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The Past, Present and Future of E-Learning:
In India

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Abstract

E-learning is expected to be the future of education. This paper deals with the concerns that it entails and the development and growth that e-learning offers to India. The dark realities of severe economic muddles and discriminatory affairs of the country make it exclusive only to the privileged.

The major stakeholders, the students are facing immense changes with education transitioning from the traditional face to face method to online platforms, be it in terms of their mental and physical health, all-around development or them missing out on a wholesome learning experience which involves interacting with peers daily. Further, the traditional approaches in Indian pedagogy have clashing views and difficulties in adapting to online education.

Not only them, but education going virtual effects a major part of the society, be it the civil bodies or the private sector. The need for the Indian educational ecosystem to compete with the fast-growing educational technology market around the world is interlinked with the economic and social evolution of the nation. The paper also necessitates e-learning as a social investment and signifies that government policies for e-learning are the elements that solely define the future of e-learning.

Keywords

1. E-Learning
2. Digital divide
3. MOOC in India
4. Blended learning
5. Education policy
6. Instructional technologies
7. Experiential learning

1.0 Introduction

Throughout the history of mankind, one thing that has helped us in every way is our ability to learn and adapt to the situation at hand. And “education” is the tool that has helped us in enhancing these qualities. Education is responsible for the personality, character, growth and all-round development of an individual. All of us remember reading about traditional ways of education such as gurukuls and homeschools. However, as change is the quality that helps in evolution, nations saw the emergence of day schools, boarding schools and colleges which resorted to the ways of teaching through blackboards and whiteboards. Then came the days when having a computer/ laptop along with an internet connection were a “luxury” compared to today’s scenario, where they are a “necessity”.

Today, each one of us is in one way or another is connected to some part of the e-sphere. As the average internet speed in India improved, several students then started to resort to distance learning and online sites for certifications. The advent of cheap internet made sure anyone having a smartphone can access free online lessons that are uploaded via Youtube, Unacademy etc which offer a diverse catalogue. The need for accommodating people such specific needs led to the popularity of the Learning Management System (LMS), like *Moodle and Google Classroom* much before them is a commonly used tool amid the pandemic of COVID-19.

E-learning is the methodology of teaching or imparting education via the help of electronic use. While teaching can be based in or out of the classrooms, the use of computers and the Internet forms the major component of E-learning. E-learning can also be termed as a network-enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times. (The Economic Times, n.d.)

According to a report by KPMG in India and Google in 2017:

- India’s online education market is set to grow to USD 1.96 billion and around 9.6 million by 2021 from USD 247 million and 1.6 million users in 2016.
- For India’s online students perceive convenience, flexibility with commencement dates and variety of study material are key motivational factors to adopt online channels.
- Online education has reduced the age constraint for learning.

(KPMG in India & Google, 2017)

Now, imagine the change in statistics and the importance of e-learning with the dawn of COVID - 19 where one thing that helped millions of educational institutes across India and the globe are virtual classrooms and different modes of online education.

Further, there was a report in the media on April 13, 2020, quoting the Chairman of the University Grants Commission (UGC) as saying, among other things, that to maintain social distancing, online learning and e-education were the only way out, and that it was the need of the hour for students, teachers and the education system as a whole.(Menon, 2020)

Developed nations such as the USA, China, South Korea and the United Kingdom are leading the scoreboard in terms of online education. Students can now easily access various diplomas and graduate with degrees of a course of their choice of the reputed Ivy Leagues and other renowned institutions of these countries from the comfort of their own homes.

These facts layout the belief that E-learning is the next big thing in the education sector that is user-oriented, appropriate and timely for our generation. The e-sphere is as vast as the universe, with millions of opportunities in terms of education, however, it has several drawbacks too. This research paper intends to bring into light the current and the attainable future scenario of online education in India, provides certain reforms to it and answer the much-needed question, “Keeping in mind the social, economical, political, legal and technological factors in respect to the government and the citizens, is online education the sustainable choice for educational institutes pan India?”

2.0 Inclusivity In Online Learning

Access to the e-learning platforms is largely determined by factors like the availability of reliable electricity, access to internet devices, and high-speed internet. India’s internet penetration still hovers around 55 per cent (much of it being mobile devices with the boom occurring within the past decade) with one of the lowest internet speeds, which is a significant hurdle considering that most educational content is online lectures. Again India has highly unreliable electricity with outages lasting hours in rural areas, and it often leaves out ‘last mile’ consumers. (Heynen, 2019) In 2015, an NSSO (National Sample Survey Office) report titled “Education in India” pointed out that there has been almost a 175 per cent increase in the annual private expenditure on general education between 2008-14. The traditional brick and mortar education system is also unable to fulfil the rising demand, especially since the government aims to

increase the Gross-Enrolment ratio to 30 percent by 2020. Here online platforms can look like an attractive option given it's cheaper and is accessible to many but the catch is that all of the existing platforms only act as a supplementary resource and are still expensive to a vast majority. Not to mention the scaling up of these online platforms require significant investment in physical infrastructure and human capital, which are available only to a select few public institutions and private players. Also, online platforms are cheaper but again unaffordable to many and doesn't solve the structural issue with India's educational system.

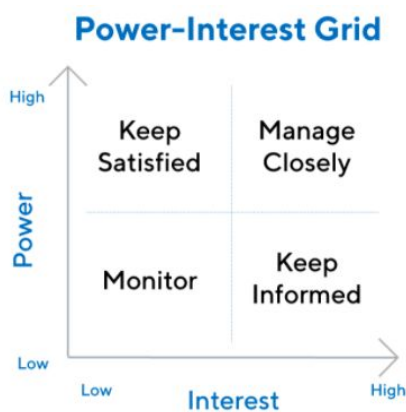
More than 90 per cent of the content in the existing online platforms are in English. Hence, it fails to cater to the needs of a linguistically diverse audience and lower-income socio-economic group who don't have access to the internet and capital in India making it accessible only to a selected group.

The cultural obligations within the South Asian communities, generally restrict the use of modern technology to women and further one can see how the online pedagogy model fails to imbibe gender parity as studies show how interactive classes by women could have a major impact on how young people view the role women should play in society.

3.0 Problems Faced and Concerns due to E-Learning by its Key Stakeholders

3.1 Stakeholder Analysis

Before listing out the problems, it is important to analyse who the primary and secondary stakeholders are through the usage of a brief stakeholder analysis, based on the following power interest grid.



(Product Plan, n.d.)

The above-given grid gives a basis for defining the part that a certain community or a group of likewise people play in a project, policy or subject defined on the power they hold and the interest they have over the subject.

STAKEHOLDER ANALYSIS TABLE

S No.	Stakeholder Name	Power	Interest	Primary/ Secondary Stakeholder	Analysis
1.	Students	High	High	Keep Satisfied: Primary	<ul style="list-style-type: none"> - Students use e-learning for after school supplementary coaching, coaching to get enrolled in higher education institutions and many more. - For half, it forms a sub-portion of their education, be it courses to enhance their skills or a diploma for others it can be the sole way of gaining an education.
2.	Teachers	High	High	Keep Satisfied: Primary	<ul style="list-style-type: none"> - Teachers play a major role in educating the children, be it teaching their students the curriculum subjects or guide them for the experience of life. - Be it any mode of education, online or offline, both the scenarios affect their professional and personal lives in a major way. - The most important argument that arises is that teachers/ mentors should be up to date with the technical sophistication of the fast-growing I.T. world to provide a smooth e-learning experience to its students.

3.	Parents	High	Low	Manage Closely: Secondary	<ul style="list-style-type: none"> - Several students, in India, till date, rely on their parents for the payment of the fee, whether it be a high schooler, an undergrad student or a post-grad student, hence, parents become a major stakeholder. - Further, it is the responsibility of the parents to monitor the child's internet activity. - Also, parents and the environment at home also plays a vital role in the academic performance of children, whether it be online or offline.
4.	Educational Institutes and the Administration	High	High	Keep Satisfied: Primary	<ul style="list-style-type: none"> - The educational institutes are directly related with many factors, lack of familiarity with technology of students and faculty impedes the smooth functioning and purpose of online education - They are the ones responsible for distance learning. - They see to that, the investment in technology yields a proper return to further invest in the development of the institutes and those concerned.
5.	Content Producers	Low	High	Keep Informed: Secondary	<ul style="list-style-type: none"> - With the change in the mode of learning, certain changes are also required for the curriculum. - The kind of content to be given to the candidates and the way it is formulated and presented (videos, animations as substitutes to the text) to them to ensure maximum learning.
6.	Technology Producers	Low	High	Keep Informed: Secondary	<ul style="list-style-type: none"> - The emergence of e-learning provides several opportunities for technology providers. - It is their job to come with solutions and technology that is accessible, affordable and is easy to use by all, be it a child or a professor.

					- Further, it also opens up a lot of prospects for new markets and investments that might have a high rate of interest (ROI).
7.	Apex Educational Bodies	High	Low	Monitor: Primary	- It is the job of government bodies to provide reforms and policies that can provide a level playing field of educational opportunities across the nation, especially in a country like India. - They hold the ultimate power to encourage or discourage e-learning. They influence the formation of curriculums, which are the sole way of bringing in evolution in the education sector.

3.2 Problems Faced by Students

- In a blended learning model i.e., those which involve face to face sessions, it was observed that the faculty found it impossible to know the full picture of a student’s situation and can miss out useful indicators to assess if the material is understood properly or if the students are tired (Tognazzini et al., 2016)
- Studies show that online learning can make participants feel isolated and impedes the learning speed as well as their confidence. Hence efforts need to be made to ensure online peer to peer study groups or communities. (Hara, 2000)
- Adolescents who spend more time in electronic devices are associated with difficulties in attention, anxiety issues and sleep disorders which not only affect their academic performance but is also detrimental to their early stages of personality development (Ehmuke, 2016)
- Spending an extended amount of time on an interactive device like a computer on a seated posture can have health impacts like muscle and joint pains, eye strain and poor posture.
- Most of the online learning platforms are built upon the objectivist theory of education which sees education models as predictive and a “fit for all” solution without any social, economic or cultural consideration with a particular bias towards western systems (Nawaz and Kundi, 2010). This could mean students would feel increasingly alienated especially learning on a curriculum which has no implication or examples with their surroundings

- The current pandemic scenarios showed a different side to this, one major issue that was noticed when students were asked to use their webcam in interactive sessions was that those who were from the lower socio-economic background were awry of people knowing their surroundings and were hesitant. This can directly be attributed to the loss of self-image as well as confidence in the learning process.

3.3 Problems Faced by Teachers, Educational Institutes and Respective Administrations

In a country like India, the faculty, staff and administration in schools and colleges consist of individuals from Generation X and the Millennial Generation who are not comfortable in using technology. It is now a necessity to address these problems to salvage the impacts of COVID-19.

3.3.1 Problems Faced by Teachers

- With the crisis of COVID-19, we witnessed teachers from all across the nation facing a hundred of problems while using basic and intrinsic applications such as Google Meet, Zoom, Microsoft Teams etc.
- We saw various cases of teachers getting bullied not only by students but also by parents on online platforms, facing problems such as students losing the concentration, sleeping and eating during class. Problems such as these can prove to be catastrophic in the longer run.
- Reported or non reported incidents like of teachers getting bullied while online teaching are more than hundreds, this calls for a dire need for the training of teachers.
- During the Google for India 2020 virtual event, it was announced that Google would enable 1 million teachers in 22,000 schools to deliver “blended learning,” a combination of online learning and a classroom approach, by the end of this year. (Washington, 2020)
- According to a 2019 report by the Ministry of Human Resource Development, the statistics for 2018 teachers are:

Type of Institution	Number of Teachers	Pupil-Teacher Ratio
<i>Primary</i>	2606120	23
<i>Upper Primary</i>	2612347	17

<i>Secondary</i>	1431591	27
<i>Senior Secondary</i>	2041864	37
<i>Higher Education#</i>	1518813	24

*does not include Stand Alone Institutions

(Ministry of Human Resource Development, 2019)

Keeping in mind these statistics, there is a need to define whether the training of 22,000 teachers and considering the best-case scenario of educational institutes trying to conduct the training sessions for its teachers is enough for the country's education sector or not.

3.3.2 Problems Faced by Educational Institutes and Respective

Administrations

- Educational Institutes face many problems such as:
 - a) To bring about an evolution in their teaching styles where institutes are required to go online with all aspects, they need high capital to access high costing technology, servers and other tools. This capital is pretty hard to get sanctioned and tight budgets make it difficult to take the entire process online.
 - b) Institutes also have to keep in mind that the investments in the development always yield a higher ROI and an even higher Gross Enrollment Ratio (GRE)
- There are many areas within this perspective that give cause for concern; they have been grouped under the five broad categories, which are learning style and cultural challenges, pedagogical e-learning challenges, technological challenges, technical training challenges and time management challenges. (Islam et al., 2015)

3.4 Problems Faced by Parents

- The pandemic was an eye-opener on how schools served as social institutions for they kept students engaged for a large part of the day, benefiting working women and providing nutrition to a large section of the population through mid-day meal schemes. Both of these features have no replacements when a rapid shift towards online learning occurs.

- Parents at large face difficulty in catching up with the latest technologies to provide their kids with a meaningful learning experience which is a stark reminder of the digital divide. Further in homes with multiple children, a conflict for online resources is bound to emerge.
- Only 21 per cent of Indian households have Internet access meaning parents will be forced to let their children use mobile devices which are otherwise used for personal and communication needs.

4.5 Concerns of Content Producers, Technology Producers and Apex Educational Institutes

3.5.1 Concerns of Content Producers

- One of the major problems that the content producers face is related to intellectual property rights.
- The theft of his/her creation leads to a great amount of loss, as the internet being a wide place, these creations get distributed widely for free without the creator receiving the credit for it.
- Content producers also have the pressure of creating content that matches the technological standards and is popular among the users.

3.5.2 Concerns of Technology Producers

- Technological producers face difficulty while coming up with lasting solutions which support the following factors:
 - a) Since budgets are always tight, it is necessary to come up with cheap technology that works for a longer period and demands a few updates.
 - b) An e-learning product should be easy to use, which can help overcome the language, cultural and age barrier that exists in India.
 - c) Technology that works on low data and low internet speed.
- Like every other organisation, it becomes an unachievable feat to get a high ROI when such ifs, buts are at play.

3.5.3 Concerns of Apex Educational Institutes

- The rise of e-learning provides government bodies with new challenges. The number of e-learning institutions has increased, and so has the *efforts to capitalize on the situation*.

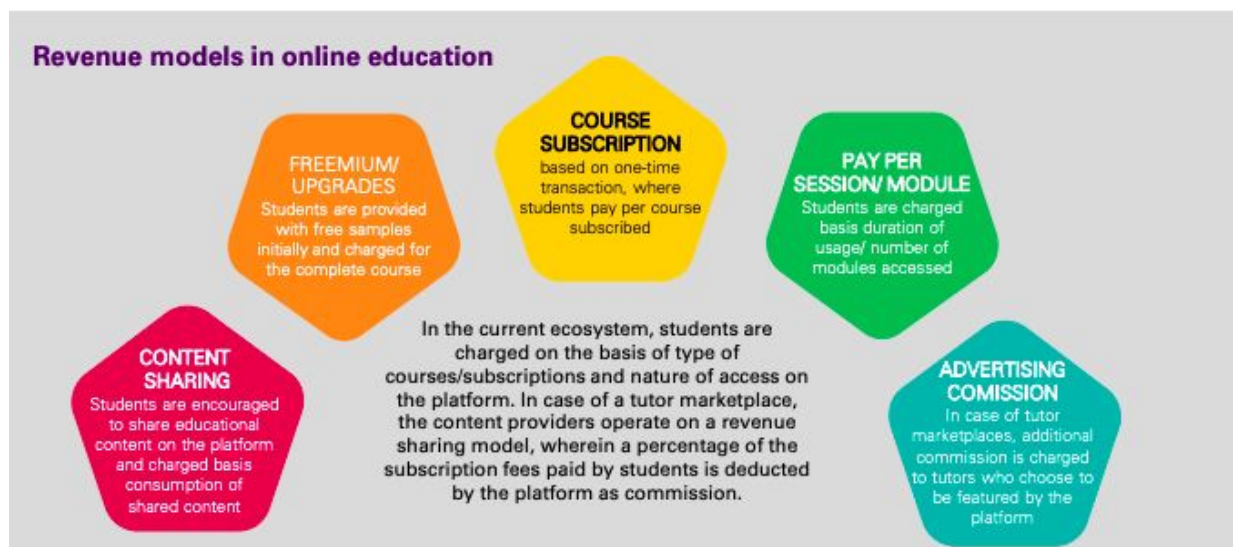
- In the end, it becomes a prime responsibility of the government to come up with solutions and policies that regulate the e-learning scenario, control the crimes related to it and lead the education sector towards a sustainable approach for development.

4.0 Market and Social Impact of Online Education

4.1 Emergence of Opportunities and New Markets due to

Development of E-Learning

- Online learning is not only a tool that supplements the education of students but also plays a vital role in the development of the market, economic growth of the I.T. industry and also opens a path for emerging startups in the education sector. Startups such as *Unacademy*, *Vedantu*, *Embibe* and *Byju's* clearly establish that this avenue is opening up paths for business models that could have never even been thought of in the past.
- The online education market in India was valued at INR 39 billion in 2018 and is expected to reach INR 360.3 billion by 2024, expanding at a Compound Annual Growth (CAGR) of ~43.85% during the 2019-2024 period. (Markets, 2020).
- According to various surveys all over India, the country has nearly 80% of unemployed engineers. The magnitude of job prospects that the growth of the online market can bring to the educated unemployed, seems promising.



Source: KPMG in India research & analysis 2017

(KPMG in India & Google, 2017)

4.2 Is E-Learning a Good Social Investment?

Social investment can be defined as an investment that created an impact on the lives of people by the means of imparting skills and offering development and growth to an individual. Education comes under one of the major categories of social investment and hence does e-learning.

Over here, we draw a *SWOT Analysis for E-learning in terms of the social aspect, to determine the aspects of it as a social development model.*

STRENGTHS (+) 6	WEAKNESSES (-) 5
<ul style="list-style-type: none"> - Accessible at home and even in remote locations. - Cheap in comparison to in-classroom education. - Flexible schedules can lead to a less stressful schedule and hence a peaceful mind.. - Students with a peaceful mind grow up to be sound individuals who can contribute to the greater good of society. - Due to the anonymity studying for introverted students becomes easy. - Comes with greater access to the resource pool. 	<ul style="list-style-type: none"> - Access to individual laptops/ phones and the internet requires a lot of capital and hence creates a sense of insecurity for those from economically weak backgrounds. - Lack of computer literacy across the nation. - The disparity in access to the internet - The requirement for self-discipline which is hard to achieve and might pressurize the student to be more productive and make one feel insecure about oneself.
OPPORTUNITIES (+) 7	THREATS (-) 5
<ul style="list-style-type: none"> - The opportunity for market growth. - Might reduce unemployment in the I.T. sector. - Can help us cross the gender barrier, since this will open up opportunities for women from orthodox backgrounds where it is forbidden for them to move out of households. - Further, it is an opportunity for women who need a career change/restart and cannot do so due to family commitments/ pregnancy. 	<ul style="list-style-type: none"> - Can be costly, in the case of predatory companies and institutions. - Cyber Crimes that sometimes cost the sanity of a person - Bullying of students and teachers which can lead to scaring for a lifetime. - Information overload - Students might get access to unwanted content.

<ul style="list-style-type: none"> - Can help cross the cultural gap as students from all over the nation and the globe will get to interact with each other daily. - Can help cross the age gap and promote education among the uneducated old people of the country as for their generation education was a stigma. - Employed people can upskill themselves in their free time without the loss of a job. 	
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5.0 Is Online Education an Alternative To Face To Face Learning?

To answer the above question, we draw a Comparative Analysis between face to face learning and online learning on a set criteria.

ANALYSIS CRITERIA	FACE TO FACE LEARNING	ONLINE LEARNING
Social Skills	Face to face interaction helps build confidence and in overcoming the fear of social interaction	Helps introvert students to learn with a more relaxed environment, however, doesn't prepare them for future social experiences
Accessibility	Restricted to a building; which needs to be visited every day.	Can be accessed from any corner of the world.
Response time	The response time of the teacher/trainer is very less, hence, better discussions on the classroom.	Questions do not get answered immediately, due to various factors such as internet issues.
Retention Rate	Variable retention rate	E-Learning can boost knowledge retention by 25%-60% according to the Research Institute of America. (Bhat, 2020)
Uniqueness	Offers children the regular mundane yet tested and successful ways of	Offers new ways of teaching such as gamification, surveys, quizzes, and assessments

	education, by the usage of practicals and blackboard teaching	present in a modern LMS which makes education even more interactive, however, might not be profitable for all.
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6.0 Policies and Government Reforms on E-Learning

The emergence of online learning needs to be seen as an extension to the distance learning systems. The first ambitious attempt at the same was from the University of Toronto in 1986 (Bates, 2016) which tested online conferencing as a tool for collaborative learning with significant success. Parallely in India, the National Education Policy (NEP) draft of 1986 discussed in length for the expansion of the Open University System (IGNOU) as well as the need for distance learning to make technical and managerial knowledge more democratic. It also acknowledged the issue of time and distance as a significant constraint to students in the same and deliberated the use of technology to address the same. Of course, the internet in 1986 was a rudimentary network, and it wasn't exactly pondered over as a key to the solution. Hence the NEP of 2016 brought forward the use of Information and Communication Technology as a need to enable learning at higher education levels and skill development. It also discussed the need for MOOCs, to provide cutting-edge education and to cater to the need to continuously update knowledge.

The 2019 NEP draft further discusses the need to establish a repository for all educational data as well as ensuring the access of such content isn't restricted to Tier 1 institutions alone. It also acknowledges the disparity in access to internet devices and the detrimental effects of the same and encourages institutions to develop their online programmes and accept and grant credit for international institutions' online programmes. The policy recommends inviting foreign institutions to operate in India — a massive shift from the country's traditional policies. The UGC, in early 2020, formally approved universities ranked among the top 100 in NIRF to offer online degrees, which is a big leap in the arena (Gohain, 2020). Further, plans include to associate the same within the Digital India initiative and allow authentication of students and link them to a national academic depository. Hitherto, Amity University and IIT Madras offer scalable online degrees with IGNOU offering a wide array of online certificate programmes.

The Indian states notably lack both the imagination and the foresight to formulate policies on the same, causing the absence of any notable contribution to the discussion on regional disparity in terms of language and access to quality education. However, owing to the pandemic, several states like Kerala and Maharashtra were quick to formulate regulations to reduce screen time and mental stress on students.

SWOT Analysis of Policies for E-Learning in India

STRENGTHS (+5)	WEAKNESS (-6)
<ul style="list-style-type: none">- It acknowledges the defect in the currently online models and discusses the needs to make hybrid models- The emphasis of Public-Private Partnership (PPP) model making sure industry is on board especially regarding the offering of skill development programmes- It considers possible collaboration with International universities and brands to make world-class content available to masses- Scaling up of online education possible owing to the improvements in digital infrastructure- Recent policies emphasis on the mental well-being of students	<ul style="list-style-type: none">- No possible models to include components of medical education- Absence of a robust, empirically tested education model for deployment on a mass scale- Policies focusing on disadvantaged groups tend to get reduced into a cluster of courses having no coherence- Focus exclusively on Technical and management courses- Lacks a similar version for adopting online education at the school level- The regional and linguistic disparity is not addressed
OPPORTUNITY (+4)	THREATS (-4)
<ul style="list-style-type: none">- Focus on using online education as a supplementary programme along with traditional pedagogy- Use the same for training and skill development of faculty which is cheaper and easier- Vision to develop multi-disciplinary online programmes which are the need of the era	<ul style="list-style-type: none">- Targets are often too ambitious and might become mere ‘paper tigers’ since several of the past policies are yet to be implemented- Use the same to reduce funding in public institutions and to favour private institutions which is unaffordable to many- High enrolment in online courses doesn’t necessarily translate to the high course

and has constraints to be offered in a traditional university system - Opportunity to attract International students in specific courses	completion, effectively defeating the core purpose of democratising education - A disparity can occur between institutions having access to high-end teaching technology and the ones that don't have.
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7.0 Conclusion

The new push for online education calls for more discussion revolving around the traditional assumptions of various learning theories. Creation of hybrid models involving both online and offline methods sure holds promise, provided sufficient investment is made on the digital infrastructure of the country with more imagination and rigour involved in the policy-making of the same. There should be a fundamental understanding that the new wave of technology only enhances the learning process, and is in no way a panacea to the structural problems plaguing the Indian education system.

Surely new experimentation with technology and the ubiquitous presence of ed-tech start-ups can help in the goal to increase the Gross- Enrolment Ratio to 100 percent. Further, there needs to be foundational guidelines, ought to be followed by both the technology providers and educational institutions to make the medium as inclusive as possible. The government on its part can design policies that take into account the diversity of the Indian scenario which consists of linguistic barriers and socio-economic disparities.

The technology providers must take into account the needs of people with special needs and their disability before designing education systems. The call for deregulation of the education sector shouldn't end up being a complete pull back and a way to curtail funding, especially in the higher education sector for the single reason that public investment on the same ends up being a paramount social investment in the long run. The government can also deliberate on combining the existing resources like SWAYAM and IGNOU to further their reach. Ultimately to make use of the massive demographic dividend, it's only imperative that radical approaches are sought, for a comprehensive reform in the education system.

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