Analysing the Effect of Covid 19 on the Teaching & Learning Process with a Focus on Online Courses

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Abstract:

The COVID-19 dilemma negatively impacts the quality of life and future prospects of young people and has the potential to disrupt their education. In the era following the crisis, a disruption would pose a grave threat to society as a whole. Consequently, educational institutions must act swiftly and ensure the continuity of the educational process. The purpose of our research was to suggest implications that would facilitate a seamless transition from traditional to remote learning models in an emergency. Our primary objective is to develop the technological, organizational, and pedagogical adjustments that educational institutions must make to support diverse forms of contact, ensure continuity, and provide high-quality education. A five-stage Model was defined and implemented: "(a) preparation, (b) planning, (c) implementation, (d) operation, and (e) evaluation." recommending a swift transition to distance learning, which is not limited to emergency situations. We evaluated our model by surveying instructors and students in Delhi/NCR schools. The results indicate that these participants in the instructional activities were very content. They support the hybrid educational paradigm for the next generation of pupils and indicate that, if necessary, extended distance learning is acceptable. An important finding of our research is that, in times of crisis, it is possible to transition the entire learning process of a medium-sized educational institution, including lectures and a variety of assessment activities, to the remote learning paradigm.

Keywords: Education, Remote, Learning, Schooling, Covid 19.

Introduction

As COVID-19 overtook the globe in the early months of 2020, educational institutions began suspending all face-to-face teaching and learning activities and operations. Due to the closure of primary and secondary schools and universities in over 162 nations, more than one billion children are now receiving their education through distance learning and other non-traditional means (UNESCO, 2020). Global leaders have expressed concern that school closures would have a detrimental effect on the learning and educational opportunities of children. Consequently, many children may lose months of learning while others continue to make progress toward their intended and anticipated learning goals.

If you find yourself in a situation where you must continue your education while being isolated from others, you have no choice but to employ a remote learning paradigm. ICT is essential because it enables new forms of engagement between instructors and students, such as online classrooms, remote access to lab computers, and online discussions (Bower, 2001). The adaptability of educational institutions is contingent on the effectiveness of their information systems. Biggs and Tang (2011) state that "the conditions under which the educational process takes place, the availability of resources, the complete infrastructure of the educational institution, and the potential application of specific ICT solutions at students' locations all necessitate immediate and precise adjustments to every module, course, and programme." The student-centered strategy entails outlining the objectives for the knowledge and the methods to be used to assist students in acquiring specific information and developing practical skills.

This study aims to provide recommendations that would facilitate a seamless transition from conventional to remote learning models in an emergency. To ensure continuity and preserve the quality of education, our research centered on

establishing organizational and technological solutions and employing a variety of interaction methods. We believe the results of the evaluation phase will improve education in the aftermath of the disaster.

Literature Review

Adopting online education

Institutions of secondary and higher education are increasingly embracing online learning. The demand for online courses or programs has surpassed that of face-to-face modalities, and prestigious universities have acknowledged that this is essential to their long-term success (Kuo et al., 2013). Synchronous and asynchronous online courses are the two most common varieties. As a result of the adaptable and self-paced nature of asynchronous courses, students can view recorded multimedia content at their convenience (Skylar, 2009). The reversed classroom is one innovative method of instruction that could benefit from asynchronous instruction. A lack of engagement with the teacher and other students is the leading cause of student dissatisfaction (Cole et al., 2014). Asynchronous classes are popular because they are more practical. Despite the numerous advantages of asynchronous learning, synchronous learning is frequently favored due to the rapid feedback, higher level of motivation, and requirement for attendance and participation (Chen et al., 2004).

Moreover, hybrid, blended, or mixed courses refer to any combination of the synchronous, asynchronous, and face-to-face paradigms, such as lab activities conducted in person, recorded lectures, and synchronous office hours and exams. The effectiveness of fully online courses is inferior to hybrid courses that incorporate synchronous and face-to-face delivery techniques. The so-called optimal combination of traditional instruction and online delivery should be incorporated into a comprehensive hybrid course (Callaway, 2012).

Their perceptions of the quality of available support services are a strong predictor of their adoption and satisfaction with online learning (Lee, 2010).There are three subdimensions of e-learning service quality:

- The effectiveness of the e-learning platform
- The quality of the instructors and course materials for online learning, with the quality of the instructors being the most significant factor (Pham et al., 2018).
- The standard of administrative and support services for e-learning" 2019 (Pham et al.)

Education in times of crisis

(Sinclair, 2001) Crisis education refers to the process of preparing a population for armed conflict and natural disasters. Various UN organizations have acknowledged in multiple publications the importance of young people to the reconstruction of a post-crisis society. As soon as the process of reorganizing education commences, it is essential to act swiftly and address the needs of the students, despite the difficulties in providing educational resources.

For some, the educational process during a crisis is a temporary solution that should bridge the breach until the entire society returns to normal. This view is rejected by the authors because they believe it diminishes the role of education as a cultural and social institution through which society transmits norms, values, and specific categories of knowledge to its members. Crises can make contemporary changes to the educational system much more feasible than they would be under normal conditions. According to the authors, crises present an opportunity to reform education in accordance with the paradigm selected at the World Conference on Education for All in Jomtien. (2000); Talan and Sevinc (2019).

The authors emphasize that any emergency-related educational system changes must be progressive. They recommend beginning with simple adjustments and gradually incorporating new instructional strategies. Regardless of the level of urgency, they believe it is essential to resume the operations of educational institutions and make significant changes to the educational process. Moreover, a well-considered educational model with innovative solutions may aid children in overcoming challenging circumstances such as fear, loss, tension, and violence, as well as teach them tolerance, risk management, and life skills (Kumar et al., 2017).

Modèle de transition rapide

Modern models of distance learning primarily evolve within a specific pedagogical, technical, social, and economic environment, making their implementation challenging. Since transitioning from a traditional to a distance learning model can be difficult, schools may hasten into it without first determining its pedagogical viability (Manning, Choen, and Demichelli, 2003). However, some colleges and secondary schools have given this study considerable weight. They have actively attempted to alter the administration and established order. The demands of demographics, globalization, economic reorganization, and ICT technology will force us to adopt new concepts regarding educational markets, organisational structures, how we educate, and what we teach over the next decade (Morrison, 2003).

At a number of institutions, the conventional educational process has already been transformed, and online learning is utilized. Blended learning is an approach to education that combines "traditional classroom techniques with online educational resources and interaction opportunities" (Osguthorpe and Graham, 2003). As a result, many colleges have gradually incorporated improvements (Osguthorpe and Graham, 2003). Utilizing a variety of tools (such as LMSs like Moodle and Canvas), these institutions adopt certain frameworks for blended learning across their primary academic programs. They want to ensure that the combination maximizes the positive aspects of each learning environment while minimizing its negative aspects. Sadly, many colleges have not yet begun the process of adapting to distance education. In fact, institutions around the world are beginning to observe the change from a variety of perspectives. This study's primary objective is to identify the essential processes that should facilitate a seamless transition to the paradigm of distant learning. The transition to the remote learning model is comprised of five distinct phases: preparation, planning, implementation, operation, and evaluation.

Preparatory stage

Distance education during a time of crisis necessitates unconventional problem-solving to surmount transitional challenges. (Head et al., 2002) It is a strategy to identify appropriate delivery techniques when the focus must be on rapidly altering demands and resource constraints, such as faculty assistance and training.

The first step in the planning phase is determining whether or not the course objectives need to be revised to facilitate a rapid transition to remote learning. It is essential to consider the organizational skills, technological resources, and learning needs of the students.

Although the original course objectives may alter as a result of this process, educational institutions and instructors must strive to maintain the curriculum's integrity (for example, practical laboratories are frequently replaced with computer simulations to maintain curriculum integrity). Due to the global crisis, the availability of technology, expenses, and geographical constraints, educational institutions must devise a practical strategy to support students and meet their demands to the greatest extent possible (Sampson, 2003). Providing students with services such as access to a database of learning materials, on-site assistance, and rapid student feedback is the key to ensuring a high level of engagement between instructors and students as well as among students (Chen, 1997). Contact may mitigate the detrimental effects of being alone during an emergency.

Consequently, the following characteristics are highlighted:

- Virtual classrooms (similar to conventional synchronous classroom instruction)
- Information can be rapidly retrieved from the system due to the availability of well-organized presentations, videos, and electronic books.
- The ability to remotely operate laboratory equipment is essential for gaining practical experience and technical knowledge in a setting as close as feasible to the real world.
- Online discussion groups to help students catch up, cultivate independent learning and critical thinking, and give diverse perspectives due consideration in order to enhance the overall course.
- Methods for assessing pupil comprehension (including assignments, projects, and tests) (Hiltz, 1995).

In addition to the human components of distance learning programs, it is crucial to analyze the organizational and technological possibilities for the transition (Galusha, 2021). Consequently, it is necessary to restructure and effectively adapt sectors such as technical support and administrative structures to the evolving technological environment. Therefore, schools must establish specialized administrative structures dedicated to ensuring the success of online education. (1995; Marrs). Technical capabilities relate to technological potential and are frequently associated with obstacles such as financing new technological advancements, software and hardware issues, Internet access, and maintenance personnel.

Planning period

Institutions of higher education must pay close attention to the content of their distance learning course materials. When establishing distance learning programs, course standards, curriculum development and support, course content, and course pace should all be considered. Schools should evaluate faculty members' ability to provide instructional resources (such as recorded lectures, multimedia materials, and other e-content in learning resource databases) as early as possible in the strategic planning process. (2019 according to Alqurashi)

It is crucial to have an efficient and well-organized LMS because it should make it easy to access knowledge bases and locate the necessary materials. Educational institutions must make efficient use of the limited resources available in order to alleviate financial difficulties. Consequently, it is essential to:

- examine the capabilities of various platforms, as well as their compatibility with the current IT infrastructure;
- ascertain the financial health of an educational institution; and
- instruct students and faculty to utilize the platform of their choosing.

Maintaining continuity of instruction according to the schedule requires training and support for teaching personnel in this environment of rapid change. Given the reluctance of many instructors to alter their established teaching methods, the training should be meticulously planned. Teachers should serve as a conduit between students and instructional materials. Their role is to facilitate the learning of students, but they must possess a certain level of expertise in the technologies they will employ. This is the most important requirement for them to be able to identify diverse learning demands and offer content in a variety of formats (Beaudoin, 1990).

Teachers must receive the necessary training, mentoring, and assistance while working with the technologies they will employ in order to acquire the skills necessary for successfully delivering online instruction. We have implemented computer-based technology in teacher education that performs at a minimum the following functions:

- accessibility of administrative and support services;
- interaction-fostering techniques,
- establishing backup and emergency strategies
- Copyright and other administrative issues

To successfully implement the transition to remote learning, it is necessary to assess the capabilities of the current IT infrastructure and consider the potential applications of new learning technologies. In the overwhelming majority of situations, there are no technology requirements that are indispensable. Therefore, in order to connect the cloud platform and facilitate virtual workspace activity, infrastructure upgrades are required. These technologies allow information to be transmitted through networks at any time and from any location, making them extremely useful. Therefore, network reconfiguration is a common requirement for effective resource management. Belt and Lowenthal's 2020 publication

Operation Phase

During the operational phase, educators and learners use digital resources and network infrastructure to engage in distance education.

Phase of deployment

As they rapidly implement distance learning, educational institutions confront numerous academic and administrative obstacles. Potential outcomes of this procedure include modifications to faculty working conditions, course objectives, and student support services. During the phase of implementation, it is crucial to address these obstacles and the resulting institutional adjustments.

Instructors are responsible for defining the objectives, instructional materials, and required hardware, software, and network resources for their courses. The next stage is to reserve and distribute the necessary resources for the course's virtual delivery environment. It employs multiple strategies, including online learning environments, off-site laboratories, and social media. Given the diverse demands and routines of students, a solid foundation of online learning tools is crucial. In addition to learning management systems (LMS), there should be available high-quality presentations, recorded lectures, research papers, and electronic publications. Educational institutions must provide a certain level of technical, financial, and coordinated support to ensure the consistency and high quality of their instruction. (Rodriguez and others, 2019)

Evaluation level

Assessment concludes the process of developing a paradigm for the rapid transition to distance learning. This phase, which combines educational and technological components, entails assessing students' knowledge and receiving feedback from both students and instructors on the actual teaching techniques employed. Tests and oral project presentations constitute the evaluation of knowledge.

Upon completion of the courses, surveys of students and instructors should yield insightful data that will serve as an excellent starting point for analyzing the proposed model. The data provides a solid foundation for a prospective post-crisis solution that the institution may choose to implement. This strategy involves updating the current curriculum and modifying or incorporating new teaching techniques.

Monitoring network performance and variables crucial to the operation of remote learning services and the entire IT infrastructure form the basis for technical evaluation. Consequently, it is essential to continuously monitor the utilization of resources, including leased resources and virtual machines with hosted meeting points. (Wu and others, 2017)

Methodology

In light of findings from a comprehensive literature review, the present study develops a questionnaire-based framework to assess the hypotheses formulated to examine the relationship between the study variables. A quantitative methodology was chosen to collect the data because it incorporates and evaluates the "preparation phase, planning phase, implementation phase, operation phase, and evaluation phase" of the mechanism. A structured questionnaire was developed and administered to a population sample.

Sample Size: "The researcher taken the sample size of 150 for this study".

Location: Convenient sampling from the teachers and students in educational institutions in Delhi/NCR.

Nominal Scale: "In this research, a nominal scale was applied. From a statistical perspective, the lowest measurement scale is called the Nominal Scale".

Data Coding: "In this study, qualitative data were coded using a Likert scale. SPSS and MS Excel have been used for both data coding as well as data transcription".

Analysis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Students	123	82.0	82.0	82.0

Teachers	27	18.0	18.0	100.0
Total	150	100.0	100.0	

- Students - Teachers
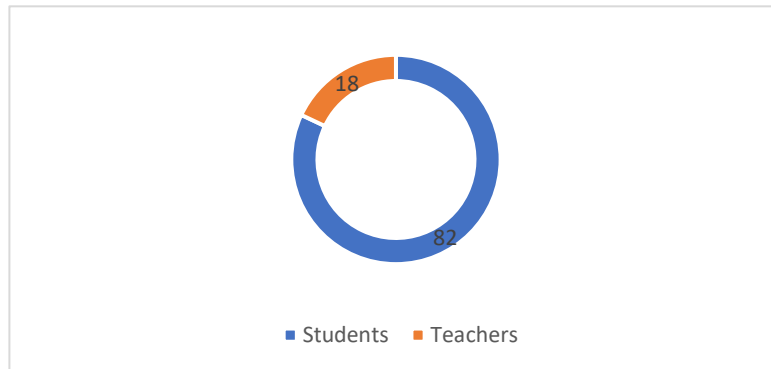
The fast adoption of distant learning has had profound effects on the educational process and the understanding of students in times of crises.

ANOVA[a]

Model		"Sum of Squares"	"df"	"Mean Square"	"F"	"Sig."
1	"Regression"	6.948	1	6.948	23.208	.000[b]
	"Residual"	107.775	360	.299		
	Total	114.723	361			

The ANOVA test results are presented in the table above. In this instance, the value of P is 0.000 and the value of F is 23.208. As the value of P is 0.000, which is less than.05, the preceding statement is true, indicating that the rapid adoption of distance learning has had a profound impact on the educational process and the students' ability to comprehend crises.

Since the return to traditional classrooms is uncertain and the state of emergency is likely to be dissolved, a one-way analysis of variance revealed statistically significant differences in how individuals perceive the future of distance education. The following table demonstrates that while the majority of educators are unsure as to whether online classes should be discontinued, the overwhelming majority of students hold the exact opposite opinion. A statistically significant distinction between the two groups is the greater proportion of students who believe that all education should occur simultaneously in a physical classroom that is broadcast live and recorded. While students may be receptive to this idea, instructors frequently are not.

	Students		Teachers			
Statements	MV	SD	MV	SD	F	sig.
"Things are normalizing so now all online classes should be Discontinued"	2.23	1.41	2.69	1.37	4.16	.016
"All classes, except practical exercises, should be continued only online"	2.74	1.39	2.26	1.30	9.8	.012

"Within a course, it makes sense for a part of the classes to be held in physical classrooms and for the other part online"	3.12	1.36	3.57	1.30	6.89	.001
"All teaching should be held simultaneously in a physical classroom, transmitted live, and recorded"	3.89	1.3	2.68	4.49	42.7	.001
"Classroom-based testing and exams must return to reduce student cheating and forgetting."	3.21	1.46	4.21	1.07	27.4	.001

The test results may facilitate a better understanding of the outlook for the next stages. The belief that all online courses should be discontinued is inversely related to the importance placed on minimizing travel time to campus (p. 016). Additionally, pupils who prefer to study online oppose discontinuation (p.016). The same remains true for students who report higher levels of interaction with course actors in online versus traditional classroom settings (p.012).

Online courses offer a more thorough education than traditional classrooms (p.00). This is the case for students who advocate for a completely online curriculum (excluding labs and other practical exams) (p.001). It makes sense to teach some portions of a course in traditional classrooms and others online. This could be because it reduces travel time to and from campus. In other words, the proportion of individuals who concur with this statement increases as the value of time savings rises (p.001).

The correlation between classroom-based testing and examinations and forgetting preference is positive (p.001), and this pattern holds true for the other assertions as well. This is unusual given the importance of the first assertion, but it may be due to the diversity of individual self-efficiency approaches.

Findings and Conclusion

In times of crisis, the educational process can be maintained through a seamless transition from traditional classroom study to online learning at a distance. Considering the urgent demands for the redefinition of course objectives and the identification of students' requirements presents significant design and preparation challenges for this shift. The selection and implementation of alternative and, if necessary, innovative educational approaches is one of the largest obstacles to maintaining and, if possible, enhancing education quality during times of crisis.

The technological and organizational requirements include an appropriate IT infrastructure, well-structured instructional procedures, and adequate learning materials. After a closer examination of these requirements, it is likely that the traditional college campus' IT infrastructure will not be able to accommodate the change. When attempting to maximize resource availability while minimizing costs, it may be necessary to incorporate new educational tools and applications into the existing IT infrastructure. The study proposes a virtual classroom platform as a means of transitioning as quickly as feasible to a distance learning paradigm. Our research revealed that the proposed method is reliable and adaptable, making it an excellent option for emergency education. In the event of a crisis, a medium-sized educational institution can swiftly and seamlessly transition its entire educational process to the remote learning paradigm.

Here, we have highlighted two important points:

- The transition to online education does not necessitate extensive planning and lengthy implementation cycles, nor does it need to occupy an entire academic year.
- Less extensive than a complete transformation, the transition to a hybrid approach to distance learning should not require too much time.

The scores students receive on our transition's knowledge exams are comparable to those they would have received in conventional classrooms. Therefore, we can conclude that the transition to distance learning poses no significant threat to preserving or enhancing the quality of education. In addition, the post-transition data indicate that distance learning provides educators with a greater depth of knowledge regarding their students' prior knowledge, abilities, and learning habits in both ordinary and high-pressure settings.

Suggested implications

Rapid transition
- Schools must promptly switch to remote learning in the event of an emergency in order to continue classes as normal for students.
- The quick transition model indicates that it will provide a firm foundation for future moves toward online education.

College or university
- For a successful transition, instructors and students must possess the necessary technical skills and be well-prepared for remote learning adaptation.
- Access to remote learning materials without interruption requires additional technological and organizational resources.
- The rapid transition model has a number of benefits and can be used for hybrid distance learning; consequently, it can be considered a model for implementing remote learning even during regular business hours.
- Schools with students who live far from campus should consider streaming all of their courses and implementing policies such as offering an entire week of online classes at least once per semester.

Teachers
- Educators invest a considerable amount of time and effort developing and organizing lessons in the LMS.
- Educators should create a robust but adaptable IT infrastructure in preparation for the regular and emergency deployment of their courses.
- Educators have a great deal of latitude in determining how they will organize their classes and engage their students. They do not rely significantly on the LMS for assistance.

Students
- Students must have access to active learning in the event of an emergency in order to continue their education on track.
- They acquire the skills necessary to utilize cutting-edge ICT and pedagogical tools, which will serve them well in their future professions.
- Students in a distance-learning course may receive both lecture notes and practical experience.

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