COVID-19 Pandemic and the Shifting Paradigm in Higher Education

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Abstract :

The COVID-19 pandemic is set to change the world sooner than we know. The way our governments, institutions, organizations, and people think and function for governance, education, health, economy and society, will radically change for the long term. Among many economic sectors, the education sector is undergoing a tectonic shift right now. What several futurists and education technologists have been forecasting for long regarding incorporation of ICT tools in educational transactions is now happening. Among its many effects, the COVID-19 lockdown has also been a dampener on India's conventional education system. All educational institutions have been closed for almost three months now. While private schools are getting creative and teaching through conference calls, students in government schools are being left behind. It took a pandemic for the Indian government to realize that its approach to education needs a huge technology boost. The pandemic has forced all levels of educational institutions and particularly, the Universities to bring all aspects of teaching-learning processes online using internet enabled ICT tools, device and software. The UGC has been actively encouraging the optimum use of remote-learning technologies. These are both online platforms for classroom teaching as well as mediums that enable resource-sharing to continue learning smoothly. With these efforts, India's higher educational institutions have been handling the hurdles to e3nable students to complete their academic terms. However, this is just one step along the road to a new educational paradigm. COVID-19 has struck our education system like a lightning bolt and shaken it to its core. The digital divide among the huge student community, their diverse family backgrounds, the heterogeneity of socio-economic status coupled with the acute crisis brought on the marginalized sections of our population by the Covid pandemic make the model of virtual education extremely complicated. The emerging paradigm of higher education in India even after restoration of normalcy in the campus will have to factor multiple constraints and variables if education is to uphold the fundamental principle of equity of access to educational opportunities.

Keywords: *Pandemic, Paradigm, COVID, Coronavirus, Lockdown, Remote Learning, Blended Learning, Synchronous, Asynchronous, LMS, Digital, Divide, Equity, Access, Footprint, NSSO, Bharat Ne, UGC, AICTE.*

1. Introduction:

It is a fact that in our Higher Educational Institutions (HEIs), we have followed blended education since long. This essentially meant integration of ICT tools as methodology for better delivery of teaching-learning and make it more interesting as well as acceptable to the learners.

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This also led to quality assurance of educational outcomes. But there is no doubt that a majority of HEIs, particularly the old and traditional institutions, generally viewed online education as a threat to the existing pedagogy and system of academic programmes. Now, during pandemic, the online platforms have come to rescue of all the HEIs, as otherwise, there would be a complete disconnect between the students and their Institutions due to mandatory campus closure that in India started since March 25, 2020. The pandemic that has shuttered economies around the world has also battered education systems in every nook and corner of the world including underdeveloped, developing and developed countries in equal measure. Some 1.5 billion students, close to 90% of all primary, secondary and tertiary learners in the world, are no longer able to physically go to respective Institutions. The impact has been dramatic and transformative as educators scramble to put in place workable short-term solutions for remote teaching and learning. The impact has been traumatic in the poorer and /or populous countries where students and schools face additional challenges related to financing and inadequacy of good ICT infrastructure. The prevalent classroom based teaching model has transitioned into a system that is rooted in Information Technology. In this unprecedented time, the teachers have responded to the challenge and adapted to a gamut of new tools and resources in the emerging and unforeseen environment. They are rapidly adapting to the new setting and are doing their jobs without any kind of formal faculty training in virtual delivery of education, interactions in a simulated classroom environment, attendance recording, assignments, laboratory classes, tests and evaluations.

2. The Emerging Methodology : Online Teaching – Learning:

2.1. There are two key systems of virtual or online learning, namely, Synchronous Learning and Asynchronous Learning. In the first system, it enables real- time teaching and learning that encompass direct teaching, group activities, discussions and project check-ins. The Tools used are video conferencing Apps like Zoom, Google Meet, Microsoft Teams, Skype, Cisco WebEx etc. These allow screen sharing with or without time limits. Some versions also allow “Breakout Rooms” wherein small groups of students can facilitate work on Team Projects. In Asynchronous Learning, the students can complete the tasks over a period of time at their own pace. These include digital assignments and instructional videos. Teachers prefer to use Learning Management Systems (LMS) like Google Classrooms with its simple interface that enables closer engagement with students almost similar to the traditional classroom setting. Right now, the video-conferencing apps mentioned above are throwing the Colleges and Universities a lifeline. However, the faculty is still struggling to maintain the same depth of engagement with students that they could have in a classroom setting. They need to find solutions - and fast - to avoid a dip in the quality of education they are providing. Online education cannot be allowed to become audio-visual transformation of Distance Learning where the learners hardly interact with their teachers. Online education platforms such as

Coursera, an IFC client with a global presence, can play a useful role by tapping their expertise in online programme design, choice of tech platform, and digital marketing to develop the best content either with or for the traditional players. Although the adoption of online solutions in recent months has been unprecedented, at present, educators are applying sort of a 'first aid' solution by switching entirely from in-person delivery to remote instruction, a move that has been forced upon them by sudden mandatory campus closures. But they are quickly realizing that remote learning is just a baby step experiment in the long journey to offering online education in its true form that must include effective student engagement tools and teacher training. The opportunities are plenty. Already partnerships have sparked between universities, online education companies and tech providers to ensure a simulation of the classroom environment. This will continue from strength to strength beyond the pandemic for all good reasons as the appetite from students for online offerings is likely to grow exponentially. Even before the pandemic, many universities were seeing declines in enrolment for campus-based programmes and parallel increases in uptake of their online courses. The University Grants Commission launched an ambitious programme called MOOCs (Massive Open Online Courses) under SWAYAM online platform (Study Webs of Active Learning for Young Aspiring Minds) wherein hundreds of courses in emerging disciplines, subjects were available for study online together with up-skilling and re-skilling options (1). With COVID-19, we are seeing how yesterday's disruptors can become today's lifeguards. The mindset of our traditional institutions which once viewed online education as a threat is now changing as it has come to their rescue to take education to the doors of the learners. The inaccessibility to physical classrooms is accelerating new educational pedagogy, with digital at its heart. Needless to say, the centuries-old, chalk-talk teaching model is being transformed into one that is driven by technology and focuses on skill development. This is resulting in new trends coming up in a post-Covid-19 world of blended learning that will positively impact the higher education domain.

2.2. As painful and stressful a time as this is, it may fashion a long overdue and welcome rebirth of our education systems. The pandemic has been a great leveler in a way, giving all stakeholders (educators, learners, policy-makers and society at large) in developed and developing countries a better understanding of the vulnerabilities and shortcomings our current education systems. It has underscored how indispensable it is for our populations to be digitally literate to function and progress in a world where social distancing, greater digitalization of services and more digitally-centered communications may increasingly become the norm. More fundamentally, COVID-19 is causing us to challenge deep-rooted notions of when, where, and how to deliver education, of the role of colleges and universities, the importance of life-long and skill-based learning, and the distinction we draw between traditional and non-traditional learners. This pandemic has also made people realize how

dependent we are on so-called low-skilled workers to keep our lives going. During shutdowns, lockdowns and curfews, it's these workers who are on the front lines, working multiple shifts to maintain delivery and take care of our basic needs. While there will always be services provided by low-skilled workers, they certainly require higher skill sets. Being able to re-skill and up-skill in this rapidly changing world is not only a necessity but an economic imperative. Online education is fully capable of providing these skill-based educations and training services at the pace of recipients any time anywhere. An increasing number of students expect their education to pay off in the future. The boom in automation is giving rise to newer job roles, while making many existing jobs redundant. This is changing some of the competencies that companies look at while hiring. With knowledge acquisition and up-skilling becoming anchors of the changing economic times, the student community is starting to include a higher number of post-traditional learners. Working professionals are contributing to this increase in numbers of post-traditional learners, as they enroll for part-time learning programmes or courses to broaden their current skill sets. Educational institutions have to focus on better understanding the experiences of this diverse set of learners and how to best serve their evolving needs. Thus, making obsolete the one-size-fits-all model of traditional model of education, there is a growing need to customize the student experience and focus on individual learning needs. This trend is bound to increase manifold in the future as academic structures are further transformed by emerging technologies. Personalized learning enables students to learn at their pace and at a time of their choice. The use of artificial intelligence (AI) can further augment this. It is expected that by 2024, upwards of 47 per cent of learning management tools will be enabled by AI capabilities. With an AI-enabled personalized learning experience, every student would benefit from a unique educational approach that is tailor-made for his or her individual needs.

2.3. The Apps such as '*MyLab'* and 'Mastering' offer an exhaustive collection of online homework, tutorial, laboratory practical and assessment products. They create learning experiences that are truly personalized and continuously adaptive. This directly increases students' motivation in continuing their education and reduces the rates of students dropping out before completing a course. Educators are provided with data that enable them to teach more effectively. With input from more than 11 million student users annually, MyLab and Mastering create learning experiences that are truly personalized and continuously adaptive. MyLab and Mastering react to how students are actually performing, offering data-driven guidance that helps them better absorb course material and understand difficult concepts (2).

2.4. Our experience of online education over past four months has revealed more information obscured so far. Under online mode, the quieter corners of the classroom comprising the slow-learners and those shy to open up in good articulation in a classroom setting have increasingly proved more vocal and articulate in conveying their thoughts over the online medium. Quite

possibly, this sort of a medium offers a degree of anonymity unavailable in the physical classroom. Even as the students remain identifiable by their names attached to their email ids, they are not bogged down in dealing with the burden of "appearing" credible enough before their peers or the teachers by virtue of fluency or pronunciation. Nor is there a pressure of feeling judged on account of their backgrounds, and at any rate, all such judgment feels rather distant across the online veil. This instills in them a sense of confidence in being able to get their responses evaluated by their peers and teachers and sets up a level playing field among all the participants. This helps them express their views and opinions uninhibited, and in turn, minimizes the scope of testimonial injustice. Unsurprisingly, these observations emerged as the driving force of discussions in many a session and motivated more learners to participate. Further, the parents are now able to watch and scrutinize the teaching. These in turn have made the teachers more responsible and accountable. The online medium, then, offers a curious mix of anonymity and exposure. It allows for a sense of refuge without it restricting one's voice, a trade-off that we often take for granted. If campuses are meant to be sanctuaries of unfettered thought and expression, a fertile, nurturing ground for ideas to grow and mature, online platforms too can play a decisive role in this regard. One's virtual self, after all, is a prosthetic that can navigate and explore across the terrain of learning and take the first steps towards building a sense of self-worth.

2.5. With the shift from traditional face-to-face (F2F) teaching to online platforms, there will also be a need for institutions to invest significantly in infrastructure development. Even if one shifts to an online learning model, Assessments still cannot go online. Other than that, while concepts can be taught online, laboratory works, statistical and mathematical problems cannot be communicated in the same way; case studies are difficult to manage online as they require interactive learning, and the inability to assess learning outcomes is a challenge. These are some of the challenges we need to find solutions for. Technology enablement with supporting infrastructure will ensure the seamless delivery of online classes to students across the country. Investing in permanent technology solutions, such as remote collaboration tools, high-speed networks, etc. will facilitate teachers and students to continue learning even when away from campus. In just a few weeks, we have seen learning coalitions taking shape between the public and private stakeholders. In order to foster digital learning and support the student community across the country, "Enhancement in Learning with Improvement In Skills" (ELIS) portal (http://free.aicte-india.org/) has been designed by AICTE. The ELIS portal has been created to provide all students with contents that not only enhances learning for regular subjects but also aims to build up valuable skill sets as required in the actual work environment. The e-learning contents on the portal have been sourced from 18 leading Ed-tech companies with 26 different courses. Under normal circumstances these are selectively available at prices ranging from Rs 5,000 to Rs 20,000. However, all participating companies have offered to enroll students in the

present lockdown period without any cost. All companies have also gracefully agreed to keep the course free. In effect, there shall be no charges whatsoever to be paid by learners who enroll now till the course is completed (3).

3. The Flip Side : Digital Divide :

3.1. The pandemic has indeed turned out to be a great equalizer, affecting every student irrespective of socio-economic and other status across the world. But as always, the vulnerable sections or those without the financial strength to afford smart phones and high-speed internet are suffering the most and this is precisely the major challenge to spread of remote learning. Uninterrupted electricity supply and good internet connectivity, which are the prerequisites for online teaching/learning, are also not uniformly available across the country. Again, while in some cases, the required devices are not available with the poor students, teachers, without any training in virtual delivery of teaching, often struggle to adapt to the new techniques so different from the conventional classroom. Thus, the digital divide in India in the context of teaching/learning is due to access, devices and proficiency. This problem and the resultant difficulties have exacerbated due to the massive diversity in social and human development indicators consequently; access to computers with broadband internet connectivity is so much uneven that the situation is generally described as “digital divide” in Indian society. There are as many as 731 districts in India. Around 300 of them are officially recognized as backward districts of the country. This means the development indices here are poorer than the rest of the country.

3.2. According to a recent report, in September 2019, India had 687.62 million internet subscriptions. Even if we assume that each subscription is linked to a distinct individual, around half of India’s over 1.3 billion population does not have access to an internet subscription. However, according to our assessment the percentage of unconnected people is probably higher. In September 2019, India’s total number of internet subscriptions per 100 populations was 52.08 (4-5). Pertinently, India has a history of dual SIM usage. Therefore, these numbers need not convey a complete picture of the digital divide. In fact, in urban areas India has 104.25 subscriptions per 100 populations whereas in rural areas it languished at 27.57 (5). Such numbers confirm the extent of India’s rural-urban digital divide evident. India also struggles with a stark gender divide when it comes to internet access. The GSMA in a 2019 report observed that only 16% of women in India have access to mobile and internet services. In 2018, total internet density in the country stood at about 49 percent. Of that, 25 percent lived in rural areas and 75 percent in urban areas. Access to electricity is crucial for digital education, both for powering devices as well as for connecting to the internet. A nationwide survey of villages by the Ministry of Rural Development in 2017-18, showed that 16 percent of India’s households

received one to eight hours of electricity daily, 33 percent got 9-12 hours and only 47 percent received more than 12 hours of power supply daily. Erratic power supply accentuates the existing digital divide, which is evident across class, gender, region and place of residence. According to National Sample Survey Organization (2018) estimates, among the poorest 20 percent households, only 2.7 percent have access to a computer and 8.9 percent to internet facilities. In the case of the top 20 percent households, the proportions are 27.6 percent and 50.5 percent, respectively. The NSS 75th Survey (2017-18) Report (5) reveals that in India, more than 50 per cent of the people with fixed broadband had a poor Internet connection at home. Furthermore, about 3 per cent of people face cable cuts, 32 per cent have a signal problem, and 11.47 per cent have power issues. Quacquarelli Symonds (QS, 2020) (6) reported that more than 50 per cent of the people with fixed broadband had a poor internet connection at home. While those who use mobile internet, about 40.2 per cent face poor connection, 3.2 per cent power issues, and 56.6 per cent face signal issues. This has kept the attendance rates sub-par. Another survey by the University of Hyderabad (7) also revealed that even students from premier institutions like IIT are facing the issue of inadequate Internet connection and a lack of electronic devices back in their hometowns, which has kept the attendance rates in online classes to as low as 30 per cent. The same problem persists with students of government schools in Delhi, where attendance ranges between only 25-30 per cent. These figures make it clear that while moving classrooms to online platform might ensure transferring information and guidance, they cannot be effective in ensuring equity of access and seamless social interaction unless the existing inequities are addressed.

3.3. While the transition has been quite smooth for privileged students, the underprivileged ones are in a pitfall, mainly because of a lack of access to Internet services and electronic devices to view online content, leading to poor and unequal quality of educational services. In a physical classroom, these barriers cease to matter and technology remains a mere teaching aid. However, when it becomes the primary medium, those without the right gadgets are radically at a disadvantage. At times, this holds true even for urban areas. For example, many of our students could comfortably use their smart phones, especially to listen/read during classroom sessions, but found it inconvenient to type out lengthy assignments or research on them. This is reflective of a trend.

4. The Way Forward :

The preceding presentation leads to that fact that online education can be successful only if the basic requirements of accessibility, proper gadgets and proficiency in using them are adequately fulfilled. Without these, the promises of online learning would remain a distant dream and irreparably deepen the fissures in our society. Digital classrooms in such a scenario

would cease to be an equalizing medium and reinforce the existing prejudices manifold. Ominous though it might sound, this is one prospect we cannot afford to overlook or ignore. Surely, online teaching/learning activities are likely to remain and become integral components of higher education in India in future. Incorporating the changes they bring in their wake would require careful and well-balanced interventions in what might be called the "learns-cape" of the country. The following measures might serve as a roadmap-

- First, to ensure ease of access and proficiency for all sections of learners. At every step, our policymakers, administrators, teachers and even learners need to be acutely aware of making the transition inclusive. Online education cannot become an excuse to further, or worse still, mindlessly widen the disparities in our societies.
- Second, to acknowledge that online education cannot replace physical classrooms entirely. They can play a major role as accessories to classroom teaching and complement that space. They can set the stage for making classrooms more equitable and fairer. Their capacity for enhancing the sense of community in classrooms is tremendous and needs to be explored further.
- Third, measures for smooth transition from one mode of teaching to another in times of crises need to be worked out. Operational and procedural delays need to be minimized and all participants in the learning process should have the capacity to switch across modes seamlessly.
- Finally, the gross investment in primary and secondary education in India is abysmally low as compared to other developing countries. Moreover, publically funded education institutions receive much less policy attention relative to private educational institutions. Any policy encouragement for remote platform learning would be effective if the access to infrastructure is adequately provided at the school level with enhanced capacity building measures for teachers so that any further divide in higher education institutions can be averted. In the short run, online teaching modules could be seen as a close substitute for classroom teaching. In the long run, it could complement and promote socially inclusive spaces for learning.

5. State Intervention and Good Practices:

Obviously, problem of the digital divide is not unique to India. In fact, many countries are deep in struggle to provide adequate infrastructure required to stream the Internet seamlessly. The crisis and challenges have, as expected, resulted in innovations and creativity within countries to improve access to the Internet and cater to the increasing demand of e-schooling. A World Bank web page provides insights on how other economies are undertaking initiatives to make virtual schooling feasible.

5.1. Many countries across the world continue to take groundbreaking measures to bridge the digital divide. India, too, is experiencing the same problem, and, therefore, it becomes important to address the issues associated with online education. Let's see some of the novel solutions undertaken by various countries to overcome the situation, and how they can help our nation to overcome the digital divide.

- Jamaica, Argentina, and South Africa have introduced zero-rated educational websites (8-9). Zero-rating is a practice that allows consumers to use a website without any financial cost. Jamaica and Argentina also distributed learning kits to students who don't have access to Internet connections and partnered up with Internet service providers to subsidize Internet plans and make learning on digital platforms affordable.
- Rwanda and Kenya waived Internet charges for students, while Bhutan and the Kyrgyz Republic are providing them with additional data so that they can access online education easily. Kenya is also trying to improve its network coverage by introducing Google's 'Loon Balloons'. These 'Balloons' float in the airspace carrying 4G base stations. Users can access the networks by simply expanding a special Internet antenna attached to their building, which provides connectivity across an area of 80 kms (8-9).
- Most developing countries have resorted heavily on televising educational programmes, because people find television services to be more accessible than online educational services.
- Croatia and Egypt have approached telecom companies to provide free Internet access to students belonging to lower socio-economic status. The Government of Dominican Republic has been creating free Wi-Fi hotspots (10-11).
- Ecuador and El Salvador**,** apart from conducting regular online classes and broadcasting educational content on televisions, has also started sharing resource material in audio format to widen their reach. They have dedicated email addresses and phone numbers for student queries. In the US too, efforts to reach connectivity to students are on (9-11).
- Chicago's Public Schools have provided students with personal gadgets to keep them abreast of their education timelines. In Coachella Valley, California, the students were not only given personal devices like Tablets but were also provided with seamless Internet hotspots in their neighborhoods as early as in 2016. The district school has handed out I pads to the students and implanted routers in the school buses and parked them near the residential complexes. The scheme has so far greatly benefited the marginalized students in the area. It also increased the graduation rate by 10 per cent. The intervention received an overwhelmingly positive response from the students, which has encouraged many other cities in America to implement measures like creating portable Wi-Fi hotspots wherever

the school buses were parked. The city of Detroit in Michigan issued laptop-cum-tablets to marginalized student (10-12).

5.2 In India, the crises and emergencies like the COVID-19 pandemic have brutally highlighted how access to internet and connectivity has become an inalienable right to life. Internet infrastructural support and access to information continue to be crucial in supporting our underserved populations in these critical times. The Panchayats, which governs about 67 per cent of the total population and are responsible to deliver information and services across 29 state subjects, were promised fibre optic lines of 100 mbps under government's ambitious Bharat Broadband Network Ltd. (BBNL), popularly known as the Bharat Net Programme, under the National Optical Fibre Network, a Flagship Project of the Govt. of India *(13)*. However, the Covid-19 crisis clearly shows that we are late in ensuring its effective implementation. Essentially, India needs a public institution system that leverages the opportunities provided by digital technology. For education to be universal, last-mile connectivity is the need of the hour in rural India, which is still struggling with 2G speed. There is an urgent need to formulate a digital crisis response plan under the Digital India scheme to focus on unintended exclusions of the unconnected by providing free bandwidth to the vulnerable. Internet Service Providers (ISPs) should provide cheaper data plans or bundle a data plan along with the device. If the experience with COVID-19 has taught us anything, it is that policies as well as crises and emergency response should have a digital inclusion plank to mitigate the fallouts for vulnerable populations and ensure the availability of adequate safety nets.

6. Conclusion :

An objective assessment of the present situation in Indian education sector, particularly in the higher education sector, leaves no doubt that a paradigm shift is in place regarding delivery of education during lockdown of the campus. However, even in the post COVID-19 era, off-line or conventional education models cannot become obsolete in as much as these models are tested over centuries of human civilization. There is no doubt that blended learning, an appropriate combination of traditional modes of education and more and more integration of ICT, is very likely to be the evolving norm. Institutions and teachers will blend the two judiciously according to the context and the content. Higher education institutions must embrace these paradigm shifts quickly to overcome the ills of current digital higher education and at the same time overcome the inhibitions of their own mindsets. The state has to come forward actively to support the financially handicapped and socially marginal vulnerable sections of students with access to devices and internet connectivity for accessing online education at par with those having no hindrance to afford online and/ or blended education. It is great to note that the UGC, under policy guidelines of the MHRD, have drawn up a comprehensive scheme to impart online education during

the COVID-19 pandemic including monitoring and evaluation and has also indicated the emerging pattern during the post-COVID period.

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