



Impact of online education in India: Methodologies, success, failures, and expectations

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Abstract

This paper aims to report insights on the emergence of online education in India, its adoption, impacts, and the challenges faced by stakeholders (students and teachers) in India, where the traditional way of teaching in most schools is still by chalk and duster. A comprehensive study was conducted to study the shift of this conventional method to modern or virtual education due to the Covid-19 Pandemic. This paper has tried to cover all the aspects from innovative opportunities in virtual worlds for students aged 5-25 to suggestions for teachers. The study has demonstrated that there has been an overall development of students and teachers as professional individuals.

Keywords: online education, covid-19 pandemic, accessibility of education, lack of internet facilities, e-learning tools

Introduction

In basic terms, Online Education means acquiring knowledge, information, statistics, or data by using the instructions provided by the internet. As time passes, this definition keeps on modifying rather than changing. It refers to taking a course, earning a degree, or participating in educational endeavours with the support of virtual platforms and e-tools or gadgets rather than in person. Another term for online education is distance learning.

There are several formats for the same such as assigned lessons and assessments administered online. In contrast, others take remote lectures wherein students switch on their cameras, and the instructor or teacher teaches from their screens. The basic format of online education these days includes the combination of both formats. Pre-recorded video lectures and online correspondence courses are all forms of online or virtual education that support people who have a demanding work schedule or family obligations. Given the onset of the COVID-19 pandemic in early 2020, there was an immediate need for the education sector to shift entirely online to provide education to every student. Since everyone in India has the right to education, all teachers and institutions put in their 100% effort in adapting to the new normal, that is, e-learning, and followed the *mantra* of unlearning and relearning to deliver the best education possible online. Educators in India adopted various platforms for teaching online such as YouTube, Skype, Zoom, Google Meet, MS Teams, Kahoot!, Webex, etc. The process of shifting entirely online has indeed been challenging for all the teachers out there. They went through numerous training sessions through their institutions, and some who teach independently even showed much enthusiasm to learn from YouTube. YouTube and other edu-tech platforms like Coursera, Udemy, Skill Share, LinkedIn Learning, and many others were also adopted by students, more during the pandemic, for continuing their learning, earning certificates of completion, and acquiring the skills to upgrade themselves. The variety of classes range from live classes to recorded lectures, providing

ample resources and methods for students to continue their education. Such platforms gave the students the flexibility to learn from home at their own pace, and saved them time and money. Teachers put in their best efforts to make online classes as interactive and as un-boring as possible. Although many efforts are being made, several loopholes are causing the true essence of education to fade online.

The purpose of this paper is to assess the online education playground and the various challenges that students and teachers encounter in this new mode of teaching. The paper also explores the expectations of students and how said expectations have not been met by the educating population while also highlighting the impacts that online education has had on education and career opportunities. The present paper recommends solutions and suggests practices for teachers to ensure that the online education experience is seamless and holistic.

Research Methodology

The present paper is a secondary research, which has used various researchers' literature in the related field to gain insights on various aspects of the research. The paper aims to analyse the viewpoints of different research scholars and authors, compare them with the prevailing scenario and provide recommendations.

Online Education: Characteristic Features

Characteristics of online learning

- The crux of online education lies in the involvement of digital technology and revolves around it, from sharing a wide range of information to creating a multimedia environment.
- It encourages distance-wide interaction, implementation, collaboration, and efficiency.
- Online education relies on written documents for content delivery and communication. For this, text-based communication has become prevalent in the shape of word docs, pdfs, presentations,

etc. Audio and video-based communication through e-platforms is the leading source of online education for every student.

- Online learning has given rise to independent learning as the teacher, instructor, parents or guardians may not be present online every time. One looks up to various sources and means for locating information. Students take more responsibility for their self-grooming and learning.
- It gives everyone the flexibility of time and place. It is not necessary to be physically present at a certain spot. One can just attend the webinar, class, concert, conference, meeting through facetime just by clicking one button.
- Almost every teacher offers students a pacing or instruction guide, which gives students a goal-oriented vision and knows what they want to be. They know that accomplishing mini- goals such as completing assignments and projects on time will lead to achieving the ultimate goal. This is the goal-oriented format of online learning (Deribo, 2021)

Advantages and disadvantages

Advantages of online learning

- **A broader perspective:** Students in the online mode of learning can log on from any corner of the world and access people around the globe. This broadens their horizon by enhancing cross-cultural understanding. (Menaka, 2019) Online education is not restricted to any geographical location. Therefore being exposed to speaking with professionals outside one's own country gives wings to one's creativity, imagination, skills, and, thus, developing cross-cultural communities.
- **Technical skills:** Grasping technical skills and working upon them within a limited time has become the need of the hour (Seethal, K., 2019). Using digital learning material, new software tools, collaboration tools, content management systems such as graphic designing, digital marketing, project management tools, etc. makes one a master in technical skills. This gives accreditation of technical skills to students seeking jobs.
- **Refined analytical and critical thinking skills:** Online learning gives everyone the ability to rethink what they are doing every day. The practice of self-paced and self-motivated learning forces one to think out of the box, think critically and logically, and overcome any obstacle that might come their way. The challenge to think differently and master the skill upon that makes goal-oriented students apart from other students.
- **Flexibility adds to better time management:** Online Learning requires everyone to set some time aside for their self-study, which involves discipline and understanding how to divide time slots for particular day tasks. Advantage of the flexibility of location, planning with consistent time and workspace each student can efficiently add to better time management (Seethal, K., 2019).

Disadvantages of online learning

- **High level of distraction:** Lack of face-to-face interaction and lack of motivation can make students quickly go off track while attending online classes through laptops or iPads. Surfing through the internet and social media platforms such as Instagram, Twitter, Snapchat is straightforward during the

online mode of study, which gives rise to inattentiveness during the class, thus leading to distraction.

- **The duplicity of online courses & programs:** Many websites with many courses have emerged during the online phase and are still emerging. In such a pool of courses, one cannot distinguish between the genuine and a fraud course. There are many instances where one is not getting the total value and utility of the course for the amount paid. Also, these courses do not have any accreditation of any educational authority and sometimes just provide high-end skill courses in the name of fake authorities. It is effortless for college and senior secondary education students to get stuck in the trap of these fake institutions.
- **Lack of practical experience and workshops:** Practical experiments in Biology, Physics, and Chemistry can never be replaced online or E-Labs. These experiments require hands- on experience of students, which is a necessity in shaping their careers. Experimenting with chemicals in test tubes in laboratories cannot be done in a virtual model. Not only this, some postgraduate and graduate degrees require internships and workshops in the field, i.e. conducting surveys, making reports and strategies, meeting customers of every geographic region, conducting a detailed study about their background, culture, etc. These are the practical exposure things that shape the youth's personality and make them a better person inside out. This is one of the most significant constraints of online education.

Current Challenges in Front of Online Education

Challenges faced by students and teachers (Kumar, 2020) ^[14]

- **Monotonous Style of teaching:** Lack of engagement and motivation often makes the e- class a boring learning mode. Lack of interest in actively participating in-class group discussions often forces students to skip online classes. Sometimes the long reading text being displayed on the screens while teaching a concept and a long list of questions fail to capture the students who are already least interested in studying and revising the concepts. This kind of Behaviour often leads to failures in the long run for the students and the teachers.
- **Technical difficulties:** Teachers, professors, and lecturers who are often equipped with traditional teaching methods with blackboard and chalk find it challenging to operate in the virtual mode of learning. According to a recent survey by the VIBGYOR Group of schools, 60% of the parents could assist their children in all aspects. Using new e-tools and software and lack of compatibility with virtual methods sometimes lowers teachers' confidence in their teaching methods. They are not able to teach in a comfortable environment (Pathak, 2020). Also, in India, one in six elementary teachers are not professionally trained or do not have access to laptops or mobile phones required during online teaching. This constraint does not end here. Though the 21st Century generation is a tech-savvy generation, still in India, it goes on to the students of primary school who don't even know how to operate the gadgets and have never visited schools in a physical mode. Sometimes some teachers come across various technical jargons while connecting the students to online classes.

- **Lack of IT infrastructure:** According to a recent online survey by Learning Spiral, the studies have shown that 75% of the children reported a host of challenges while accessing education digitally, out of which only 38% of the students and teachers have used only Whats App as a means of delivering online education successfully. Out of this, 40% of students reported not having the electronic devices to access online education. These disadvantaged students had lost almost 40% of their previous learnings. The studies have shown that 55% of the students among only the top 20% households knew how to operate digital platforms compared to only 9-10% of students in the bottom 20%. The share of those who did not have computers or laptops was much more significant than 89% in the earlier phase of the pandemic.
- **Lack of standardised content for regional languages:** India is a diverse country where more than 20 languages are used. Students & Teachers are at a disadvantage in learning and teaching regional languages as there is not plenty of online content in the relevant language. They are not able to give a benchmark to their studies and courses.
- **Lack of practical experience:** There are limited resources available online to teach students in India. Certain subjects such as science and arts cannot be taught in the digital environment as it is more of a screen-based learning system in which practicals cannot be performed online. Along with this, good concentration and self-motivation are required in online studies, which may be lacking in children below the age group of 17.

Institutional challenges

- **Health problems:** As most educational institutions are closed, students cannot interact with their friends on campus. This has given rise to Pandemic related anxiety and stress among students and as well as teachers. Some schools have also reported psychological problems such as depression, lack of motivation, hypertension, increased mental stress among students worrying about their personality development, growth, and career opportunities. In one of the student reviews, it was found that there is unparalleled growth of depression and anxiety in students of the University of Bangalore. This has led to poor performance of students, thus lowering the grades of students and schools as a whole. The teacher can scaffold the students very quickly with knowledge, content, and delivery of the content. Teaching is effective only when there is interaction between faculty and students. Prolonged online classes have led to an extensive exposure to electronics and screens for teachers and students, resulting in various health problems like increase in eye power, obesity, reduced physical activity, back and neck pain, stiffness in body and whatnot.
- **Online assessments and examination:** In higher education, written exams and assessments are often the choices of institutions to grade students due to their large number. Since everything is shifted online, also called the new normal, exams and assessments are also held online. Since the students are sitting in the comfort of their homes, it becomes complicated for the examiners and the teachers to check the reliability and validity of answers presented by students in their papers. (V. Ramesh, 2020) Non-proctored online exams by many educational institutions due to lack of technical

resources become much more similar to an open book test at home for students, and circulating answers through social media sites makes the exams a cakewalk for a below-average to a topper student. This becomes difficult for the institutions and the teachers to distinguish between top and average performers.

- **Accessibility of online education in rural Areas (Reddy, 2020):** People in rural areas, especially students and teachers, face many hindrances with intermittent power supply and older electronic devices. Only 33.5% of the public schools in India can provide online classrooms to their students. As per recent updates, only 28% of rural children are studying regularly compared to 37% not studying at all. 48% of these students forget everything as soon as the class gets over, of which some of them are not able to read the words correctly. Dalit and Adivasis have much worse figures as compared to the rest. Only 4% of SC, ST children are studying regularly compared to the other 15% of rural students. Only 5% of Indian rural homes have access to the internet. Students in rural areas are denied access to new gadgets compared to students in urban areas who enjoy them every hour (Aggarwal, 2016). Affordability of purchasing data plans for only RS.200-300 incurs considerable expenses for the family who faces a financial crisis. The participation level of both rural students and teachers is affected up to a great level in online live classes. To consume a small piece of information, students use tiny screens for long hours, which is also detrimental to health problems. Dependence on family members for smart mobiles has worsened the situation, thus leading to anxiety among students of high grades (Jhal, 2016). Facing roadblocks from shifting to online education has created another digital divide between the rural and urban areas, which is a serious problem nowadays.

Expectations of Students and Teachers

Flexibility and experience

According to Gopal, R. *et al.* (2020), various factors define students' expectations in an online environment. The first and the foremost is Course Design. Curriculum knowledge, program organization, instructional goals, and course structure are all part of the Course Design. Course design can improve students' happiness with the system if well-planned (Almaiah & Alyoussef, 2019). However, if the course is not well-designed, teachers and students may not use e-learning platforms as much as they can (Almaiah & Almulhem, 2018). Instructor quality is the second factor having a significant impact on students' satisfaction in an online setup. Marsh (1987) devised five tools for assessing the quality of an instructor, the most important of which was the Students' Evaluation of Educational Quality (SEEQ), which defined the instructor's quality. The expectation of pupils is the third factor. Appleton-Knapp and Krentler (2006) ^[4] investigated the impact of students' expectations on their performance, concluding that expectations are crucial. When students' expectations aren't met, it might lower learning and satisfaction with the course. As a result of the pandemic, educational institutions, including instructors and students, were forced to migrate online with which they were unfamiliar. The students were unprepared for such a change in their lives. Educators must adapt to such changes to better use the available

technology to enhance the learning experience for their students. They also need to cater to students' mental health since this drastic change has affected them mentally, traditional classrooms being converted into online meeting rooms.

Communication and feedback

Prompt feedback is one of the things that enhance student satisfaction. Quick feedback essentially refers to giving immediate feedback or making a recommendation on an existing piece of work. Prompt feedback has been demonstrated to aid in developing a solid bond between instructors and students, resulting in improved learning outcomes (Simsek *et al.*, 2017; Chang, 2011) ^[23]. Prompt and honest feedback from the teachers helps students improve and enhance their performance and way of studying. Instructor feedback provides learners with critical information about meeting course goals and performance expectations. Computer-mediated communication technologies, such as computer conferencing systems, voice recording software, email, and video recording devices, to mention a few, are required for online communication. Even with audio recordings, there is a chance that nonverbal cues will be missed or misinterpreted in an online learning setting. Although video has the ability to capture nonverbal clues, the advantages of face-to-face communication are still missing from the online experience. Hence, educators must provide timely feedback to their students, and they should communicate it well enough so that the latter can apply it and improve their performance.

Use of e-tools and interaction with teachers and peer group

Flipped learning provides learners with a more individualised learning space at home because they can follow the video lectures outside the classroom at their own pace. Flipped learning, direct instruction is produced outside the class to review recorded learning material that instructors prepared in advance. This time could be utilised dynamically, focusing on in-class discussion, projects, and problem-solving (Zou D. *et al.*, 2020) ^[25]. The flipped classroom's design incorporates the First Principles of Introduction. Two essential out-of-class activities (i.e., pre-class video lecture and online follow-up exercises) and three core instructional activities (i.e., brief reviews of out-of-class learning, mini-didactic lessons, and problem-solving activities) are pedagogically practical. Use the different Zoom/Webex functions like a chatroom, raise a hand, polling, breakout room to engage students in the real-time mode. By combining the collaboration methods and techniques with the personalised open-source resources, the students and teachers would achieve more efficient collaborative teaching and learning. The teacher would have a better way to deliver the learning outcomes through the software. It is also crucial that whatever learning style is adopted, it is necessary for teacher interaction with students to disseminate the information and as a collaborative learning environment for enhanced learning experience among peers. Instructors shall upload relevant videos on learning management systems (LMS) and conduct different activities using activity sheets, conducting live activities during class like quizzes using e-tools like Kahoot!, etc.

Impact of Online Learning

So far, we have witnessed how the immediate shift to online education has provided the students and teachers with various

advantages and limitations. In this section, we aim to highlight the multiple impacts of this change in the lives of students and teachers.

Impact on education

Online learning can help students pursue highly individualised learning programs, possibly even college-level courses. These, combined with hands-on exercises, real-world exploration, and thorough assessments, can benefit their learning progress (K.M., N., n.d.).

K.M., N., n.d. also states that Online learning programs will also open up opportunities for children from the weaker socio-economic communities who have limited access to learning resources, i.e. teachers, textbooks, and infrastructure. It will connect them to a worldwide network of online learners, opening up new possibilities for them. The number of heads in one classroom will have no impact on the ideas they receive. "I think that the integration of information technology in education will accelerate even further, and that online education will eventually become an integral component of classroom instruction," says Wang Tao, Vice President of Tencent Cloud and Tencent Education (Li & Lalani, 2020) ^[16]. Online training programs are helping teachers/educators advance their skills in curriculum implementation, policy, education systems, and leadership, both independently and with the support of their institutions. It allows students to collaborate with their colleagues while also learning new teaching abilities that are applicable to their jobs. These programs can help them develop new skills and capabilities in their students with the help of technology and interdisciplinary approaches (K.M., N., n.d.). Educational institutions' use of learning management systems opened an excellent opportunity for the companies to develop and strengthen learning management systems for use by academic institutions. People were compelled to study and utilise digital technology as a result of the epidemic, resulting in an increase in digital literacy. During pandemics, students can better manage their time by enrolling in online classes (Jena, 2020).

Whilst having a positive impact, online education has its negatives too. Jena (2020) states that not all teachers/students are good at it, or at least not all of them are ready for this sudden transition from face-to-face learning to online learning. Most teachers are just conducting lectures on video platforms such as Zoom, Google meet, etc., which may not be real online learning without any dedicated online learning platform.

The fundamental limitation is the poor internet connectivity and mobile data. There is also less credibility of sources students refer to for understanding concepts. They are less focused on live lectures. As a result, there is no learning outcome in the end. They have become less and less interactive in the online setup. As many students have limited or no internet access and many students may not afford computers, laptops, or supporting mobile phones in their homes, online teaching-learning may create a digital divide among students. According to various reports, the lockdown has hit poor students very hard in India, as most of them cannot explore online learning (Jena, 2020).

Impact on career opportunities

Online education allows students to plan their future course of action and fast-track their careers (Lone, 2017) ^[17]. Students are more likely to explore various opportunities available to them by

connecting to a global platform, interacting with like-minded people, and discovering the plethora of options they can consider. Accessibility to education has also enabled job seekers to prepare for entry-level exams and tests from the comfort of their homes. E-learning facilities allow freshers to constantly re-skill themselves to stay relevant and up to the expectations of recruiters. Many post-graduate students prefer pursuing their education online and their work-life to maintain a balance and continue their further studies.

On the other hand, the fresh students who are likely to enter the job market shortly may face difficulty getting suitable employment. Many students who have already obtained jobs through campus interviews may not join their jobs due to lockdown. Indians who have been working in foreign countries may lose their employment. Recent graduates in India also fear the withdrawal of job offers from corporate sectors because of movement restrictions in the current pandemic (Jena, 2020).

Recommendations

- Shaheen (2020) suggested that various digital platforms be critically observed, thoroughly analysed, and authenticated. After that, students should be convinced about security issues, and they shouldn't believe word of mouth. Online instructors must be passionate about developing genuine instructional resources that actively connect learners and encourage them toward proficient performances.
- Teachers and students have equal responsibility for improved academic success. When the learner faces any problem understanding the concepts, they need to form inquiries for the instructor's solutions. In this setting, instructors would have to adjust to a changing climate, improve their technical abilities along the way, and encourage new pupils' technical expertise.
- Findings suggest that the course design features a substantial positive influence on the online class's student performance. The tutorial institutions should purchase a Moodle- LMS (Learning Management System), because it will run on its dedicated server providing a secure platform for all its institutional users. Test and prepare the technology and e-tools like Moodle, Zoom, Google Doc, pre-recorded videos, etc., before one runs a class. Present teaching content via the web platform (e.g. screen share in Zoom) and a project that screens via a projector within the room to make sure on-campus and online students can see the identical material. The findings suggest that in order for students to find the e-learning system beneficial, it must provide essential details such as course content, educational goals, course structure, and course output in a consistent manner. This example will enable students to use the system, resulting in student performance (Maryam, 2020).
- Universities can launch pilot projects to provide students with a laboratory experience outside the campus. In one way, laboratory equipment will be assembled at the university and sent on to students for tests in their homes. This method is dear and might involve questions of safety. The second way is to style experiments around what may be easily found at home. An outsized number of Physics, Chemistry and Biology experiments can be investigated using everyday objects. For instance, students can measure gravity with a simple pendulum or find the ultimate ice temperature by

observing the temperature change when added to a glass of water (Shaheen 2020).

- Instructors answer questions promptly and provide timely feedback on assignments to facilitate techniques that help students in online courses improve instructor participation, Instructor interaction, understanding, and participation. Feedback can be beneficial for students to target the performance that enhances their learning.
- Although all resources are available online, from digital readings to recorded YouTube lectures, the teacher should provide the acceptable URLs and website before the scholars. This could help them crawl fruitfully on the internet and hence effectively optimize their time. By doing so, they will also economize money rather than buying costly subscriptions. Learners can choose low-cost to free online resources. (Example, YouTube lectures and PowerPoint presentations and assignments are available free of cost for various disciples by various prestigious world instructions like Stanford University). This saves money and time for the students, teachers, and the institution as a whole.
- Update Moodle-LMS regularly on each release. Published security holes draw hacker's attention after release. The older the version, the more vulnerabilities it's likely to contain. Present teaching content via the online platform (e.g., screen share in Zoom) and a project that screens via a projector in the room to ensure on-campus and online students can see the same material.
- Using a headset or microphone to make sure both groups, i.e., teachers and students, are audible and transparent in their transmission of knowledge during virtual sessions, workshops, webinars, etc.
- Last but not least, for a web session to be simpler and exciting for college students, the teacher should encourage the active participation of all students by incorporating interactive activities like poll quizzes, brainstorming sessions, icebreaker activities, student's presentations, etc. (Nicola, 2020).

Conclusion

As witnessed throughout the pandemic, online education undoubtedly plays a significant role in a teacher's and a student's life. From having many advantages like accessibility, affordability, flexibility, broader horizons, technical knowledge, new learning methods, and whatnot, it also comes with limitations like distractions, connectivity issues, rural-urban divide, lack of practical experience and reliability. could also be considered as the primary medium of delivering content given the advantages if while doing so, they faced innumerable technical difficulties, mockery from students, and on top of that, they faced a wide communication gap between them and the students. As a result, students felt that the classes have been way too monotonous, boring and not that captivating. They expect the teachers to make the best use of available technology to make online lectures more interactive, informative and interesting. In addition to this, they also feel that timely feedback could help enhance their performance and add to their overall development. The stakeholders have also faced several health problems due to prolonged usage and exposure to electronics and screens. Various statistics from researches have highlighted the lack of accessibility of education to the underprivileged and those

belonging to the lower sect of the society. Some did not have any device at all to attend classes, some had no internet connection, some could not access these at certain points during the day, and despite having all of these, their schools didn't hold any sorts of classes to continue imparting them the education that they deserve.

However, despite all the shortcomings, there has been a significant impact of shifting online in various aspects. The socio-economically backward people got the opportunity to get access to a global platform, interact and learn from various sources. It truly contributes in broadening their horizons of education as well as career prospects.

In the end of the paper, the authors have also provided specific recommendations for the educators and instructors to enhance the overall online learning experience for students, including giving prompt feedback, focusing on increased interaction, and making the best use of available technology to make classes more exciting and offer better clarity concepts. Presenting content while teaching improves retention of students, making the classes more fun. The teachers should also share online resources with the students so that the latter can continue learning at their own pace, and review the material or notes post class for a comprehensive understanding. It is imperative for the educators to also use proper devices and equipment to conduct classes, *let alone* using a microphone or a headset to avoid poor quality of sound being delivered to the pupils. Incorporating these small changes in the teaching methods can truly enhance the learning experience for students and teaching experience for educators, and down the line, online teaching comes with.

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