Online learning during the COVID-19 pandemic, lessons learned and what's next?

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Abstract

Online learning during the pandemic of COVID-19 is an entirely new experience for many academicians, teachers, and students. The shift is not by choice rather it is forced; however, it is the only way to continue the learning process in all learning institutes particularly universities. There is a need to consider different aspects of this online learning in light of the health crisis, social distancing norm, the financial crisis which likely to emerge, and influence the satisfaction and learning outcomes during this whole transition. The paper highlights the problems students may face during this transition including the financial implications that educational institutes and parents may have to face. The practices to make online learning equally fruitful as traditional classrooms which will lead to student satisfaction are proposed. The paper also discusses the lessons which have learned so far and the changes which stakeholders of learning process are going to anticipate during and post-pandemic.

Keywords: Online learning; COVID-19; pandemic; student satisfaction; coronavirus; e-learning.

List of abbreviations

LMS: Learning Management System

UK: United Kingdom

UCU: University and College Union

US: United States

Introduction

The pandemic of COVID-19 has influenced the conventional learning method of academic institutions across the world and pushed universities towards the online or e-learning method (Adnan & Anwar, 2020). However, the effectiveness and quality of e-learning during the current crisis is a point exploration and assessment (Saxena et al., 2021). To make e-

learning effective during this pandemic, the focus has to shift not only on the use of technology more efficiently, but also to make this system of learning affordable and accessible to the marginalized population through minimum procurement and maintenance costs (Dhawan, 2020). Several studies proposed various approaches to make this method of learning more productive. Each methodology should lead to the fruition of objectives for which we shifted to online learning. These approaches include faculty training for online education, developing lesson plan with minimum cognitive load, increasing or maintaining the same interaction among students and instructor-student and general activities in online classes (Mukhtar et al., 2020). Adedoyin and Soykan (2020) stated shifting of online learning in universities where professional courses are offered is questionable because the whole process of shift which some call forced-shift (Zaman et al, 2021), lack proper planning, designing and development of courses and pedagogy which fits the online set-up. Hodges et al. (2020) distinguished between planned and forced-shift online learning. The study stated that planned online learning was operating before the pandemic for the short courses and even regular degree programs but as a response to the crisis this online learning during this pandemic is of substitute in nature and referred it as “emergency remote teaching”. Zhu and Liu (2020) suggested that integrating online learning into university curricula for the long term and permanently entail further attention to quality. In some countries like Pakistan, the curriculum was out-of-date for effective student learning even before the pandemic and is now much less effective during a pandemic and need a serious overhauling of the curriculum (Gul & Khilji, 2021).

To mitigate the risk of the spread of COVID-19 infection, offline classes were suspended, however, the learning continued online to test the irreplaceability of the traditional classrooms in most of the universities (Zhang et al., 2020). To protect students from this infection and the threat of students can be the source spread, almost all universities were closed worldwide (Abdulamir & Hafidh, 2020). Social distancing norm is an exceptionally proven strategy to mitigate the spread in the early stage of spread when vaccination is not available (Hollingsworth et al., 2011). Even when it is available, unless the majority of the population is not vaccinated with required (two mostly) doses, the opening of the universities may not be a good option. The social distancing measure is a proven method to mitigate the risk of a virus (Uscher-Pines et al., 2018). The benefits of social distancing are documented, however; many researchers shift the attention towards the dark side of lockdown. The prolonged closure of schools and quarantine may affect children’s mental and physical health and long-lasting psychological impact (Brazendale et al., 2017; Brooks et al., 2020; Baber, 2022; Kumar et al., 2021).

Aram (2020) stated that students socialize with their groups on campus and may not maintain social distancing on campus. So even when vaccination drives are in full swing, educational institutions must learn from their successes and failures last two years to guarantee that there is not just a reoccurrence to the status quo. Institutions that re-open for in-person learning post the pandemic should take suitable precautions for student and educator health, including mask-wearing, social distancing, and monitoring the local level of COVID-19 transmission. In regions where it is still unsafe to reopen, institutions and the administration of the area must decide between returning to normal classrooms wisely (Ferren, 2021).

This “forced” or “emergency remote learning” was not easy for students, educationists and university administrators to accept and accommodate (Zaman et al. 2021). Huang et al. (2020) pointed out some of the challenges which were faced due to this transition to online learning with the advancement of the pandemic. The challenges were (a) poor internet

connection (b) accessibility to online resources (c) unskilled and inexperienced instructors to teach online (d) learners adaption to new learning methods and pedagogy (e) applying traditional methods of teaching in an online setup. Daniel (2020) suggested that instructors have to keep two things in mind while developing the curriculum for online courses. First, the curriculum should be student-oriented, and second, assessments/examinations should be designed keeping in view the present COVID-19 crisis in a wider global and historical context. Sintema (2020) also pointed out the problem of limited technological infrastructure in some countries that may hinder the comprehensive implementation of online learning. Bao (2020) stated some strategies for online instruction during the pandemic which are- dividing the teaching content into smaller elements- emphasis on voice as facial expressions and body language losses its importance in online, online support from teaching assistants, and active learning. Shenoy et al. (2020) stressed adapting to the change, which faculty, students, and instructors may resist in the beginning but must accept for the greater good. Hodges et al. (2020) stated that there is and also create a stigma in the minds of learners about online education as low-quality learning when they compare it with traditional learning, however, the research proves otherwise. The transition of learning from offline to online has been successful in the private universities of Georgia however, the quality of online learning amid the pandemic has to be studied (Basilaia & Kvavadze, 2020). Quality of online learning is assessed on many factors which include cognitive theory of multimedia learning (individuals learn more intensely from pictures and words), social cognitive theory (interactions of a learner with the outside environment and personal cognition beliefs and performance expectations of a learner), and information systems continuance model (information system viability depends on its continued use and its continuance intention) (Saxena et al., 2021). Quality of the e-learning also depends on the extend of digital literacy among the students and instructors (Baber et al., 2022). Digital literacy and online learning has been hot topic during the pandemic of COVID-19 of research (Tinmaz et al., 2022), which signifies the role of this lietararcy in the learning process.

Crawford et al. (2020) suggested that universities must go completely online to help society abate the damage while ensuring that the quality of learning is not compromised. Toquero (2020) sees this transition as an opportunity for universities and educational institutes to upgrade their learning mode of delivery and shift their attention to emerging technologies. Müller & Mildenberger (2021) suggested while measuring the learning outcomes and implementation of blended learning, shows that despite reduced classroom time between 30 and 79 per cent, such blended learning environments does not result poorer learning outcomes but are equivalent to conventional classroom instruction.

The current study is aimed to analyze the gap between the planned online learning and emergency shift to e-learning. The study will propose the practices that need to adapt to narrow down this gap which was prominent in the preparation and implementation of the forced shift to e-learning. The study will also highlight the economic issues related to this technology-oriented learning which unfortunately is not accessible to everyone in the world. The study also proposes the best practices that need to adapt to make it more suitable for the students who were not psychologically ready for such a mode of learning. The paper also suggests the things for which universities have to adjust and adapt to make this learning effective option as a replacement for conventional learning. The study will also propose the practices that must be adopted by the universities to return to the normal classroom without any further damage.

Filling the Gap

This pandemic has disrupted the working and learning culture across the globe. People are pushed to unprecedented work from home or remote places. While maintaining social distance, classroom teaching seems to be an uncommon thing in the future. However, the education sector must keep moving to impart knowledge without wasting the time and money of learners as well as institutions. Online education is the only alternative, owing acknowledgements to recent advances in development in technology and the internet. The big question here is whether online education is at par a substitute for traditional classrooms or we are just concerned about the continuation of learning rather than effectiveness.

The first thing we have to acknowledge is this shift to online education is by force, not by choice. The option was to lose an academic semester or go online; we opted for the latter as the best alternative available. The forceful shift makes this online education different from already existing online or remote learning. Before the pandemic, remote or online learning offered by the reputed institutions were providing courses for learners who were unable to join the traditional classroom. They used to join these classes or courses by choice as they did not have access to the traditional classroom or did not have enough time to engage in offline learning. These learners already managed to get adequate resources like a laptop, smartphone, internet, etc. to engage in online learning. Moreover, they are mentally ready for this system of learning. In the current situation, many learners will not be able to participate in classes as they do not have enough resources. Even those who can afford to buy the electronic gadgets were unable to purchase them amid lockdown. We always vouched for the right to education, but everyone does not have the same access to resources to get it. According to the last survey, only 7.7% of households in Africa had a computer in 2019 [1] and 43% of people were using the internet as of March 2021 from their mobile phone or computer which is less than the average of 65.6% in the world[2].

Education and consultation are regarded as services and has 7P's (product, price, promotion, place, people, process, and physical evidence) of the marketing mix and among these p's, one important P is 'person'. Manufacturing goods does not need human emotions, but services cannot achieve that level of quality without emotional touch. In the Education sector, all 7 P's hold their importance equally including people who are instructors, administrators and assistants to deliver the education service effectively. There is a big challenge of restoring the dynamics of face-to-face instruction in online education. The presence of instructors, classroom set-up, and presence of peers around do give it a human and cognitive touch than mere audio and video stimulus. These two stimuli cannot alone achieve the purpose of learning. The feel of the classroom, presence of instructor and peers, the voice of the instructor echoing through the walls of the classroom, the lighting, seating and digital screen arrangement bring the real feel of learning.

Student characteristics e.g. motivation, mind-set and collaborative capacity plays an important role in the acceptance of online learning in the COVID-19 (Baber, 2021). Agreeableness and conscientious are the two most dominant traits of students that has positive influence on online academic self-efficacy beliefs (River, 2021). Extraverted students are at a natural advantage due to being inherently social and outgoing in online learning, however students with such traits sometimes are likely to place social needs above academic ones (River, 2021). Aspects of student characteristics, internal motivation, teacher/lecturer characteristics, infrastructure, system quality, course quality and information, and an online learning environment guarantee existing learning success during COVID-19 pandemic (Yudiawan et al., 2021).

Infrastructure from both sides of learning is an important factor to be considered during this transition. Developed countries like South Korea have advanced internet infrastructure which facilitates smooth learning. A student can go to any coffee shop or restaurant and connect with high-speed internet. This kind of facility is not available in developing countries like India, Bangladesh, Nigeria, and many more. As per the inclusive internet index report of 2021[3] which gives a score to the 120 countries based on availability, affordability, relevance and readiness revealed that Sweden tops the list followed by the United States and Spain while the most populated country of World China is at 39th position and second populated India is at 49th Spot.

Internet Shutdown by the countries citing the political reasons to curb dissent and freedom of expression is the new norm. According to the report published by the Infographic, India (134 times shutdown in 2018) tops the list followed by the neighboring country Pakistan (12 times), however, the gap is huge [4]. In 2021, the number of affected users and economic cost of internet shutdowns in some countries was colossal e.g. Internet shut down of 4894 hours in Myanmar mostly during the military coup cost them 2,400 million USD and in India 1032 hours of shutdown cost them 368.1 million USD[5]. Apart from the above-mentioned issues related to online learning, many challenges do not get attention. For example, frequent power cuts and electricity shortages in many countries like South Sudan, Tanzania, and Pakistan. Students with disabilities will find it difficult to learn online. They will be left behind and it will be a challenge for them to keep pace with their fellow mates. Even the study of Roberts et al. (2011) made it clear that students with disabilities perceive their disability to have a negative impact on effective online learning.

Who Will Pay the Price?

Universities have to brace up to provide at least at par education, if not better than traditional classrooms for which students have already paid. Providing high-speed internet, laptops, microphones, and cameras to the instructors and professors put an extra budget cost on the wallet of the university administration. Training and development of instructors to use online platforms like Zoom have also been a challenge that most universities overcome smoothly and rapidly. Credit should be given to the professors and instructors who adjusted to the new environment particularly to the aged group who are not so savvy with technology. Fitting the already existing system of learning with online platforms has been a headache for the instructors and may remain for some time. Instructors have to adjust and adopt new methods for attendance checks and examinations to maintain the fairness and integrity of the profession and system.

In the UK, only 20 Universities were prepared for online education as per the report published in 'The Guardian'[5]. A forecast report from the University and College Union (UCU) on 23 April 2020 [6] suggested that the sector may go into losses of around £2.5bn next year in tuition fees alone and also may result in the loss of 30,000 university jobs and 32,000 in other sectors. Job losses in other sectors may have a cyclic effect on the enrollment of new students next year. Already existing online programs may see a surge in enrollment as people will shift towards economical options among the equal substitutes available. Universities that offer programs at a reasonable cost[7], such as Tennessee State University and California Coast University may see growth. In the US, the cost of education has almost tripled from 1978

till 2019. The cost of education in the 1978 school year was $17,680 in private and $8,250 in a public institution which is now $48,510 and $21,370, respectively. The students carry a huge burden of debt which may result in dropout or seeking tuition fee reduction for an online course. Almost 41 states in the US including Texas, Washington, and Massachusetts, spend less per student in 2019 as these were in 2008 by an average of 13%. Increasing funding for higher education may help to release students from the burden of debt that they have taken for their education. As the interaction between the student and educator plays a vital role in the students' success, a better investment should be allotted to online resources to compensate for the absence of libraries and the availability of instructors (Alawamleh, 2020).

Best Practices

It is high time to understand the best practices in online learning for university students to achieve quality learning. Saxena et al. (2021) suggested that the quality of e-learning in universities directly affect student satisfaction during the pandemic. So it becomes of utmost importance to understand, plan, adapt and apply the practices which will satisfy the students in this mode of learning. Hussein et al (2020) based on the student feedback suggested some best practices. This includes creating channels for student-instructor and student-student interaction; developing students' self-directed learning and time management skills by nurturing values of commitment, adaptation, integrity and self-reliance; avoiding giving heavy workload; Focusing on students' wellbeing and addressing their social, emotional, and psychological concerns. Based on the existing literature and studies on online learning in universities during the COVID-19 pandemic, some best practices are proposed in table 1. These practices will help the instructors to provide the learning to satisfy the students effectively and efficiently.

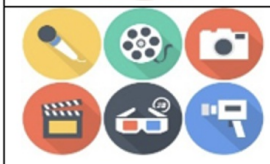
	Websites should be easy to navigate. A learning management system (LMS) should be designed to help students access the learning material easily.
	Online learning misses the physical presence so online social interaction may fill that gap. Instructors should allow students to have social interactions so that they do not feel far from the classrooms. The instructor should also indulge in some constructive discussions on social, health and cognitive issues to make online learning more productive.
	Timely feedback to students will help them to cope up with the changing nature of learning and education. They should get regular feedback about their classroom engagement and participation, which will help them to improve their contribution towards the online discussion.
	The good thing about online learning is that an instructor has various tools and techniques to make students understand even a complex process or concept. The use of pictures, videos, virtual simulations, PowerPoint presentations, and quick surveys will help to aid the teaching pedagogy.
	An instructor should embrace learning activities that simulate real-world situations like an ongoing pandemic, stock market crash, negative prices of petrol, reducing air pollutions, and environmental sustainability.
	The content of learning should be in line with the learner's zone of proximal development. The content should not be so easy that it will make online learning more uninteresting or it shouldn't be so difficult that students will lose motivation to study online.
	The students should be given some good activities which they can do domestically if they are in lockdown or outdoor activities if allowed to go out. This will help students kill their time in lockdown or under social distancing regulations while learning and doing new things.
	Keep the content as relevant as possible. Content should be easy to understand, relatable, and stimulate more curiosity to learn about the subject.

Table 1. Best practices

What have we learned so far and what's Next?

South Korea is moving back to traditional classes in schools from 13 May 2020 after controlling the spread of infection exceptionally well because of the efficient tracking and testing system, but it will take some time for other countries to get back. According to the latest data from the COVID-19 Global Education Recovery Tracker[8], shows that most countries have already opened schools partially (rural areas or parts of the country). The mode is mostly with hybrid (combining remote and in-person) or mixed approaches. In many countries, the return is slow amid debates about the costs and benefits of returning to traditional education. However, as of late August 2021, very few countries depend solely on remote education. On the other hand, in Africa, a majority of countries have returned to in-person classes, which was quite unexpected. According to the same report, high-income countries are prioritizing or have prioritized teacher vaccination campaigns (with some moving towards universal access), the context varies more among low- and middle-income

countries as many factors, such as vaccine scarcity and other populations being prioritized, reduce access to COVID-19 immunizations for teachers. As of 1 September 2021, only 53% of countries had prioritized teachers' vaccination. Some of the recent findings related to online learning which can be thoughtful for the countries and universities are stated below:

- In Ghana, the estimated average learning loss amounts to 66% of previous learning gains in foundational numeracy (Sabates et al., 2021).
- In a study in Brazil (Sao Paolo), data were collected at the start and the end of 2020, revealing that students learned 27.5% of what they would have learned if in-person classes would have continued (Lichand et al., 2021).
- Emerging indications from Ethiopia suggested that learners only learned between 30% to 40% as much in math as during a normal year and that the learning gap between urban and rural students has amplified (Kim et al., 2021).
- A randomized control trial in Botswana focused on using low-tech envelopments to minimize learning loss during the pandemic shows that using mobile text messages and phone calls to encourage parents to support their child's learning while out of school can be effective. A collective approach of texts and calls cost-effectively enhanced learning by 0.12 standard deviations (Angristet al 2020).
- In Canada (Ontario), learning losses are projected to represent 3.5 and 6.5 months among typically performing and lower-performing learners (Aurini et al., 2021).
- A study in China that uses administrative data shows that delivery of online learning during school closures improved student results by 0.22 standard deviations, compared to students without learning support from their school (Clark et al., 2021).
- Research in Australia (Victoria) suggested deterioration of speech development due to lockdowns. UNICEF Australia surveyed 1,000 parents nationally and found that mental health is the biggest reason parents backed reopening schools, followed by learning loss. About 27% of parents believed they were worried their child would not be able to catch up (Prytz, 2021).
- At the global level, COVID-19 distractions are assessed to impact early childhood students in 19.01 billion person-days of instruction lost, 10.75 million additional children falling "off track" in their early development and a present discounted value of US$308.02 billion of earnings lost in adulthood (McCoy et al., 2021).

Universities may have to compromise with less profit margin and increase in dropout rate because of the following reasons

- Some parents will lose their job or save because of the economic recession which may lead to budget cuts for kids' education.
- Students and their parents may seek some percentage of fee refund for the semester as they feel that online education cost less to University which is not the case.
- Student enrollment in the fall semester will be challenging for universities and colleges if the same situation persists. Students may not enrol or may ask for a fee reduction for the fall semester as they miss the experience of campus which is important for learning and development. Students may prefer to take a break from the semester rather than paying the same fee that was supposed to be paid for traditional classroom setup for online learning. They do not have

this choice in the spring semester because most of them had already paid fees.

- Students may seek to transfer to countries where classroom education has already started. Universities in hard-hit countries like the US & Spain may see fewer transfer or exchange students.
- University's tuition fees often include charges of the library, sports facilities, computer laboratories, and other facilities. The question is that can Universities charge for these facilities from those students who opt for remote learning. Even Universities may have to buy secure and safe software for learning and digital library access.
- Universities have to find a way to overcome the monotonous and boring one-way lecture delivery task of their professors and instructors and indulge them in some kind of recreational activities.

Hybrid or blended learning is a good option during the crisis like pandemic which offers an opportunity to deliver learning to students by combining face-to-face medium of instruction with online learning opportunities and many universities and institutions have adopted hybrid or blended medium of instruction (Singh et al., 2021). As the COVID-19 is fading out this type of instruction can involve both in-person meetings on campus and flexible schedule online learning. Hybrid method can leverage on the strengths of e-learning and on campus meetings, and overcome intrinsic limitations of both (Müller et al., 2021).

Conclusion

To make online education effective and maintain the quality of learning, there is a need to revisit the course content and make that more compatible with online interaction. The same syllabi and content will not fit in this environment of learning. From my experience of online learning, when universities will open again, it will bring new energy to both students and instructors. They will make a new start with new objectives of learning and life. People will thank their luck to be back in the classroom and unlikely they want to go back online until forced again. Even they will look back and ask themselves why they didn’t like classroom learning in the first place. All the stakeholders of education-parents, instructors, and learners, will soon realize that the classroom is not just four walls. There is some kind of magic about that in-person learning, interaction, and bond which a teacher and a learner share with each other. No matter how good and fast Artificial intelligence replaces humans, the role of a teacher is irreplaceable.

Statements and Declarations

Competing Interests

There is no conflict interest between any party or parties.

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Endnotes

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