A Structural Approach to E-learning During COVID–19 Pandemic

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Abstract
This research work explores the impact of the COVID-19 pandemic on classrooms teaching in school and colleges and on finding e-learning solution to ensure the continuity of the teaching process. The physical presence of the student in the classroom has been hampered by the COVID-19 pandemic. The only way in which the classes can continue is through online teaching programmes. This research tries to examine how effective is online teaching in a higher educational institution in Oman and worldwide. Here we will see the three dimensions of online education, namely (a) preparation, (b) execution, and (c) verification. Verification leads to negative and positive results. These results reflect real-life experiences and ideas shared by the stakeholders, the instructors, and the students who participate in online classes. We will also explain and examine various challenges and solutions involved in making this system more effective. This study gives us an insight into the mechanism, dimensions, and strategies of E-learning.
Keywords: COVID-19, Dimensions, E-learning, Online teaching, Pandemic

1. Introduction

The pandemic of COVID-19 has thrown the world into a period of uncertainty. It has affected all facets of life, including the educational institutions. The fear of exposing ourselves to the virus has made it imperative for us to maintain social distance and to wear masks all the time when we are in a public space. Therefore, it has become virtually impossible to access public transport and attend classroom teaching programmes without the fear of contracting the virus. This has led to the closure of schools and colleges, leaving the teacher and the students no other option but to continue with online classes. E-Learning is, therefore the need of the hour. Lederman (2020) justly stated that due to the COVID-19 crisis, teachers and students both find themselves in a situation where they felt compelled to embrace the digital academic experience as the summum bonum of the online teaching-learning process. Some educational institutions were not well equipped or prepared for such an emergency. The reasons must have been from the non-availability of technical resources to untrained staff and students. Through this paper, we will get to the core of the mechanism of the e-learning process. The initial part will indicate the various stages of online teaching and learning.

In the second part, its positive and negative aspects are analyzed, followed by the challenges. Data taken from stakeholders in the process of e-learning is used in this presentation.

2. Literature Review

The COVID-19 pandemic has affected education, and teacher education in particular, in various ways. As a result of the closure of universities and schools, teachers and students had to rapidly adapt to remote teaching. Teacher education is no exception. The need to create learning environments for student teachers doing their teacher education preparation implied decisions, choices and adaptations in order to meet not only the expectations of students but also the requirements of teacher education as well as the conditions in which both universities and schools had to operate (Flores and Gago 2020).Researchers anticipate that physical distancing and pervasive feelings of anxiety over the COVID-19 pandemic have initiated a wide array of challenges in education including poor academic performance (Sintema, 2020), concerns over the physical health and well-being of students (Rundle, et al., 2020; Van Lancker & Parolin, 2020), and negative disruptions to internal and public assessments (Burgess & Sievertsen, 2020). In the 21st century, the E-learning creates a more significant impact on all types of the student, much as the part-time and Full-time or distance learning student in the higher education institution (Azhari and Ming 2015). In this light, the COVID-19 pandemic has forced the universities to close face-to-face education and send the students home. This forces the universities to introduce courses through online portals. Also, education industries are adopting the technologies available such as digital Video conferencing platforms like Zoom, Microsoft platform, and Webex Blackboard and Google Classroom (Larry 2020). Therefore, this will be enhancing E-learning globally (Chen 2010; Yengin et al. 2011; Larry 2020). The flexibility of E-learning is a solution for people's commitments to their family or work, which may increase the number of people who enroll in this type of education. In fact, this goes beyond the learners; it gives flexibility also for the instructors. In addition, educational institutions reimplementing E-learning technologies to improve the communication among learners and instructors for better knowledge exchange as well as to strengthen the learning community to accomplish personal objectives (Njenga, J.K.; Fourie, L.C.H. 2010) identified 10 myths about e-learning in higher education, extracted from the

emerging educational practice, information provided by technology providers, and the academic literature: (1) E-learning is a very powerful instrument and all educational institutions should adopt it; (2) e-learning may replace human interaction; (3) e-learning reduces the economic costs of education; (4) increasing the academic offer and large amounts of information are beneficial for learning; (5) digital technologies should be the main learning means or resource in higher education; (6) leisure (including games and entertainment) and learning are separate activities; (7) e-learning will make university institutions more competitive; (8) defining the infrastructure (hardware and software) in e-learning is the most difficult task; (9) e-learning will be the end of traditional campuses; and (10) e-learning may decrease absenteeism and the dropout rates among university students.

3. Course Plan

We have to be clear in our minds that the e-learning is not a replacement for the classroom teaching. The E-Learning class is a virtual classroom without the physical presence of individuals interacting at a human level. The teacher cannot walk up to the students' desk to talk to them; neither can the students look forward to getting together and chatting in the canteen over some snacks. Thus, nothing can replace physical human interaction. The student and the teacher need to feel connected. There is a need to form a different course plan for e-learning to make the virtual class resemble the real classroom as much as possible. Examining the features and principles of Universal Instructional Design (UID) and Universal Design for Learning (UDL), Rao and Tanners (2011) advised instructors designing courses to consider not only the course objectives but also how to adapt strategies and technologies for achieving the goals. Courses should be well organized from the very start, providing the students with detailed instructions and expectations. Instructors should anticipate areas of potential misunderstanding and dismiss unclear directives before the beginning of the course. Misunderstandings can be minimized through a very detailed syllabus, course calendar, useful links, and course information is chunked into digestible pieces (Thomson, 2010). For example, in a reading class, most of the learners are passive while being online. While one student is reading a passage or answering a question, the other students do not feel connected. Therefore, a debate on the topic of the text may draw the attention of all the students towards the issue. 7 out of 10 students felt that a discussion on the subject matter rather than merely reading the text during the online lecture would be better. They preferred to answer the questions on the topic as homework. So, the plan adopted for classroom teaching may not be very useful for e-learning. Executing lectures online requires a well-set technical service in every institution like reliable and fast internet services and suitable software and hardware.

Table 1. *Feedback on course plan by the stakeholders*

Question	Total	Yes	No
Do you think that the plan followed for the conventional classes suits online teaching?	10	3	7

4. The Three Dimensions

The three steps adopted to execute online classes are (a) systematic, (b) foolproof, and (c) dependable. They are time savers and mostly accurate.

4.1 Preparation

Preparing for an online class can be a big task for those who are not so tech-savvy. But with proper and continuous training in this field, it can be a fun-filled and enjoyable experience for the teacher. In order to make a plan, the academic staff should be timely given a schedule at the beginning of the semester. Then a vigorous technical training is given to the academic staff, acquainting them with each aspect of e-learning. According to (Hodges, Moore, Lockee, Trust, and Bond 2020), well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster. Colleges and universities working to maintain instruction during the COVID-19 pandemic should understand those differences.

Students can use features such as voice recognition and interactive multimedia exercises through mobile services. The data suitable for various subjects and skills is collected and saved like videos, presentations, audio, online games, and used while the online classes are in progress.

4.2. Execution

The Execution part of online lectures and pedagogy to hold the students' interest and communicate the subject can be challenging as it forms the primary duty or responsibility of a lecturer. Calling out names for attendance as done in conventional classes is still the best way to ensure the accurate number and authenticity of the learners. Explanation with the help of teaching aids is a dire necessity for online teaching. The challenge before a lecturer is that he must adopt various technical methods like digital texts to ensure that learning takes place and yet all this while the students remain attentive in class. For example, the use of online learning-based games from seat time, favoring a structure that generates flexibility, allows students to progress as they demonstrate mastery of academic content, regardless of time, place, or pace of learning (Walberg, & Twyman, 2013).

4.3. Verification

Assessments form another critical aspect of online teaching and learning. Instructors can monitor the progress of the students through specialized software. They can assess the students and put up their results online. This saves a lot of paper and reduces wastage. Though it is a big task for the invigilators to invigilate a class of students while the exam is on as there are several risks involved in this method:

- Integrity
- Sizeable class strength
- Technical failure
- Untimely exam completion due to technical glitch or unfamiliarity.
- Low levels of digital literacy among teachers and students.

Table 2. Feedback on the digital literacy of the stakeholders

Question	Total	Completely	Partially	Scarcely
How technically sound are you relating to virtual classrooms?	15	4	11	Nil

With such lapses, maintaining quality can be formidable for educational institutions. But on the other hand, exam preparation is less time consuming for the teachers and more accurate. Also, the process of grading is more reliable as it involves automation. The satisfactory level of the students on the results was higher than the conventional way of attaining them. This becomes clear by the low percentage of exam review forms received from the students. In the 1990s, the first set of studies found little difference in academic achievement between people who took face-to-face, online, and hybrid courses. But this research was marred by the problem of self-selection: Students who chose online courses were probably more comfortable in that format and tended to perform better in it. (Zimmerman, 2020)

5. Highlights

However, the learners and teachers had their inhibitions before the commencement of online lectures, but by adopting this method, we made sure that learning can never stop at any cost. Overall, results from Means, Toyama, Murphy, Bakia, and Jones (2010) indicate no significant differences in effectiveness between distance education and face-to-face education. Distance education, when it is the only option available, can successfully replace face-to-face instruction. It has shown many positive aspects of sharing knowledge, as acknowledged by the stakeholders. Its felicities are innumerable:

- E-learning has proved to be a dominant risk mitigation instrument in an emergency.
- The study materials and exams are easy to review and edit.
- E-learning and teaching have proved to be more economical than the traditional way.
- It is highly systematic and organised as it involves automation.
- Teaching and learning are not confined to one place.
- It can be executed and availed 24/7.
- E-learning is technologically trendier and more useful during emergencies like COVID-19.
- Assessments are less strenuous.
- The re-evaluation of the exam papers is effortless.
- It is incredibly reliable and convenient for data referencing.

6.   Lowlights

While Online Teaching has witnessed many accolades, it has many shortcomings as well. Several potential limitations are also found in online learning by the students, the instructors, and the tenured faculty, namely the need for start-up funding, adequate time, organizational preparedness, student readiness, different stages of team development, crisis management, faculty learning curve, members with limited language skills, technical support, team effort, synchronous- or asynchronous-classroom contexts, costs, accessibility to course materials, delayed feedback, and evaluation and assessment (Bar-tolic-Zlomislic & Bates, 1999). Some lapses that have been observed by the stakeholders during COVID-19 need to be examined to make this method of learning more unabated in the future. Some of its impediments experienced by the stakeholders during this pandemic are:

- It can be challenging for technically challenged stakeholders.
- There is a possibility of data loss due to its complete dependence on technology.
- Passive approach of the learners.

- There are limitations on the type of questions that can be set for assessments.
- The stakeholders may face difficulties due to technical snags and sluggish internet.
- It has proved pricey for the unprivileged.
- The debate on integrity during an assessment remains unresolved.

7. Alleviation

Some of these problems witnessed during online teaching and learning in this pandemic could be handled promptly and efficiently. Mitigating the risk factors will ensure quality in education. Following are a few possible recommendations:

- To provide thorough and continual technical training to the staff and students.
- To have a backup plan and an alternative ready in case of technical failure.
- To come up with suitable course content for online lectures to hold students' interest.
- To form policies and norms for online teaching and learning and linked matters.
- To generate a credible solution for maintaining integrity during exams.

Table 3. Feedback of the stakeholders on online teaching and learning during COVID -19

Question	Total	Supportive	Not Supportive
How supportive are you towards e-learning during COVID-19?	10	8	2

8. Conclusion

Through this research, we have gathered that online teaching and learning has become an inevitable part of education during an emergency in the digital world. Virtual mobility has enhanced the mode of teaching and has made the task of sharing knowledge more credible. It has also encouraged the teachers and the students to update and prepare themselves for the digital society.

Top pedagogical experts endorse the idea of blended learning and virtual learning classroom management system. By embracing this change, we have learned that e-learning is organised, well-structured, and dependable. It is preparing us for an era of technology where blended learning will soon replace the conventional method. Online language classes have opened doors that allow all the students to have access to it. It has helped a lot of students to understand the language in a better way and has aided the teachers to complete the syllabus on time. So, the evolution of classrooms and teaching methods are moving in the direction of technology. New technology-integrated classroom systems have become a part of language learners in the present times.

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