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Economic, infrastructural and psychological challenges faced by the students of Assam: a study during COVID-19 pandemic

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ABSTRACT: A pandemic like the COVID-19 has caught everyone off-guard. The economy is in tatters, and the loopholes in the system are getting exposed. The education sector is no exception, especially in a developing country like India. With millions of students in India, the lockdown will have many unforeseen impacts. Moreover, the parents would be reluctant to send their wards to study even after the pandemic, and the actual effect of a lag in learning would be visible only in the long run. The necessity of e-learning in academia was felt only when the pandemic hit. The lack of ICT infrastructure and the absence of tech-savvy teachers have made studies an absolute roller-coaster ride for students. Apart from this, the already existing disparity between students from different economic strata would very likely broaden. Homebound is another factor affecting the students' psychology towards study. This paper ventures into the problems faced by the students, especially from economic, infrastructural and psychological factors, ranging from primary to University level. It also attempts to segregate the students based on location and financial condition and understand the specific hindrances they face. Case studies from various locations of Assam provide a cluster of stories that would act as an index in developing the system when time is 'conducive'.

KEYWORDS: COVID-19, student, Assam, e-learning, gadget, psychology of students

1. INTRODUCTION

On the eve of the New Year 2020, China alerted the World Health Organization (WHO) that an unknown virus had been causing several cases of unusual pneu-

monia in Wuhan, a port city in the central Hubei province in China on 17th November 2019; about a month before that, the virus was detected by the doctors in Wuhan. The first death from the virus occurred in China in the second week of January. The virus-related disease spread like wildfire within the next week (Bryner, 2020). The first victims were the nearby countries like Thailand and Japan, but it soon spread across the globe to the US, Italy, France, Australia, India, etc. As there was no known treatment and/or vaccine to prevent the disease, most of the infected countries resorted to lockdown, quarantine, and social distancing to arrest the spread of the disease. By March 25, nearly every country, including India, had to impose a lockdown. In India, complete lockdown was announced by Prime Minister Narendra Modi on March 25, 2020 (Express web desk, 2021). These lockdowns posed a massive effect on the entire economy of the world. Negative growth rates (Figure 1) and negative percentage change in the creation of jobs (Figure 2) in most of the major economies of the world have led to great tension and obstacles towards the growth of the world economy (Jones et al., 2021). Under such a situation, the availability of education and accessibility of the same through gadgets for all sections of society were significant issues of concern. The effect was expected to be higher in developing nations with massive poor populations.

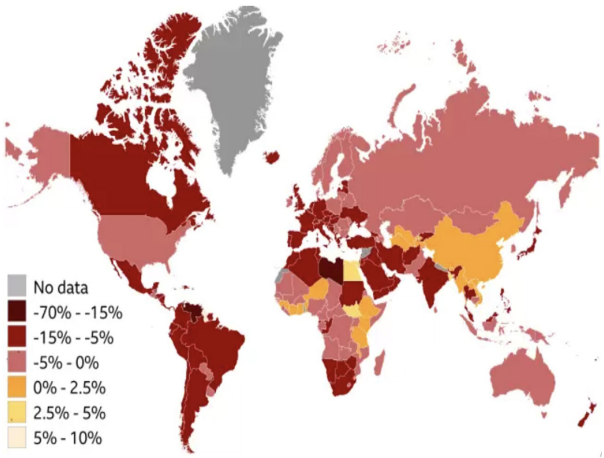

Figure 1. Real GDP growth during the COVID-19 pandemic period

Source: Jones et al. (2021)

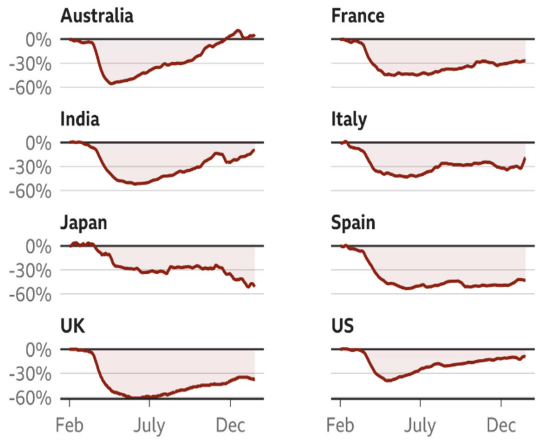

Figure 2. Per-day percentage change in the number of job postings across the major economies in 2019 and 2020

Source: Jones et al. (2021)

Although children are less vulnerable to the direct health effects of the deadly disease as compared to the other age groups, school closures, movement restrictions, and physical distancing measures are hitting them hard (COE-EDP, 2020). As a response to the crisis and to mitigate the probable adverse effects of the pandemic on the educational sector, almost all governments around the globe have implemented online platforms for students' education (Barrot, 2021). That took various forms, such as policies on instructional assessment and delivery, shifting of the academic calendars of the educational institutes and the regions, revision of curriculum, provision for technological infrastructures and resources and the continuation of the educational insti-

tutions' whole online teaching so long as the severity of the pandemic was reduced and classroom teaching was allowed etc. (Barrot et al., 2021). However, online learning was not free of challenges and was aggravated during the lockdown phase of the COVID-19 pandemic (Kapasia et al., 2020). Though the students could learn anything online, research presented doubts about attaining its optimality (Franchi, 2020). Due to academic, psychological and economic reasons, the dropout rates increased during this phase (Barrot et al., 2021). In the view of Rai (2020), "For India's most improvised children—the vast majority of the country's youth—the four walls of a classroom are their only pathway to a better life. It is also their safe haven. For some, it is a space to seek reprieve from the chaos and abuse of life at home. The current crisis deeply threatens that haven. It is cutting off access to nutrition and basic supplies". The Indian state of Assam is located in the northeast and has a lot of infrastructure obstacles. Some sections of the state still lack adequate infrastructure in critical areas like health and education (Saikia & Mahanta, 2023a, 2023b, 2023c, 2023d, 2023e, 2024a, 2024b).

Nonetheless, the state has a sizable population of young people (HDR, 2014). It is unclear how the education system will meet the enormous demand for schooling in such a setting with such little infrastructure, particularly in times of emergency like the COVID-19 epidemic. This paper aims to understand the obstacles that came in the way of disseminating knowledge to the students using ICT during the pandemic. More specifically, this paper tries to analyze the economic, infrastructural and psychological hurdles faced by the students of Assam due to the sudden shift to online mode of teaching and learning.

The paper is divided into five sections. Section two talks about the linkages of education with infrastructure, e-learning, and students' psychological issues to the COVID-19 pandemic. Section three states the method, followed by the results in section four. The paper ends with a discussion based on the derived results of the study.

2. COVID, EDUCATION AND THE SOCIETY: A BACKGROUND

For the development of a region in terms of economy, society and science and technology, education is considered to be an essential building block (Olufunke, 2012; Nesterova, 2023; Baranowski, 2022; Baranowski et al., 2023). Throughout the different regions of the world, education has been playing a vital role in determining the possible opportunities for an individual's life (Aguilera-Hermida, 2020; Skoczylas et al., 2023). The schools indeed have great significance in the social and economic aspects of the entire region (Savolainen et al., 2012; Conradie, 2023), but at the same time, these are important in the creation of education (Marquez-Ramos and Mourelle, 2019; Süld, 2022). Schools are the fundamental sources of education at the preliminary and secondary levels, and therefore, schooling is considered one of the most essential and fundamental human rights in almost all economies (Savolainen et al., 2012; Kwaśniewska-Paszta, 2022). Likewise, education has a significant role in developing science, technology and the economy. Alternatively, these are also important in enhancing the educational sector's efficiency by creating sufficient infrastructure (Anaman et al., 2022; Streeck, 2023). Infrastructure is essential for creating a suitable

environment for teachers to efficiently deliver knowledge to their students (Gray & DiLoreto, 2016; Marquez-Ramos & Mourelle, 2019). At the same time, in achieving students' academic success, one of the most frequently observed hindrances across different regions is a sub-standard level of school infrastructure (Cuesta et al., 2016; Shmis et al., 2019). Studies have found that better infrastructure access improves student success (Marquez-Ramos & Mourelle, 2019; Huebener et al., 2017).

The landscape of the world's educational sector, with a wide-expanding influence of technology, has experienced a significant change since the 1990s. Online learning in various formal and informal educational platforms is one of those spectacular changes in the sector (Barrot et al., 2021). Seamless sharing of resources, interactive delivery of instructions by the teachers and students, and facilities for interaction and collaboration are some of the factors influencing the faster adaptation of e-learning technologies by students, teachers and various educational institutions (Elaish et al., 2019; Garcia et al., 2018). The online learning process can be referred to as an environment of learning using the Internet and other technical tools and devices for simultaneous or non-simultaneous instructional management and delivery of academic programs (Usher & Barak, 2020; Huang, 2019). Simultaneous online learning includes real-time interactions between the teachers and the students, and asynchronous learning indicates the environment without any strict schedules for different students; that is, the students can access the classes later as well in the form of saved videos or courses (Singh & Thurman, 2019). Though online platform for education has many benefits, which have been recognized by several researchers (Barrot, 2020, 2021; Cavanaugh et al., 2009; Kebritchi et al., 2017; Tallent-Runnels et al., 2006; Wallace, 2003), it is not free from challenges as well (Boelens et al., 2017; Rasheed et al., 2020). The challenges have been more clearly visible to the world during the pandemic period of COVID-19 when the online platform was the only source for learning and delivering teaching by educational institutes (Gonzales et al., 2020; Kapasia et al., 2020). The migration of the teaching-learning process to a full-time online mode during this phase faced significant concerns related to pedagogy, policy, logistics, technology, socio-economic and psychological factors (Donitsa-Schmidt & Ramot, 2020; Khalil et al., 2020; Varea & González-Calvo, 2020).

About 18 years ago, the outbreak of SARS[1] in China caused severe issues of intensified mental situations and pervasive serious worries (Gardner & Moallef, 2015). And it was expected that the occurrence of other pandemics like COVID-19 might also lead to psychological issues of the people (Baranowski & Jabkowski, 2023; Barba et al., 2022; Fawaz et al., 2021; Huang et al., 2020; Kubacka et al., 2023; Schmidt, 2022). Social and family separation, inaccurate knowledge, lack of resources, period of quarantine and the risk of contamination are some of the factors that contribute towards the psychological burden of the pandemic. The same is more prevalent among students who are often not habituated to staying within the walls of their houses (Brooks et al., 2020). This psychological burden on the students can lead to negative consequences on their holistic psychological wellbeing as well as their education (Al-Rabiaah et al., 2020).

[1] SARS: Severe Acute Respiratory Syndrome.

3. METHOD

The study uses both primary and secondary data. Secondary data is used to analyze the economic and infrastructural problems faced by the students of Assam compared to students in other states of India. The psychological impact of the sudden shift is studied using primary data collected from 15 students across various districts of Assam. Due to mobility restrictions at the time of data collection, only a few students could be contacted, and therefore, the sample size was small. However, being a qualitative study, the current sample size will suffice. The students from Kamrup (M), Biswanath, Lakhimpur, and Barpeta districts were interviewed. The participants, ranging from age 9 to 24, were interviewed personally as well as over the telephone. Based on their response, a descriptive analysis is done.

4. RESULTS

This paper analyses three challenges that are faced by students, namely, economic challenges, infrastructural challenges and psychological challenges.

4.1. ECONOMIC CHALLENGE

Worldwide, more than 1.2 billion children in 186 countries are affected by school closures due to the pandemic (Li & Lalani, 2020). In India, all the educational institutions have been closed since March 2020, and this is expected to continue till August 2020 or more. Under such circumstances, most educational institutions mainly prefer the e-learning method. To achieve success in e-learning, proper infrastructure should be available in every institution and with every student. The availability of infrastructure with which the masses can be brought under e-learning and online teaching is closely related to the economic status of the country or the state. Singh (2020), in his article, said that "this alternative medium has also brought to the fore some stark persistent realities of Indian society characterized by social inequalities in terms of availability of resources essential to access these online classes/platforms. These digital initiatives perpetuate the hegemony of elite schools over the educational system, resulting in the digital divide between rural and urban and rich and poor". India is a country with a large number of poor people. The disparity of income between the rural and urban populations in the entire country is prominent. Assam is not an exception in this case. From Table 1, it is evident that the portion of people below the poverty line is declining with time, but a large part of the population is still under the threat of poverty. The situation is worse in the case of rural areas.

It is clear from the table that the state of Assam has a large number of poor populations, which is even higher than the national average. The rural-urban disparity is easily visible. Again, inter-district disparity in poverty rate is also seen in the state. In the year 2014, Kamrup (M) district recorded the lowest amount of poverty rate (9.5%), and Darrang district had the highest number of poor people (45.5%), followed by Morigaon (44.5%) and Golaghat (43.5%) districts. Looking at PCI, a more significant disparity is seen on the grounds of per capita income (HDR Assam, 2014). Hailikandi district

has Rs. 1386 is much lower than the state average (Rs. 2055). Kamrup (M) district has the highest PCI (Rs. 5287) and is followed by Jorhat (Rs. 3222). With a high rural population and widespread poverty, smartphone ownership is challenging for poor people. This economic factor adversely affects the primary aim of online teaching and e-learning. Therefore, the students from economically backward backgrounds, along with the ones residing in rural and remote areas with a weak internet connection, are the most deprived ones as they are not being able to access education during the pandemic situation. This will not only harm the level of educational attainment of a student but will also affect their mental status.

Year	Area					
	India			Assam		
	Rural	Urban	Total	Rural	Urban	Total
2004-05	41.8	25.7	37.2	36.4	21.8	37.2
2009-10	33.8	29.8	39.9	39.9	26.1	30.0
2011-12	25.7	13.25	21.98	33.89	20.49	31.98

Table 1. Poor population of India and Assam

Source: Konwar (2019)

An incident can be stated in this regard, where a student of class 10 from the Chirang district of Assam died by suicide for not being able to attend online class since he did not have a smartphone. The student was in class 10 and was from an impoverished family that could not afford to provide him with a smartphone. As a result, out of depression, the student died by suicide on June 23, 2020 (Gplus, 2020).

Thus, it can be said that online education is a big challenge for poor people whose economic conditions have worsened during the lockdown. Moreover, the COVID-19 pandemic has spotlighted the ever-increasing structural imbalances in school education in rural, urban, rich and poor areas (Singh, 2020; Pagani, 2023).

In this context, Rai (2020) makes a crucial observation: the virus appears indiscriminate to the unaided sight. It has impacted young and elderly, rich and poor, city and country dwellers. Even the wealthiest nations in the world have been affected initially, which gives them a severe blow. At the same time, though, a grim reality has surfaced. It has always been there in the background: the people who are most disadvantaged by India's extreme inequality will be the ones who suffer the most from the pandemic's long-term impacts.

4.2. ACCESS TO INFRASTRUCTURE FOR E-LEARNING

Facilitating online learning and proper implementation of the same is critical for a developing country like India. The major challenge in ED-Tech reforms at the national level is the seamless integration of technology in today's Indian education system, the

most diverse and most extensive globally, with more than fifteen lakh schools and fifty thousand higher education institutions (Choudhary, 2020). Infrastructure status and availability play an essential role in this situation. From the e-learning perspective, the infrastructure required is gadgets and access to internet connectivity.

4.2.1. GADGET

From the point of view of convenience and affordability, mobile phones are the most preferred gadgets for e-learning and online classes. In Assam, in March 2018, there were 25.52 million telecom subscribers, of which 25.38 million were using wireless telecom services. Regarding the teledensity of mobile phones, that is, mobile phones per 100 inhabitants, 91.51 persons per 100 people in the nation are using mobile phones. For Assam, this value stands at 76.46 persons only. On the other hand, in the case of the entire northeast region of India, 97.27 per 100 persons are using mobile networks. Therefore, Assam is lagging in the case of telephone users compared to the national level. This implies that, comparatively, a lesser amount of the state's population has access to mobile networks. This automatically reduces the scope for accessing online teaching and e-learning. This raises a grave concern. If online classes continue for a long time, it means students from some states will lag behind the students of other states in terms of education attainment. The disparity in human development among the states of India is already quite striking. The difference in educational attainment during the pandemic will further widen this gap.

A wide disparity in the number of mobile phone users between rural and urban areas can also be noticed. The data on tele-density reveals that in 2018, 59.25 rural populations and 166.64 urban populations of India were using mobile phones. A similar picture is seen in the case of Assam; that is, 57.29 rural populations and 175.45 urban populations were using mobile networks in 2018 (Telecom Statistics India, 2018). This implies that a tiny number of rural people can access mobile phone services. As a result, the present mode of teaching and learning cannot cover all the students. Especially in a state like Assam, with 85.90% of the rural and 14.10% of the urban population, the ability to cover many students in the rural areas is significantly low (Assam population, 2011). Thus, it indicates a threat towards the students not being able to access online classes who do not have mobile phones in their family. Much like the previous scenarios, the gap between rural and urban students in educational attainment will widen.

4.2.2. INTERNET CONNECTIVITY

The discussion on gadgets showed the possibility of a considerable gap between physical room learning and online learning. It is important to note that having a mobile phone is not sufficient for accessing online classes and e-learning. As Rai (2020) says, "India's children are losing valuable learning time which, for them, is needed to succeed. Given their lack of network connectivity and literate family members, school is their only access to effective infrastructure".

Out of the 25.38 million wireless telecom subscriptions, the number of internet subscriptions was only 9.71 million in 2019. This clearly indicates that the accessibility of online classes is very limited, depriving the state's poor students who cannot afford a smartphone with the Internet and other vital facilities. It hampers the students' educational attainments and may lead to frustration.

4.3. PSYCHOLOGICAL BARRIERS

Research on young children and technology indicates that we no longer need to ask whether technology is 'developmentally appropriate' (Clements & Nastasi, 1993). However, some basic knowledge on the part of the teachers and the students must be present before online learning can be incorporated. The psychological impact on the students is a grave concern for all, as it may also have long-term consequences.

For learning to occur in an orderly manner, the trained teacher uses numerous methods to grasp the learner's attention. However, before doing so, the teacher points to a pre-chosen target, and the motive of the learning process is to channel the learner's attention to the point of focus. The method used in most schools is to send the students virtual learning materials like PDFs, images, and PowerPoint presentations and expect them to pay attention to the learning materials themselves. While most of the students have said that online classes have made learning materials "easily accessible" to them, none said that they had the motivation to study those. One student from class 9 from the sample said that his friend had "not even checked the WhatsApp group in three months," through which all the study materials were disseminated.

Along with attention, concentration plays a pivotal role in the learning process (Bester and Brand, 2013). It must be emphasized that proper concentration is a wholesome one-pointedness of mind, "forcing the mind to remain on one static point" (Gunaratana, 1994, p. 89). However, as analyzed from the discussion, the absence of a proper internet connection makes it difficult to focus on the lecture for a long time. A medical student, another respondent in the survey, mentioned that their teacher asks the students to respond every now and then. However, since the class has around 89-90 students with varying internet speeds, they react at random times, thereby hampering the flow of the lecture.

Tsang, Kwan and Fox (2007) state that meaningful learning can be achieved as long as one of three forms of interaction (student-teacher, student-student, student-content) is at a high level. It is exciting to note that while most young students (age 12-14) have mentioned that they did not talk during classes, elder students (age 20-22) have said they chat with their friends over messages. A student of 20 years studying radiology noted that "when the teachers are clearing doubts of some students, the other students immediately get engaged in discussing other stuff".

Teachers must capture learners' attention during a lesson, irrespective of their learning style. If learners' concentration tends to wander, teachers should be able to shift rapidly to a new activity to capture it once again (Rinne, 1997). In the online lectures being conducted in the schools, the classes tend to be monotonous. Another study respondent, age 17, said, "The teacher just puts the chapter's name on the screen

and teaches the entire lesson". Therefore, he puts the phone away and continues with other work. Another student narrated that one day, she dozed off to sleep during class and woke up only when the course was over.

Vigilance has often been thought of as the essence of attention, according to Neisser (1976). However, every student unanimously told me that the examinations that the institutions were conducting were an utter failure due to either no vigilance or a lack of vigilance. "I did not use to cheat during the examinations, but then I was tempted to see my friends doing the same without any consequences, and so I have also cheated a few times", said a student of class 9, resonating with what all other students had also said. However, online examinations have a positive side, as outlined by a student: "There is no pressure of the teacher gawking at us, and so the exams can be written in a relaxed manner".

Technology facilitates human learning through the systematic identification, development, organization and utilization of a full range of learning recourses and the management of these recourses (Bester and Brand, 2013). One student said that he has been able to continue his academic studies as well as make time for his hobbies side by side.

One positive impact may be promoting empathy and acceptance of diversity through modelling pro-social behaviours (O'Keeffe & Clarke-Pearson, 2011). As told by a student of class 12 in the survey, she finds online classes stress-free for students like herself who "prefers not to socialize much with people and finds it difficult to face and answer people face-to-face". Another positive usage of technology needs to be exclusively pointed out. While most schools and colleges have kept their work to a bare minimum of completing the syllabus only, another educational institute, *Jawahar Navodaya Vidyalaya* of Biswanath Chariali, is imparting online classes on music and art. However, not much to the surprise, the number of attendees has reduced.

The use of technology applications both at home and in early childhood settings may require trained practitioners (Mettler et al., 2011; Shepherd, 2004). However, one serious drawback of using technology in education was that it was not a pre-conceived and pre-planned action. It was done just to face the crisis. Therefore, the teachers, as well as the parents, were not trained to tackle online education. Present-day students are more used to absorbing information from the screen than from the printed page, and they find teachers who use technology to be more reliable and knowledgeable than those who do not (Lytras, Gasevic, Ordonez de Pablos & Huang, 2008). Therefore, we saw students mocking teachers who were struggling with technology. One student said, "He would not sit through an entire class looking at the teacher adjusting the screen." Despite their role as innovators, teachers have always had a love-hate relationship with technology (John & Wheeler, 2008); many are trying to keep up with the latest trends and innovations, some not being bothered, while others do not have any technology to use.

5. DISCUSSION AND CONCLUSION

According to experts, the pandemic will stay for quite a long time and may recur. Al-

though the lockdown cannot be prolonged any longer, it gave us an opportunity for introspection. The vast disparity in economic conditions and infrastructural facilities is out for everyone to witness. The dilapidated condition of some of the people under the poverty line in Assam has been made worse by the lockdown when the source of income has come to a halt. In such precarious conditions, it is futile to expect parents to meet the technological needs of their wards through the availability of smartphones. The lack of availability of smartphones at home has created a setback for rural and poor students. This has made a sense of panic and anxiety among the students, so much so that there has been a case of suicide in the district of Chirang.

Moreover, an effective use of ICT can be and should be applied in academia. The lack of accessibility to an internet connection is the first barrier to equitable educational opportunities for students. Even for those with Internet access, their experience with the new learning mode has not been much of a cakewalk. The motivation to study hard is lacking. The smooth interaction between the teacher and the students is hampered frequently due to erratic networks. And most shockingly, students even revealed that their moral temperament of not cheating in online examinations has also been compromised. The only positive impact has been that the students with social anxiety can enjoy their classes relaxedly without much interference from teachers or peers. A transition from offline to online mode has to be done not hastily but only after everyone has accessibility and availability to technology and also after people attain a minimum level of technological knowledge. Thus, we can conclude that the lockdown has affected the entire student community. Yet, it is felt more harshly by people who are already suffering on the economic and infrastructural front.

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