

TRANSFORMATION OF THE EDUCATION SECTOR DURING THE COVID-19 PANDEMIC: EMERGING CHALLENGES IN AN ONLINE TEACHING - LEARNING SCENARIO

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Abstract

Despite being disruptive, crisis forces society to reinvent itself. Suddenly and abruptly, the current Covid-19 pandemic is changing how people live, work, and interact with one another on a global scale. In order to demonstrate how higher education institutions are undergoing radical changes as a result of the need to digitalize education and training processes in a hurry with academics who lack the innate technological skills required for online teaching, this article focuses on the field of education. In an era of digital transformation, disruptive technology advances, and accelerated change, the university system must work to overcome this circumstance in order to remain competitive and offer high-quality education. This paper explains some of the obstacles and difficulties that B.Ed colleges confronted in achieving these aims, as well as the technical tools and approaches they have employed in the current situation to restructure higher education to deal with Covid-19 disruption. Significant ideas that can be used to advance the digitization of education are summarised in the discussion and conclusion.

Keywords: Higher education, innovation, COVID-19, digital transformation, online learning

Introduction

According to history, societal changes are a result of crises. Despite the fact that it is still unclear how COVID-19 will change our society, the worldwide pandemic is fostering and speeding innovation and advancement, particularly in the digital domain. The focus of this chapter is on how the COVID-19 pandemic has affected the education service, which is normally categorised as a service industry in industrial classifications. The educational industry has recently received a lot of attention about digital transformation. However, the COVID-19 epidemic is speeding up the educational sector's shift to digital technology: Now, educators, students, policymakers, and other key factors are working aggressively to bring about digital change in this industry across the globe. This chapter examines how rapidly the education sector has undergone digital transformation.

As we all know, the SARS-CoV-2 virus, which originated in China, is the cause of COVID-19, a disease. It has already spread to epidemic levels, touched every continent, and claimed millions of lives. Millions of people have previously died from it, which mainly spreads among people in close proximity. The introduction of the novel coronavirus caused widespread destruction and had an impact on everything from social connections to global economies. This might result in the loss of 195 million people's works globally by 2030, according to the International Labour Organization (ILO). The primary suggested solution to this issue is for the interested nations to enact COVID-19 quarantine regulations in their nations. Since March 2020, governments have used lockdown as a last resort to enforce stay-at-home orders and prohibit people from leaving their homes.

According to the UNESCO, over 264 million children were not attending school as of 2017; the epidemic just made an already grave situation worse. The COVID-19 pandemic has resulted in schools and universities being compelled to lock their doors for an illogical amount of time, leaving only online learning as an option, which has led to an increase in the tendency toward online learning. So, in order to meet the extraordinary demands of the present situation, it is now crucial to profoundly rethink, restructure, and reinvent our educational system. This policy has a serious negative impact on both informal and non-formal schooling.

Because of the close relationship between the teacher and the pupils, it is frequently believed that no educational method can totally replace formal education at its highest level. However, there is no evidence to back up this assertion. The paradigm shift in teaching and learning from the traditional method to the modern one, from the in-person to the online, between seminars and webinars, was brought about by the COVID-19 problem online. Despite being previously thought of as parts of informal learning, such as e-learning and distant learning, if the current circumstances persist for a long time, they will eventually replace formal education.

For instance, Lederman rightly argued that as a result of the COVID-19, both teachers and students had been forced to accept academic digitalization as the norm of the online educational process. By utilising digital intelligence, teachers can integrate students' digital talents, which are about to become vulnerable to cyber risk, into educational possibilities that will help them get ready for future efforts. This is crucial right now, when online learning is the only option available to kids due to an epidemic.

Life is altered by the coronavirus and it has posed a long-term threat to our educational institutions, from pre-kindergarten to tertiary level. It has continuously exacerbated the educational process. Additionally, the online teaching methodology offers the learning community a feeling of psychological security during their struggle

with COVID-19. The method must be changed in the second step. There are just two options left: adopting the online mode successfully used by other institutes abroad, or creating one's own. Any quantifiable change at the organisational levels to support the transition phase in the online teaching modality requires a new mind-set and approach. Educators argued that resilience must be incorporated into the educational process. They also recognised three trends: the digital gap, educational collaborations, and public-private partnerships in education. They predict that these trends will manifest themselves in future changes.

A new paradigm has emerged after one year of online learning as a teaching method, and it is expected to be popular long after the pandemic that forced the nation to refreeze. In this context, Google Classroom is a notable example of an online communication platform that, in the post-COVID-19 future, will change the global education system's trajectory and direction. The concept of a "de-schooling society" is still relevant today, according to other well-known internet communication tools. The current situation aims to keep our children out of the traditional formal schooling system while giving them the opportunity to capitalise on their innate curiosity

Objectives of the Study

The following are the aims of this investigation:

1. To study the review of literature regarding issues and challenges during pandemic.
2. To analyse the online technologies adopted by the teacher educators and students during pandemic.
3. To find out the issues and challenges faced by the teacher educators and students.
4. To suggest measures to overcome the challenges.

Review of the Literature

Due to the tremendous disruption brought on by the current Covid-19 pandemic, significant economic and social change has resulted **(Krishnamurthy, 2020)**. Governments all around the world have instituted lockdowns, social isolation policies, and bans on physical contact with anyone outside of immediate families in an effort to slow the virus' spread.

The epidemic is clearly having a significant impact on educational activity, it can be determined. The entire educational system, from elementary to higher education, had to undergo a complete transformation in a couple of weeks in order to transition to an online teaching-learning environment **(Mishra et al., 2020)**.

Over 1,000 million students worldwide were impacted when 185 countries' higher education institutions (HEIs) shuttered down in April 2020, according to UNESCO **(Marinoni et al., 2020)**.

Global higher education is one of the sectors undergoing substantial digital transformation as a result of the reality of the new normal, which has been upended by COVID effects (**Dwivedi et al., 2020**).

Academics and students have entered "unfamiliar terrain" as a result of the sudden, forced closure of face-to-face instruction because they have to quickly adjust to fully online learning environments (**Carolan et al., 2020**). Universities had to quickly adapt to online teaching as a result of this unexpected transition, utilising and modifying the existing technology resources as well as professors and researchers who lack the intrinsic technological skills for online teaching.

A disruption is something that abruptly ends or is interrupted. When referring to education, disruption is departing from established, conventional frameworks for the transfer of knowledge (**Carolan et al., 2020; Mishra et al., 2020**). Innovations that shift education's focus displace or replace pre-existing paradigms. By providing new learning options, disruptive educational innovation replaces the current approaches and means of information transfer.

In a recent empirical study conducted in a university setting, these authors found that the web platform of the institution, instant messaging tools (WhatsApp, Telegram), video-conferencing tools (Zoom, Skype, Google Hangouts, Google Meet), and educational apps (Google Classroom) were the technologies most frequently used to support teaching during the lockdown period. Email and phone calls were also frequently used to stay in touch with individual students. Other technologies were typically beneficial as well (Cisco WebEx, GoToMeeting, Microsoft Teams, Monosnap, Loom, OBS).

Information and communication technologies are often used to introduce new developments in educational institutions. In order to promote an open curriculum made possible by contemporary digital education, this educational disruption views both the student and the professor as learning engines. Innovating teaching techniques also entails changing the role of students and how they take in and apply educational information, as well as creating new learning tools, venues, and mechanisms. Disruptive innovations fulfil the requirements for both currently offered services and existent customers (**Christensen et al., 2006**).

The disruption caused by COVID has accelerated the shift to online education. In the current situation, there has been a quick movement in pedagogy from traditional to online class sessions, one-on-one training to virtual education, and seminars to webinars (**Mishra et al., 2020**).

The pandemic's effects will usher in a period of profound technological change, accelerating the global higher education system's shift to digital learning

(Krishnamurthy, 2020). Covid-19's disruptive impacts have provided both favourable chances for reforming HEIs as well as obstacles and challenges in the process. Universities must radically rethink and reinvent their educational programmes to deal with this new reality (Carolán et al., 2020).

After identifying the gaps, we will try to close them by illuminating the drastic changes that HEIs are making to education and training as they quickly transition to digitalization. Universities must recognise new tools and systems, be aware of potential obstacles, and incorporate technology into the teaching-learning process if they are to successfully transform.

Technological Resources and Methodologies Used

Despite the fact that higher education has been undergoing a digital revolution for some time, the epidemic has hastened this process, resulting in significant changes in a matter of weeks. As most HEIs are aware, this technological transformation of education requires significant changes in teaching strategies, fundamental competencies, and assessment techniques (Jensen, 2019).

Method

The researcher used mixed approaches to investigate stakeholders' perspectives of the online education process at HEIs during a lockdown. This research is restricted to the B.Ed College of South-West region in Delhi.

Population and Sample

The study's population included all lecturers and students at the B.Ed College of South-West region in Delhi. Quantitatively investigated, four Teacher Educators (a Principal, an Associate Professor, and two Assistant Professor) and 150 students were chosen as samples using disproportional stratified sampling. So, 150 students took part in a survey to examine their attitudes about online teaching learning.

Furthermore, 10 teacher Educators (five male and five female) and ten students (five male and five female) were chosen for interviewing methods using a purposive sampling design to collect qualitative data about their attitudes toward the online modes. All respondents are enduring teaching staff. Similarly, all student respondents are enrolled in a conventional instruction mode.

Collection of Data

For the quantitative study, the researchers created 2 questionnaires to evaluate teacher educators and students independently on the online mode. An interview format has developed to solicit opinions and specific information from teacher educators and students. Their perspectives, experiences, and thoughts on the continuing digitization

process were collected for qualitative study. The second part entailed gathering teacher educators' and students' perspectives on the benefits and drawbacks of the digitization model.

The researcher acquired data in the third stage using semi-structured interviews. By responding to the questionnaire, all sample respondents provided their full cooperation. During the interviews, valuable comments and ideas were received. Using descriptive statistics and qualitative content analysis, data collected from multiple sources were evaluated.

Analysis of the Data

Online teaching techniques adopted by Teacher Educators and Students.

No	Online teaching and learning modalities	Teacher Educators utilizing online teaching	Students utilizing online learning
1	Google Classroom	67	57
3	Zoom	75	69
4	Google Meet	24	34
5	Webinar	44	40
6	YouTube	58	70
7	Facebook	56	65
8	WhatsApp	88	90
9	Telegram	75	80
10	Phone conversation	20	15
11	E-mail	43	50

It is depicted from the above table that the various digitization modes employed by teachers and students throughout the COVID-19 lockdown period. Interestingly, despite having a range of digital modalities of teaching learning, practically all teachers and students used WhatsApp, Telegram, and Phone for interactions in the classroom, assignment submission, clarification of problems, and class exam administration. There were 67 percent of Teachers utilizing Google Classroom, 75 percent using Zoom, and 24 percent using the Google Meet internet platform. Still, only 70 percent and 30 percent of recipients were detected.

It is also revealed from the table that 44% of teachers used webinars as an online teaching tool while 40% of students used webinars to broaden their knowledge as an online way of learning. 58 percent of teachers filmed their lectures on YouTube as online mode teaching, while seventy percent of students viewed presentations videos from all sources on YouTube. Zoom, YouTube, and Facebook have all confessed to being used for learning purposes.

In terms of imparting and receiving information, 20 percent of lecturers used phone conversations to engage educationally with their pupils. Nonetheless, students are cautious about contacting their lecturers, with just 15% doing so. Following the suspension of the conventional online process due to the Government's enforced lockdown, the NCTE and IGNOU has established its own LMS and OERs. Most of the teachers and students used it, but the proportion of students using it was slightly lower (50%) because of internet connectivity's accessibility.

Findings

This form of teaching is beneficial during the COVID-19 period, and it may be controlled as an education transition. Most lecturers believe that college students will be more motivated if they are persuaded that the online style of instruction has more benefits, particularly during the lockdown time. Furthermore, self-motivation may work, and it will do so gradually. The current pandemic scenario has wreaked havoc on practically every aspect of life, yet it is a gift in disguise. It was discovered that the college is handling it capably in the current setting due to encouragement, excellent knowledge, computer skills, communication ability, and clarity of expression. Additional skills discovered to manage the digital process included virtual classroom, tools available with user-friendly features.

It was discovered that stakeholders' patience, including students and academics, would help a lot toward easing the transition. The essential tactics discovered in developing a digital classroom were encouraging students and teamwork. Most teacher educators began by developing study e-materials according to the curriculum, attending online courses according to the timetable, and finally uploading study materials. Some teacher educators indicated that they had prepared modules for each unit that needed to be taught, following the upload of that module. Few have recorded their video lectures and published them to WhatsApp groups and the YouTube platform for students who were unable to attend courses due to unforeseen circumstances and provide equitable access to learning.

In terms of students' perceptions, they believed that the digital process throughout COVID-19 kept them in touch with their studies. Because they were not used to studying on cell phones and computers, several students reported a lack of interest and attentiveness during online lessons. As a result, they thought it was important to acquire soft skills, particularly listening abilities, as early as feasible. Most student responses said that logging in with a specific id and password on the Google Classroom discussion forum required a reliable internet connection. In digital mode, students would first test their Google Classroom dashboard for any information, announcements, study material, assignments, and project activities submitted by lecturers. According to the pupils, the

average time spent on internet activities was 4 hours per day. Students reported using 1.0–1.5 GB of data per day as part of their low-cost prepaid plan.

Students found the films provided by teachers to be intriguing since they could watch them again, stop them, and take notes as required. Students reacted well to the comprehension of online lessons in terms of conceptual knowledge and conversation activities. “With effective internet access,” some students said, “Zoom is the easiest and most suitable approach to talk with instructors.” Students said that lecturers should use voice calls to foster friendship and educate the atmosphere of groups, applications, or any application. Expanding ICT resources will be supported realistically to better manage this kind of crisis. As several of the students have said, the most important teaching skill that needs improvement is making learning tailored for the students even though it occurs online. This adaption will progressively improve with time.

Issues and Challenges:

Lack of face to face Interaction- As a result of Covid-19's disruptive effects, instructional activity changed quickly. Since face-to-face instruction was abruptly discontinued, as previously said, both students and professors had to quickly adjust to a fundamental change in the teaching-learning process (Carolan et al., 2020). Some impediments and difficulties did arise during this adaption process, which was not without its problems (Marinoni et al., 2020; Mishra et al., 2020).

Technical Barriers- Technical issues were cited by students as the main barrier to adjusting to online instruction (Mishra et al., 2020). Some scholars emphasise how digital gap can be exacerbated by online schooling (Govindarajan and Srivastava, 2020). Institutions should mobilise resources to guarantee that all students have access to a suitable IT infrastructure, broadband connection, as well as specialised assistance to resolve technical issues in order to lessen this barrier (Carolan et al., 2020). Universities must ensure that students from less affluent socioeconomic backgrounds are not at a disadvantage in this new environment in order to ensure an equitable student experience.

Lack of Time and feeling of Isolation- According to studies by Liang et al. and Mishra et al. (2020) and Mishra et al. (2020), among other significant obstacles that students reported as hindering their ability to pay attention in an entirely online setting were boredom, a feeling of isolation, a lack of time to follow the various subjects, and a lack of self-organizing skills. Isolation was a major issue in course design, indicating the need to strike the right balance between individualised, student-centered learning and collaborative learning. They also encouraged the creation of virtual communities of practise to improve peer engagement and collaboration among students (Carolan et al., 2020).

Inconsistent network connection- The most difficult aspect of online education was the inconsistent network connection. The connection is steadier if the students' videos and audios are turned off, but that manner of teaching seems to teach to a blank wall. Furthermore, it was felt that some of the pupils lacked the necessary resources to participate online. As a result, the issues with online education were both technological and ideological. The majority of the concerns were connected to students and their answers to the necessities of online education, such as an uninterrupted power supply and intermittent signal troubles.

Adjustment Problems- This forced shift was hard for the instructors as well because they had to swiftly adjust to new online tactics with little to no training in certain situations (Dwivedi et al., 2020). The abrupt switch from in-person instruction to online instruction also requires a teaching staff with a variety of levels of preparation to employ various pedagogies and specialised competences (Marinoni et al., 2020).

Lack of Knowledge of Technology- The academic world is likewise affected by the digital divide. A generational gap may exist between older teachers who have relied on traditional ways and have never used digital tools and the younger faculty who may be more proficient with emerging technologies. Not all faculty members are at ease in an online environment (Govindarajan and Srivastava, 2020).

Lack of Specialized expert- The main issues raised by teacher educators included the high demand for specialised skills such as expert computer knowledge, specialised communication skills for an online environment, proper use of various teaching-learning tools, and the requirement to solve specialised problems quickly during learning sessions. Academics, however, have highlighted some intriguing lessons for overcoming barriers after an initial stage of adaptation-experimentation to quickly convert to remote instruction (Dwivedi et al., 2020).

Among the key issues identified by teachers were a lack of knowledge, a lack of opportunities for meaningful contact, a lack of opportunities for creative instruction, and mechanical class behaviour. It was discovered that teachers could not interpret the expressions and moods of their pupils, making it impossible to adjust the teaching style.

Suggestions

Suitable physical environment- The first step for educators is to set up a suitable physical environment for online instruction, including lighting and acoustics. In order to alter timing for online delivery, the specific content of class sessions should be completely changed. Group activities should also be added to inspire and engage students and promote collaborative learning. The issue for academics will be to ensure

that students in both settings receive high-quality education, as most universities will choose a hybrid approach in the near future that blends small face-to-face groups with online sessions (Dwivedi et al., 2020).

Needs collaboration of teachers, students & administration- The implementation of emergency remote instruction at universities during the Covid-19 outbreak completely disrupted daily operations (Krishnamurthy, 2020). Colleges should use technology to reinvent teaching methods, transform assessment tasks, change the use and roles of conventional Faculties and Schools (providing specific training), and focus on value through the reinvention and self-renewal of the service model. These changes are necessary to move toward a sustainable model for online learning. Students, teachers, and administrators must collaborate to support and evaluate the changes made in order to promote this digital revolution, and participatory culture must be fostered (Carolan et al., 2020).

Needs of upgradation of technical infrastructure –In order to synthesise some important lessons for higher education's transition to online education, we end this section by referencing recent literature and taking a proactive approach. The first step is for institutions to upgrade their technical infrastructures while simultaneously making sure that every student has equal access to the necessary technological resources. To enable a true digital transformation, this step necessitates a monetary commitment (Jensen, 2019).

Financial Support should be provided by the Government to Educational Institute -Govt. should grants Universities also encounter additional challenges in undergoing this transformation, such as financial limitations and the constraints imposed by the current IT infrastructure (Krishnamurthy, 2020). Reduced government funding will force public colleges to deal with shrinking budgets, and the uncertain economic climate is causing a decline in student enrolment.

Requirement of PC or Laptop for the students of Rural Area- It was discovered that the bulk of students come from rural places with low socioeconomic family circumstances; thus, they required the laptop for online schooling but could not because they did not own a PC or laptop. It is found that no phones to be sufficiently effective in participating in digital classes. Furthermore, students were experiencing financial difficulties at home throughout the lockdown time.

Conclusions

As of today, it has proven effective in recent student performance evaluations. It is debatable if it will be effective in the future. It may take some time to understand how the frantic efforts of the digital learning fit the requirement of a net balance of collective repercussions.

Furthermore, online learning allows both the instructor and the learner to establish their own learning speed, with the extra flexibility of creating a plan that works for everybody's schedule. Therefore, using an online educational platform leads to better balance between work and research, with no need to give anything up in the process. Maintaining a solid work-study balance becomes simpler while students are studying online since students learn important time management skills. The presence of a shared agenda between the student and the instructor might also encourage both parties to embrace extra responsibilities and exercise more autonomy. Finally, as earlier mentioned, being able to establish students' own study speed may be really beneficial. Online education, on the other hand, is adaptable to the specific needs and abilities of each individual student enrolled. The size of online courses is often less than the size of traditional classes. One learner at a time is often allowed on online learning platforms, which in nearly all situations allows for better contact and feedback between students and their instructor.

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