Transformation of learning from real to virtual: an exploratory-descriptive analysis of issues and challenges

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Abstract

Purpose – As online teaching/learning is a new phenomenon with reference to regular degree programs in institutions of higher education in India (the situation having being thrust upon both students and faculty due to COVID-19 pandemic), an exploratory-descriptive study was carried out to find out how public university students in India perceive online teaching/learning (OTL) during the present pandemic, the methods of OTL being used by faculty and the challenges being faced by the students.

Design/methodology/approach – Online interviews with 40 students of three public universities in Delhi/NCR were conducted using open-ended and close-ended questions. The questionnaire was emailed to 82 university students of Commerce and Management specialisation out of which 40 responded. We analysed each participants interview responses using content analysis technique and categorised the themes/factors that emerged under suitable headings using the coding method. The frequencies of the occurrence of the themes/factors were thus determined and documented, and percentages were calculated. The questionnaire also had Likert-scale questions as they are useful to measure latent constructs.

Findings – Inadequate bandwidth and poor network connectivity were found to be major hindrances during OT/L. The other challenges were unsuitable home environment for attending online classes, feeling of isolation and demotivation due to lack of face-to-face interaction and excessive screen-time causing fatigue. Active online methods such as live lectures by faculty and article/case study/discussions facilitated live by faculty were most preferred while the passive method of learning such as online certification courses through education portals such as Swayam/ Coursera/Udemy, etc were least preferred. The level of satisfaction from student–faculty interaction was more than that from student–student interaction.

Research limitations/implications – The study covered three public universities in India and the sample size was small because of limitations created by COVID-19 pandemic situation as campuses were closed and it was not possible to meet students personally to get responses.

Practical implications – Universities should provide data cards or access to university computer labs to those students who are from economically weaker sections of society so that online teaching may be effective. This will also help students who live in very small houses and do not have a quiet corner to study online. Other solution would be to reduce online teaching duration. This issue needs the attention of educational institution leaders as most universities have scheduled classes from morning till evening, as it was during real classroom teaching. Eight hours of online classes every day may not be feasible when Internet access is a critical problem. Teachers should encourage interaction between students so that the feeling of isolation may be reduced and students may be motivated to learn and take more interest in virtual classes.

Social implications – 50% of the Indian population does not have access to the Internet, while a large section that does have, cannot afford the cost of high-speed data that is needed for long-duration online classes spanning over months. Those who can afford it, do not have the privacy to engage effectively in classes on video conferencing portals. Both students and teachers suffer due to poor audio and video quality caused by poor infrastructure. COVID-19 has brought to focus, the severe inequality in some societies. Societies need to take serious cognizance of this issue and take appropriate measures.

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Originality/value – This study is very unique as the radical change from real classroom to online teaching in Indian public universities is a very unique phenomenon. The disruption was forced due to the ongoing COVID-19 pandemic and students along with their teachers learned the process "on-the-job". As the issues and challenges faced by students were unexplored, this study aims to contribute knowledge to this existing research gap.

Keywords COVID-19 pandemic, Education, Online teaching and learning, Technology, University online classes

Paper type Research paper

1. Introduction

Advanced Internet access, an increase in the number of smartphone users, the acceptance of digital payment methods and increased government-level participation have greatly contributed to the growth of online education in India. The COVID-19 pandemic and the resulting social distancing have influenced all facets of society, including education. The enforced nationwide lockout, in hopes of suppressing the virus, culminated in the closing of schools and colleges throughout the country affecting over 500 million students. COVID-19 forced universities across India, and indeed the world, to abandon physical classrooms and move on to online classrooms. The educational institutions had to adjust rapidly to the situation in order to keep the education going. This has given rise to an ongoing demand for online learning. Although the faculty is grappling with new ways to handle this abrupt transition to online education, students remain glued to their cell phones and computer screens.

Technology is one of the most important resources for promoting remote learning when learners have to stay away from classrooms. During the COVID-19 pandemic, large-scale, national initiatives to leverage technology are growing and expanding rapidly in support of remote learning, distance education and online learning. Classes are not all about school. It is about and student's experiences, evolving concepts, free-flowing open conversations, debates and mentoring. Although we're trying to do all this, on the online platform through live classes, something gets lost in translation through pre-recorded videos and lectures. COVID-19 pandemic is a stress test for education systems around the world, according to the World Bank report on June 2020. 190 countries have experienced full or partial school closures as a result of the crisis and as a result more than 1.7 billion students have been affected. It shows how educational institutions and teachers almost overnight moved their work from classrooms and lecture halls to digital platforms around the world's educational systems.

Though universities in India have successfully transformed their learning processes from real to virtual for the purpose of coping with the current pandemic situation, the issues and challenges faced by the stakeholders need to be researched especially because such a transition has been unprecedented in India. Such studies would help improve the processes for the benefit of faculty as well as students. This study aims to find out how students in India universities perceive online teaching/learning (OT/L) during the present pandemic, the methods of OT/L being used by faculty and the challenges being faced by the students.

2. Literature review

2.1 Online teaching and learning

Online education is electronically assisted learning, which relies on the Internet for teacher/student interaction and class content delivery. Rapid technical advances have made distance education simple (McBrien *et al.*, 2009). "Most of the words (online learning, open learning, web-based learning, computer-mediated learning, mixed learning, *m*-learning, for example) have in common the ability to use a networked computer which offers the possibility of learning from anywhere, at any time, at any rhythm, by any means" (Cojocariu *et al.*, 2013).

Online education's growth has become a global phenomenon propelled by the advent of emerging technologies, widespread Internet adoption and growing demand for a digital economy's professional work force. Organisations like World Bank, UNESCO, have been promoting the use of online and distance education since the 1990s to expand educational opportunities for marginalised people: India is developing many online learning initiatives to expand access to education. By 2025, India will have the second largest working-age population in the world, accounting for 25% of the world's work force. Distance education and e-learning models are being used to make education accessible and to prepare a workforce of 250 million people by 2030 (Ernst and Young, 2013).

Advanced Internet access, an increase in the number of smartphone users, the acceptance of digital payment methods and increased government-level participation have greatly contributed to the growth of online education in India. Latest e-learning platforms support students, educators and organisations and are also embraced in India by educational institutions. According to the report by the World Economic Forum, e-learning takes 40–60% less time to learn than in a conventional classroom setting because students can learn at their own speed, go back and read, skip or accelerate through concepts they like (Li and Lalani, 2020).

2.2 COVID-19 pandemic induced online learning

Globally, the sluggish pace of progress in academic institutions is lamentable, with centuries-old, lecture-based teaching approaches, cultural prejudices embedded and outmoded classrooms. However, COVID-19 has been a catalyst for educational institutions around the world in a relatively short-time quest for creative solutions.

The enforced nationwide lockout, in hopes of suppressing the virus, culminated in the closing of schools and colleges throughout the country affecting over 500 million students. The school closures have affected more than 320 million students in India alone since the national lockdown. UNESCO reports that about 1.26 billion children or 70% of children about the world have had their education disrupted due to the pandemic, and a significant number of these children come from what UNESCO terms the "low tech or no tech" category, with India contributing 300 million out of 1.26 billion (Observe Research Foundation, 2020).

Even before COVID-19, there was high growth and penetration of education technology, with global investments in Edtech reaching US$ 18.66 billion in 2019 and according to the World Economic Forum, the overall online education market is projected to exceed US$ 350 trillion by 2025 (Li and Lalani, 2020). Whether its language apps, virtual tutoring, video conference tools or online learning applications, use has increased significantly since COVID-19.

In response to significant demand, many online learning platforms provide free access to their services, including platforms such as BYJU'S, a Bangalore-based educational technology and online tutoring firm founded in 2011, which is now the most highly regarded Edtech company in the world. BYJU'S have seen a 200% rise in the number of new students using its product since it revealed free live classes on its Think and Learn app (Bunmischools, 2020).

The COVID-19 pandemic is a stress test for education systems around the world, according to the World Bank report on June 2020. 190 countries have experienced full or partial school closures as a result of the crisis and as a result more than 1.7 billion students have been affected. Technology is one of the most important resources for promoting remote learning when learners have to stay away from classrooms. Educational institutions are coming up with innovative approaches during the interrupted academic year of COVID-19, although as complementary to conventional classroom education. The Indian education system, caught up in the vortex, changes the approach of online education.

2.3 Current trends in online teaching and learning

A lot of platforms are being developed to facilitate online education in India. These are funded by the Ministry of Human Resource Development (MHRD), the National Educational Research and Training Council (NCERT), and the technical education department. Initiatives such as e-PG Pathshala (e-content), SWAYAM (teacher online courses) and NEAT (enhancing employability) are also present. Other online networks seek to improve institutional collaboration and information accessibility. These are used for materials and lessons for courses and online modules running. Among others they include the National Technology Enhanced Learning Initiative (NPTEL), National Information Network (NKN) and National Academic Depository (NAD). The key aim of incorporating many new technologies into the learning environment is to improve educational quality and success (Ozerbas and Erdogan, 2016).

It is expected that online education in India is likely to be 2 trillion USD industry by 2021, according to credible reports from KPMG and the study Google (Khaitan *et al.*, 2017). By 2021 roughly 28 Crore students will be enrolled in schools. More than 75 Crore Indians (second highest behind China) will use the Internet. Online learning is helpful in reducing obstacles to classroom-based learning. Massive Open Online Course (MOOCs) are accessible to the public and can enrol thousands, even tens of thousands, of learners at the same time. Online-learning platforms come in several forms – MOOCs, online universities, corporate eLearning, K12 education, learning management systems like Teachable, Udemy and platforms such as Skill share. IOS app-based services such as Whatsapp and YouTube are gaining popularity. Online sites such as Coursera offer courses in partnership with schools and colleges. In rural India, there is a shortage of quality teachers. Rural students look forward to accessing digital education in the form of videos, documents.

Webinars and live classes on videoconferencing platforms such as Zoom, Google Meet and Microsoft Teams sessions are also popular ways of OT/L. In addition to setting up reliable IT infrastructure and training faculty members on various facets of OT/L, universities need high-speed Internet and instructional delivery mechanisms or learning management systems. Students at their end too require high speed Internet and computers / mobiles to attend or watch pre-recorded lessons in these sessions.

"Micro learning" is the youngest movement in the world of education. It combines the thing we love the most-important and exciting in small portions of details. Online learning sites have always been the leaders for micro-learning techniques. The information collected through micro-learning may not be the largest, but the frequency is what matters. This is most famously illustrated by the virtual language learning service, Duolingo.

Duolingo helps one piece of knowledge to be learned at a time. Duolingo has unrivalled popularity and is one of the highest-rated educational software available on the market. In short, micro-learning shakes the world of education and revolutionises the way knowledge is processed.

Online quizzes have been a trend and is getting stronger every day. "ProProfs" is one of the most common resources used by educators. ProProfs offers a platform for educators to create interactive, enjoyable and engaging quizzes for their students. Students report taking much more fun in solving challenging quizzes than in learning from books. Quizzes encourage learning in one's own free time and offer those who pursue it a deeper level of education.

Digital leaning environments like Blackboard, Canvas and Renweb expand the office of both the teacher and the administrator. At once, Blackboard manages teaching duties such as gradebooks, auto-scoring and attendance sheet, and administrative duties such as registration, updating of class lists, auto-sending emails to missing students, notifying people of unpaid bills and accounting results. Many online colleges and schools exploit mastery learning heavily. Thanks to Khan Academy, the idea has gained popularity in online

education. Learning Mastery allows students to master a concept or skill before going on. Instead of treating a 60 or 70 as a "passing grade", students are expected to show competence in that subject by correctly answering all the questions.

Isolation can be a grave challenge for many online students. Via their studies they may be wandering collectively as strangers who never really approach each other. Happily, schools and teachers are increasingly involved in this issue. To address this challenge, a growing initiative is introducing collaborative online learning strategies.

Collaborative learning in online education is driven by a broad variety of social media tools, including videoconferencing, text, email, teleconferencing and workflow systems such as Trello and Slack. Each of these projects has helped make the world a smaller place for the students, creating a real possibility for global collaboration. In today's online classrooms collaborative learning is an increasingly common alternative. The widely used apps include Clear Slide, GoogleDocs and Skype, in addition to Trello and Slack.

Schools / universities have developed their own mobile apps to facilitate quick and easy communication and understanding between students / parents and the school. A mobile app is a great medium for incorporating short viewable content in video formats, live sessions and interviews. It can also be used to provide instant updates to students / parents at the institute and the latest happenings. An application need not be limited exclusively to students enrolled. For prospective students, content about entrance exam tips and admission cycle updates can also be added periodically to a mobile application. According to research conducted by KPMG, the online education industry in India is expected to be a 1.96 billion dollar market by 2021 with insights from Google Search. The paying user base is expected to rise sixfold from 1.6 million users in 2016 to 9.6 million users in 2021 according to the study (Khaitan *et al.*, 2017).

Online education has brought a lot to the learning table at all levels of education, from pre-school to higher-level universities, as a result of the digital environment. Several online tech stacks such as Google Classroom, Blackboard, Zoom and Microsoft Teams have allowed the shift towards remote learning, all of which play a significant role in this transition. With ICT in education growth, online video-based micro-courses, e-books, simulations, models, graphics, animations, quizzes, games and e-notes make learning more accessible, engaging and contextualised.

2.4 Digital infrastructure

Although the government has been making efforts to develop and enhance a digital infrastructure across the country, no significant progress has been made. Just 15 out of 100 households have access to the Internet, according to the World Economic Forum, and the mobile broadband remains for a fortunate few, with just 5.5 connexions per 100 people (Samtani and Sarawgi, 2017). But while technology provides ease, it can also be restrictive, particularly in India, where basic access is a challenge. Some students without reliable access to the Internet and/or technology struggle to participate in digital learning; this gap is seen across countries and within countries between income brackets. Not all students have a home computer or fast-streaming Internet. This contributes to problems related to attendance and online session's participation. A survey conducted by IIT Kanpur found that 9.3% of its 2,789 students were unable to download material sent by the school or study online. Just 34.1% of them had Internet access that was strong enough to watch lectures in real-time. Another Local Circles survey of 25,000 respondents found that only 57% of students had the hardware – computer, router and printer – at home to attend online classes (Business Insider India, 2020).

Not all students and teachers have occasional or consistent Internet access. In certain cases, Internet access may be restricted to dial-up speed, or monthly use may be limited on

their Internet, which may restrict their ability to access or interact with information. Educators and students feel helpless due to poor Internet connectivity and frequent power cuts. In addressing structural challenges such as instructional strategies and outcomes, educators are often under tremendous stress (Dhawan, 2020).

As the growth of digital learning continues it also sheds light on India's digital divide. Students from rural areas and those from deprived communities lack the resources and the opportunity to enjoy the benefits of learning online. Greater penetration of mobile networks and the roll-out of 5 G services would give this sector tremendous impetus.

2.5 Engagement with learning

The student–teacher engagement and student to student engagement in conventional classrooms is very strong. For input or discussions, learners may approach the teachers and fellow students and get their questions answered on-the-spot. E-learning is not yet designed to promote open-ended or crowd learning, as the online classes are recorded in video lectures.

These challenges and problems associated with modern technology vary from downloading errors, installation problems, authentication issues, audio and video issues and so forth. Often online teaching is considered by students to be dull and unengaging. Also, the new learning system has resulted in extended work hours for the educators, encouraging increased pressure.

Personal care is also an enormous issue facing online learning. Students want bidirectional interaction that sometimes becomes difficult to implement. Before the students experience what they read, the learning process cannot achieve its full potential. Recorded lectures are all theoretical at times and does not allow students to practice and effectively learn. Not all students and learners are the same; they differ in degree of skill and level of confidence. Some may not feel comfortable studying online, which results in increased frustration and uncertainty. Insufficient customisation of learning processes will interrupt the teaching process and create an imbalance.

2.6 Quality assurance

Online education is not as easy as speaking into the microphone at one end, and connecting a laptop and listening in on the other; there are challenges faced at both ends of the spectrum The quality of the mediocre course is also a big concern. The establishment of quality assurance frameworks and quality standards for online learning developed and provided by HEIs in India as well as e-learning platforms is also important. Many e-learning players give several courses with varying levels of certifications, curriculum and criteria of evaluation on the same subjects. So the standard of the courses can vary across various e-learning platforms.

2.7 Adaptability

It is difficult for the students to adapt immediately after conventional classroom learning to an online learning environment. They are not able to adapt to commuter-based learning due to the sudden transition. Students who have already learned in the conventional mentality of the classroom cannot rely on online platforms. Most of them feel isolated while learning online and just looking at their computer screens. It's crucial that they embrace the new learning environment with an open approach. Therefore, it is important to adopt those methods of teaching which encourage equal participation of all the students giving them a lively feeling and more like a classroom environment, collaborative learning should be encouraged and used apps include Clear Slide, GoogleDocs and Skype can be preferred to impart education via online mode.

3. Research method

This study is based on exploratory-descriptive research design. As OT/L is a new phenomenon with reference to regular degree programs in institutions of higher education in India (the situation having being thrust upon both students and faculty due to COVID-19 pandemic), the exploratory-descriptive method of study was found to be very suitable for carrying out the study. Online interviews with 40 students of three public universities in Delhi/NCR were conducted using open-ended and close-ended questions. The questionnaire was emailed to 82 university students of Commerce and Management specialisation out of which 40 responded. The sample size was small because of limitations created by COVID-19 pandemic situation as campuses were closed and it was not possible to meet students personally to get responses. The students were aged between 20 and 31 years. We analysed each participants interview responses using content analysis technique and categorised the themes/factors that emerged under suitable headings using the coding method. As stated by Wilkinson and Birmingham (2003), "where regular key themes have been identified there may be some quantitative analysis provided, in terms of the number of times a key themes occurred". The frequencies of the occurrence of the themes/factors were thus determined and documented, and percentages were calculated. The questionnaire also had Likert-scale questions as they are useful to measure latent constructs – that is, characteristics of people such as attitudes, feelings, opinions, etc.

4. Questions and findings

Students were asked about the number of hours they spent everyday for online classes. It was found that the minimum time spent by students for online classes was 2.5 h and maximum was 6 h. Our study found that faculty primarily used Zoom, Google meet and Microsoft team videoconferencing platforms to engage students online. The questions and their findings have been described in the following sections.

4.1 Open-ended question and findings

Which are the OT/L methods being used at your college/university?

As listed in Table 1, we found seven methods of teaching that were commonly being used by faculty.

4.2 Open-ended question and findings

What types of challenges do you encounter in your online program and how frequently?

We downloaded the responses in excel sheet and analysed them using content analysis technique. Some examples of responses are as following:

S. No	Teaching tools and techniques
1	Study material (PPT, case study, Research papers, Articles, Notes)
2	Online lectures (Live)
3	Recorded lecture videos
4	Online student–student interaction
5	Excel sheet
6	Topic-related videos
7	Online whiteboard

Source(s): Self-creation

Table 1. Teaching tools and techniques used on online video conferencing platforms (Zoom, Google Meet and Microsoft Team)

Respondent 5. "Network issues, most of the times. Also, sometimes there's issue with finding a silent corner at home, so that you can have your classes without any disturbance".

Respondent 12. "Mostly network and technical problems. Some times because of miscommunication a lot of precious time is lost. I at times feel a lack of motivation to constantly sit in front of the laptop from 9 AM to 5.30 PM".

Respondent 39. "Frequent network problems, less interaction among students, no e-library, continuous staring at the screen and listening for hours makes one lethargic".

Based on the major themes that emerged from the responses of all 40 participants, we prepared a list of 8 challenges that are listed in Table 2. 36 respondents mentioned in their responses issues of poor network, slow data speed, choppy audio, video-feed that kept freezing and extended, unexplained delays. In Table 2, these were classified under the heading *"Inadequate bandwidth and network connectivity issues"*. This was found to be a major hindrance during OT/L as 90% students had said so. The other major challenges found were "*Unsuitable home environment for attending online classes"* (32.5%); "*Feeling of isolation and demotivation due to lack of face-to-face interaction with teacher and students"* (15%); "*Excessive screen-time causing fatigue*" (12.5%).

4.3 Close-ended question and findings

Choose three most preferred methods of OT/L from the given seven options that you consider to be most effective.

The preferences of students based on their responses have been listed in Table 3. The top three methods selected by students clearly show that students prefer the live presence of faculty in their online learning experience. Active online methods, such as "*Live lecture delivery by your faculty"* (100%) and "*Article/case study/discussions facilitated live by your faculty"* (74,2%), were most preferred while passive method such as "*Complete substitution for faculty-led online classes by certification courses through other online education portals such as Swayam/ Coursera/Udemy etc"* (3.2%) were least preferred.

This finding is very important as it clearly highlights the fact that students highly prefer interaction between teacher and students.

4.4 Close-ended question and findings

Regarding studies-related online interactions with your professors, on a 1–5 scale given below, rate your satisfaction level.

As depicted in Figure 1, it was found the 3% students were highly satisfied while 71% were satisfied.

Table 2.
Challenges faced by students during online studies

S. No	Type of challenge	Frequency (n = 40)	Percentage
1	Inadequate bandwidth and network connectivity issues	36	90.0
2	Unsuitable home environment for attending online classes	13	32.5
3	Feeling of isolation and demotivation due to lack of face-to-face student-faculty and student-student interactions	6	15.0
4	Excessive screen-time causing fatigue	5	12.5
5	Time management	1	2.5
6	Lack of e-library	1	2.5
7	Difficulty in understanding calculation-based subjects	1	2.5
8	Device breakdown	1	2.5

Source(s): Self-creation

4.5 Close-ended question and findings

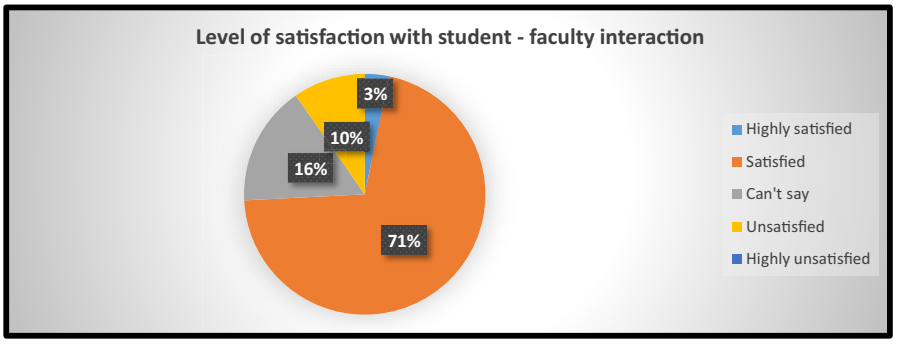
Regarding studies-related online interactions with your class students, on a 1–5 scale given below, rate your satisfaction level.

As depicted in Figure 2, it was found the 10% students were highly satisfied while 51% were satisfied.

S. No	OT/L methods	Percentage (n = 40)
1	Live lecture delivery by your faculty	100
2	Article/case study/discussions facilitated live by your faculty	74.2
3	Self-study material shared by faculty via email/WhatsApp/Google classroom, etc	58.1
4	Recorded lecture videos of your faculty	32.3
5	Topic-related videos from YouTube etc (non-lecture video)	32.3
6	A blend of certification courses via other education portals (such as Swayam/ Coursera/Udemy, etc) and faculty-led live online classes	22.6
7	Complete substitution for faculty led online classes with certification courses through education portals such as Swayam, Coursera, Udemy etc	3.2

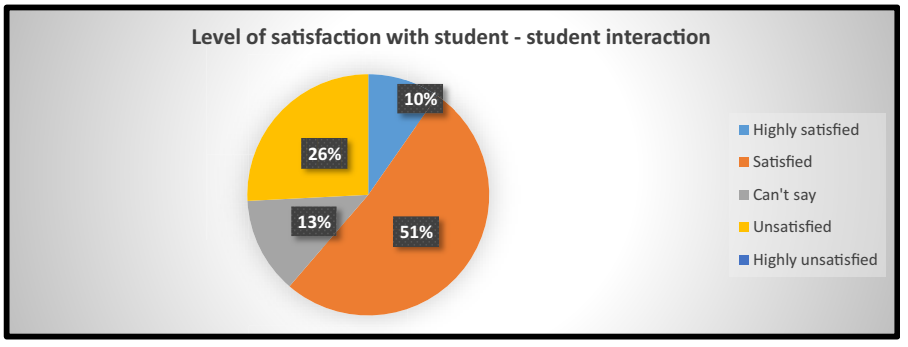
Source(s): Self-creation

Table 3. Students preferred methods of online teaching/learning (OT/L)



Source(s): Self-creation

Figure 1. Level of satisfaction of students with online interactions between faculty and students



Source(s): Self-creation

Figure 2. Level of satisfaction of students with online class interactions among students

Data in Figures 1 and 2 show that that the level of satisfaction from student–faculty interaction was more than that from student–student interaction. The finding highlights the need for more student–student interaction in online classes.

5. Discussion

The pandemic has converted the centuries-old chalk – talk teaching paradigm into technology-driven one. COVID-19 has unprecedentedly affected the schooling worldwide. Millions of students in colleges, universities, vocational training centres and adult learning programs were unable to continue learning. During this revolution in education delivery, educational institutions need to find out how to accelerate on-scale participation while maintaining equitable e-learning strategies and resolving the digital-divide. Many policymakers responded to the growing need to provide learning opportunities by online and distance learning for school children. Digital lessons have been adopted, home learning materials have been distributed and education given through television and radio or in open air spaces. For many governments, teachers and students alike, these initiatives were necessary and inevitably very difficult, as it required a reshuffling not only of the delivery structures but also of roles and responsibilities. Organisations have to scramble multiple choices for online pedagogical methods and strive to use technology more appropriately. Many universities across the world have digitised their operations entirely, recognising this current situation's desperate need. In the midst of this turmoil online learning emerges as a victor quorum. Hence, improving the standard of online teaching – learning is crucial in this stage.

While the benefits of virtual learning are numerous, India's vast digital, gender and class divide means that these benefits can only accrue to those who have access to technology, to those who can adapt to them and most importantly, to those who can afford them. Based on the 2017–2018 National Sample Survey, only 23.8% of Indian households have Internet access, according to the Key Indicators of Household Social Consumption on Education in India report. This figure is also lower in rural areas, where only 14.9% of households have Internet access, compared with 42% of urban households (Sahni, 2020).

These pitiful figures illustrate the fact that, in the months to come, a majority of the nation will be left out of the pursuit of basic education without a clear plan of action. During a pandemic, with such restricted access to information, some kids may be left with the tough option of either dropping out of school entirely or going to a friend's house that has Internet to attend classes, thereby compromising their health.

Changing resistance will not support any educational unit around the world. In such a short time, institutions will be judged on their speed to adjust to the changes and their ability to sustain the quality. The credibility of the units of education is on the stake and under investigation. How well institutions act and how well they retain their educational standard in the midst of this crisis demonstrates their ability to adapt.

6. Recommendations

Online programmes should be designed so as to be creative, interactive, relevant, student-centric and group-based (Partlow and Gibbs, 2003). Educators have to spend a great deal of time making effective strategies to give instructions online. Successful online guidance encourage learner input, make learners ask questions and extend the learner's scope for contending with the course (Keeton, 2004). Urgent action is essential to ensuring continuity of learning at government schools and universities. Open-source digital learning tools and applications for learning management should be implemented so that teachers can do teaching online. The DIKSHA platform, with reach across all Indian states, can be further

strengthened to make learning accessible to the students. Online courses should become diverse, interesting and interactive. Teachers should set time limits and reminders to make the students alert and careful. Efforts should be made to as much as possible humanise the learning process. More emphasis should be laid on live lectures method of online teaching as students prefer live classes more as compared to any other mode of online teaching.

The challenge facing educational institutions is not only to discover and use new technologies but also to reinvent its curriculum, thus helping students and academic staff seeking guidance for digital literacy. Teachers can present the curriculum in different formats, that is, using videos, audios, and texts. It's helpful if teachers supplement their lectures with video calls, virtual meetings and so on to get direct input and keep an interaction with the students during the lecture. Collaborative method of teaching during online classes should be preferred. Student–faculty relationship should be cultivated as students derive maximum level of satisfaction from student–professor interaction. Academic institutions should prepare a step-by-step guide that can instruct teachers and students on how to access and use different e-learning platforms, and how to cover specific curriculum material through these devices, thus minimising digital illiteracy. Student face difficulties with live classes, use of suitable icons, MS office, applications and websites related to communication, etc. Often they don't know technology skills like login, live lessons, job development and submission, contact with teachers and friends. Students should have access to support devices that can help them overcome technological challenges by calling, emailing or chatting live. The most common hurdle student facing during online education is technical difficulties. Training and preparation is a central tenant in preparing every faculty for online teaching and thus battling their resistance.

7. Conclusion

The COVID-19 pandemic has struck hardest the least advantaged and highlights the harsh reality of educational disparity. When we look to rebuild, we have to ensure that the global challenge of literacy is eventually and effectively addressed it is important that literacy is incorporated into the global and national COVID-19 responses and recovery plans for learners of all ages. We need to ensure learning continuity, increased access and strengthened national lifelong learning programs and capacities. We have to participate in the opportunities for open and distance learning. The quality of the learning depends heavily on digital access levels and accessibility. Just about 60% of the world's population is online, after all. While in Hong Kong, for example, virtual classes on personal tablets can be the standard, many students in less developed economies rely on lessons and assignments sent via WhatsApp or email. In addition, the less wealthy and technologically advanced individual families are, the more they leave their students behind. These kids miss out as classes move online because of the expense of digital devices and data plans. If access costs decrease and access quality rises in all countries, the disparity in quality of education, and thus socioeconomic equality, is further intensified. The digital divide could get more serious if access to the new technology determines educational access.

The rapid spread of COVID-19 has shown the value of building resilience in the face of multiple challenges, from pandemic disease to severe violence to climate instability and also, indeed, rapid technological change. The pandemic is also an opportunity to remember the skills that students need in this uncertain environment, such as educated decision-making, innovative problem-solving and probably, adaptability. In order to ensure that those skills remain a priority for all students, resilience must also be integrated into our education systems.

Classes are not all about school. It is about and student's experiences, evolving concepts, free-flowing open conversations, debates and mentoring. Although we're trying

to do all this, on the online platform, something gets lost in translation. During this COVID-19 era, the rapid, forced absorption of learners into virtual learning has proved disruptive to the education sector. In the foreseeable future, education will be digital and with the right infrastructure and policies in place we would be better prepared to deal with it. We need a high degree of preparedness so we can respond rapidly to the changes in the environment and adapt to various delivery models, such as remote learning or online learning in pandemic situations like COVID-19. E-learning will help to provide inclusive education even in times of crisis. Such structures need to be implemented in educational institutions to ensure that due to their location, social status, race and so on, no student is deprived of education. Online training technologies endorse and promote learning – teaching practises, but there is an urgent need to weigh the technology's pros and cons and unlock its potential.

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Further reading

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