>
	Toppr ²⁴	has made its services free for all students from Classes 5 to 12. <i>The company reported a 100 percent month-on-month increase in the number of students attending the live classes.</i>
	Vedantu	has provided free access to all live classes of Vedantu Master Teachers, Course Materials, Tests & Assignments, Live Doubts feature to new users for classes 1-12, NEET and JEE Mains. <i>The platform has seen a 10x growth in the number of users signing up ever since the outbreak.</i>
	Mindspark	an artificial intelligence-powered specialised mathematics programme developed for children's learning, is offering free access of 60 days to all students ²⁵ .
	Pearson	has launched an AI-based Math learning app, Quikik, to support students with their math skills ²⁶ .
Reskilling and online certification	WhizJunior	an EdTech skill certification platform providing access to 122+ quality courses, expert educators for live training, and gamified learning to students, has offered free WHIZJUNIOR certification to students till lockdown. <i>The platform reported that the users and engagement on the platform have gone up by 800 percent where school principals have instructed their students to complete certifications of the tech courses that will be counted in their computer science exams.</i>
	Grab Your Vernacular Imprint (GUVI)	IIT Madras incubated start-up provided IT skilling courses online free of cost to prepare students for campus placements ²⁷ .
	Coursera	has launched the Coursera for Campus program providing access to 3,800 courses and 400 specializations for universities and colleges free of cost globally ²⁸ .
	Simplilearn	a Bengaluru-based EdTech start-up announced to provide free access to its courses based on artificial intelligence, machine learning, Big Data, and cybersecurity to its users as a response to COVID-19 pandemic. <i>The platform reported 15 percent jump in users for STEM-based certification courses on cyber security, Cloud, DevOps, AI, and data sciences²⁹.</i>
	GMAC	has announced the implementation of an interim online version of the GMAT from mid-April onwards. This is available to candidates

²⁴ Economic Times, Covid-19 impact: Ed-tech companies reap dividend as schools, universities go online, March 24 2020, can be accessed [here](#)

²⁵ EI Offers Free Access To Mindspark Maths Amidst COVID-19 Impact On Schools, March 13 2020, can be accessed [here](#)

²⁶ Shiksha.com, COVID-19 Lockdown: Pearson launches free AI-based Math learning app, March 30 2020, can be accessed [here](#)

²⁷ COVID-19: IIT Madras Startup Offers Free Skilling Classes To Students Affected By Shutdowns, March 16 2020, can be accessed [here](#)

²⁸ Coursera.com, Response to corona virus, can be accessed [here](#)

²⁹ Economic Times, Covid-19 impact: Ed-tech companies reap dividend as schools, universities go online, March 24 2020, can be accessed [here](#)

Test preparation		globally excluding Mainland China, Iran, Cuba, Sudan, Slovenia, and North Korea ³⁰ .
	College Board	announced to conduct the advanced placement (AP) examinations online for the first time due to COVID-19 pandemic in the US. <i>~4.6 million students took the exams during the 10-day testing period May 11-22³¹.</i>
	ETS	expanded availability of at-home testing for the TOEFL iBT test and GRE General test. The tests are available in all locations, apart from Mainland China and Iran. <i>In the first week of launch, more than 7,000 test takers successfully registered for either tests or 500 test takers completed the examination successfully³².</i>
	Pearson	launched a personalized digital assessment tool and an Online Mock Test series for IIT-JEE students to practice during this shutdown ³³ .
	Allen Career Institute	is providing online mode training through digital classrooms during the lockdown. The institute has also taken the social initiative to provide 10 free online drill tests to all students appearing in JEE Main 2020 April Attempt. <i>~57,000 students preparing from IIT-JEE and NEET-UG are taking advantage of the online classes by the institute.</i>

2. Non-Profit Organization Trends

Existing non-profit EdTech platforms such as Khan's Academy, Teach for India, and Central Square Foundation have made a wide range of courses, learning videos, and other services free-to-use to become more accessible to the average consumer and meet the growing demands. Some of the recent trends observed in the EdTech industry during these unprecedented times are:

Category	Company Name	Response/Initiative
Primary and secondary supplemental education	Khan Academy ³⁴	an educational non-profit with free, interactive instructional learning materials and tools for math and science for K-12, has re-vamped its functionality of the app with features of "one-stop shop" page where all new resources for parents and teachers are gathered into one place. It is also offering free tools for teachers and parents to track student progress as a response to COVID-19 pandemic.
	Central Square Foundation ³⁵	<ul style="list-style-type: none"> has created TicTacLearn, a repository of 12,000 learning videos for maths and science in five languages — Hindi, English, Telugu, Odia, and Marathi, in collaboration with Google.org. These videos are accessible on YouTube as well as on DIKSHA, the Ministry of Human Resource

³⁰ Mba.com, Update on Coronavirus and its Impact on Testing, June 3 2020, can be accessed [here](#)

³¹ Silive.com, Over 4.6M AP exams taken during first-ever online administration, May 26 2020, can be accessed [here](#)

³² ETS.com, Coronavirus Update: TOEFL® and GRE® At Home Tests Now Available Worldwide, April 2 2020, can be accessed [here](#)

³³ Shiksha.com, COVID-19 Lockdown: Pearson launches free AI-based Math learning app, March 30 2020, can be accessed [here](#)

³⁴ CSR BOX, How edtech ventures in India are responding to COVID-19 to keep the learning going, May 1 2020, can be accessed [here](#)

³⁵ Central Square Foundation, Edtech Resources, can be accessed [here](#)

		<p>Development's primary initiative to make e-content available to school children.</p> <ul style="list-style-type: none"> • has launched TopParent free of cost mobile app that enables and empowers parents with the right knowledge, language, and strategies to help children between the age group of 3 to 8 to acquire foundational skills. It consists of three apps in Hindi to help children make sense of letters and numbers in fun and interactive ways. <ul style="list-style-type: none"> ○ Google Bolo - a reading-tutor app that helps primary grade students to improve their reading skills in Hindi and English. ○ Math Masti - focuses on building foundational numeracy skills among children in the age group of 3 to 8 years. ○ Chimple - is designed to make learning fun through stories, puzzles, and games to teach children reading, writing, and maths.
	iDream Education ⁴⁷	launched a novel iDream Learning app in March as a response to COVID-19 pandemic to empower and handhold government school students in rural areas with digital learning for skills. This is an easy-to-use, free mobile app, which the local language students and their parents can use to access digital content in their mother tongue and as per their state boards.
	Avanti	a social-educational enterprise set up in 2010, has launched a free learning app for Hindi medium government school students in classes 9 to 12. The Avanti's Sankalp app has recorded video content, solved examples, and quizzes in all NCERT topics of mathematics and science built in collaboration with government school teachers and pedagogical experts in India and at Harvard University. Besides, Avanti has announced free live classes on the Sankalp YouTube channel for class 9-12. These classes will also be streamed on TikTok, Facebook, and other social media platforms ³⁶ .
	Schoolnet ³⁷	launched the social initiative #LearningNeverStops under which Geneo, an interactive digital platform by Schoolnet India Limited, has announced free live classes by Geneo mentors for students of class 6 to 10 on its learning platform.
	TED-Ed	TED's youth and education initiative supported learning from producing a growing library of original animated videos to providing an international platform for teachers to create their own interactive lessons, to helping curious students around the globe bring TED to their schools and gain presentation literacy skills, to celebrating innovative leadership within TED-Ed's global network of over 250,000 teachers.

³⁶ [Democratijagat.com](#), Avanti has launched a free learning app for Hindi Medium government school students in Class 9-12, April 8 2020, can be accessed [here](#)

³⁷ [CSR BOX](#), How edtech ventures in India are responding to COVID-19 to keep the learning going, May 1 2020, can be accessed [here](#)

		TED-Ed has grown from an idea worth spreading into an award-winning education platform that serves millions of teachers and students around the world every week ³⁸ .
Test preparation	TagHive ⁵⁰	launched the Class Saathi application to fill in the gap of dedicated assessment application to assess student learning levels. This is an AI-powered personalized question bank that helps students in their formative assessment and is providing free access to students from grades 6-10. This is also providing an open badge certification and 21-day quiz challenge.

Using EdTech to Prevent Learning Loss During COVID-19 — Global Examples

Developing Economies

Argentina's Seguimos Educando program began broadcasting educational content on April 1, 2020. It airs 14 hours a day of television content and 7 hours a day of radio content specially produced for students as a result of school closures. Each broadcast lesson includes a teacher and a conductor (journalist, artist, scientist), in addition to the dissemination of teaching materials. For students without access to technology or connectivity, this television and radio programming is supplemented with "notebooks" packed with learning resources that have been delivered to student homes. The program also makes available a collection of on-demand digital educational materials and resources on the Ministry of Education's Educ.ar website. A section on the website, called "the class of the day," provides a comprehensive daily plan for student learning aligned with the television program and printed notebooks. It also has a section on virtual reality that provides a collection of videos in 360° format to give the user an immersive educational experience.

Kenya is rapidly innovating. In addition to radio and TV, education programming is made available as both livestream and on-demand content via EduTV Kenya YouTube channel. In partnership with the Kenya Publishers Association, the government has made electronic copies of textbooks available for free on the Kenya Education Cloud for all students. To provide wider internet coverage to all students and families, the Kenya Civil Aviation Authority, in partnership with Alphabet Inc. and Telkom Kenya, has deployed Google's Loon Balloons carrying 4G base stations over Kenyan airspace. A single balloon can provide internet connectivity across an 80km-diameter area.

Chad: In the African country of Chad, "EDUTCHAD" platform was officially launched in mid-April, while the National School of Administration (ENA) launched its online learning platform in the last week of April to help students with resources for online education. The EDUTCHAD platform offers courses from elementary to secondary school, a toolbox, and resources, or even a virtual library.

Malawi: The Malawi government realized that online resources provided by the Ministry's website would have limited users. Hence, they have started broadcasting lessons through radio channels in collaboration with the Malawi College of Distance Education covering primary school grades.

Bhutan: The Ministry of Education (MoE) released the Bhutan e-Learning program, on March 27, 2020, which enables students from pre-K-12 to access lessons through educational television as well as on YouTube. The broadcasting schedules are published on the MoE website. On realizing that connectivity is important for eLearning, the Ministry of Information and Communications worked along with telecom service providers and an additional 60 percent data on the existing data packages. Under this package, data would be accessible from 7 am to noon wherein selective e-learning sites, like Google Classroom and GSuite apps, YouTube, Moodle, eLibrary, and Zoom, can be accessed.

Source: World Bank. 2020. "How Countries Are Using Edtech (Including Online Learning, Radio, Television, Texting) to Support Access to Remote Learning During the COVID-19 Pandemic." Online brief; <https://www.ledevoir.com/monde/europe/579305/enseignement-en-ligne-la-france-etait-prete-pour-l-ecole-a-distance>; <https://www.novinite.com/articles/203597/Bulgarian+Publishers+Offer+Free+Electronic+Access+to+Textbooks+for+Students>

³⁸ TEDEd: <https://ed.ted.com/about>

Mexico: Due to the pandemic, the Mexican Ministry of Education started tele-lectures from preschool, primary, secondary, till the tertiary level. The multimedia materials are designed based on content and subject and are broadcast freely via television (cable) and online mode. The program also includes resources for teachers and parents. To increase learning outcomes of students, digital copies of all textbooks for all classes and subjects have been made accessible to all on the government of Mexico website in text versions along with Braille format.

Jordan: In Jordan, the government developed an education portal called Darsak as well as two dedicated TV channels that air online lectures. These mediums offer lessons in Arabic, English, maths, and science for students of classes 1 through 12. Moreover, given the seriousness of the situation, the television sports channel of the country is being used to broadcast educational material that would benefit students preparing for Tawjihi, the secondary school leaving examination. Recognizing the fact that the capacity building of the staff is also necessary, the Ministry of Education launched a platform for teacher training that offers courses on distance learning tools, blended learning, and educational technology.

Developed Economies

Spain: The Ministry of Education and Professional Training of Spain has come up with several methods to mitigate the impact of the effect of COVID-19. The Ministry of Education and Professional Training of Spain has come up with the website "Recursos para el aprendizaje en línea", which is a repository of resources for online learning. The materials are for teachers, families, and students. On the other hand, the Spanish public television, RTVE, in partnership with the Ministry of Education and Professional Training (MEFP) through the INTEFE (National Institute of Educational Technologies and Teacher Training), launched Educlan, a learning tool for students and families. It has audiovisual content for children ages 3 to 10 years.

France: In France, the National Center for Distance Education (CNED) created the three platforms of My class at home (primary, secondary, high school). Each offers three- or four-hours educational content daily for each class, which includes lessons and exercises, as well as a virtual class for teachers to interact with students.

Bulgaria: The Ministry of Education and Science launched an e-learning system on March 16, 2020, to support online education for students. This was supported by publishers that provided free access to the full electronic versions of their textbooks in all subjects from the first to the tenth grade, enriched with additional interactive educational resources. Each school has been sent accounts to work on the Microsoft Teams platform. Profiles have been created for all students and teachers.

Source: World Bank. 2020. "How Countries Are Using Edtech (Including Online Learning, Radio, Television, Texting) to Support Access to Remote Learning During the COVID-19 Pandemic." Online brief; <https://en.unesco.org/covid19/educationresponse/nationalresponses>

B. Digital Infrastructure Upgradation of E-Learning Platforms for Integration/PPP Models

The institutions are revamping their digital infrastructure and designing the e-curriculum for adopting to the post-COVID-19 educational needs and demands. However, students and teachers have reported being burdened with the ongoing change in the teaching methods. While in a physical classroom, setting face-to-face interaction is more dynamic and teachers were able to stimulate feedback from students more easily; now, however, they are finding it difficult to engage the interests of students and doubt clearing sessions with online classes.

Thus, assessing the situation, the central government and several state governments have announced to make the reskilling of students and teachers a priority and directed their departments of education to envisage digital learning training programs. Government, early-stage start-ups, and private-sector EdTech players have partnered for upgradation of e-learning platforms for skilling of students, teachers, and prospective industry job opportunities.

1. For skilling of students

- **All India Council for Technical Education (AICTE)** launched an e-learning portal Enhancement in Learning with Improvement in Skills (ELIS) providing free access to teachers and students to foster digital learning and support the student community across the country. This is PPP model wherein 18 leading

EdTech companies have sourced content from 26 skill development courses for new users free of cost till 15th May 2020³⁹.

- **National Educational Alliance for Technology (NEAT)**, an initiative by AICTE based on the PPP model to enhance the employability skill among students, in collaboration with Education Technology Companies and National Digital Library (NDL), and EnglishBolo™, a tech-enabled English-speaking learning initiative, have come together and announced a free online Spoken English program⁴⁰.
- **National Knowledge Network (NKN)**, a state-of-the-art multi-gigabit pan-Indian resource-sharing network aimed at digitally connecting all national universities, colleges, and research establishments to create 'country-wide virtual classrooms' with 1,200 major institutions including the IITs, CSIR laboratories, space research, and atomic energy institutions.
- **Council for the Indian School Certificate Examination (CISCE)** has partnered with the television channel, ABP Ananda, a Bengali channel to begin online teaching in subjects English, maths, and science for classes 9 to 12⁴¹.
- **SMART City Schools:** Prime Minister of India Shri Narendra Modi has emphasized on "Make in India," which has also led to the envisioning of India's smart cities. India has already shortlisted its 20 smart cities out of 98 shortlisted for Smart Cities Mission released on January 29, 2016, which will gradually build up.

The SMART City Mission envisions a series of need-based education services for the urban poor and other marginalized sections of urban society along with life skills and counselling services. Mechanisms to review the curriculum and tutoring at different levels of education at a fixed interval will also be put in place, thereby increasing the use of digital technology to provide customized education services to children⁴².

For example: Pimpri-Chinchwad Smart City, Pune Limited aims to set up e-classrooms in 123 primary and secondary schools with the objective to provide quality educational tools. The technology will help in attracting students to municipal schools; the project will be implemented in 6 schools on a pilot basis and then further expanded phase wise in respective areas of the city⁴³.

2. For skilling of teachers

- **Central Board of Secondary Education (CBSE)** organized a series of more than 500 free online training sessions at the pilot stage training 35,000 teachers and principals across the country at 15 Centre of Excellence (COEs) in April. Following this, CBSE has announced to launch structured Online Teacher Training programs with more than 1,200 online sessions planned by the COEs in May⁴⁴.
- **Council for the Indian School Certificate Examination (CISCE)** in collaboration with Sports Authority of India, through the Lakshmi Bai National College of Physical Education, announced to conduct a 21-day online class for PE teachers and coaches in its affiliated school from May onwards⁴⁵.
- **Kerala Infrastructure and Technology for Education (KITE)** has given online IT training to over 81,000 primary teachers in the state. This special IT training was conducted with a feature of self-learning or group study mode and provided necessary support files, video tutorials, and other resources for teachers to learn⁴⁶.
- **Coimbatore district Education department** launched an initiative to train 550 teachers from government schools for conducting online classes using various software applications and tools in April⁴⁷.

³⁹ AICTE Press Release, ELIS Portal offering free courses inaugurated by Chairman AICTE, April 13 2020, can be accessed [here](#)

⁴⁰ IndiaToday.in, NEAT offers free online English programme in collaboration with EnglishBolo amid Covid-19, April 23 2020, can be accessed [here](#)

⁴¹ CISCE Circular, Council's initiative to reach out to students through medium of television, April 10 2020, can be accessed [here](#)

⁴² National Urban Policy Framework 2018: https://smartnet.niua.org/sites/default/files/resources/nupf_final.pdf

⁴³ 123 schools to get e-classrooms under smart city project:

http://timesofindia.indiatimes.com/articleshow/66543393.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

⁴⁴ CBSE Circular, Introduction of online teacher training by CBSE- Centre of Excellence, May 5 2020, can be accessed [here](#)

⁴⁵ CISCE Circular, Online Training Programme for the PE Teachers and Community coaches conducted by Sports Authority of India (SAI), April 26 2020, can be accessed [here](#)

⁴⁶ IndiaTv.com, COVID-19: 81000 teachers to be trained online in Kerala, March 14 2020, can be accessed [here](#)



Conclusion

COVID-19 crisis has proved to be a major driving force for revamping the Indian economy and the rest of the world. Globally, many initiatives have offered useful insights since this situation arose unexpectedly and forced everybody to adapt to change and find a new normal.

It has widened the scope of online education during this tough time and ensured continuity in learning. It is a new trend that is here to stay for decades and will strengthen the dream of Digital India as well. It is a challenge for the policymakers, skilled and unskilled labor force, human resources of the country, as well as for the nature to uphold its strength again and bring drastic but useful, operative, and efficient changes, which will result in rejuvenation and revival of the economy.

Education technology, or EdTech, has evolved from supplementing offline teaching to becoming more interactive and user friendly with structured e-learning curriculums, live classes, and online assessments as per grades.

Now we are entering a phase where the EdTech space is more personalized, catering to different grades of learning and nurtures space for innovations that inspire 'out-of-box thinking' or critical thinking and not just the age-old rote learning methods for students. It is a phase of adaptive learning wherein the true sense technology will change the traditional teaching methods.

Education, in most cases, does not qualify as an 'essential activity'. Professionally, too, opting for up-skilling is extremely critical for professionals to future-proof their careers in the current scenario. In the imminent economic downturn, companies will look for ways to lay off non-core jobs. There are only two ways any professional can future proof her/his career — be more qualified than peers and/or be skilled in areas that are likely to grow. Online certified courses for fresh graduates will be highly regarded; this will translate into a demand for digitally skilled professionals who will contribute significantly to businesses.

With many companies now opting the work from home (WFH) business model, they will be investing more in cloud infrastructure, which in turn will yield a demand for cloud administrators and tech experts in areas of data, cloud, cyber-security, and other areas of the digital economy.

Collaborative efforts by the centre, states, and private-sector companies and start-ups as documented in the report are towards the development of e-learning initiatives to boost learning outcomes among children and strengthening the teaching workforce. Post-COVID times, efforts to sustain EdTech will hopefully pave way for achieving a lot more in a matter of years.

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