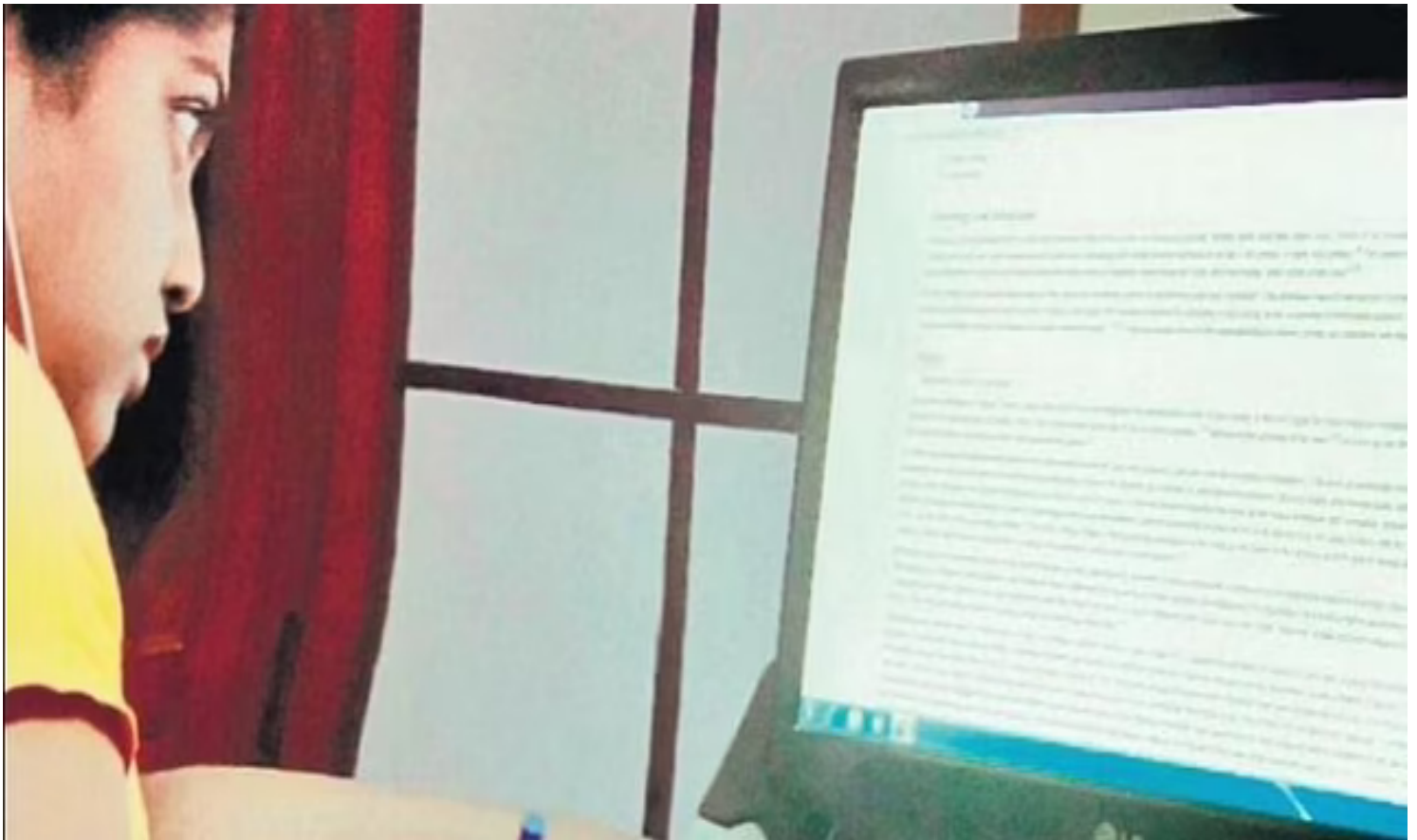# How effective is technology in education?

Before the government invests its scarce resources into tech upgradation, the collective experience of online classes during COVID-19 should be taken into account.

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For representational purposes

By MS Santhanam

In 1922, the prolific American inventor Thomas Alva Edison predicted that the "movie screen will supplant the blackboard and the motion picture film will take the place of textbooks" in schools within 20 years. Education did not unfold the way Edison had imagined.

One century later, the internet and digital technology are expected to revolutionise education, with the pandemic providing a context and urgency to it. Placed at the interface of humans and machines, the path for technology in education - ed-tech - is far from seamless. In contrast to the hype surrounding ed-tech, the experiences of teachers and students since March 2020 call for restrained enthusiasm.

A lot has been written about students lacking tech devices and struggling with erratic internet connections. According to some internal surveys within IITs and IISERs, 10-20 per cent of students lack access to devices.

This is just one among a plethora of issues. The unplanned shift to online classes began last year in all the higher educational institutions. As we complete a third semester in online mode, screen fatigue has definitely set in among most teachers and students.

Both miss the interactions, feedback and peer learning environment. Faculty spend far more time than usual on class preparations, effectively constraining research time. Fair student assessments remain an outstanding issue.

The attendance for live online classes across institutions that used to be 60-80 per cent of class strength a year ago has consistently dropped and now stands at about 10-20 per cent. If this appears anecdotal, the global experience with massive open and online courses (MOOC) reinforces similar trends for reasons ranging from a lack of peer environment to commitment and screen fatigue.

Massive Open Online Courses were thought to be a game changer for higher education that The New York Times designated 2012 as the year of MOOCs. But they suffer from poor completion rates, even for courses offered by top universities such as Harvard and MIT.

On average, less than 20 per cent of learners complete a course with certification and less than 10 per cent watch all the recorded video content. In India, the National Programme on Technology Enhanced Learning (NPTEL), funded by the Ministry of Education, is relatively successful in attracting more than 20 lakh students every semester to its online courses.

However, the completion rates with certification remain low at less than 10 per cent. To attract more students, NPTEL has allowed the credits to be transferred to their degree programmes along with internships for toppers. In contrast, many commercial MOOC start-ups in the US also offer online degrees jointly with an established university.

These attracted enthusiastic initial investor funding but have not lived up to that hype. Coursera, a major MOOC provider founded by two Stanford university faculty in 2012, is valued at USD 2.5 billion but is yet to rake in profits.

Against this backdrop, India's ed-tech platforms are indeed witnessing rapid growth towards the predicted $30 billion market by the next decade. Nothing showcases this growth better than the ed-tech company that has risen to become the official sponsor of India's cricket team.

This growth rides on the back of coaching for fiercely competitive entrance exams such as the IIT-JEE and NEET, rather than as an alternative model for conventional classes. The dichotomy is apparent as many ed-tech companies focus on the coaching classes and online STEM degrees, while the basic school and college classes, often with poor physical infrastructure, await government interventions to infuse technology.

Before the government invests its scarce resources into technology upgradation, the collective experience of online classes must inform policymaking. Many expensive gadgets bought last year did not live up to expectations and were discarded. Ironically, teaching with technology tools is seen as cumbersome, requiring more preparation time without value addition and not always effective for students.

These experiences, a wealth of pedagogy experiments and outcomes, must be assimilated into the evolving ed-tech landscape. The government must push the ed-tech entities to heed these voices and avoid mindless adoption of technology and practices unworkable in the Indian context.

The online engagements since 2020 reveal that technology alone is no panacea for the problems of education. It can be an excellent support system in the hands of competent teachers in a peer learning environment.

Their absence cannot be compensated by prolonged exposure to electronic devices. Thirty years after Edison's prophecy, the American science fiction author Isaac Asimov wrote a futuristic story set in 2157 when school is a video screen with mechanical teachers.

The little girl in the story discovers that old-style physical school must have been a fun place to learn. Judicious use of technology can preserve the fun in learning. It is imperative to strike a right balance.

(The writer is Professor of physics at Indian Institute of Science Education and Research, Pune and can be reached at santh@iiserpune.ac.in)

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