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## Public education for rural areas in the era of digital education

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### ABSTRACT

*In the months following the national lockdown in India, a large amount of relief and recovery programs were released that were directed towards economic reconstruction. The education sector made multiple strides as well but there have been certain gaps that have not yet taken this attempt, despite the 250 billion dollar investment plan of India's central government. The lockdown impacted the day to day operations of schools, including the closure of a community daycare facility for the urban and rural communities which further resulted in schooling and health-related impacts. It has been suggested that the effect on girls and children from already deprived racial and caste backgrounds is likely to get even more severe. Strategies at various levels are still being explored to enhance and reinforce the current social insurance systems and boost their impacts. Despite the various efforts and initiatives introduced by the government, there is a failure in the public education system during such crisis scenarios. Will the collective efforts of the government, NGOs, and civil society organizations help in introducing digital initiatives to meet the initial challenges and help in making learning more engaging and interesting. Also, keeping in mind this current pandemic wherein most of the private schools took their classes online, it is important that such measures are taken for the rural and underprivileged children who might not be able to afford the requisite tools and gadgets for e-learning. It is important for the government to ensure that they are not despised for their basic education and there is always an alternative during major crises.*

**Keywords:** Rural Areas, Digital Education, Digital Learning, Covid-19

### 1. INTRODUCTION

While India slowly opens up its economy, schools and colleges in the country were shut down for over five months following the months of national lockdown due to Covid-19. Also, even when it is expected that schools would open soon, however there is a massive uncertainty in terms of normalcy expected in regular classroom education for months. For the post-graduate and undergraduate entrance tests, school examinations and school final assessments, everything had come to a critical point wherein the administrators were facing massive stress in terms of the regular procedures followed in the usual educational pattern. What are the consequences of this interference for students across the social and cultural continuum, including their academic results and economic security? In this article, some of the implications of the education lockout are addressed and the measures taken by various state and central authorities to counter them. Ultimately, various ways were suggested to those who were affected due to lockdown and young children were supported with the help of available social security provisions and nets [1].

*"Education is what remains after one has forgotten what one has learned in school."*

*Albert Einstein*

While these words of Einstein were said in good humour, but they perfectly reflect the ever changing and evolving education system. Today, education has metamorphosed into learning that is prompt, online, self-driven, and flexible. Keeping in mind the ongoing struggle due to pandemic, online education plays a very important part and most of the students (especially in rural areas) are not blessed with this crucial educational infrastructure. This brings us to another important question, do we really have equal access to education for all? India has about 430 million children (age group- 0-18 years) where considerable number of students are from rural areas and out of these many are from underprivileged section as well. Keeping aside the other challenges like archaic teaching, inconsistent teacher to students ration, digital education has become one of the biggest challenges during recent times. The rural districts fail to provide their larger suburban and industrial peers with the same educational opportunities and therefore work at higher expenses per pupil and budgets. The potential of technology to connect distance, increase administrative capacity and tailor interactions in a fairly low cost setting makes rural communities that works to enhance outcomes for students and make the most of existing capital. Nonetheless, to realize the potential of rural education technologies, politicians need more examples of how technologies will solve the problems posed by rural education staff and what strategies and programs need to be placed in effect in order to be sure that they will access them [5].

### 2. VIRTUAL LEARNING

According to India's 2019 Internet survey by IAMAI and Nielsen, just 36 percent of the Indian population, about 385 million older than 12, have internet access. Although, coverage in rural areas is not uniform, with just 27% and 51% in metropolitan areas for Internet connectivity. WhatsApp has more than 400 million Indian subscribers, the majority of them in urban areas. COVID-19 has definitely disrupted the normal schedule for everyone. With this sudden lockdown due to the global health crisis, classrooms have shifted to online learning methods. E-learning is described “as acquisition of knowledge and skill using electronic technologies such as computer and Internet based courseware and local and wide area networks.” In 1995, it was introduced as “Internet based Training” and then later known as “Web-based Training” (for clarifying that on Intra- as well as Inter-net delivery), after that “Online Learning” as well as lastly known as e-learning [9]. Gaps in basic infrastructure support such as electricity, potable water, health and hygiene has been the big obstacles in the current education system in rural schools. Lack of internet access prevents broadening of the education environment in the rural sector . Many of these areas are frequently disturbed by natural or political disturbances which makes it even more difficult to establish a sustainable educational environment. During the nationwide lockdown, came across a post on one of the social media platforms where a platform called, Humans of Bombay had quoted a daily wage labourer who explicitly expressed grief on how him not being able to afford a smart phone affected his children’s studies. On the other hand, the household help also mentioned how the public schools have been shut and this has impacted the learning curve for their children. This leads us to think that due to improper infrastructure and their financial stress, children are suffering from their basic rights i.e freedom to education.

**2.1 High-Quality Material and Content Access**

While information dependent on technology — including applications, online educational facilities and remote education programs — is able to revolutionize rural education, the advantages become meaningless if it isn't good quality material. Rural teachers may require assistance in finding electronic training and/or applications that can yield good outcomes. Roughly one third of educators use apps to identify and exchange lessons for over one hour or more a week. 91 per cent of teachers are app consumers. Some feel confused by the number of digital resources and need support identifying those that are efficient and useful.

Poor infrastructure like lack of strong internet facility, electricity issue adds to the barriers for quality digital education for students in most of the rural parts of our country.

**2.2 Skilled Technology Staff Access**

Rural regions also have a tougher time than urban suburban areas for more compensation, drawing up qualified, trained technical workers (like development coordinators and accredited network employees). Rural areas will be resourceful to employ as teachers or someone with a professional experience, but with holes in their knowledge to qualifications (i.e., the retired instructor in a techsavvy school, who is the network administrator over time). Groups like the School Network Alliance offer advice on careers, qualifications and experience that tech employees can have; but it may be difficult to locate such an individual in rural areas [6].

**3. NEED FOR DIGITAL INITIATIVES FOR STRENGTHENING RURAL EDUCATION IN INDIA**

Adequate utilization of technologies may serve to solve certain issues while leveraging interactive educational systems. The rural areas can be provided with digital teaching devices, high-end lectures over video calls, smart boards etc., with the aid of public-private collaboration. Schools with one instructor will perform immersive lectures through several locations using interactive digital media platforms. This aims to counter the shortage of instructors in such schools as well. [2] Once technology gets introduced in rural areas, teachers will eventually get acclimated by their usage. Interactive learning through digitisation will make learning more exciting and interactive in schools, which will also help to curb down the drop-out rates.

**3.1 Use of Technology in Improving Delivery of Education Services through Collaborations**

**Table 1: School and teachers characteristics’ demographic information (N=462). [8]**

Variables	Category	Frequency	Percent
Teacher level			
Gender	Female	300	64.9
	Male	162	35.1
Age	< 26	33	7.1
	26–30	35	7.6
	31–35	84	18.2
	36–40	109	23.6
	41–45	83	18
	46–50	54	11.7
	51–55	57	12.3
	> 55	7	1.5
Class size	< 16	8	1.7
	16–30	38	8.2
	31–45	166	35.9
	46–55	219	47.4
	56–65	28	6.1
	> 65	3	0.6
	Number of subjects	1	259
2		96	20.8
3		51	11.0
> 3		56	12.1
> 10		3	0.6
Years of teaching with DERs	< 1	21	4.5
	1–3	65	14.1
	4–5	90	19.5
	6–10	163	35.3
	> 10	123	26.6
	School level		
School type	Primary school	296	64.1
	Junior high school	166	35.9
School location	Village	47	10.2
	Town	415	89.8

The role of NGOs and private sector players in distributing digital education technologies through indigenous village is now supported by the government. It focuses on enhancing education efficiency in rural areas through incorporating software and leveraging corporations' capital. The emphasis is on switching from blackboards to digital boards. With the right collaboration and synergy of public and private sector in education, rural areas can solve the gap in current digital education in rural areas. CSR programs by private companies and partnering with NGOs can help to mitigate the problem of shortage of infrastructure facility.

**Table 2: Teachers’ descriptive statistics use of varied DERs types in teaching practices (N=462). [8]**

Scale	Frequency (%)							Mean	SD
	never	hardly	rarely	sometimes	often	almost always	always		
Multimedia Courseware	0(0.0%)	7(1.5%)	13(2.8%)	53(11.5%)	163(35.3%)	69(14.9%)	157(34.0%)	5.61	1.23
Multimedia material (text, pictures, animation, video, audio, etc.)	0(0.0%)	6(1.3%)	27(5.8%)	96(20.8%)	181(39.2%)	53(11.5%)	99(21.4%)	5.18	1.23
Electronic lesson plans	1(0.2%)	13(2.8%)	35(7.6%)	86(18.6%)	143(31.0%)	62(13.4%)	122(26.4%)	5.23	1.39
Teaching cases and videos of famous teachers	5(1.1%)	23(5.0%)	72(15.6%)	190(41.1%)	122(26.4%)	24(5.2%)	26(5.6%)	4.25	1.17
Question bank/test papers	14(3.0%)	17(3.7%)	59(12.8%)	145(31.4%)	143(31.0%)	37(8.0%)	47(10.2%)	4.48	1.37
Microlecture/microvideo	14(3.0%)	49(10.6%)	128(27.7%)	167(36.1%)	78(16.9%)	13(2.8%)	13(2.8%)	3.73	1.20
Subject software and tools (Geometry, virtual lab, etc.)	83(18.0%)	95(20.6%)	109(23.6%)	99(21.4%)	48(10.4%)	11(2.4%)	17(3.7%)	3.08	1.54
Online course	37(8.0%)	68(14.7%)	113(24.5%)	145(31.4%)	73(15.8%)	16(3.5%)	10(2.2%)	3.51	1.35
Thematic page/website	38(8.2%)	52(11.3%)	101(21.9%)	148(32.0%)	82(17.7%)	24(5.2%)	17(3.7%)	3.70	1.43
E-books/periodicals	42(9.1%)	89(19.3%)	122(26.4%)	119(25.8%)	60(13.0%)	17(3.7%)	13(2.8%)	3.37	1.41

**4. DIGITAL EDUCATION BARRIERS IN RURAL INDIA**

In this sense, some of the main problems can be listed [4]:

- *Digital Literacy and Technology Support:* Online literacy and connectivity pose significant barriers to online education in Indian rural areas. Many farmers do not yet have the requisite internet infrastructure or even expertise to comprehend computer terms and tools. There are still significant issues with the absence of other supporting services such as a constant electricity supply.
- *For increased Content Consumption usage access to the right device and cost of Data:* it is important to recognize the provision of the right equipment for all students to access digital information when exploring the area of digital learning. Laptops or mobiles are not available to a large number of people in rural India. And if desktops or laptops are available, there is another issue with internet connectivity and costs. For both teachers and learners, data packages and their costs can be a major deterrent, particularly for live classes. To order to resolve this void, telecommunications providers should allow discounted learning data plans affordable.
- *Skill Lack:* Another important factor impacting the expansion of digital education is the lack of skills among rural teachers to utilize the technology platforms. Because teachers are not qualified to utilize interactive tools themselves, the introduction of such education approaches is a source of resistance.
- *Language concerns:* Nearly 85% of Indians do not understand English. The shortage of standard material accessible in Hindi and regional languages often leads such online courses to be implemented gradually.
- *Absence of basic E-Learning material in many languages:* We are already having issues with the quality of uniform information at the level of K-12 and higher education and we have no successful coverage on the E-Learning stage. Curating common open-source software is an expensive task that would allow the government to organize their efforts. The instruction will be changed from the hybrid implementation process.
- *Gender inequalities:* Online schooling is far more difficult for the rural women in India. Links to Internet and literacy are mostly open to people in rural India, like most other regions. This becomes much more challenging to allow women to reach such services in such a situation.

**5. DISCUSSION**

With the introduction of remote learning centres with the help of digital tools, the enrolment frequency can see a rapid ride. These new teaching methods might initially pose multiple challenges to both teachers and students, but gradually the exposure to digital education can help to reduce the number of drop outs. Just introducing digital education with right infrastructure is not sufficient, it is important to ensure that adequate communication takes place between teachers and students.

Online education can work wonders if equipped with right infrastructure and basic ground work by the government. Furthermore, for the digital tools’ more effective use and better achievement by the rural India, corporates’ CSR wings, NGOs and government can collectively work in this direction. This will provide an opportunity to the rural kids to compete with urban areas students as well as furthermore provides education’s universalisation, therefore, keeping the national interests of India fostered.

More schemes like UP free laptop Yojana and WB’s free tablet schemes should be introduced but for students at all levels because infusing more into education would be towards the betterment of the nation overall.

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