

Impact of Access to Education and Technology during COVID-19 in Uttar Pradesh, India

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ABSTRACT

Economic recessions and pandemics like COVID-19 typically leave behind a degree of economic scarring and slower growth in subsequent years. Without immediate remedial action, drop-out rate of girls from schools continue to rise making way for early marriages, sexual exploitation, and domestic violence. In this article we review access to education and technology during COVID in Uttar Pradesh to address the following questions – what were the challenges in equal access to education and technology in Uttar Pradesh during the COVID-19 pandemic? How does education during a pandemic affect learning and continuity in education for children? To answer these questions, we address the issues that contributed to greater uncertainties regarding equal access to education and technology during the pandemic. We bring out the focus group discussions with head teachers, schoolteachers and students (mostly girls) aged between 12-17 years in rural and urban areas in Uttar Pradesh to suggest possible remedial actions to improve access to education and technology and to raise awareness of potential challenges facing students and teachers in Uttar Pradesh.

Keywords: Education, access, challenges, technology, COVID-19

Following the Covid-19 pandemic, it is becoming increasingly clear that we are now in the midst of a learning catastrophe because of the way the education of millions of children was disrupted. The adverse impact on learning outcomes that this pandemic is likely to make or has made, has been estimated as humungous and 290 million students were out of school due to covid-19 (UNESCO (2020). The situation in South Asia is dire as the World Economic Forum report on, 'The COVID-19 pandemic has increased learning poverty' estimated about 78% of children are now likely to fail the same basic literacy test compared with 60% pre-pandemic. It is also reported by the World Bank in 2022 that India's 'learning poverty' has shot up to

70% from 54%, worsening the post-pandemic effects on the country's education infrastructure.

In this paper we discuss the impacts of access to education and technology during COVID-19 in Uttar Pradesh. We chose Uttar Pradesh (UP), since it is the most populated state in India as well as the most populous country subdivision in the world. UP's education scenario has been under scrutiny and report published by the Education Word on 17th June 2022 mentioned scathing remarks

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about the quality of teachers appointed in UP's government schools. It reported that an estimated 30,730 upper primary and 18,119 primary school teachers lacked requisite training or qualifications, and there was a shortage of 175,000 teachers against the sanctioned strength of 760,000. According to an editorial coverage (*The Hindu*, 2021), published during the pandemic, students and teachers have not been able to use computers and the internet has been acknowledged to be a form of deprivation, especially during the pandemic, just as the inability to attend in-person classes is another. The data presented in the article confirmed that a mere 22% of schools across the country on an average have internet access, while government institutions are much worse with just 11%. The national average was 37% and, for government schools it was 28.5%. Beyond the averages, the range of deficits reflects deep asymmetries where, 87.84% of Kerala schools and 85.69% schools in Delhi had internet facility, compared to 6.46% in Odisha, 8.5% in Bihar, 10% in West Bengal and 13.62% in Uttar Pradesh. A survey by Parliamentary Standing Committee found that Classes 8-12 in centrally run schools showed last August that 80-90% students were dependent on mobiles rather than laptops for digital schooling, while 30% were affected by electricity supply disruptions (Jebaraj, 2020). On the grounds of such findings, the House Panel on Education requested the Centre to assess the account of how badly school students have been hit by the pandemic and asked to collect States' surveys on access to digital education. Interestingly, the Ministry of Education via the Unified District Information System for Education Plus (UDISE+) (2020), reported that general availability of infrastructure in schools has improved in 2019-20 compared to previous year.

Regional Analysis of Access to Technology: Digital Divide in Uttar Pradesh

Access to digital infrastructure in India is marked by a significant disparity between urban and rural areas, and between men and women. Along with this, it would also be pertinent to note that only 47% of Indian households receive more than 12 hours of electricity (WEF, 2020). According to the Ministry of Statistics and Program Implementation (MoSPI), only 24% of Indian households have internet access. The National Statistical Office (NSO) (2019) quotes

that there exists a huge variation between rural and urban India where only 4.4% of households in rural India had internet facilities. The gender divide in access and ability to use digital infrastructure is also reported to be widely prevalent with the Internet and Mobile Association of India (2019) reporting only 33% women have access to internet compared to 67% of men. This disparity is more prominent in rural India where 72% men and only 28% women have access to the internet (MOSPI, 2019).

The COVID-19 pandemic further revealed these inequities within education, with more than 1.5 million schools closed and millions of children unable to access online education due to a lack of digital infrastructure (Alvi, 2020, Deka, 2021). Several research organizations found overall discontinuation of children's education during the lockdown, with higher percentage in rural areas, i.e., 67% as compared to urban areas with 55% (Save the Children, 2020). As per a report published by Amartya Sen Trust, approximately 40% primary school students in Kolkata could not attend online classes during pandemic owing to the digital divide. The findings are based on experiences over six months during the first wave of the pandemic (April to November 2020) shared by primary school teachers (Singh, 2021). Further research showed many households lack computing devices or internet access (Azim Premji Foundation, 2021, ASER, 2021 and Oxfam, 2020), and those who do have them may not have the necessary knowledge to use them effectively (Mukhopadhyay, 2020). Furthermore, financial constraints often prevent children from continuing their education, particularly in rural areas (NSSO, 2015). The significance of institutional environment has been grossly undermined in the process of unjust thrust towards the shift to virtual mode of education (Dhankar, 2020). A major correspondence report (2020) by one of India's leading newspaper, *The Hindu*, explains how tragic impact of pandemic on the economy alone has made girls and young women more vulnerable to early marriage, early pregnancy and gender-based violence at home and has adversely affected their future with the school closures and the eventual shift to online education, which added to aggravate their situation. There have also been psychological stresses due to academic pressures (Singh, 22). While virtual learning has been implemented in

response to the pandemic, it has been criticized for exacerbating existing inequalities.

The shift to virtual education in response to the pandemic has highlighted the lack of preparedness and inclusivity in India's education system, yet a statement in the Parliament in month of February 2021 by education minister claimed that no one was deprived of education due to its shift to online mode during the lockdown period. Alongside the findings of the reports and publications we discussed above which evidence the lack of inclusivity, Wadia (2020) in ORF Hindi argues that shift to virtual learning was fraught with umpteen challenges in India and lacked in basic preparedness. She underlines the fault lines in digital policies adopted by the Indian government that failed to deliver, viz. the Bharat Net scheme launched in 2011 which intended to provide internet services to approximately 0.25 million village panchayats or, the more recent Digital India Campaign, a flagship program of Indian government launched in 2015 with an aim to improve India's online infrastructure and digitally empower its citizens. Notwithstanding these incessant articles and research studies bringing out the ruthless realities from different parts of the country, the Union Minister of Finance and Corporate Affairs released a statement (PIB, 2021), that there has been a jump in number of smart phones being owned by students across rural India which has increased majorly from 36.5% in 2018 to 61.8% in 2020 and this would result in filling up the digital divide between urban and rural areas and, would ultimately lead to the end of gender based discrimination in education.

In fact, with the virtual education, we have left the idea of inclusivity far behind and the worst part is that no one is considering an assessment of the number of adolescents who will be out of the education system if dependence on online classes increases with time, given the amount of uncertainty looming around (Jansatta, 2020).

Online provisions during COVID

Against the backdrop of challenges of online education, in Uttar Pradesh, all government schools adopted DIKSHA platform (an online digital education initiative by Government of India) to ensure continuity of students' education via digital educational content. Along with the

DIKSHA platform, there is another initiative by the Government of Uttar Pradesh i.e., PRERNA application which is especially targeted for students from class 1 to class 8. PRERNA collaborates with non-profit educational platforms like Khan Academy, Pratham, Central Square Foundation, Sesame Workshop India to help generate enriching educational content that could make learning at home easy for students. The state education department of Uttar Pradesh government is using its existing network of more than 1,000 WhatsApp groups with Basic Shiksha Adhikaris (BSAs), Block Education Officers (BEOs) and Head Teachers, and more than 9,000 groups with teachers to enable the reach of educational content to all teachers, who can then forward it to their respective students' groups. Apart from this, television and radio channel mediums are also being deployed for reaching out to children, especially in rural areas where internet connectivity might be an issue.

As per the Digital Education in India report (2020), from end of April to mid-June, 2020, a 1.5-hour slot on *Doordarshan UP* (DD-UP) had been exclusively dedicated to provide self-learning content to children. From mid of June, 2020 onwards, UP's education department bought a 4-hour slot on DD-UP to increase learning through this channel. On radio platforms, 15–30-minutes of slots on All India Radio channel *Aakashvani* was being allotted to provide audio-based learning to children in remote areas.

Methodology

As part of the Uttar Pradesh regional study, Varanasi district was chosen as the universe of the research conducted on the basis of purposive sampling. Varanasi gained prominence at the national political platform after Prime Minister Narendra Modi historically contested and won election from Varanasi constituency both in 2014 and again in 2019.

Table 1 below presents a brief demographic profile of the district. Total of 105 schools located in the district, inclusive of both government and private schools, were identified from the database of Ministry of Education. Out of these 105 schools, six schools were selected using random sampling technique. Out of the selected six schools, three were government schools and three private schools.

Balance was also attempted at selecting girls', boys' or co-educational schools. Hence, there is one girl's, one boys' and one co-educational school selected from both government and privately-run schools. These are also representative of urban and rural Varanasi.

Table 1: Varanasi Demographic Profile

Sl. No.	Heading	Details
1	Geographical Area	1535 per sq. km.
2	Population	36,76,841
3	Male Population	19,21,857
4	Female Population	17,54,984
5	Rural	20,79,790
6	Urban	15,97,051
7	Sex Ratio	913
8	Population Density	2395 per sq. km.
9	Literacy	75.60%
10	Male Literacy	83.77%
11	Female Literacy	66.69%

Source: Varanasi Municipal Corporation.

Once the selection was done, Principals from each school were contacted by phone for an appointment. During the meetings they were briefed about the research project and its purpose and, were handed over the Participant Information Sheet (PIS) for further understanding. On the basis of this, a consent form was also acquired for their signed approval for conducting research in their school's premises. Dates were fixed accordingly for further visits.

In the first round of field visit, Principals were interviewed and their views and opinion on the research theme were recorded. The first round was undertaken between 12 January 2021 to 30 January 2021. Total number of responses collected were six. In the second round of field visit, Focussed Group Discussion was conducted with teachers from each school. The number of participants in the FGD ranged between 07 – 11 and the total number of respondents were 52 combining the six FGDs conducted across selected schools. The second visit was undertaken between 13 February 2021 to 25 February 2021. In the final round of field visit, FGD was conducted with groups of students. The total number of respondents for the FGD were 110, however the numbers differ in each school for each

FGD conducted and ranged between 14- 22 number of respondents. The group of students from each school included a mix of students from various classes. The final visit was undertaken between 13 February 2021 to 27 February 2021.

The study focussed on gathering qualitative data through interviews and FGDs. The data collated was processed using NVivo. The major challenge encountered in the course of field work was a palpable anxiousness found in all the educators who largely remained reluctant in sharing information. Apart from this, in the FGDs conducted with students, majority of the respondents belonged to the category of high school and senior school because as per the government regulations, only students studying in standard 9th to standard 12th were allowed to physically visit the schools. Also since, students were visiting in small batches, the number of respondents differed in each FGD conducted. There was no clash of interest between the responding institutions and the researchers.

Findings

In Varanasi, field visits highlighted that digital divide exists at multiple levels, and is not just propelled by the financial gaps. It is hugely influenced by urban-rural cleave, gender biasness and a general lack of awareness in many parents, regardless of their position in social hierarchy. The divide exists not just at the learner's level but also at the teacher's level, where many teachers reported their struggle in navigating the technology to create educational videos, or 'teaching to a screen', making power point presentations and so on. Teachers in high-poverty schools (or school catering to low-income groups) found it overwhelming to continue with the virtual education which they strongly believed had only aggravated the inequalities amongst students. Insights drawn from interviews with educators emphasizes that students coming from better socio-economic family backdrop had faced no apparent challenges in learning virtually, nevertheless, they might have become slightly more dependent on gadgets as apart from school education on virtual platforms, many students are also referring to other online educational platforms to learn more and perform better. This increased screen-time is resulting in serious health problems not just physically but

also psychologically. Unfortunately, though, the teachers also acknowledge that unavailability of smartphone and lack of internet facilities were the two most prominent factors coming into play for students from poor and backward strata of the society, regardless of their area of locality- whether urban or rural- which brutally excluded them from receiving education and thus the sudden push for digital learning actually failed students belonging to marginalized category. Though throughout the pandemic with frequent lockdowns and school disruptions, digital technology did come as an alternative pathway to continue teaching, but this transition was not without its hiccups and disequilibrium, leading to the existent gap between the rich and the poor, the rural and the urban, the male and the female children all the more widened.

The major theme that carved out of after the analysis of FGDs with teachers was an overall consensus amongst the educators regarding the havoc that digital education has created. All teachers, across the schools visited for the study, concluded that the virtual mode of education could definitely be an aid to regular physical classroom teaching but not a substitute for it, in any case. Along with this, it was also uniformly acknowledged that online teaching remains mostly unidirectional and it is difficult to impart education in such a setting, sans the "eye-contact" that plays the critical role in didactic pedagogy. School education is a crucial phase where a child develops not just intellectually but also cognitively, emotionally and socially. Such holistic development takes place in an environment where learning is facilitated by adults and children engage with their peer groups to cultivate relationships of their own. Even if we could have interactive sessions in online classes, number of students attending online classes was extremely limited, exception being the students from high-end private schools. Those who did attend the online classes, their assessment was another tricky part.

Teachers from government schools and other private schools located in rural areas shared their foremost concern that, "technology is essentially depriving children from their constitutional right of getting educated". Digital education is not much of a trouble for those who belong to well-to-do families, but, as for students going to government/ semi-government/ composite schools located in urban

arears or urban periphery, some teachers noted "it was disturbing to come across students struggling for food, with all sources of income being shut down". Teachers from government girls' schools shared that some of the class-teachers paid the school fees of a few students who were good in studies but, their parents couldn't afford education during pandemic and wanted them to discontinue. The scary thought of such good students who stand a fair chance to achieve independence in their life might just be married off, forced the teachers to also individually counsel parents by visiting them personally, on a regular basis. The vortex of poverty pushes several children towards taking menial jobs, or perhaps forced labour, early marriages and trafficking as well. It has been petrifying to imagine what young children had to go through during these difficult times, who otherwise would have been simply finishing their studies and school education. Somewhere, this also redirects us to consider that schools are not merely the institutions that educate but, also serve as a safety-net for many adolescents, from the burden of social malice that Indian society still struggles with.

Apart from this, the teachers shared their own plight where the school administration and state apparatus were unsuccessful throughout the lockdown to provide them with necessary infrastructure in order to facilitate digital learning. Support was absent in all forms, whether it was in regard to the provision of computer systems/laptops, necessary training for smooth implementation of online education, compensation for internet/ Wi-Fi arrangements. Teachers were left to manage the pandemonium entirely at the cost of their own resources. Some senior teachers had to buy smartphones and learn how to use them because, they had never used one before. On top of it, there was reported a huge salary cut of teachers from all schools, selected for the purpose of study. In one of the private schools, the administration encouraged the teachers to buy their own laptops and gave out loans for necessary gadget purchases so as to ensure continuous and effective online classes. In the same school the management not only gave the students a fee waiver whose parents were left with no source of income; it also provided the parents with free grocery. Also, teachers from government schools were engaged in activities that go beyond the teaching-

learning cycles, such as assignment of duties during panchayat elections, collection of census data, door-to-door supply of food rations to school children (under the mid-day meal scheme which came to standstill during pandemic) and also house visits to check if anyone was suffering from high fever (corona), follow up of those who were detected of corona positive etc. Having to cope with their own health related challenges, this was no easy task.

Largely, lack of infrastructural support and a general apathy from administration made it difficult for the teachers to put up with the encumbrance of lockdown. Some opinions shared by teachers in their own words is illustrated below:

“Online classes have been a boon in these times of distress however, we (as a nation) are lagging far behind. We (Indian school systems) were not prepared for this- neither the administration, nor the teachers, or the students. Hence, it is now a futile exercise to focus on what could have been done or what did not happen. We should rather focus on how can we compensate for the loss that students incurred, not necessarily in literature subjects but, in subjects that require aptitude like mathematics and science.”

A male teacher from government boys’ school located in urban area of Varanasi—

“Students coming to this school are mostly from a very low-income, financially backward families. We have tried our best to educate their parents and convince them that education could also be imparted online (beyond classroom walls) but, it’s been difficult. Some did come round but others would consider this (online classes on smartphone) a waste of time. ‘The girls would rather work at home full-time and polish their household skills which would make it easier to get them married sooner. The boys could help in contributing to the family finances by taking up jobs that would pay. Ultimately this is what they have to do, in the longer run.’ It is unfortunate to witness the hopeless situation of these children. What is their fault, after all?”

A male teacher from government co-ed school located in rural Varanasi.—

“The state administration could have at least shown some empathy and perhaps waved off the tuition fees or exam fees (for students appearing in board exams) of these students. This can’t be said for private schools but, for government institutions it was expected from the administration. They are still in the reverie that

just because platforms such as, DIKSHA, PRERNA etc. have been provided by the government’s education department, studies have not suffered. An honest audit of the outreach and benefits of these platform would perhaps bring out the truth.”

A female teacher from government girls’ school in urban Varanasi.—

“Our work has manifolded now. Apart from putting up with the chaos of online classes, we are also constantly in touch with parents to keep them motivated as far as the education of their wards are concerned. In doing so, one of the parents told me that they do not want to handover the one smartphone in their family to their daughter because what if she starts chatting or video-calling some boy and gets ‘out-of-hands’? They said that technology is a dangerous thing and girls cannot be trusted to handle this. If the school reopens and regular classroom teaching begins, they would send their daughters to school else, it is better that they stay at home and learn some culinary skills which, too is important for girls to master. Such logics are challenging to deal with.”

Similar feelings were shared by many parents from the rural and the not so well-educated parents. In any case some girls in rural government schools, that were provided with the devices and the data via some voluntary organisations too complained that they will keep waiting for schoolteachers to engage the online class, something that would rarely happen.

As one of the participants, who was in charge of education during the corona period in Uttar Pradesh at a high level stated,

‘only 20 to 25 percent of children could get advantage of online teaching.... The girls got more and more involved in house work....in any case even a rickshaw puller who lives in the city does not send his daughter to a government school and prefers to send her to a private school. Imparting of this online education was more of a ritualistic effort’.

Thus, a pattern that comes out of the FGDs with the educators, is more focused on the challenges of execution. A lot of repetitive terms have occurred like unavailability of devices, poor internet connection, lack of basic facilities and infrastructure, financial backwardness, low awareness etc. The facts sighted and the instances shared draws our attention

towards the gaps that exist within the system like the infrastructural gaps, limitations of resources, lack of e-readiness etc.

There were other challenges too. Homes in these areas were very cramped spaces not making enough room for children to find quiet area to engage with their online classes. Universal housing is still a dream for the marginalized section of the country and there are households that comprise of just a single room dwelling. Schools and colleges are considered as miniature society where students from diverse background interact with their socio-economic realities. The average size in India is 4.3 per-capita space available at home to about 59.6% population of the country is less than a room, restrictive home-quarantine measures make it difficult to replicate the sustainable learning environment provided by schools and colleges (Khan and Abraham, 2020). Considering such a scenario, needless to say how difficult it becomes for a child to concentrate and study in a room full of people.

Earlier research suggests that short term disruptions in schooling often lead to permanent dropouts among the poor (Reddy and Sinha 2010).

Given the massive gap that the pandemic and the resultant school closures has generated the need to identify certain policy recommendations. For instance, the retired teachers who live in the vicinity of villages, or urban schools can be incentivised to engage remedial classes that could partly bridge these gaps. PRC has recently reported to the ECOSOC (2023) that they have already done this. 'Every school in the country had Internet access. A funding system had been established, covering preschool to postgraduate studies, to ensure that no student was left behind. Graduate students and retired teachers provided their services in rural areas as part of efforts to reduce disparities in education provision between rural and urban settings.'

Similarly, university students can be encouraged to work towards enhancing learning capacities of children who have suffered most during the Corona closures and incapacities to access online classes. Something on the lines of Teach for America (<https://www.teachforamerica.org/>) that inspired teach for India initiative. 300 million children were impacted

adversely by the pandemic and the need for such initiatives is much more pressing today than it ever was earlier. Working in various metropolitan cities of the country, the movement is yet to reach tier two and tier three cities, that is still non-existent in states like Uttar Pradesh, where the dropout rates have been maximum. It is a mutually beneficial exercise, where in the students enhance their understanding and learn and the volunteers have lasting impacts in their careers.

There is also a dire necessity of an independent objective data update on the ground situation. The government data is often compromised. Non state actors are to be encouraged to enter the fray. There certainly is a need to do it cautiously as we are treading on sensitive grounds, but unless this data is generated at regular frequent intervals, the impact assessment can only be conjectural.

CONCLUSION

If anything, covid-19 stretched the pre-existent inequalities in education system in India. Even after the numerous efforts put in by Indian governments over the years, ranging from provision of universal access to schools, school nutrition programs, free education up until high school, if there were any improvements in girl child education, it was put to a halt during the pandemic (Roudriguez, 2020). The nationwide closures of school and colleges also highlighted the significance of brick-and-mortar educational spaces. Besides these technical factors, the students lack psychological factor where a physical learning environment is not available at home and a quiet personal space for studies is a luxury for many. India is amongst the top most populated country in the world where its population is a major hindrance in its development regime.

Our findings recommend that there must be a sturdy training platform to strengthen the teacher to better adopt to the new normal. In this light, the state education department should come up with a repository of knowledge which should be in alignment with digital pedagogy and not just a sad translation of classroom teaching. It is high time that it is now realized that digital education needs a new outlook towards the core syllabus as well, which should be flexible to adapt to new methods of teaching-learning process.

Keeping late Prime Minister Atal Bihari Vajpayee's policy of 'Sarva Shiksha Abhiyan' as the cardinal motto, the UP state govt following a recent ACER report is optimistic that there is an increasing trend in the student enrollment ratio in the state, specifically in rural areas.

As per the ACER report, girl's enrollment ratio in 2021 improved to 58.1 percent from 51.9 percent, and boys from 47.8 percent to 54.8 percent in the same year. UP's education measures and literacy rate have also increased from 67.68 percent in 2011 to 81.8 percent and 73.0 percent in males and females, respectively, in 2022. However, this data is based on the last census which happened in 2011, so the real effect of the pandemic and the dire consequences are yet to be reflected on these figures. Hence the urgency to tackle the learning poverty is high and should seriously be taken into consideration.

REFERENCES

- Acousta, Mendez, Amina and Evans, David. 2020. *Covid-19 and girls' education: What we know so far and what we expect*. Centre for Global Development. Washington DC: CGD.
- Alvi, M. and Gupta, M. 2020. Learning in times of lockdown: how Covid-19 is affecting education and food security in India. *Food Sec.*, **12**: 793–796.
- ASER. 2021. *Annual status of education report (rural) 2020 Wave 1*. New Delhi [Online]. Available at: http://img.asercentre.org/docs/ASER%202021/ASER%202020%20wave%201%20-%20v2/aser2020wave1report_feb1.pdf
- Azim Premji University. 2021. *Loss of learning during the pandemic*. Bengaluru [Online]. Available at: https://azimpremjiuniversity.edu.in/SitePages/pdf/Field_Studies_Loss_of_Learning_during_the_Pandemic.pdf
- Bansal, M. and Shukla, S. 2020. 'Understanding how the covid-19 crisis impacted girls' education in India', *Feminism in India*, 3 August. [Online]. Available at: <https://feminisminindia.com/2020/08/03/girls-education-india-covid-19-early-marriage-crisis/>
- Deka, K. 2021. 'Covid-19 fallout: The impact on education in India', *India Today*, **3**.
- Dhankar, R. 2020. 'E-learning in India, a case of bad education', *The Hindu*, **23**.
- Dubey, P. 2020. 'कोविड-19 के बाद आपके बच्चों की पढ़ाई कैसे हो पाएगी?', *BBC India Hindi*, **27**.
- Giannini, S. 2021. 'Foreword' in Reimers, F.M., Amaechi, U. *et al* (eds.) *An educational calamity: Learning and teaching during the Covid-19 pandemic*. <https://irphe.ac.ir/files/ucmpqahe/files/Books/AnEducationalCalamity.pdf>
- Government of India. 2020. Ministry of Education. *Unified District Information System for Education Plus (UDISE+)* 2019-20. New Delhi, National Informatics Centre (NIC), Ministry of Electronics and Information Technology.
- Ministry of Human Resource Development. 2020. *Remote Learning Initiatives across India*. New Delhi. Department of School Education and Literacy
- Ministry of Statistics and Programme Implementation. 2019. *Key Indicators of Household Social Consumption on Education in India 2017-18, NSS 75th Round*. Available at: http://www.mospi.gov.in/sites/default/KI_Education_75th_Final.pdf
- Ministry of Statistics and Programme Implementation. 2015. *Annual Report, 2015*. Ministry of Statistics and Programme Implementation. New Delhi: GoI. Available at: http://mospi.nic.in/sites/default/on_reports/KI_Education_75th_Final.pdf
- Jebaraj, P. 2020. 'Surveys on learning losses by month end, Panel told', *The Hindu*, **21**.
- Khan, Mohd. Imran, and Anu, A. 2020. No 'Room' for social distancing: A look at India's housing and sanitation condition. *Economic and Political Weekly*, **55**(16).
- Khera, R. 2021. 'Decoding inequality in a digital world, Technological changes in a digital world', *The Hindu*, **11**: 6.
- Khullar, P. 2020. 'COVID could not put brakes on children's education in Uttar Pradesh, thanks to community-based volunteers', *Action Aid*, **5**.
- Mukhopadhyay, A. 2020. 'कोविड-19: ऑनलाइन कक्षाएं और डिजिटल वभिजन', *Ideas for India*, 17 April. [Online]. Available at: <https://www.ideasforindia.in/topics/poverty-inequality/covid-19-online-classes-and-the-digital-divide-during-the-times-of-corona1-hindi.html>
- National Statistical Office. 2019. *National Statistical of on NSS 75th Round for Schedule- 25.2, (July 2017 - June 2018)*. Available at:
- Oxfam India. 2020. *Status Report- Government and private schools during covid-19*. [Online]. Available at: <https://www.oxfamindia.org/sites/default/files/2020-09/Status%20report%20Government%20and%20private%20schools%20during%20COVID%20-%202019.pdf>
- Press Information Bureau. 2021. Ministry of Finance and Corporate Affairs. [Online]. Available at: <https://pib.gov.in/PressReleasePage.aspx?PRID=1693261>
- Room to Read. 2020. *Covid-19 responses. Pivot activities indicator report* [Online]. Available at: <https://www.roomtoread.org/media/fsnbpp42/room-to-read-pivot-activities-indicator-report.pdf>
- Roudriguez, L. 2020. 'Covid-19 is undoing 70 years of girls' education progress in India', *Global Citizen*, 14 July. [Online]. Available at: <https://www.globalcitizen.org/en/content/covid-19-impact-india-girls-education/>
- Ruth, F., Marie, C., Deirdre, R., Mags, L. and Seaneen, S. 2022. Digital poverty in a country that is digitally powerful: some insights into leadership of girls' schooling in India under Covid-19 restrictions, *Asia Pacific Journal of Education*, **42**: sup1: 34-51.
- Save the Children. 2020. *Rights of vulnerable families and children under COVID-19: Implications for effective response and mitigation strategies*. [Online]. Available at: <https://>

resourcecentre.savethechildren.net/node/18102/pdf/ rights_of_vulnerable_families_and_children_of_india _under_covid_240720f.pdf

Seth, J. 2021. 'Examining the Reality of Online Education in India', UKFIET: The Education and Development Forum, June 4, 2021 [Online]. Available at: <https://www.ukfiet.org/2021/examining-the-reality-of-online-education-in-india/>

Singh, Sahay S. 2021. '40% primary school students in Kolkata could not access classes during pandemic: study', *The Hindu*, 29 June.

Singh, G., Sharma, S., Sharma, V. and Zaidi, S.Z.H. 2022. Academic Stress and Emotional Adjustment: A Gender-Based Post-COVID Study. *Annals of Neurosciences*, doi:10.1177/09727531221132964

Special Correspondence. 2021. 'Net loss: on internet access to schools', *The Hindu*, 3 July [Online]. Available at: <https://www.thehindu.com/opinion/editorial/net-loss-the-hindu-editorial-on-internet-access-to-schools/article35108596.ece>

Special Correspondent. 2020. '24 million may drop out of school due to covid-19 impact: UN', *The Hindu*, 4: 7.

Special Correspondent. 2020. 'शिक्षा का दायर', *Jansatta*. 10 June. [Online]. Available at: <https://www.jansatta.com/editorial/instead-of-traditional-education-online-education-will-deprive-children-of-poor-households-from-education/1433524/>

Suman, S. 2020. 'छूट ही जाएगा स्कूल', *Navbharat Times*. 16 July. [Online]. Available at: <https://navbharattimes.indiatimes.com/opinion/editorial/school-will-be-exempted/articleshow/76993257.cms>

Telecom Regulatory Authority of India. 2019. The Indian Telecom Services Performance Indicators. New Delhi. [Online] <https://www.trai.gov.in/sites/default/files/PIR08012019.pdf>

UNESCO, 2020. *Inclusion and education: All means all*. Global Education Monitoring (GEM) Report 2020. Paris: UNESCO.

UNESCO, 2020. *290 million students out of school due to covid-19* [Online]. Available at: <https://en.unesco.org/news/290-million-students-out-school-due-covid-19-unesco-releases-first-global-numbers-and-mobilizes>

Vishnu, U. 2020. 'Lockdown lessons: When room moves to home, class comes into classroom', *Indian Express*, 21 May [Online]. Available at: <https://indianexpress.com/article/india/coronavirus-covid-19-india-lockdown-migrant-labourers-students-6420009/>

Wadia, L.C. 2020. 'कोविड-19 के दौर में ऑनलाइन शिक्षा की ज़रूरत और चुनौतियाँ', *ORF Online*. 13 July. [Online]. Available at: <https://www.orfonline.org/hindi/research/the-need-and-challenges-of-online-education-in-covid-19-era/>

World Bank. 2018. *World Development Report 2018: Learning to Realize Education's Promise*. Washington, DC: World Bank.

World Economic Forum. 2020. 'How COVID-19 deepens the digital education divide in India', 5 October [Online]. Available at: <https://www.weforum.org/agenda/2020/10/how-covid-19-deepens-the-digital-education-divide-in-india/>

