
Paucity of *e*-Infrastructure for Teachers and Students in Indian Higher Education

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Abstract

The unusual and challenging circumstances created due to COVID-19 pandemic and consequent lock downs has tossed a few challenges to the Indian Higher Education in conducting academic sessions, classes and exams. The teachers and students engaged in higher education are at the receiving end because the onus of online teaching & learning and completing the syllabus through online classes has fallen on them. The teachers and students are unconditionally expected to accomplish this task however the tools necessary for this task are very limited. This article discusses the dearth of *e*-infrastructure tools amidst teachers and students engaged in higher education in India.

Introduction

As suggested by WHO and Government authorities ^[1], COVID-19 pandemic is here to stay for quite a while and hence alternative ways to the practices performed during the times prior to COVID-19 need to be explored and implemented so as to usher in a new-normal post COVID-19. According to a report by Quacquarelli Symonds (QS) – the global agency for ranking of Universities worldwide, the *e*-infrastructure and internet infrastructure in India are under-prepared for the paradigm shift to online learning ^[2]. The higher education in India hence needs to be revamped especially in its mode of delivery. The present scenario presents to us an opportunity to implement full-fledged online teaching & learning in higher education in India. However, with this enormous opportunity few stumbling blocks and bottlenecks also need to be ironed out and rectified to unleash the great scope of online teaching & learning in higher education in India ^{[2][3]}. We discuss these stumbling blocks and bottlenecks and their solutions in this article.

1. Absence of an Online Education App by Higher Education Authorities

During the nationwide lockdown due to COVID-19, it was decided by the UGC to complete the academic session 2019-20 online. Zoom App has become a popular app for this task since it facilitates many participants in a single video call simultaneously for a 40-minute session at free of cost. The MHA issued an advisory regarding the Zoom app alerting that it is unsafe for meetings and video calls due to data theft and hacking. The Zoom app, because of data theft and uncontrollable traffic of hackers is seen as unreliable in the teaching community and other

options like Microsoft Teams and Google Meet are being explored ^[4]. At present, the two most popular apps that are being used by teachers and students for online classes are Zoom App and Google Meet ^[5]. The inefficiency of Zoom to manage cyber traffic gives way to cyber theft & hacking. Google Meet for virtual classes seemed a safer bet when it came to digital privacy and ensuring cyber security. Both Zoom App and Google Meet are foreign made products and prone to hacking ^[4]. The use of these apps also goes against the mantra of *Self-Reliance (Aatm-Nirbharta)* and *Vocal for Local Products to make them Global* as professed by the Prime Minister of India ^[6]. Why can't the MHRD, UGC, RUSA, State Directorates of Higher Education or Universities launch their own indigenously created online education app for internet based higher education? If a University comes up with its own specific online education app then all the Colleges, Teachers and Students affiliated to the particular University can download the University App and carry on with online teaching & learning. The University authorities by the help of their University App can easily monitor the online classes, teachers & students' attendance and syllabus completed. The University by advancing the features in their app may also use it to conduct online exams.

2. Shortage of Smartphones and Low Quality Internet Connectivity and Stability

According to the report by Quacquarelli Symonds (QS), the education sector is amongst the many which has taken a strong blow due to the COVID-19 situation. The stakeholders in higher education are not any more able to function conventionally and the prospect of reverting to the status quo seems implausible. In such a scenario, the only option that universities & institutions all over the world are looking up to is that of operating online. The report pointed out connectivity and signal issues as the most prevailing problems faced by students while attending online classes ^[2]. The report stated that the technology infrastructure in India lacks a state of quality and proper delivery of online classes can't be ensured to students across India. The Government as well as the private players have not overcome the technical challenges like ensuring adequate power supply and effective and stable internet connectivity. Due to the outbreak of COVID-19, a massive shift has taken place from the traditional face-to-face to online platform as a mode of delivery of classes however due to lack of proper infrastructure a shift to a total reliance on the online platform for the delivery of lectures seems to be a distant dream in India ^[2]. According to the QS report - for the use of internet at home, 72.6% users use mobile hotspot, 15% users use broadband, 9.6% users use Wi-Fi dongle and 1.8% users have poor to no internet connectivity ^[2]. Among those who use broadband, 3% face cable cuts, 53% face poor connectivity, 11.4% face power issues and 32% face signal issues. For mobile hotspot, 40% face poor connectivity, 3% face power issues and 56.6% face signal issues ^[2].

Children in remote areas have accessibility problems and the concept of e-learning is alien. In rural areas, many parents cannot afford a basic model of mobile phone, let alone a smartphone for their children. The lack of internet access makes classes through Zoom or Microsoft Teams impractical. In urban and suburban areas also, access to internet-enabled services is not easy especially in tier II and tier III cities. These realities expose the truth of developed urban areas of

India and the rural Bharat, as the teachers and students try to cope with the challenges of online education ^[3].

3. Low Daily Data Availability and Slow Download Speed

According to Ookla - internet speed test agency, India has dropped in ranking for internet speed. The average internet speed in India has been limited to just 30Mbps. In March 2020, India was globally ranked at 130th for mobile internet speed and 71st in fixed broadband internet speed. Fixed broadband average internet speeds have come down by almost 4Mbps, while mobile internet average speed has dropped by 1.68Mbps. The average fixed broadband internet speed in India has shown a 5.5 Mbps drop since January 2020. On the other hand, UAE tops the list for mobile internet speed with 83.52 Mbps while, Singapore tops the list for fixed broadband internet speed with 197.26 Mbps ^[7]. Government has to seriously rectify this issue by ending the monopoly of just 2-3 service providers in this segment.

4. Lack of formal training for Online teaching, learning, conduct and mannerism

As for any technology, *e*-education too comes with its own set of challenges. Experts say *e*-education has teacher-training and *e*-infrastructure as major challenges apart from bridging the class divide. Experts say that the fear of uncertainty is visible on the platform. Many teachers face connectivity issues and are not trained to teach students online. However, the experts believe that *e*-education has the ability to make a difference to the lives of millions by offering cost-effective education to every child in the country however to achieve this, the socioeconomic and geographical barriers have to be shattered and each child has to be ensured of learning from the best of teachers ^[8]. The online behavior of teachers, students and webinar participants also needs to be disciplined and streamlined. Selection of calm and quiet surroundings to join online sessions is a must. Talking over others, keeping audio unmuted when not in use, awkward body language & facial expressions must be strictly avoided during formal online sessions.

5. Lack of collaborations with Indian Online learning portals

For the Indian Universities and Colleges to enhance their *e*-learning resources, collaborations & tie-ups can be made with the fairly popular commercial online learning portals in India like Khan Academy, BYJU's and Unacademy etc. Indian *e*-learning portals have experienced huge digital footprints during the lockdown. The increased activities by conventional institutions for *e*-learning and online webinars indicate that higher education sector is acclimatising itself to the new normal by looking for alternatives to physical classrooms due to health and safety concerns during COVID-19 times. KopyKitab, an *e*-learning platform provides many study material free of cost however well-off students are also ready to pay for premium content. Mostly the students in the age-group of 13-25 are the target consumers of commercial *e*-learning portals.

Universities have been apprehensive to collaborate with commercial *e*-learning portals because of many factors like cost, time, logistics, safety of students, etc however these barriers are

opening up due to extended lockdowns and uncertainty of COVID-19 stay over. The Sampark Foundation during the lockdown launched an e-learning app 'Baithak', particularly for the students in rural areas. The app saw two lakh downloads within 10 days with 99% users from rural areas. Since then, the Sampark Foundation has signed MoUs with six state governments to expand their connect with rural children. The Government Universities and Colleges in the rural belt may emulate a similar model for getting connected to higher education students and teachers in rural Bharat.

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