Issues, challenges and effectiveness of Online Learning in India

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Abstract: The COVID-19 pandemic triggered an unprecedented shift in India's education system, affecting over 320 million learners and forcing a rapid transition from in-person to online instruction through platforms like Zoom, Google Meet, and LMS tools. While this shift preserved educational continuity, it exposed substantial gaps namely technological inequality, socio-economic divides, limited engagement, screen-induced fatigue, and challenges around assessment integrity and mental health. In the post-COVID era, as hybrid models gain traction, reconciling the flexibility of online learning with these persistent challenges is critical. This paper examines the multifaceted issues affecting students, particularly in India's socio-economically diverse context, and evaluates whether online learning can evolve into a robust and equitable educational model.

Key words: Online learning, Digital Classroom, Digital Fatigue, Post-covid.

1. INTRODUCTION

India's education system faced unprecedented disruption during the COVID-19 pandemic, with over 320 million learners affected by school closures (UNESCO, 2020). The COVID-19 pandemic acted as a catalyst for a dramatic transformation in India's education system. With nationwide lockdowns forcing the closure of schools, colleges, and universities, educational institutions were compelled to shift rapidly from traditional classroom teaching to online platforms. Tools such as Zoom, Google Meet, Microsoft Teams, and Learning Management Systems became the primary mode of instruction, ensuring continuity in learning during an unprecedented crisis. While this shift helped prevent a complete academic shutdown, it also revealed significant structural and operational gaps in India's preparedness for large-scale digital education. The post-COVID era has brought these challenges into sharper focus. Although physical classrooms have reopened, many institutions continue to incorporate online or hybrid modes of teaching, making it essential to evaluate the effectiveness and limitations of online learning in the Indian context. In the aftermath of the pandemic, students now face a dual reality i.e.; balancing the flexibility and accessibility of online learning with persistent issues like the digital divide, reduced interpersonal engagement, increased distractions at home, and mental fatigue from prolonged screen time. Understanding these challenges is critical, not only to improve the current system but also to build a more resilient, inclusive, and effective education framework for the future.

2. ISSUES AND CHALLENGES OF ONLINE LEARNING IN THE INDIAN CONTEXT

1. Technological and Connectivity Barriers: India's online learning landscape continues to face deep-seated infrastructure challenges. According to the Comprehensive Annual Modular Survey (CAMS) 2022–23, internet connectivity is still unavailable in nearly 29% of households, with rural areas significantly lagging behind urban counterparts—71% rural vs 87% urban access [1]. While overall smartphone penetration has risen, ASER 2023 notes that 75% of rural households now own a smartphone, with nearly 90% having internet access on the survey day [2], gaps persist in functionality and usage. Connectivity remains uneven, and low bandwidth or intermittent access causes frequent class disruptions. Moreover, a Times of India report from late 2024 reveals that only 26.8% of Indian youth aged 15 to 29 possess essential digital literacy i.e.; ability to browse, send emails, or transact online highlighting the gap between device ownership and effective usage [3]. Together, these data points underscore that, post-COVID,

millions of Indian students are still left behind due to unreliable infrastructure and limited digital fluency, deepening educational inequality.

2. Socio-Economic Inequality: Socio-economic disparities continue to be a defining barrier to equitable online education in India. While MoSPI's recent data shows that 85.5% of Indian households now own a smartphone [4], device ownership alone doesn't bridge the divides seen across socio-economic lines. The ASER 2024 report reveals a persistent gender gap: only 36.2% of boys aged 14–16 own smartphones compared to 26.9% of girls [5]. Meanwhile, the NSO's CAMS 2022–23 underscores that while broadband reaches 86.5% of urban households, only 71.2% of rural households have access, with further drops among marginalized communities—69.1% of SC and 64.8% of ST households [6]. For students from low-income and rural households, crowded living spaces and lack of personal study areas compound the issue, and female students face additional barriers as they juggle household chores and caregiving responsibilities, cultural norms that disproportionately restrict their educational engagement [7, 8]. This combination of limited digital access and unequal domestic burdens significantly undermines the potential of online learning to democratize education in India.

3. Lack of Interaction and Engagement: Online platforms limit face-to-face cues, reducing opportunities for collaborative learning. In traditional classrooms, teachers can monitor attention and adapt in real time, but online many students turn off cameras and disengage. Recent studies across the world show that in some virtual classes only ~6% of students regularly keep cameras on, and in a professional course 83% reported never using webcams during live sessions. Off-task behaviour is common online: media multitasking averages ~38% across studies, and about 69% of students multitask during audio/reading assignments. Correspondingly, ~80% of university students report difficulty maintaining focus in online education, and "Zoom fatigue" is linked to higher boredom and lower engagement.

4. Distraction Elements in Online Learning: While Sahu's 2020 study found that over 60% of Indian college students frequently switched tabs to unrelated websites during online classes, recent research continues to highlight the persistence of digital distractions in education. A 2024 empirical study on blended learning reported that students often face greater distractions in mixed online-offline modes, with such interruptions negatively affecting mental health and academic performance. Similarly, a 2024 investigation with engineering students found that digital distractions significantly impaired their performance during lab sessions, underscoring that despite advances in online education, maintaining focus in a highly connected environment remains a critical challenge.

Key factors of distraction while online learning include:

(a) Mobile Notifications: WhatsApp messages, social media alerts, and gaming apps interrupt focus.

(b) Multitasking: Students often browse YouTube, Instagram, or OTT platforms like Netflix during lectures.

(c) Household Disturbances: Noise from television, family conversations, or household chores disrupt concentration especially in joint families or small living spaces.

(d) Lack of Physical Monitoring: Without the presence of a teacher, students are more likely to lose focus or skip sessions.

5. Digital Fatigue and Health Issues: Prolonged screen exposure during online learning has triggered a wave of health concerns among Indian students, ranging from eye strain and postural discomfort to deep cognitive burnout. A Pune-based survey (Nov 2024–Apr 2025) found that 37% of respondents including many students suffered dry-eye symptoms attributed to screen use averaging 6.3–8.3 hours per day [9]. In academic environments, online learning's mental and

physical demands have led to overwhelming exhaustion: academic burnout surged from 7.4% in 2017 to nearly 60% by 2023 [10]. Additionally, eye specialists report that more than 50% of children engaged in over two hours of daily online classes experienced digital eye strain symptoms like itchy eyes and headaches [11]. These trends indicate that in the post-COVID scenario, digital fatigue has become a substantial barrier to both the well-being and academic effectiveness of students in India.

6. Assessment and Academic Integrity: Ensuring fairness and credibility in online examinations has emerged as one of the most persistent challenges in the Indian education system's digital shift. Without the controlled environment of physical exam halls, students often have greater opportunities to engage in dishonest practices such as consulting unauthorized notes, using smartphones or hidden devices, and collaborating with peers through messaging apps during tests. Proctoring solutions like AI-enabled monitoring and webcam-based supervision have been introduced by some universities, but these are often limited by technical glitches, privacy concerns, and inconsistent internet connectivity especially in rural areas. A 2023 survey by the "All India Council for Technical Education (AICTE)" indicated that "over 40% of faculty members" believed academic dishonesty had increased in online assessments compared to traditional exams. Moreover, the lack of uniform guidelines across institutions has created disparities in enforcement, leading to questions about the validity of grades and qualifications awarded during the pandemic and beyond. In the absence of robust monitoring frameworks, online assessments risk undermining academic integrity and eroding trust in the evaluation process.

7. Mental Health and Well-being: The extended reliance on online learning in India has heightened mental health challenges among students, driven by isolation, uncertainty, and limited social interaction. A cross-sectional study during the COVID-19 waves reported staggering levels over 75% of university students experienced moderate to severe depression, while nearly 60% faced moderate to severe anxiety [12]. Recent epidemiological data adds further concern: according to a national survey of over 8,500 students, more than 12% reported suicidal ideation in the past year, and over 5% had attempted suicide [13]. Moreover, a pan-India assessment by Ipsos in 2024 found that 53% of urban Indians experienced stress substantial enough to affect daily life, and 25% reported persistent feelings of depression [14]. Disturbingly, student suicide remains a major issue: the National Crime Records Bureau (NCRB) reported that although the share of student suicides slightly declined to 7.6% of all suicides in 2022, the overall mental health crisis remains pervasive, especially in states like Maharashtra, Tamil Nadu, and Madhya Pradesh [15,16]. These trends underscore a growing mental health emergency exacerbated by the digital learning environment, emphasizing the urgent need for stronger institutional support, counselling services, and student wellness programs.

3. Advantages of Online Learning in India: Despite the above challenges, online learning in India has some advantages:

(i) Access to global lectures and resources: One of the major advantages of online learning is the ability for students to access lectures, courses, and educational resources from around the world, breaking the limitations of geographic boundaries. Through platforms like Coursera, edX, Khan Academy, and NPTEL, Indian students can learn directly from top universities and industry experts, often at little or no cost. This exposure not only enriches academic knowledge but also introduces learners to diverse perspectives, teaching styles, and up-to-date global research. In the post-COVID era, such access has significantly widened learning opportunities, enabling students from even remote areas to connect with the best educational content internationally provided they have the necessary digital infrastructure.

(ii) Cost and time savings from reduced travel: Online learning has brought significant savings in both cost and time by eliminating the need for daily commuting to educational institutions. For many Indian students, especially in urban areas, travel to colleges or coaching centers can take 1–3 hours daily and cost anywhere between ₹1,000–₹3,000 per month in transport expenses (as per a 2023 Statista survey on student commute costs in India). In rural areas, where institutions may be located far from home, online classes remove the burden of long bus rides or train journeys, allowing students to devote more time to study or skill development. A 2022 AICTE student feedback analysis also indicated that over 65% of respondents cited travel cost and time reduction as one of the biggest benefits of online education. These savings not only ease financial strain on families but also help students maintain better work-study–life balance.

(iii) Flexible schedules, especially for working students: One of the strongest advantages of online learning is the flexibility it offers, particularly for students who are also employed. Unlike fixed classroom hours, online courses often provide recorded lectures and self-paced modules, enabling learners to study at times that fit around their work commitments. According to an AICTE 2023 survey, nearly 58% of working students in India reported that flexible scheduling was the primary reason they could continue higher education alongside jobs. Similarly, a Coursera Global Skills Report 2023 highlighted that a significant portion of Indian learners accessed courses outside traditional hours, with peak learning times observed late at night or early morning. This flexibility not only reduces stress for working students but also enhances learning retention, as they can engage with the material when they are most focused and available.

(iv) Opportunities for self-paced learning through recorded content: Online education in India has made self-paced learning a reality for millions, thanks to recorded lectures and digital resource libraries. For instance, SWAYAM, India's government-led MOOC initiative, has amassed over 1.2 crore individual users and more than 4 crore course enrolments, offering recorded content from premier institutions like IITs and IIMs that learners can access anytime [17]. Similarly, the National Digital Library of India (NDLI) provides access to over 100 million educational items including textbooks, articles, and video lectures across 39 Indian languages, all available on demand [18]. Additionally, platforms like NPTEL+ now offer self-paced courses where learners can go through video lectures and assignments on their own schedule and even take proctored exams remotely [19]. Programs such as Virtual Labs under the National Mission on Education through ICT allow students in science and engineering disciplines to conduct experiments and assessments at their own pace without requiring physical lab access [20]. These platforms exemplify how recorded content enhances flexibility, allowing learners especially working professionals and students in remote areas to engage with high-quality educational material at times that suit them, thereby democratizing access to learning across India.

4. CONCLUSION

In the Indian context, online learning has played a vital role in sustaining academic activity during crisis periods. Yet its limitations—including unreliable digital infrastructure, socio-economic inequities, student distraction and disengagement, mental fatigue, and compromised academic integrity—underscore that it alone cannot fully replace traditional classrooms. A blended learning approach, combining face-to-face interaction and teacher presence with flexible, technology-enabled resources, offers the most promise. Success will depend on substantial investments in digital access, focused efforts to minimize distractions, stronger assessment frameworks, and robust mental health support systems. Only then can online learning become an effective and inclusive complement to India's educational ecosystem.

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