

# A Comprehensive Overview of the Challenges and Implications of Digital Learning in Rural India During the COVID-19 Pandemic

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## Abstract

The COVID-19 pandemic has created unexpected challenges in India's educational landscape. Despite the New Education Policy 2020's initiatives to promote digital learning and enhance infrastructure, numerous obstacles hinder the widespread adoption of online teaching and learning. The digital divide reflects and exacerbates societal inequalities, creating a modern range where individuals are categorised based on their access to internet services. Research on online learning during the COVID-19 era in India has mainly centred on investigating the practical application of online learning and examining the effects of policies promoting online education. In this context, this study aimed to contribute to the existing knowledge by assessing and implementing online learning, particularly in rural areas where educators face unique challenges. The study comprehensively explored the barriers stemming from the digital divide, striving to promote educational equity and overcome obstacles hindering inclusive education nationwide. The study method involved extensive literature searches and consultations with experts, primarily focusing on analytically evaluating scientific databases and empirical or perspective papers addressing disparities that emerged during lockdowns, affecting students and educators in remote regions.

**Keywords:** Digital Divide, Social Exclusion, Educational Inequalities, Remote Learning, COVID-19 Pandemic

## Introduction

The COVID-19 pandemic has brought unprecedented disruptions to various sectors in India, with the education system being one of the most significantly affected. Closing educational institutions to uphold social distancing measures in response to the COVID-19 crisis was the most pragmatic approach to mitigate community transmission. Nonetheless, the extended closure period has disproportionately adverse consequences for the most susceptible students. The pandemic has not solely amplified the already significant gap in educational inequality but has also intensified pre-existing discrepancies (UNICEF, 2019) [1]. Three hundred twenty million students (UNESCO, 2020) [2] in India have faced negative repercussions and shifted to e-learning, encompassing a 1.5 million (Kandhari, 2018) [3] educational institutions network. A report from the National Sample Survey Office (NSSO) in 2014 underscores that 32 million children were already not attending school before the pandemic, with a significant portion of

them originating from socially marginalised backgrounds within the nation (Social & Rural Research Institute, 2014) [4].

The New Education Policy 2020 (Ministry of Education, n.d.) [5] in India has implemented measures to enhance digital learning and educational infrastructure due to the pandemic. Despite these efforts, obstacles to widespread online education persist, primarily due to the digital divide that amplifies inequalities and shapes inclusion dynamics. While India champions the digital revolution and acknowledges its linguistic diversity, e-learning struggles to replicate the nuances of various dialects, contexts, and lived experiences in physical classrooms. If e-learning becomes the norm, the policy must address digitalisation's feasibility to guarantee equitable and quality education.

During COVID-19 in India, research on the online learning system revolved around two distinct tendencies. Firstly, it concentrated on conducting research into the application of online learning. Secondly, it studied the effects brought about by the policy of implementing online education. In this context, the study aimed to contribute to the existing knowledge about evaluating and implementing online learning, particularly in rural areas. Educators faced specific challenges due to the location of their students. The study aimed to provide a comprehensive explanation of the obstacles presented by the digital divide when implementing educational justice, aimed at resolving issues hindering the achievement of educational inclusion in the country. Snowballing searches and expert consultations were included. The study focused on a critical review of scientific databases and empirical or perspective papers addressing disparities experienced by students and teachers from remote areas exacerbated by lockdowns.

### **The Role of Education in a Changing Demographic Scenario**

During rapid transformation, India stands as a nation where all-encompassing and high-calibre education plays a pivotal role in shaping its forthcoming prosperity. Presently, the government is navigating a phase characterised by the largest youth population, which holds paramount importance. This demographic landscape places India at the forefront with the world's largest youth contingent—approximately 600 million individuals under 25 (Jack, 2018) [6]. Notably, a substantial 28 per cent of the total populace falls below the age of 14, and with the birth of over 30 infants every minute, projections anticipate a consistent population growth rate of around 1 per cent for the foreseeable future. Forecasts predict that India is poised to surpass China as the globe's most populous country by 2022, and by 2030, its populace is projected to expand to approximately 1.5 billion, a noteworthy increase from the 1.34 billion recorded in 2017 (UNO, 2017) [7]. This shifting demographic landscape holds the potential to serve as a robust catalyst for economic growth and development. However, to fully harness this potential, India must take strides towards modernising and expanding its educational framework, elevate academic attainment, and equip its youth with the requisite skills (Trines, 2018) [8].

Simultaneously, India retains its status as a developing nation on an immense scale and serves as the dwelling for the largest concentration of impoverished individuals across the globe. The uncertainty persists as to whether India can effectively utilise its youth demographic to realise comprehensive economic progress or if the weight of escalating population growth will prove overwhelming. India faces significant challenges in educating and providing employment opportunities for its expanding populace. A staggering 27 per cent of the nation's youth remain excluded from education, employment, or training (Agrawal, 2018) [9].

### **Digital Divide: How Does It Affect Education?**

There is a digital gap in the world, which indicates the disparity between countries regarding technology use, access to technology, economic level, and political backing (Ioannis Neokosmidis, 2014) [10]. Even today, there is still debate regarding who coined the phrase 'digital divide' and when it occurred. However, according to the academic literature and forums, the phrase was developed in the mid-1990s by Larry Irving, the former Deputy Secretary of Communications and Information in the United States. According to his account, he used this word to differentiate between individuals who are heavily interested in technology and those who are not (Bulger, 2007) [11].

Inequitable access to technology often called the digital divide, has far-reaching consequences, reducing communication and information-sharing opportunities across nations and civilisations (Tehrato, 2019) [12]. Initially viewed as a binary issue of 'having or not having' access to information and communication technology (Lucendo-Monedero, 2019) [13], the emergence of this digital gap holds significant implications for various aspects of society, including e-commerce, the economy, education, and cultural levels within countries (Khalaji, 2018) [14]. In the education sector, the digital divide refers to the inequality in access to and utilisation of digital technologies and the Internet among students and educational institutions. This divide creates disparities in the educational opportunities available to different population segments. Students with limited access to digital resources may face challenges accessing online learning materials, participating in virtual classrooms, and utilising educational software and resources. This inequality is often associated with socioeconomic status, geographic location, and demographic characteristics like age, race, and gender. One proposed solution to address digital inequality among marginalised individuals is digital technology [14]. As services like education, government information, and social services increasingly migrate online, access to the Internet is becoming recognised as an essential service (Chris Wilson, 2019) [15]. To tackle this imbalance, authorities have primarily focused on providing physical access to digital technology such as computers and the Internet. However, numerous demographic characteristics, including income, education, geographical location (e.g., rural versus urban), age, race, gender, and more, continue to pose barriers to access and connectivity, often referred to as 'gaps' [14].

### **Digital Disparities: Understanding the Rural Context**

The digital divide is a multifaceted issue encompassing disparities in internet access, technological resources, and digital literacy. In education, this divide has created a dichotomy between those who have easy access to online learning tools and resources and those who do not. This division forms new social alignments, categorising individuals based on their ability to connect to the internet. This transformation has given rise to a clear distinction between the "haves" and the "have-nots," further underscoring societal inequalities. As its name implies, E-learning relies on the presence and ease of access to technology. However, the limited or absent availability of electricity poses a substantial obstacle to fully engaging in online education.

The Key Indicators of Household Social Consumption on Education in India, a report published by the Ministry of Rural Development, which is based on NSSO data from 2017-18, says that a mere 47 per cent of Indian households receive more than 12 hours of electricity, and over 36 per cent of schools in the country operate without electricity. The study also highlights that fewer than 15 per cent of rural households in India have access to the Internet (as opposed to 42 per cent of urban households) (NSSO, 2019) [16]. Rural areas in India face distinctive obstacles in implementing online education. Limited

access to high-speed internet, inadequate technological infrastructure, and a shortage of digital devices are just a few challenges educators and students in rural settings grapple with. Moreover, the absence of digital literacy skills among students and teachers in these regions further compounds the issue. This indicates that while students from more affluent families can seamlessly transition to remote learning, disadvantaged students are more likely to face challenges due to either the unavailability of technology or their parents' lack of familiarity with tech-driven applications, leading to inefficiencies and difficulties adapting.

This issue has a gendered dimension also. A mere 13 per cent of individuals surveyed (above the age of five) in rural areas, with only 8.5 per cent being females, can use the Internet [16]. Girls from vulnerable households are burdened with increased domestic responsibilities, which hinder their access to online education due to limited internet and device access or the prioritisation of male children's education. This silent exclusion of children from disadvantaged families could lead to child labour and early marriages. According to data from NSSO for 2014-2015, economic conditions play a pivotal role in the dropout rates of children in Indian schools. The pandemic and subsequent lockdown have profoundly impacted around 1.4 million migrant labourers and individuals employed in the unorganised sector (about 90 per cent of India's population) (Patel, 2020) [17]. Migrant workers have either returned to their hometowns along with their children or cannot send financial support back home during this period. Consequently, the heavy reliance on technology-based education hinders numerous children from pursuing their education nationwide.

### **Unveiling the Issue through the Educators' Lens**

Apart from the challenges posed by accessibility and cost, students also face the formidable challenge of staying on par with their studies and peers. Unlike the dynamic environment of a physical classroom, e-learning does not allow for personalised one-on-one interactions or collaborative problem-solving with educators. Observations underline that the recipients, i.e., students, are not the sole ones grappling with these difficulties; teachers are also. Both educators and educational institutions often lack the necessary training and resources to transition to online teaching smoothly. Many teachers find themselves inadequately qualified to navigate new technologies and interfaces.

In rural educational institutions, educators and students are accustomed to the conventional approach to teaching and learning. A research study in 2021 revealed that teachers lacked familiarity with online instruction and had no formal training. Since many of these teachers are middle-aged, they often lack proficiency in conducting online classes via smartphones or laptops. In such instances, they frequently seek assistance from their children or grandchildren. The introduction of online classes led to several adverse outcomes for specific teachers, including diminished self-esteem, reduced teaching productivity, and decreased motivation levels. Besides their teaching responsibilities, educators also engaged in additional tasks such as book distribution, student re-admissions, and managing quarantine centres established within the school premises. Consequently, teachers reported experiencing heightened stress due to these challenges (Das et al., 2021) [18].

The lockdown transformed the educational landscape, drastically shifting the traditional teaching environment. Verma and Campbell (2020) [19] highlighted the challenge of institutions lacking adequately trained teachers for effective remote online instruction, resulting in resistance to this transition. In response, higher education institutions instructed their educators to conduct classes from their homes using diverse online learning platforms. Numerous teachers encountered issues concerning their

institutions, technology, and students, impacting the execution of online classes in their home environments. Most teachers are accustomed to traditional teaching methods involving blackboards, markers, and PowerPoint presentations. Forcing them to adapt rapidly to become proficient in technology is unjust. Joshi et al. (2020) [20] identified multiple barriers affecting teachers in home-based online teaching settings, including technical difficulties, insufficient training, lack of institutional and technical support, absence of clear guidance, challenges integrating technology into courses, inadequate facilities, external distractions, and interruptions from families and personal matters.

Arora and Srinivasan (2020). [21] reported challenges such as network issues, insufficient training, lack of awareness, diminished attendance, reduced personal engagement, and interaction during online teaching. Many teachers lacked essential infrastructure like configured laptops, internet, and microphones for effective teaching. Connectivity issues, system failures, and bandwidth limitations impeded online sessions, with inadequate technical support hindering problem resolution. Teachers also grappled with managing students' online behaviour, often encountering disruptions such as playing music, making noise, posting inappropriate comments using fake profiles, eating, and playing games during sessions (Punit & Qz.com, 2020) [22]. Institutions should make it obligatory to provide teachers with training on software in advance, ensuring they are adequately prepared with the necessary knowledge to guide students through the new mode of learning effectively (Burns, 2011) [23]. To address these challenges, strategies such as providing targeted training for teachers in e-learning methods, equipping schools with necessary technological infrastructure, and developing localised content can help enhance the effectiveness of e-learning in rural areas.

## Conclusion

The COVID-19 pandemic has underscored the urgency of addressing the digital divide in India's education landscape. While the New Education Policy 2020 lays out a roadmap for embracing digital learning, the challenges to its practical implementation in rural areas remain substantial. This study's findings are expected to contribute valuable insights to the ongoing discourse on online education, offering recommendations to policymakers and educators on bridging the digital divide and promoting educational justice for all. Ultimately, a concerted effort towards equitable digital access can pave the way for India's more inclusive and resilient education system. The study's findings indicate that various challenges have affected the digital divide and educational injustice. The educational challenge is also based on components such as teachers' and families' low level of digital literacy, centralised educational management, educational policy-making and reliance on traditional teaching methods. The cultural challenge is also based on components such as gender, race and language. The economic challenge is also based on components such as families' low income, poverty, the priority of earning a living on learning and expensive educational technology tools. Solutions to overcome these challenges can be listed as raising the level of digital literacy in students and parents, strengthening the motivation to compete and strive, emphasising e-learning methods and using new technology in teaching. Also, some other solutions, such as upgrading the bandwidth of using the Internet, investing in human resources and developing the internal Internet such as providing Internet access points in every school and library, providing low-interest loans for public equipment in rural areas and urban slums, measures to reduce equipment prices (tax exemption, subsidies provision) and low-interest loans for low-income families, free web education sessions for the deprived, providing free Internet address for all students. Therefore, to get out of the digital divide and achieve educational justice in the country's educational system, we must first identify the gaps

and then take action to eliminate them. Therefore, the country's education system can achieve its ultimate goal, a fair society, when it can eliminate the problems facing justice.

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