

IMPACT OF ONLINE EDUCATION DURING COVID 19 – A SYSTEMATIC LITERATURE REVIEW

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Abstract

The online learning experience for the students' in the initial days could have been more satisfactory (Ismaili, Y., 2021). It was because of reasons like technological constraints and older teaching methods. However, the recent pandemic has proved to be a golden opportunity to introduce the online mode of education.

The research problem of this thesis investigates - The effect of online education on students' attendance and academics in India. A review of the research findings of more than 100 publications was done in the literature, most of which got published between 2009 and 2022. The main research objective of this study involves explaining how different aspects of online education impact students' engagement during online classes and, after that, their performance in the assessments. The research outcomes identified through the literature review serve as a measure of how online education has impacted and affected the education system during the pandemic.

Keywords: Online Education, Pandemic, Performance,

1. Background to the research

Since the lifestyle of students' are changing, and technology is also fast developing, schools and universities are increasingly offering the new learning environment, which is more flexible and designed to cater the various needs of the students' (Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S., 2021). Education systems have progressed beyond the traditional method of teaching where the teacher used to come to the class and share the knowledge – the 'sage on the stage' approach (Fischer, E., & Hänze, M., 2019). Researches relating to education and teaching methodologies highlight the many diverse ways students' could learn, and therefore it is essential to cater to all senses so that learning is effective. The traditional method of

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learning, had their advantages, but with the changing time it has become less effective because there is a lot of information for the student to explore (Wong, R., 2020).

Moreover, the development of essential skills in the twenty-first century is crucial. These include skills like creativity and imagination, for which digital learning is a boon (Singh, M. N., 2021). Today it is not only essential to infuse the students' with knowledge, but what matters is, they get themselves to a path where they could explore their knowledge and expand their imagination and creativity.

21st-century education wasn't approached, in a way that prepares the students' for it, as now, the time, is driven by technology and calls for the development of individuals, societies, and nations (Lazorenko, L., & Krasnenko, O., 2019). Modern teaching methods were not in motion for the students' and they were also not given the necessary information required to generate any possibilities for themselves or others.

The emergence of e-learning has made it possible for the students', who were busy in their lives for various reasons, to obtain a quality education (Chowdhury, D., 2019). Online learning has offered many courses worldwide through a single internet connection than standard classroom learning. It has even claimed several advantages over the traditional education system, yet, online instruction carries its drawbacks too, which may include a lack of commitment level on the part of educators, the personal understanding of the student, and many more (Sadeghi, M., 2019). Still, online seems to be the choice for many students' worldwide. One might ask: Which is the better and most effective method of instruction, online or face-to-face delivery (King, A., Prior, H., & Waddington-Jones, C., 2019)? This question has become more relevant in today's scenario, where more and more students' have been going online so they don't have to miss a session because of COVID-19.

The COVID-19 pandemic highlights that electronic communication has become increasingly common and, with the schools juggling between the teaching methodology and lockdown, the only option left for them was to offer alternative options to their students', aiming at providing various learning opportunities, which were more flexible. With a lack of direct interaction, online learning and discussions were more prevalent. In a standard classroom, where there was face-to-face interaction, a lot of time was misspent in commuting to school and returning home, and then the time between the interchange of periods also took the time (Chisadza, C., Clance, M., Mthembu, T., Nicholls, N., & Yitbarek, E., 2021). When the same classes were online, we saw the effectiveness as these lectures had the choice of recording and reviewing over and over. It also delivered a feeling of one-to-one interaction, and with many other platforms, it made learning more intriguing and absorbing. Of course, this was not to say that online teaching does not face challenges.

There is still some doubt whether this shift from the actual classroom experience to an online learning experience is entirely functional (Adedoyin, O. B., & Soykan, E., 2020). But since the pandemic, e-learning has been so dominant and widely used. The recent pandemic has put authentic classroom teaching out of question, at least for now. Educational institutions have been training their staff to go digital for survival in the business (Tzifopoulos, M., 2020). This sudden

transition of learning from an offline mode to an online mode required resources and the professional growth of staff.

Hence, careful planning and evaluations were needed to be in place to ensure students' accomplishment in learning and assessment (Wahab, S., & Iskandar, M., 2020). Undoubtedly, many students' of today want to go digital. Youth of today is often busy with competing interests but still keen to learn, not to forget they value high-quality content that is personalized and relevant to their needs. When they get subjected to something not as per their requirements, they get progressively impatient and turned off by the content and experiences, which has no high value, relevant and available when they want them. Online teaching has never been more dominant than now. With schools shut down in most parts of the globe, it is imperative that schools live up to the expectations of students' and ensures conducive learning environments (Hood, N., 2020).

The education sector has been severely affected in unexpected ways because of the pandemic (Jena, P. K., 2020). During the pandemic, education in India has undergone unprecedented changes. Catering to the needs of the students' where they needed to stay at home to prevent them from catching corona virus, the education system got changed to an online mode which existed as an offline mode before this outbreak. But the question was whether the learning provided in the form of online education achieved the desired outcomes or not (Kim, J. (2020). So, a study was needed to uncover how this sudden shift has impacted online education, students' regularity in classes, and their attainment of scores.

2. Literature review: secondary sources of data

A large amount of work on online education has turned out and its impact on various attributes of students' such as engagement, attendance, performance, academic scores, behaviors', and so on.

For the current study, only secondary sources of data got used. For the review, a search of papers published in some leading journals, with a search on leading international electronic databases, was done.

A crucial part of the research applied to his thesis got published between 2005 and 2022. It is to minimize the inclusion of less significant studies, and also, as the thesis talk about online education, it is ensured that only the new developments get included. Online education has been prevalent for a long time, but the current study became all more relevant during covid times when online education was the only option available.

In the current competitive era, education has an important role to play in shaping the human mind in a better way. For analyzing the growth in learning, an assessment is a need. But COVID-19 has affected the education system adversely, yet educators have tried their best to continue their studies during the pandemic. As an educator, we need to analyze the attendance and academic scores during and after the pandemic to ensure that learning outcomes get achieved. As teachers' or educators, it is our task to administer attendance and improvements in grades, and this is possible through the continuous transfer of knowledge from teacher to student.

During the pandemic, more than one billion students were affected due to the closure of schools, but online classes came to their rescue, and these online classes tried to fill the gap between the student and the teacher. Online platforms became the only method to assess the knowledge of the students. It provided a great deal of flexibility to the students.

This topic is selected to explore and possibly find ways to eliminate the problems which the students have faced during the lockdown period. The recent pandemic created the interruption of teaching structure, in human information transfer, in the worst possible way, which affects almost 1.6 billion students in more than two hundred countries (Szczepański, P., & Pacer, M., 2021). Closure of facilities, establishments, and exclusive studying areas has affected more than 94% of the student population of a particular stretch (Donnelly, R., & Patrinos, H. A., 2021). That has added some distance-accomplishing modifications in all factors of our lives. Social distancing and restrictive motion guidelines have substantially disturbed traditional academic practices (Pokhrel, S., & Chhetri, R., 2021).

The outbreak of the pandemic has unfolded severely, affecting nearly all the nations and territories of the world. The virus was identified for the first time in December 2019 in Wuhan, China, and turned into a pandemic too fast (Zhu, H., Wei, L., & Niu, P., 2020). Most of the countries advised the public to be responsive. Some preventative measures were followed by the general public, such as protective hand washing, maintaining physical distance, wearing face masks, and warding off mass gatherings and assemblies. Strict lockdown and stay-at-home guidelines got set up because the ultimate wish was to flatten the curve and control the transmission of the rapidly spreading disease (Kraaijeveld, S. R., 2021).

India first declared the closure of faculties, schools, and offices in the second week of March 2020 (Varalakshmi, R., & Arunachalam, K., 2020). In March 2020, the entire national lockdown got carried out. Though some movements were allowed in between, places of work began functioning, colleges and universities opened again for some classes and endured with online elegance for others. The long-lasting pandemic affected students' in a very negative way. In India, the closure of 1.5 million schools due to the pandemic and lockdowns in 2020 has impacted 247 million children enrolled in elementary and secondary schools (Paul, M., 2021). Also, over six million girls and boys were already out of school, even before the COVID-19 crisis began (UN Agency statement). The government is supporting online education in India because of its potential to improve education quality and reach through the Digital India initiative. (Chahal, 2018)ⁱ

Millions of students' in India were affected by the closure of schools ranging from pre-primary students' to twelfth graders. Many students' have also faced mental health issues during the pandemic (Lischer, S., Safi, N., & Dickson, C., 2021). The effect of the pandemic was so severe that it affected education during the 2021 educational year and even more subsequently. Numerous colleges and faculties have stopped offline learning. There was a significant need for innovation and putting force into digital opportunities to include new digital academic and assessment techniques. This pandemic has allowed us to pave the way for introducing digital education (Kaup, S., Jain, R., Shivalli, S., Pandey, S., & Kaup, S., 2020).

A survey was conducted at a public university in the United States to understand the effects of the pandemic on students' mental health and psychological well-being (Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F., 2020). One hundred and ninety-five students' participated in that survey. Out of these 195 students', 138 mentioned a rise in stress, anxiety, and multiple episodes of depression during the pandemic. They were scared and worried about the health of their friends and family members. 177, students' expressed they could not concentrate on their studies properly. 173, students' talked about their sleep-wake cycle getting disturbed counting to problems such as headache and lack of concentration. 168, students' mentioned they were not very cheerful about decreased social interactions due to physical distancing during the pandemic. 167, students' were unhappy and stressed because they were worried about their academic performance in the upcoming examination as they could not study properly because of the deadly pandemic. A recent study regulated by The Kaiser Family Foundation showed that forty-five percent of the people who were sheltering in the place were suffering from mental health issues related to corona virus (Claxton, G., Damico, A., Rae, M., Young, G., McDermott, D., & Whitmore, H., 2020).

The suicide rate among students' increased exponentially during the pandemic (Jobes, D. A., Crumlish, J. A., & Evans, A. D., 2020). The headline of the Times of India reads, "34 Indian students' died by suicide each date in pandemic-hit 2020". Some studies have revealed that the number of students' committing suicide was maximum during the pandemic (Knipe, D., John, A., Padmanathan, P., Eyles, E., Dekel, D., Higgins, J. P., ... & Gunnell, D., 2022) even though the academic pressure on these students' was less than at other times because many schools and colleges promoted the students' without any examination. Many counselors have expressed that academic stress is not the only reason for the suicides. Students' got stressed because of isolation, depleting finances of families, uncertainty surrounding their lives in different ways, and also, with so many national-level examinations getting postponed due to the pandemic. With the opening of schools after the pandemic, many schools have tried to cover all the backlogs in learning rapidly and obsessively, which has become a burden for young students'. During the pandemic, students' approaching from socially and economically backward family backgrounds did not have proper access to the internet and computer. Because of this reason, an immense percentage of students' felt the pressure of catching up with their classmates. Even for the students' who already had complete access to online learning, the transition from screens to blackboards was also very challenging.

According to Dr. Rupesh Chaudhary, a renowned doctor, and professor of psychiatry:

Suicide is the most common cause of death for people between 15-38 years of age. The rate of suicide attempts tends to be two to three times higher in women than in men. The students' experience emotional trauma due to prolonged confinement, a hostile home environment, lack of interaction with friends and teachers', study-related pressure, lack of appropriate facilities to attend online classes, a financial crisis in the family, overuse of social media, fear of contagion, parental push, domestic violence, and substance abuse (Kumar, P., Mahajan, R., Mahajan, N. S., Chaudhary, R., & Mishra, B. P., 2019).

Just after two weeks of lockdown, seventy-five percent of students' stated that their life had grown to be extra hard to endure, and fifty percent felt that getting good results would be more difficult because of the sudden shift to the online system of schooling which was a new concept for these students'. Due to this, they could not understand it properly, and their studies got hampered. Twelve weeks into the lockdown, the corresponding numbers were fifty-seven percent and seventy-one percent, respectively. Any efforts to strengthen the effectiveness of online learning needs to understand the perception of the users. (Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. ,2021)

Out of the many concerns amongst the students', the urgent one included a lack of social interaction, housing conditions that are not adequate for domestic office functions, which included inadequate bandwidth, and a typical experience of decreased motivation. The students' collaborated efficiently in the digital mode but desired a smaller group of students' that knew as opposed to being randomly assigned. Twenty-six undergraduate-level students' of Yonsei University, South Korea, were questioned for this study (Stone, D., & Moloney, K. (Eds.), 2019). To draw a comparison, pre-tests and post-tests; were performed between the pre-recorded video lectures and live lectures. The results show that students' prefer pre-recorded video lectures over live; 53.8% of the students' opted for pre-recorded video lectures, 7.7% of them chose live, and 30.8% believed that both pre-recorded videos and live were helpful when they got asked to choose the method of learning that they would prefer. It is probably because the pre-recorded video lectures provide more flexibility and convenience to the students'. However, there are some cons of studying from the pre-recorded lectures. One of the main demerits is the lack of interaction between the students' and teachers'. Students' cannot express their doubts instantly. Some students' chatted with their friends or played video games while watching the video. They do not make handwritten notes. Most of the time, they take screenshots of the video lectures. It results in a passive form of learning, which is ineffectual as active learning.

Frequent video conferencing could make online learning more effective. Educators could choose a video conferencing app; specifically designed for educational purposes. Some apps designed for this purpose are Zoom, Google Meet, Skype, Microsoft Teams, Jitsi Meet, and HeyHi. The features provided by these apps for very helpful for frequent digital conferences. Student reaction systems are also to enhance learning consequences in destiny digital guides. Teachers' could also take tests online. They could create assignments and tests using Google Forms and various apps. Traditional coaching strategies dominated both modes of teaching all through 2020. The online system of gaining knowledge, for the continuation of educational sports and prevention of dropouts, from the study programs in higher education was given top priority following the lockdown. Because of some very strong efforts made by means of both the executive and academic group of workers, virtual methods were used. Non-theoretical lectures (like cooking training); had been canceled, and face-to-face checks were reorganized, into virtual options, with the purpose of certain everyday teaching operations. Online tests also have been taken to ensure that students' understand the topic.

The usage of mastering learning management systems (LMS) canvas and virtual evaluation gadget, Inpera remained specifically unchanged (Almendingen, K., Morseth, M. S., Gjølstad, E., Brevik, A., & Tørris, C., 2021). Due to the brand-new situation, the closing date for the submission of the bachelor thesis got postponed using forty-eight hours. Similarly, college students' pursuing their bachelor's degree and filing for their thesis were permitted to use the submission closing date, considering the deferred examination in August as their regular examination deadline. The closing date for the submission of the master thesis got extended by one week, although all deliberate grasp checks got completed with the aid of online learning. It included oral examinations on campus with the help of Zoom in place of the traditional face-to-face exams. Even though most of the brand-new online sports got installed, they had little regard for subtle nuances of pedagogical principles and did not permit a lot of student involvement. The dropout price from PHN packages remained unchanged in comparison to previous years (Almendingen, K., Morseth, M. S., Gjølstad, E., Brevik, A., & Tørris, C., 2021).

PHN is a small-sized education with close follow-up of students' (Tørris, C., Gjølstad, E., Morseth, M., Debesay, J., & Almendingen, K., 2022). The students' no longer adhere to the obligatory attendance requirements. Students' felt that if mastering activities had been compulsory, it would provide additional challenges in coping with their kids and part-time work. One scholar stated that live virtual lectures had been good because it became less complicated to invite questions. While with the use of a flipped classroom or recordings, the questions needed to be written down and asked afterward. Each option had perceived as high-quality. Surprisingly, the qualitative outcomes from the questionnaire indicated that some college students' had found it convenient to invite questions, and others, found it more difficult. One person said, "As long as we could question online, I think it will easily come across as first-rate. During my school days, I had to waste three hours traveling, so I sense that in college, I have more time available for other activities like painting, as the lecture got held online."

Speedy trends in the present era have made distance schooling easy (McBrien et al., 2009):

"Most of the phrases (online studying, open studying, primarily internet-based studying, PC mediated acquiring of knowledge, combined learning) apply to a PC-related community that allows examining from any place, at any time, in any rhythm, and in any way". (Cojocariu et al., 2014)

Online systems of gaining knowledge could be termed, as a device, which could make the system of teaching and learning more scholar-focused and extra revolutionary. Description of the online method of acquiring knowledge is:

Gaining knowledge of reports in synchronous or asynchronous environments with exceptional devices (like, mobile, telephones, laptops, and so on) and the internet gets the right of entry (Anitha, R., Geetha, M., & Christy, N. V., 2022). In those environments, college students' may be at any place but have the independence to study and interact with instructors' and other students'.

The systematic learning surroundings were established, with the experience in which the learners had to attend live lectures. There are interactions in real-time between the educators and the inexperienced persons, and it also provides an opportunity for instant remarks. Asynchronous mastering environments may not establish properly (Simamora, R. M., 2020). This type of learning atmosphere studying the content isn't present in live lectures or training. Immediate feedback and instantaneous response were not possible in such an environment. Synchronous gaining of knowledge could also offer numerous opportunities for social interplay (Rinekso, A. B., & Muslim, A. B., 2020).

An online education system with some specific characteristics amidst the spread of the lethal virus was required. These required characteristics are: (a) video conferencing, with at least 40 to 50 college students' is feasible, (b) discussions with learners are executed to keep the classes organic, (c) net connections are reliable, (d) lectures are mostly reachable on mobile phones also which are more friendly than laptops, (e) availability of watching the pre-recorded lectures multiple times and (f) a system where an instant remark from college students', is responded to and assignments submitted.

In the present era, online teaching cannot be just considered as an extra alternative because it is an essential one as of the many advantages it offers. Many areas were in quarantine because of the extensive outbreak of the pandemic - COVID-19. Consequently, many towns changed into horror cities, and its consequences got seen in faculties, colleges, and universities. The entry of this online teaching method and online gaining of knowledge may be named as the remedy for the major crisis because it served as a blessing for the school and college students' amidst the outbreak of the deadly pandemic - COVID-19. The corona virus has transformed education delivery from the traditional offline modes to a technological online way of pedagogy. To ensure pedagogies and practice for online teaching, we have chosen and critically analysed the theory "Seven principles for good practice in undergraduate education" by Chickering and Gamson for effective online teaching that researchers highly appreciated. (Munna, A. , 2020). This disaster transformed institutions that had been earlier reluctant to change to accept online delivery. This catastrophe will demonstrate the money-making facet of online coaching and gaining knowledge. With the assistance of online coaching modes, we could service an enormous wide variety of college students' in any part of the country at any time. All institutions scramble for one-of-a-kind alternatives to online pedagogical processes and try and use technology more effectively. Many universities around the sector have digitalized their operations, minding the dire need of this present situation. Online education is emerging as a victor ludorum amidst this chaos. The sudden transition to online pedagogy as a result of COVID-19 in developing countries has exposed some inequalities and challenges, as well as benefits. (Oyedotun, T. D. , 2020).

Therefore the enhancement of excellent online institutions imparting sound education is of utmost importance at this point. The institutions providing online training in the local languages have grown exponentially after the COVID-19 outbreak. There was a sudden overnight shift, and the ordinary classrooms converted into e-school rooms as educators shifted their all pedagogical method to address new marketplace situations and adapt to the changing conditions. In the

course of this time, the concern is not approximately whether online teaching methods could offer good training; it is an alternative way for how academic establishments may be able to shift to the online mode in such a massive way.

A survey to learn about the challenges parents had faced when their wards were studying online took place as their opinions on online education. For this, an online questionnaire got distributed to more than two thousand parents in Delhi NCR whose children were learning in pre-primary and primary classes from ten different schools. The result of the survey was in favor of online education. More than seventy-five percent of the parents involved were satisfied with the online classes and believed it as beneficial. Forty-one percent of parents believe that the way of teaching is the most crucial factor in the virtual mode of education. Twenty-nine percent of parents considered personalized attention to be given to the children to improve the education system. These findings help to make the process of online teaching stronger and better.

Being resistant to change became no longer an acceptable alternative, around the world, for any academic unit (Sangster, A., Stoner, G., & Flood, B., 2020). It got judged based on the pace of adaptation to the changes. The reputation of tutorial gadgets used in online teaching got under scrutiny. Imparting quality education amidst this crisis became a test of their adapting capabilities (Dhawan, S., 2020). The shift from face-to-face offline lectures to online training was inevitable.

Indeed, educational institutions could not convert all their university curriculums into online resources overnight. Distance, scale, customized coaching, and gaining knowledge became the three challenges for online coaching. Some progressive solutions assisted us in coping with this pandemic and the quick shift to an online teaching mode (Green, J. K., Burrow, M. S., & Carvalho, L., 2020). Some of the tools by Google came of immense use under such problematic situations.

Several challenges were indeed associated with online training, and it became crucial for us to tackle them effectively. Technical problems were solved by having pre-recorded video lectures, checking out the content before uploading it on the internet, and usually having a plan b ready so that the coaching and studying method doesn't get hampered. There was a need to make these online courses more interactive, engaging, and interesting, and the teachers' had to set deadlines and reminders for the college students' to make them alert and attentive. Also, feedback was collected from the students' at regular intervals in time. For providing an online platform, a few steps were in need to discuss the doubts they faced during the online class, and frequent tests also occurred. It made the online education system more effective, and the students' have been able to extract the best out of it.

Efforts were needed to humanize the learning process. Social media and several other organization forums got used to communicating with students'. Verbal exchange was the most important thing. So, institutions reached out to college students' through texts, diverse messaging apps, video calls, and so on. The content has to be such that it permits the college students' to exercise and also hone their skills. The best aspects of the course were required to get highlighted regularly, and instructors' needed to try and deliver their best material. These courses

got conducted in a student-friendly manner, and the institutions had to provide a smooth user interface so the process of acquiring knowledge could become easy for students'. In the present era, there is no lack of the latest technologies in the field of education. It is crucial for educators, as well as for students', to make the best use of these latest technological developments.

There was a need to improve the infrastructure to support the online mode of education. The government should have provided some support to the students' and teachers' who do not have access to the internet. The government and educational institutions should have tried to set up small ICT centers in the school premises where they could have allowed them to use these facilities. To assist the faculty members and students', an environment of collaboration was required to be developed. To develop IT facilities, insights and experiences of students' should have been used. The creation of a proper framework could have taken place. Only 11 percent of houses have computers in a country like India, and less than thirty percent of Indian households have internet connectivity (Kundu, A., & Bej, T., 2021). Improvement in digital infrastructure was the need of the hour. The Indian government took a step in that direction. Union Budget 2021-22 was an attempt to highlight the importance of improving the digital structure of the country for education by announcing the setting up of a National Digital Educational Architecture (Dhananjaya, R. G., 2022). It promoted government initiatives like Digital India and Make in India. The "Digital First" approach of the government to facilitate these educational activities provided many educational ecosystems and architecture for the development of the digital structure and helped in making the education sector ready for the future (Mukherjee, A., & Maruwada, S., 2021). There was also an expectation that the government would increase the annual budget for education from the present 4.6 percent to 6 percent of GDP. An increase in the annual budget would have helped expand the digital structure to support online learning. India also attracted few investments from other countries for online education and is more likely to achieve the global estimate of \$350 billion by 2025 (Kumar, N., 2023). It is the perfect time for India to support a strong and healthy education system because of the high youth population in the coming years.

Digital education is very cost-effective as the money spent on printing one book when used to accustom some digital device, provides more information. Simple QR code gives much more information and knowledge when compared to a thick book (Haleem, A., Javaid, M., Qadri, M. A., & Suman, R., 2022). Digitalization of the education system saves money, time, and manual errors. All over the world, many countries started working on improving their digital structure to support online studies. Also, many multinational companies are working in this direction. According to consulting firm Frost & Sullivan, "the global education technology also, known as EdTech market, was expected to grow to USD 40.9 billion by 2022, at a Compound Annual Growth Rate (CAGR) of 18.3%, led by the seismic shifts in technological demands and innovation." The NCERT took a commendable step in this direction with the launch of an initiative termed DIKSHA (Sharma, A., 2021). It stands for Digital Infrastructure for Knowledge Sharing. This initiative got support from the Department of School Education and Literacy, the Ministry of Education, and other government organizations. Students' viewed video lectures and

took tests after registration on this portal. All private and government schools should try installing digital boards and projectors. The offline and online modes of education should go hand in hand. These two methods should also complement each other in a very efficient manner. Online applications need to get designed in such a way that they get innovative, interactive, applicable, pupil-centric, and organization-based. Educators had to invest plenty of time in developing dominant and innovative strategies for giving online commands, facilitating feedback from inexperienced persons, making room to ask questions, and developing the horizon for the path content material. Establishments need to be made aware of the pedagogical issues, and an emphasis should be put-on to encourage collaborative learning, case studies, and undertaking-based learning through online education.

The challenge to instructional establishments is not simply finding new methods and taking advantage of them. It involves providing proper training, thereby supporting college students' and educational personnel seeking guidance in digital literacy. Providing appropriate counseling is of utmost priority as some teachers' are not tech-friendly and have been used to the traditional offline way of imparting knowledge. They got used to using blackboards, chalk, and books for teaching. Shifting from the standard setup to a screen became an alien concept for them. The drastic shift from blackboards to online digital modes made it quite uncomfortable for some educators. They cannot give their best in such a situation. So, educational institutions validated that their educators have proper knowledge of the different tools required for online teaching. These institutions also provided support to the students' who were facing problems with this sudden shift. They remained in touch with these students' and guided them throughout the process so that online learning cannot become a daunting challenge for them.

According to a study by The Bill and Melinda Gates Foundation (2014), professional education delivery should meet the different kinds of needs of the parties and provide opportunities to participate in professional development (Moses, K., 2023). Teachers' got conciliate at the lengthened time of courses. The educators were quite unhappy about the settings because the plans and exhaustive vacation preparation did not support professional education. Interaction with peers or consulting an expert in the field later after the arrangement started had been limited. Thorough summer-time training got connected to professional education communities. A survey on teachers' ideas got conducted for professional education. The survey got delivered using professional contacts and through social television. The survey admitted every volunteer, with the only limit being that the shareholders were educators, as legalized by the school commune, electronic mail address. 200, somewhere around 58 participants' who achieved the survey and colleagues depicted every state in the United States of America. 84, portions of the respondents marked that they were primary school assistants.

Matherson and Windle (2017) analyzed the transmittal models in instructional scenes. The investigators scrutinized two hundred and fifty professors from Canada and the United States. The survey requested the players to create the content additionally, evolving and appropriate when bestowed in the lecture or an interactive scene. Participants' replied in an open document reaction directed towards the demand, lack of cooperation, and implementable operation, which

were incompetent for future use. One partner established, "Professional happening needs alter from the stand disturb charming." Continued support got ranked as an essential change wanted in professional education. Matherson and Windle (2017) decided that growth provides a charming layout, a connection with the needs of educators, and content necessities (Masters, N., 2023). Molnar and others(2002) reason for research popularized an idea during all of the inspected studies in the last 20 years, at which point pertinence, cooperation, and hope to share accompanying a more considerable audience ordered as the required attributes of significant professional knowledge. The Bill and Melinda Gates Foundation (2014) attended a survey aimed at interactivity and sustainability (Kassova, L., 2020); as fault-finding determinants in notable professional growth. They said, "Ideal professional education knowledge concede the possibility to focus less on presentations and lectures and more on the transportation object convenience to ask methods through manifestations or forming."

The situation created by COVID-19 varies in some different e-knowledge conditions. It is more of a make-shift composition on account of a disaster and get-named disaster learning. Some investigators called this Emergency Remote Teaching (ERT), stressing a transitory shift of instruction transfer to an alternate transfer model due to crisis/ emergency (Nazempour, R., Darabi, H., & Nelson, P. C., 2022). It complicated the usage of fully detached education answers (online answers) for instruction that would, alternatively, be delivered directly facing or mixed or composite courses and is likely to continue once the situation changes. It makes it different from a usual internet education solution. The researchers have emphasized the time and challenges of online knowledge all around the globe. According to their study, Mobilizer and others emphasize that the opinion of the students' is most vital and, accordingly, the challenge facing juniors, their views connected to the internet knowledge need to be looked into and thought out for future research.

Many lecturers, scholars', and members of the community were of the view that the scene of a traditional study hall involving face-to-face education, in-place supervisors, and providing the students' an opportunity to communicate freely is a high-quality habit of imparting instruction and knowledge. The upholding arguments are that faculty could receive direct responses and could observe a junior's non-verbal communication and addendum-spoken cues to lessen or regulate her teaching style. The opposite interplays still help the students' straighten out their doubts at another time. It explains increased knowledge. Several research documents got written, emphasizing this understanding.

Gyimah (2020) performed a study to evaluate electronic novelty in education around the globe during the corona virus pandemic (Khan, M. J., Reddy, L. K. V., Khan, J., Narapureddy, B. R., Vaddamanu, S. K., Alhamoudi, F. H., ... & Chaturvedi, S., 2023), when a lot of schools got physically shut down in March 2020, all over the world. As schools finished, 1.58 billion graduates got forced into a different environment. It suggests that in nations that accepted an approach filled with enthusiasm for distance learning, such as to a degree Argentina, cooperation of professional institutions established immediately resulted in professional education modules to support educators. It also raises that defeater in competition break in providing an immense

knowledge environment for lecturers and scholars' in districts, with restricted access to use Wi-Fi. Though Gyimahs' (2020) research is preliminary, it did signify that "Enough preparation and studios, endure to be organized, to experience graduates and coaches on the habit of online education." Providers of the digital tool-backed schools change to a hundred percent in essence education manifesto in education. For example, premium teams got presented by Microsoft Corporation for six months, and Google supported free trade for editions of education of web-located programs for K-12 organizations owning the COVID-19 pandemic. When science enterprises helped, boosting the obstruction of access to netting-located mathematical forms utilizing business and school closures, science enhanced an alternative for many school communities.

Three primary aims for science in learning survive (a) as a teacher for practice or simulations, (b) as data processing form, or (c) as a tool that learns from the person to determine adjusting content. Regardless of the scientific advancements, simulations, word conversion, and computing, ploys are the base of technology for the hall and in addition to the professional knowledge surroundings. When a district or school considers an instrument such as an option for school students' and undergraduates, the knowledge effect and purpose of the device are simple signs of purchase. Devices selected from a piece of school or section concedes the possibility and involves both study hall and cooperative forms to assist the two together in the teaching acts and knowledge from possible choices. The schemes applicable may include medicine, making available the touch screen potential and restricted uses by downloading netting-located computer software for simple operation, providing an approach to the cloud-based utilization and cyberspace approach; and an all-36in-individual computer, making available all duplicate accompanying downloadable computer software for simple functioning, for unification with outside uses and spreadsheet. A project-based learning approach supports utilizing these electronic forms to aid in-depth surveys, question-answering, and evident-world abilities (Meng, N., Dong, Y., Roehrs, D., & Luan, L., 2023).

The Blended Model is a mixed information model where facilitators mix technology with the tasks to help or improve the knowledge occurrence (Jalinus, N., 2021). The students' capability to use science as a consequence is not calculated but focused on the junior's command of the content. In an integrated course, facilitator course models and instructors' led players to conduct initial research on a likely argument before communication utilizing the MOOC platform as Khan Academy (Kim, D., Lee, Y., Leite, W. L., & Huggins-Manley, A. C., 2020). When science determines the ability to approach the content practically, the school room or opposite learning surroundings grants permission to revamp into the atmosphere where an educator offers live knowledge or practical knowledge for the pupil depending upon the method by which the electronics got achieved. Kiryakova (2019) supported utilizing a blended education model, to an extent, in any branch of natural science. Using a mixed education model, digital forms, and non-synchronous use of electronics, the course planner or lecturer questioned the teacher to achieve liberated knowledge and review the best practices for giving according to a planned structure in a lecture room. Once the teacher participating in a synthesized education plan reach the in-sync

portion of the knowledge, the preparation gets fixed on requesting best practices, modeling, and idea. With electronics and a synthesized model, there is less direct-facing time spent on the trials and the simultaneous portion of memorization tasks (Tabassum, A., & Ahad, M. A. R., 2021).

The objective is to create a creative unified education surrounding and providing a real-life space (Toktarova, V. I., & Semenova, D. A., 2020). A synthesized model is known or named at another time or place, such as the thrown-school room. Though a flipped study hall is a teaching approach, a central component of a thrown is utilizing technology to watch videos on demand. Flipped hall forms don't change the unambiguous or direct education but may increase the students' cooperative and helpful outputs. By extending the out-of-class program chats and mathematical learners, study groups could construct an authentic and coordinated atmosphere that advances logical abilities. The influence of a threw-classroom approach on grown-up learners in a university scene got studied, equating two hundred and five members registered in a flipped-homeroom course and two hundred and ninety-five parties registered in this direct-facing course.

Massive Open Online Courses (MOOCs) and Facilitated Learning reduced the established content hierarchy education (Bandalaria, M. D. P., 2019). Present K-12 instructional structures use order of class or grade level, containing conditions, for completion (Franklin, D., Coenraad, M., Palmer, J., Eatinger, D., Zipp, A., Anaya, M., ... & Weintrop, D., 2020). In comparison, MOOCs eliminate age and pre-requisite necessities, providing access to many things, no matter how terrestrial; the location is. MOOCs still remove fiscal obligations for preliminary courses and have an open approach to socio-economically diverse societies. The open access offers all the trainee options, for embodied knowledge or pupil interest, despite the terrestrial location or socio-economic rank. MOOCs also determine relativity to consumers across a usual mathematical policy as the course endeavors occur in joint surroundings (Ejubovic, A., & Puška, A., 2019). Kiryakova (2019) popularized that MOOCs which also included negative facets, containing missing direct contact and actual-time interplay accompanying colleagues, and as an area of research, had a connection with accomplishment rates (Kiryakova, G., 2019). Facilitated education experiences utilizing MOOCs extended time for learners regardless of the terrestrial or socio-economic rank. Facilitated in essence learning admitted the beginner to record in a course taught in essence surroundings by a validated teacher. Digital topics furthered in essence, studying contained healing and state-of-the-art mathematics, computer technology, and course mechanics for on-demand education and ability-located preparation. A vital component of digitally facilitated, in essence, knowledge was the crucial role of the planner and the content authority or licensed mentors role. The planner supported the administration tasks, such as necessities, attendance, and finishing endeavors. The notified educator or content specialist operated as an active education piece that provided the content and knowledge in a learning atmosphere. In Janakiraman and Watsons' study (2018), digitally furthered, in essence, studying surroundings determined all the learners accompanying equitable instructional hope to meet the vital interests of the learners.

A primary study completed in 2010 on MOOC noted that the adult learner engaged in asynchronous eased knowledge modules managed to answer problems collaboratively explained, individual functions, and determine information of their view. In an additional study by Janakiraman and Watson (2018), the restricted number of completions during MOOC liberated use got filed, as a challenge, for asynchronous learning, discovering the importance of engagement in a virtual learning experience for K-12 educators (Condella, K. A., 2021). In a 2010 study of Solomon's MOOCs, of all the 53,491 recorded learners, only 1,991 members finished the courses, and only twenty learners gave consent, to get interrogated for the concerning qualities, not quantities research (Condella, K. A., 2021). A famous limitation of the study attended by Janakiraman and Watson (2018) was the deficiency of data with different consumers in the MOOC model. The childbirth was asynchronous intentionally and acted to not-hold interactions accompanying additional consumers or collaborative ventures. Interviewed players determined the challenges in the competition on account of the asynchronous blueprint, lacking data in fabrics. Integration of learning, which is asynchronous, into a course connected to the internet involving collaborative knowledge, allow the learners to be better problem solvers, accepting the trainee's part and interests in the group as vital, and specify factual information from the beginner's outlook to help collaboration.

In the domain of instruction, the argument for assessment is subject to debate. Evaluation serves many purposes to a degree, pursuing a scholarly academic tumor or determining which communication should acquire information for graduates next. The assessment may be simple or precise; it concedes the possibility of bias simply as talking to accompanying juniors, or as official, as executing a social standardized test. As teachers' get burdened to give grades to graduates, contradictory views could stand. Differences in grading practices, to a degree, the determinants determined or their burden constitute differences in the message of a grade. Thus, conclusively grades cannot correctly indicate the information and skill sets that undergraduates acquired. As instructors' were necessary to educate all along, during COVID-19, they got forced to change their education practices. Therefore, the evaluation got affected excessively, as they tried to accurately show the pupil's academic attainment in the administered grades (Gaidelys, V., Čiutienė, R., & Cibulskas, G., 2022). As the investigator is a scholar too in a preparatory school, they chose to particularly investigate the perceptions of private school teachers' on evaluating methods in light of the universal COVID-19. To further investigate the question of independent school scholars' instability in evaluating practices and grade intention, the article focused on three areas. The first division addresses research correlated with the professors doubts about estimation practices. The second division of the literature review focuses on research studies about supervisors using usual ranking schemes and their inclusion as a determinant in determining a definitive grade. Finally, the triennial portion discusses the challenges of achieving SBG, and the instructors' ideas of utilizing SBG trials, to accurately indicate scholarly understanding in a definitive grade report (Knight, M., & Cooper, R., 2019).

The institutions have constructed scholar-appraisal learning standards to determine the dependability and effectiveness of coach evaluation trials. In DeLuca's study (2016),

investigators distinguished the learning standards for school teachers' in the United States and different English-speaking nations, including countries like Canada, Australia, New Zealand, the UK, and mainland Europe (May, S., 2021). Results indicate changes in the focus of widespread evaluation standards from 1990-2016. Assessment guidelines prioritized accruing and patterned evaluations from 1990-1999 before focusing on influential and undergraduate self-estimates from 2000-2009 and have laid stress on; the professor's communication of results and appraisal justice. Teachers' have faced difficulties reconciling their hall appraisal practices to the practices of current estimate hypotheses. This finding comes as a surprise. Many measures of faculty members' evaluation proficiency and trials focused on outdated prominences, to a degree growing in size or effect and patterned estimates. DeLuca recommended that coaches get supported through assessment training and cumulating of news on supervisor's preferences and knowledge; see the influence of estimate constructions. By keeping everything in mind, the teacher's ideas and wisdom, accompanying ranking practices, and estimate preparation could be tailor-made to cater to concerns or doubts that lecturers got asked to do.

While practices have switched focus in the last three decades, instructors' across the globe have likewise signified changes in deciding what to determine and how to determine it. Kolo-Keaikitse's study of 691 primary and secondary educators in Botswana (Meyrick, H., 2022) investigated the question, "Which are the homeroom estimate practices in which teachers' see themselves as more skillful?" as a way to decide the appraisal fields in which teachers' use supplementary preparation. Assessment-related practices of educators included planning tests, defining results of class work, patterned tests, and communicating results of amounts. To answer the research question, the 691 school teachers' attained a questionnaire of twenty-nine items concerned with the measure of practice. Based on the outcome of the questionnaire, the study establishes that professors sensed the slightest confidence in utilizing evaluation results to determine the next steps of knowledge for their undergraduates. The judgments of the study proved to be of utmost help to policy-making and educational administrators, who frequently agreed that assessment practices search-out, get implemented in schools. And this professional growth convenience is required for supervisors. Although this study got restricted to teachers' outside of the United States, the reality remains that the opinions and reviews of all the teachers' be perceived and sent, no matter what they educate.

When an instructor lacks the confidence or some qualities in one or more facets of ranking or appraisal, juniors may be impoverished of opportunities; to fully show their current understanding. Academic under teaches doubts about appraisal practices, getting exhibited in the conflicting viewpoints about the appropriate evaluation. Anderson (2018) presented an assessment of grading systems and the trial of administering grades. The study surveyed the purpose of grading, the intention of it, the dependability and legitimacy of it, and the results of grading students'. The judgments concerning this analysis submitted that the two together (like, the purpose of grading and the meaning behind grades) were contradictory with the educators. It concluded that cumulative grading is more trustworthy and genuine in representing a pupil's understanding. A current Education Resources Information Centre (ERIC) search finds 3,000

research or judgment studies on the influence of internet learning at the university level, written in a peer-inspected journal between 2000 and 2019 (Walters, M. G., Gee, D., & Mohammed, S., 2019). Around one-tenth of these studies involved a connection to the internet and offline program models. These studies generally submitted that being connected to the internet and offline courses often have related consequences or a judgment of “no important distinctness.” A few studies suggested online courses are somewhat better, and a few others advised offline are little better with the extent of intelligence gain (National Research Centre for Distance Education and Technological Advancements, 2019). According to the National Research Centre for Distance Education and Technological Advancements (DETA), forceful evidence exists to uphold the “no meaningful dissimilarity judgment.”

Despite this finding, the research has elicited strong critique. Some educators believe that internet knowledge is inferior, in comparison, to on-site education (Hong, Y., Li, X., Lin, Y., Xie, J., Yan, X., & Lin, Z., 2020). Indeed, in 10 nationwide surveys of chief academic officers, the leaders reported on the advantage and legality in connection to the online mode of instruction. These numbers ranged from as low as 28% in 2002, 2005, and 2014; to an extreme of 34% in 2007. Additionally, the analysis has contained interrogation about if the “no meaningful distinctness” studies were severe or whether they requested the appropriate questions. Importantly, DETA has assembled a card index of many studies that equate connected to the internet courses (or added different forms of distance instruction) to on-site ones. Many of those have queried the “no meaningful difference” research in itself in the form of studies that were either exact to or if they requested the correct question. Some meta-reasoning of specific studies had usually rooted in the “no meaningful distinctness” clue.

One of the ultimate recent Meta reasoning for the studies was attended by apiece US Department of Education. The scientist's raise that students' connected to the internet education environments acted better than those taking confronting instruction. The investigators likewise raise, "The influence of staying connected to the internet education approaches appears completely broad." Alternatively, meaning that staying connected to the internet knowledge has determined persuasive for undergraduates', graduates, and academic and professional scholars'. Several scholars' claim that the research point towards the contrast between online and offline courses have happened broadly. What still has to be intended are what occurrences or course physiognomy connected to the internet courses approximately active for pupil learners and education. As one teacher submitted, a specific accord about what we mean by date or why it is mainly deficient, which exemplifies the complicatedness of the plan. There could be some concurrence at a crucial level about what scholar date is yet, these traits supply a vital framework for a better understanding of the graduate date.

Student's date usually is undergraduates' readiness and willingness to contribute and succeed in an education process that ultimately leads the ruling class to a greater level of thinking and complete understanding. Barkley and Major (2020) submitted that student date is the frame of mind in which the graduates are, with knowledge acting as an agent of the crossroads of impression and thinking (Barkley, E. F., & Major, C. H., 2020). Additionally, various

determinants such as inspiration, consideration, difficulty, and intellectual work could support date actions. Finally, instructor conduct could prompt date. Students' in courses place skill, for example, emoticons/figurative body color, union, optic metaphors, and visual and audio entertainment transmitted via radio waves in systematic course design. Answer latency, time, the occasion of 31 epoch, and idea commonness in the forums and type and preparedness of feedback by way of evaluating and electronic mail. To connect with the internet learners, we will have to advance different understandings of pupil date, in a connection, with the internet setting. Likewise, we will have to think about the idea from the view of the one, not engaging the scholars'.

Educators note that they do not have a good understanding of what is the graduate date. Students' enthusiasm and desire to donate and succeed in an educational atmosphere have resulted in a greater degree of thinking and complete knowledge. Barkley and Major (2020) expressed that undergraduate engagement is the frame of mind graduates are in, while knowledge illustrates the intersection of cogitating and impression. Educators trusted that it demands a psychological loan on the trainee, in addition to persistence, for gaining knowledge. Additionally, various factors like inspiration, consideration, connection, and intellectual exertion support engagement actions. Finally, trainer conduct could prompt date.

For interconnecting online students', there has been a need to advance additional understanding of pupil date in a connection to the internet setting. We need to encourage:

- Online educators make use of the pedagogies. Students' may get complicated in the teaching process with the type of habits by providing their aims in addition to the course aims. They may have more opportunities to symbolize the instructors' at a few points in a likely program, for instance, undergraduate constituted calculating education videos, mathematical lies, netting sites, collages, messages, private knowledge atmospheres, or different. These approaches have stimulated and supported scholars' by providing them a space to attack cognitively and to apply instrumentality.
- Online educators use pedagogies that allow learners to connect their interests to the course content. Learners are more inclined and act accordingly with materials that include, bureaucracy straightforwardly in the act matured instructional hypothesis suggests. Adult learners are stimulated from the inside and are self-supervised. They influence happenings and information to the knowledge that they request. They are realistic and want education, expecting to have to do with the occurrence. Also, adult learners are going to be esteemed. Designers could cooperate with educators to build in this time.
- Educators to make pedagogies that have learners generate authentic products. Education includes ventures contextualized in the original history, alternatively de-contextualized to the classroom. This approach not only shapes date and knowledge more apparent but furthermore actual for the scholars'. Activities like mathematical tales, book reviews, surveys, case studies, dossier studies, and so forth could admit undergraduates' to approach a significant task and provide an absolute and lasting commodity that could get documented in their education in actual habit.

- Educators use and make varied pedagogies that need documented actions of students'. Just as onsite graduates who need a break from content devouring to energetically involve in their education, so do pupils who get connected to the internet courses. Many ventures get implemented to guarantee undergraduate exercise, even when providing content. Short broadcast lectures get placed side by side, accompanying active knowledge appointments (from a degree entry to a discourse board or uploading content). Written content could go with links to an arrangement that invites projects, like the freedom to inform a valid post. Learners could take, on a series of projects, including delivering facts, providing information, constituting news, and curating facts.

There were numerous good results and perceived opportunities, exceptionally linked to spending time with friends and family, online learning, and leisure time, even if there were harmful effects, as well as peculiarly owing to the lockdown and the loss of studying and connections. Digital tech use during the outbreak offered social connection and chances for distance learning, additionally to a way to deal with loneliness and pressure. The development of children's adaptability throughout this time had majorly attributed to their use of constructive defense mechanisms, interpersonal interactions, and online learning prospects.

Conclusions

Since online learning has evolved, it could be as good as an even better than offline classroom learning for students' who get the prerequisite instructional support. Frequent delivery that combines synchronous and asynchronous instructions is essential to see whether students' succeed or grapple with online education.

Online learning is a foremost stage for analysis and interlinks age as well. One could have conventions or symposiums with teachers' and fellow peers; and clear any queries related to the subject. It offers a plan of action to connect with your pedagogue and companions through emails, chat rooms, and others. It also provides an opportunity to communicate and relate to different regions or countries. With the emergence of online learning, there is no need for students' to commute long distances to attend their classes. Learning could get done very simply from the comfort of one's home. The students' set their own pace. They could study at any time of the day from any part of the world according to their comfort. These students' manage their schedules. It teaches them time management, which is an essential skill for them. Online learning allows students' to maintain a decent social life while earning their college degree. It provides scope for personal and professional development while maintaining a beautiful social life. Students' could invest more time in other essential life skills like enhancing their communication skills, learning a few technical skills, and many others. They also have more time for their hobbies.

Research contributions

This study suggests that online learning environments might hold noteworthy potential for increasing educational productivity.

In the present era, the merging of online and offline learning methods cannot get escaped so, students' need to utilize these online resources in the best possible manner, and make correct decisions for their future through inventiveness, passion, and careful planning.

We need to uplift the socially and economically challenged sections of our society. Studies suggest that students' from these sections of society face discrimination against their privileged counterparts regarding the quality of educational resources. Poor students' tend to get low-quality resources. Resources need to get allocated equally amongst different sections of the society. Financial constraints should not act as a barrier to the learning process.

Scope for future research

Related to the topic of this study, there are still many topics that could get investigated including research on the learning, devotional or behavioural stages.

Conclusion

Adequate procedure answers could mitigate the potential damage to knowledge and income ensuring that the structures for post-pandemic instruction are better than before. The policy arrangement need to look out not to produce COVID-19 under the control of fear that all undergraduates could carefully return to their traditional method of education. The decision to continue is evidence-located and context-particular, where school closures become unavoidable, and education persists depending upon the detached learning, management and upholding shareholders should take the following steps to diminish the learning misfortunes:

Create an organized knowledge plan and set clear directions and sensible anticipations. It would not be attainable to cover the same educational program as in rational periods, and there are no beliefs to do this. Although it may be alluring to focus scanty resources on all numeracy and knowledge abilities, a curriculum based on distance learning gets pupils to contemplate the different topics in skill, the arts, civics, and history, thus trying to boost scholar engagement. It also plays a role in the construction of vocabulary and analytical abilities.

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