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From the Classroom to Google Classroom: Exploring the Digital Shift in Education during a Pandemic

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Abstract: The ongoing pandemic and the consequent closure of schools and colleges have left educators and learners scrambling toward a previously (largely) unexplored digital realm. But does everyone get to reach this virtual finish line? The glaring digital divide in the country is evident now, more than ever. The shift from the four-walled classroom to the virtual classroom has not been easy for students to navigate, more so for students who do not hail from privileged backgrounds. In an agriculture-driven country like India, the rural-urban divide also informs the prevailing digital disparity. There exist more than 60 crore internet users in India of which 29 crore reside in rural areas. While these rural areas account for 66% of the population of the country, unfortunately, only around one-fourth of the rural inhabitants have access to the internet. As a stark contrast to these figures, the residents of urban areas constitute 34% of the country's population but boast of 98% internet density. In trying times like these, such factors have impeded education for many. This paper shall investigate the challenges which mark the transition from conventional learning to remote learning and also explore certain online learning platforms which have become significantly popular in the time of a pandemic.

Keywords: Digital divide, Education, E-learning, Pedagogy, Free-choice learning, remote learning

In 2015, Prime Minister Narendra Modi launched the visionary "Digital India" campaign amidst frenzied media attention. The chief objective of this Government of India programme, as its website declares, was to create a society which would be digitally empowered to achieve the status of a "knowledge economy". This programme entails a plethora of initiatives which are aimed at preparing India for transitioning into a knowledge economy, as well as for bringing good governance to Indians "through synchronized and co-ordinated engagement of the entire government" (Entertainment Times).

While Digital India pays lip service to higher education through its initiative named National Mission on Education through Information and Communication Technology (NMEICT), it has taken a pandemic and the consequent closure of schools, colleges and universities in the country to confront the issue of equitable access to the internet for students, researchers and teachers. COVID-19 has overhauled the very fabric of conventional teaching in India, marking a monumental shift in the way teachers teach and the way learners learn. The one-day "Janta Curfew" observed on 22 March, 2020 may have prepared us for the impending lockdown but not many things prepared educators or students for the transition the education sector would undergo. The current scenario has, inarguably, added new words to our lexicon but in terms of education, the word of the hour is "e-learning" or electronic learning, a term defined as "the use of any of the new technologies or applications in the service of learning or learner support" (Laurillard 72). Although teaching and learning over the internet presents itself as the most feasible prospect under the novelty of the given circumstances, a discussion around this topic cannot ensue without taking into account the glaring digital divide which the country is plagued with. The following section of this paper shall shed light on the facts and figures which constitute India's access and *inaccess* to the internet.

The Great Indian Digital Divide

The nation-wide lockdown demanded that people avoid all but essential movement out of their homes, veering a range of services to the digital realm and also enabling an upsurge in the number of digital payment apps downloads. While the pre-Corona era had witnessed government programmes, finance, banking, and entertainment services being delivered digitally and via remote working, conventional education too, as mentioned earlier, has been upended and is now being imparted electronically.

Upon examining how schools and colleges have hitherto dealt with teaching, one realizes that outmoded pedagogical methods are common at all levels of education—from primary through higher education. If we are to consider the number of digitally-enabled schools alone, the numbers are appalling. India has a total of nearly 1.3 million schools, yet only around 10 per cent of the private schools have Smart Classrooms or have made the plunge into multimedia classroom teaching (digital LEARNING Network). Government schools are left miles behind in this endeavour but one must not overlook those government schools in places such as Delhi which are gradually tapping the potential of electronically-aided classrooms and teaching. These figures suggest that the closure of schools and colleges in view of the ongoing pandemic has left a considerable number of our students grappling with learning through media which they have never even been acquainted with. Today, being literate does not suffice—digital literacy is just as important for survival.

Startlingly, boasting of more than 630 million subscribers, India is home to the world's second-largest internet user base. To put the numbers into perspective, that is more than the combined population of the US, the United Kingdom, Russia and South Africa. Not only this, India also has the cheapest mobile data prices, which has exponentially increased the number of internet users in just the last four years. It has been estimated that the average Indian internet user now consumes more than 9GB of data monthly. This figure, when converted in terms of watching a video, would mean that people now watch 16 hours' worth of videos in a month as compared to only 15 minutes in 2015 (BBC News). In spite of these staggering numbers Diwanji observes that "the internet penetration rate in India stands at only 50% in 2020" and this is testament to the sobering reality of the country's persisting digital divide. The digital divide generally denotes the gap in access to technology in terms of socioeconomic status, race, and/or gender. In the book, *Virtual Inequality,* digital divide has been defined as "the patterns of unequal access to information technology based on income, race, ethnicity, gender, age, and geography" (Mossberger 5). Access to technology and digital literacy widens horizons for people, making it imperative for us to address the digital divide.

While smart phone ownership rates have grown exponentially over the last few years in India, it is also true that the vast majority of Indian citizens *still* do not own a smart phone or any other smart device that would grant them access to the internet. Although India can boast of having one of the cheapest rates of mobile internet in the world ($0.26 for a gigabyte or GB of mobile data as compared to the global average of $8.53,

according to a 2019 report by BBC, this can be considered a temporary fluke created by the entry of Reliance Jio in 2015 and the intense competition it initiated. The data prices were expected to rise once again after the market stabilized. This process had already started in late 2019, when Reliance Jio, Airtel and Vodafone-Idea, the 3 major players of India's telecom industry raised their prices by almost 50%. This means that currently the mobile data rates are a lot higher than they had been a year ago and this had already made it difficult for many smart phone users in India to afford internet even a few months ago. Although data remains relatively cheap compared to global prices, the cost of internet-enabled devices remains a barrier. Additionally, the Central government's project to provide broadband internet connectivity to India's 250,000 gram panchayats, which started in 2011, has only reached the halfway stage (Sharma). Now, with the widespread job losses caused by the coronavirus pandemic, many people in India are not able to afford internet when they would have needed it the most, even though they might have been able to afford it in better times.

Even among those families that can afford smart phones and internet, they might not be able to afford "enough" of them. Imagine a family that can afford a smartphone, as in *a* singular smartphone. Where does this place children, who, now more than ever, require access to high-speed internet enabled on a smart device? In an interview with *The Better India*, Smruti Savkur who works with Saarthi Education, a non-profit organization based in New Delhi, addressed the challenges posed by online education during the current lockdown:

> In low-income communities, the first thing is to realise that there is often one smartphone in the family being shared among many. So, if there are three children in the house, all of them are dependent on the same smartphone for their education. And apart from children, parents/other members have their own things that they want to do on their phones. (*The Better India*)

Hence, education, which is fundamental to any societal transformation, unfortunately, faces a bleak yet evident digital divide. The availability of hardware, software, network equipment, connectivity, and round-the-clock reliable information are keys to bridging the digital divide in education. Although the first dimensional gap is drawn between those who have access to hardware, network, software, authentic information, etc. and those who do not, this does not necessarily project a haves/have-nots divide. In certain cases, students are not necessarily poor but may be residing in remote rural areas or peripheral urban areas

with slow or erratic connectivity. Another dimension in the digital gap is one which draws a wedge between students and their parents. In an era of cyber bullying, child pornography, and other such evils which impressionable children might get involved in, parents are increasingly becoming wary of handing over smart devices to youngsters. Add to this dilemma the inability of parents to effectively guide their children's usage of the internet and we are presented with what we can term as "a generational divide" instead of a digital one (Muneer). Equally compelling is the plight of teachers who, having become accustomed to conventional pedagogy, may fear transitioning to online teaching. Not only that, many educators were not equipped with the technical know-how to teach online, making this digital shift in education fairly hard for them.

All this does not mean that the digital divide has no effect whatsoever on one's economic status because in reality, it exacerbates the rich-poor gap in academic performance and subsequently, earning potential. In an ever-evolving world, the rich have unmitigated access to ICT facilities and the latest technologies while the poor are left struggling with traditional ideas and pedagogy, widening the gulf of opportunities even further.

The divide is further shaped by the availability of internet services in different regions of the country, irrespective of their rural or urban status. Different states and districts need to cater to custom requirements and demands. For instance, Kerala does not have an accessibility divide in the state but it will need to tackle the behavioural and generational divide. In terms of levels of accessibility, one can witness sharp variations across the country's 28 states and eight Union Territories. States such as Bihar, Uttar Pradesh and Orissa, which fare poorly on human development indicators, exhibit a similar performance in internet usage density. Topography can also play a major role in connectivity and accessibility. We witness this factor making a difference in the remote mountainous terrains of Himachal Pradesh, the arid, sparsely-populated deserts of Rajasthan and the dense forests in Madhya Pradesh, as these areas experience higher digital exclusion. Incidentally, many of these remote areas are home to certain tribal and marginalised communities of India. Hence, poor connectivity can unwittingly result in perpetuating disadvantages which these communities already encounter.

Gender is yet another vital factor which informs the digital divide. Based on a report published by GSMA in 2019, only 16% of Indian women were found to be using mobile and internet services. As per a recent survey conducted by Centre for Budget and Policy Studies of 733 students (253 boys and 480 girls in Class 7 and 8) studying in ten government schools in Patna and Muzaffarpur districts in Bihar, "202 (28%) had no phone and 154 (21%) could not be reached as the number was not operational." Furthermore, "277 students (38%) had smartphones and 114 (16%) had other phones. A higher percentage of boys (36%) had access to smart phones as compared to girls (28%)". Additionally, in almost 95% of the 277 cases where families did have a smartphone, "the device belonged to a male member and that meant it was not always accessible to children, this being truer for girls than for boys" (qtd. in Norbu Wangchuk)

According to a UNESCO report, the Covid-19 pandemic has greatly increased the inequalities in the education system throughout the world, with about 40% of low and lower middle income countries having not supported learners from vulnerable groups such as the poor, linguistic minorities and specially-abled learners. Another pressing concern is how the closure of schools has resulted in the discontinuation of many services which disadvantaged learners may have depended on, like resources for specially-abled students, free meals or sanitary napkins for poor students etc. The interruption of these services that are usually not available outside of school for them could adversely affect many students. An increase in dropout rates, especially among students belonging to disadvantaged groups, is also something to be concerned about. After the Ebola outbreak in Africa, for instance, many girls did not return to school even when the situation had normalized. The same can be expected to happen, but now on a much larger scale, once the current pandemic is over. Therefore, in its many dimensions, the digital divide impedes academic performance, creates undue competitive advantages for some while significantly reducing productivity for others.

All the Internet's a Classroom,

And all the Men and Women Merely Students

Despite the grim realities of the digital divide, for those who are able and privileged enough to have access to the internet and smart devices, the lockdown has proven that learning, indeed, is a never-ending pursuit. This section of the paper shall identify and expound upon certain digital platforms/media which have been popular with students and educators in these trying times. Many of these learning platforms available

through the world wide web constitute what is termed as free-choice learning— "the type of learning that occurs when individuals exercise significant choice and control over their learning" (Falk 270). Therefore, this is the type of learning that transpires when individuals exercise significant choice and control over their learning. Such learning generally occurs outside the confines of the classroom and alludes to the sort of self-regulated learning that takes place on an everyday basis in environments such as national parks, museums, zoos, aquariums, planetariums and last but not the least, through the use of print and electronic media, including the internet. Convenience, flexibility of learning, and cost-effectiveness have made students embrace the option of internet-enabled free-choice learning, especially during the lockdown.

Google Classroom:

Developed with the aim of streamlining the process of file sharing between the students and the teachers, this service is the brainchild of internet mega-giant Google. Google Classroom has emerged as a saviour in these times when owing to the closure of schools and colleges, handing over assignments to teachers seems next to impossible. It is not surprising that Google Classroom has emerged as the most downloaded education app globally in the month of April this year, marking a 21-times increase from the number of downloads in last April (Business Insider India). While a number of developed countries rely solely on this service for assigning and marking submissions of students, in India, the ongoing pandemic made educators and students acknowledge the benefits of using this hassle-free platform. Its growing popularity can be attributed to its following features:

-seamless exposure to an online learning platform

As established earlier, students may have never used an online learning platform of any kind before. Under such circumstances, in particular, a web-based service like Google Classroom can prove to be a boon for them. Its user-friendly layout makes it easy for students to understand and use. It is available as a mobile app, as well as a website, which makes it convenient for students to not only transition to the online mode of learning but also allows them to use it on any smart device as per their convenience. In fact, even in the post-pandemic world, teachers at the school level too should encourage their students to use this platform as it is a remarkable stepping stone towards familiarizing students with online teaching.

-Round-the-clock Access to Materials

Since Google Classroom enables the students and teachers both to post material online, everything becomes readily available. Not only can students submit their assignments as soft copies but they can also access them anywhere with the click of a button. Teachers too, can post relevant material on the app without having to bother if all their students have received handouts. In that case, even when a student is absent, they may be able to access the day's study material in the blink of an eye.

-Environment friendly

As mentioned earlier, Google Classroom allows students and educators to submit/post material in the soft copy format. This naturally means that as long as one can access the internet, all classwork can be handed online. By saving on the numerous photocopies a teacher would make for their students, electricity consumption is also kept in check.

-Differentiation

This particular feature of the platform is a blessing for teachers as it gives them the option of creating separate "classrooms" for the different classes they teach. When all the students a teacher teaches are added to their respective classrooms, it creates a virtual attendance rolls record of sorts. Additionally, a teacher working on specific concept in class can create separate classrooms on the basis of the students' comprehension of the topic.

- Better organization of material and thoughts

A student is often plagued with the daunting task of managing all their study material and assignments throughout the semester. Classroom ensures that all important files are secure in one place and within easy reach of the student. Even for teachers, this means not having to worry about carrying and storing huge bundles of assignments submitted by the students. As a teacher, this platform also gives one the opportunity to start a discussion thread relating to any topic of choice. Students are then welcome to share their thoughts on the matter under a single, easily-accessible thread which would not only save time but also permit students to reflect back on substantial points out forth by their peers or teachers.

- Ease of conducting online quizzes

Being a platform owned and operated by Google, Classroom makes it simple for educators to use other tools offered by the company, in collaboration with Classroom. An extremely handy tool in this regard is Forms. It enables educators to create self-grading multiple choice/short answer quizzes to keep their students engaged.

Video solutions (YouTube, Zoom, WebEx, Vimeo etc.):

Video solutions in education include video lessons, live video streaming and video explanations. Video solutions through platforms such as YouTube and Zoom possess the unique ability to create a stimulating and interactive environment which keeps students engaged. Audio-visual aids such as webinars and special lectures fall within easy reach of students and teachers, making learning exciting and comprehensive. The lockdown period, specifically, has seen an unprecedented rise in the number of webinars and e-workshops being hosted by colleges and universities across the country. It has also been observed that incorporating such tools enables differently-abled students and those with learning disorders to participate in more inclusive classes. Visual learning is a powerful medium and many students are primarily visual learners. Hence, they stand to benefit from the incorporation of such platforms in their study regime, which is something that may have not been possible for many if the COVID-19 pandemic had not struck.

Educational videos are categorized as primarily visual material with relevant audio components. While the audio is certainly an important aspect of learning, the combination of audio and visual content enables students to grasp instructions and information relatively easily. As an educator, even if one's subject is not quite visual, a video is better than a podcast or an audio recording due to its ability to capture the nuances of meaning, body language, and context that would otherwise not necessarily be relayed. One of the primary reasons why learning over apps like YouTube has been popular even before the lockdown is because it allows the learner to pause and rewind videos, thereby making flexible learning a possibility. One of the most significant advantages of learning through videos is that a person can pause, stop, rewind, and otherwise control the learning timeline. As compared to the limitations of a conventional classroom or in-person training, a video learner never needs to miss things, for they can go back as long as they have time to try it again. Mannat Verma, a doctoral candidate who took two online courses organized by Panjab University, Chandigarh, during the lockdown period sincerely appreciated the ease and engagement offered by the online

mode of learning. She recalls, “the first thing that I really appreciated about the type of class I attended was that it was a series of lectures/sessions uploaded as videos on YouTube, which made note-making extremely easy as I could rewind the video whenever I missed something that the speaker had said”. Although it sometimes took her 30 extra minutes to go through an hour-long lecture, the notes she made were much better and detailed than any she had ever made before. Echoing a pertinent point which was discussed in the previous section of the paper pertaining to the digital divide, Miss Verma added, “one issue that I personally faced was a technical one, due to the lack of enough devices in my home (as other members of the family also work online), as I could not access the videos on a laptop and it was difficult to view the presentations properly on a phone’s screen”.

This could be one of the major drawbacks of learning through video solutions as it may require access to not just any smart device but a specific type of smart device. Such video-making methods of teaching may also pose to be a laborious task for educators. Having made and delivered lectures through YouTube myself, I have noted that it can sometimes feel like a cumbersome task, especially when one has to edit a video it already took a considerable amount of time to film/make. While making lectures for YouTube gives creative educators the chance to incorporate certain visual elements and examples which cannot otherwise be made part of a lecture in a traditional classroom, it also requires more time and effort to achieve that end. This may be a reason why many teachers have preferred to use live video streaming media such as Zoom, Google Meet, CISCO WebEx etc.to deliver lectures in the face of the ongoing pandemic. Delivering videos live eliminates the hassle of editing videos but it also brings into the equation a major flaw of such platforms. As discussed in the section on the digital divide in India, even when people may have access to the internet, it may not always be high-speed or could be intermittent, thereby creating a time lag when students may want to become an active part of the lectures.

MOOCs:

During the last couple of years, MOOCs, or massive open online courses, have burgeoned in the education sector. A novel type of e-learning class, MOOCs consist of short video lectures, computer-graded tests, and online discussion forums which are offered by certain universities or government-backed initiatives. They are usually chargeable but there are plenty of free options available too. In view of the current crises the world is going through, prominent universities such as Harvard and Yale decided to make many of their

previously chargeable MOOCs available for free. This move prompted people to enrol themselves in classes they may not have necessarily taken before. Although the courses are currently available free of cost, securing a certificate post completion of the course is still chargeable.

MOOCs have been recognised as hybrids of earlier attempts at online distance education opportunities, such as Open Coursewares (OCWs) and Open Educational Resources (OERs). Beginning in 2008, MOOCs for higher education have, since then, rapidly expanded in the USA, Europe, Asia, etc. Some major platforms providing MOOCs are Cousera and edX which are based in the USA, FutureLearn (UK), Diversity (Germany), MiriadaX (Spain), KMOOC (Korea), and OpenLearning (Australia) in Asia-Oceania. In certain countries, the government has also extended its support to this growing industry. For instance, the French and Korean governments have, respectively, backed France Université Numerique and K-MOOC. The Indian government too offers MOOCs pertaining to an assortment of subjects through its SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) initiative which aims at access, equity and quality of education.

A study by Sun-Wan indicates that globally, the number of students who had signed up for at least one such course surpassed 35 million in 2015, which is significantly higher than the estimated figure of 16–18 million from the previous year. This popularity which drives MOOCs may be the result of its endeavour to provide free education, unlimited participation, and open access for everyone. Therefore, we may contend that MOOCs aim at democratization of education. The registered learners who come from diverse, varied backgrounds are fascinated by the thought that they will be taught through online lectures given by professors from top universities, all the while enjoying the comforts of being home. It is worth noting that with the emergence and growing demand of MOOCs, significant strides have been made towards reducing the cost of education.

Ed-Tech Apps (Skillshare, BYJU'S, Khan Academy etc.)

Ed-Tech apps have been popular for a while now but the lockdown has led people—young and old—to pursue hobbies and interests which they did not have the time to indulge in earlier, thus generating even more revenue for such apps. Apps such as Skillshare, MasterClass, Udemy etc. offer classes on every subject imaginable and learners have been making the most of them. Equally popular are syllabi-specific apps which cater to

students pursuing higher education or those preparing for competitive exams, with home-grown apps such as BYJU'S, Unacademy, Toppr, and Vedantu leading the way. In a hitherto rare feat, BYJU's declared that the app has featured amongst the top 10 most downloaded education apps in the world in April 2020 (Business Insider India). Needless to say, the pandemic has made such acknowledgement possible for these ed-tech aps.

Education in the future

The conventional mode of education had been used in India and was also sustainable for long but the current circumstances have challenged the pedagogy which many held onto dearly. In a country like India where there earlier was little to no exposure to e-learning, a significant overhaul of the education and connectivity system is in order. The Indian Constitution resolves to provide quality education to all but to ensure this in the future, the government-right from the grassroots level-needs to spring into action. Even in a post-Corona world, a blend of online and offline teaching seems like the way ahead. Much before the emergence of COVID-19, and the lockdown it has resulted in, the online education industry was expected to grow to nearly tenfold from being worth 39 billion dollars in 2018 to 360.3 billion dollars by 2024 (Business Wire). The overall growth of the industry has primarily been promoted by the ease of learning, flexibility, and a wide range of easily-available study materials. That being said, the majority of students of the country are yet to adapt to the challenges posed by online education. As proposed in the book, *Bridging the Diversity Divide*, we must recognise that "as institutions of higher learning prepare students for an era of explosive change, curricula, and literacies must also reflect the expanding frontier of knowledge" (Chun 10).

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