

Long-Term Sustainability of Online Teaching and Learning in a Post-Covid Scenario: An Empirical Study

1. Dr Archana Aher

Asst. Professor

MIT Arts Commerce and Science college

Alandi, Pune

2. Dr.D.Kathiravan

Assistant Professor of Economics

St. John's College

Tirunelveli - 627002

Tamilnadu

3. Dr. Jaiminkumar K. Patel

Assistant Professor

Faculty of Commerce, GLS University

4. Dr Baig Muntajeeb Ali

Associate Professor

College of Teacher Education

Maulana Azad National Urdu University, Hyderabad, India.

ORCID: <http://orcid.org/0000-0001-5200-3308>

Abstract

Schools worldwide were abruptly shuttered while classes were in session during the COVID - 19 epidemic in the spring of 2020. Such circumstances do not justify halting ongoing learning in the digital age and information technology. The technological age has been demonstrated to impact people's routines, attitudes, and behaviors when using new technologies. This conceptual paper is based on the "new normal" after COVID-19, which emphasizes change, adaptability, rethinking, reorienting, and sustainability. A sustainable society has to have access to efficient procedures, flexible and adaptable leadership, digital platforms, partnerships, and the ability to respond quickly to change. Additionally, it asks for supporting

our kids and promoting flexibility in learning. Due to the peculiar circumstances surrounding the COVID-19 epidemic, the educational system in Romania has undergone substantial changes that call for teacher and student to quickly adopt to the new social context and the web-based learning environment. The research examines how well the e-learning system will function during and after a pandemic. A sample of 181 respondents was collected from respondents through a "standard questionnaire," which was created on a five-point interval scale

Keywords

Future of education, Higher education, online learning

Introduction

The relevance and role of sustainability in higher education have increased recently, and institutions have created individualized medium- and long-term strategic plans that align with their SDG response. In an ever-more complicated world, these strategies highlight the importance of developing an organization that is sustainable on all fronts: economically, socially, and ecologically. The importance of higher education in producing future leaders with the knowledge and abilities to establish and maintain successful career paths is being acknowledged more and more. The COVID-19 epidemic, however, has forced a halt in using some tactics.

Ossian, (2021). found that The fast global spread of the novel coronavirus (COVID-19) has posed unheard-of difficulties for employment stability, safety, and health. According to UNESCO data, 1.21 billion pupils, or 69.3% of them, could not attend schools and universities in May 2020; as a result, the closure of academic institutions resulted in enormous social and economic consequences. According to UNESCO, the immediate effects of school closures are (I) interruption of the learning system. (ii) impaired nutrition results in many kids and teens relying on school discounts or free lunches for nutritious food and eating. (iii) Teachers usually feel uncertain about their responsibilities to discover the best approach to keep relationships with students to continue learning, which causes them stress and uncertainty. (iv) Parents who are unprepared for online or homeschooling: Parents frequently need to assist their children's at-home learning; (v) Significant financial expenditures are incurred by working parents who must stay at home to care for their children

during the closing time. Low-income families who really can afford to have a parent stay at home to ensure the children's needs are adequately met may also experience childcare gaps; (vi) growing drop-out percentages: this is a problem, mainly when there are extended school vacations and when external downturns force kids to work and provide cash for struggling families.

Crawford & Cifuentes-Faura, (2022). studied that Worldwide educational institutions abruptly shuttered their doors and facilities during the COVID-19 epidemic in the springtime of 2020, yet education and learning persisted. Teaching should continue starting on March 16, 2020, and it will be done online per UNESCO's recommendation. Such circumstances are not a justification for stopping constant learning in the age of digitalization and information technology. UNESCO predicted that with the reopening of academic institutions worldwide, 1.3 billion students will still be impacted by school and university closures by April 29, 2020. 90% of students globally are currently enrolled in distance learning programs. On April 9, 2020, UNESCO announced the comprehensive #LearningNeverStops project and created an online platform with materials for anybody active in contact, socializing communication, and social and ethical concerns. It would appear that "business as usual" is the case. However, during the brief lockdown, both working and studying altered. Digital competency has significantly risen among both people and enterprises. The COVID-19 epidemic drove the educational sector—which had trailed behind—to digitalize its operations and transition to distant and online learning. It is now impossible to return to what was formerly seen as usual. It has become clear that the digital revolution is about individuals and their usage patterns, attitudes, and behaviors. In addition, the fourth industrial revolution, which alters how we work, live, act, communicate, and even study and learn, calls for new pedagogy and a shift to syllabus 4.0. Every institution now focuses strategically on online learning, and creative partnerships will become more commonplace (Vrgović et al., 2022). Figure 1 shows the various aspects of online education sustainability:

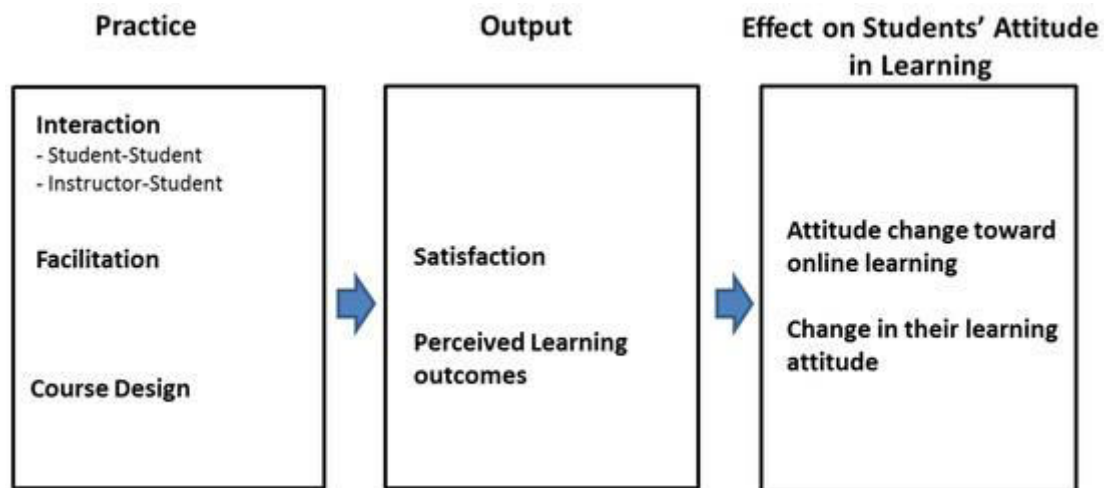


Figure 1 Practice-output and effect on Students' Attitude in Learning

Source: Chu et al. (2021)

Literature Review

Wang et al. (2021). found that The COVID-19 epidemic has had an extraordinary and extensive impact on higher education. While classes were shuttered and lockdowns were implemented in the spring of 2020, colleges, teachers, and students must adjust and keep working toward their academic objectives. Global educational systems quickly adopted "emergency remote teaching" (ERT), in which the school and its users engaged remotely during the crisis. Then, with more time to prepare for an academic session which would be completed remotely, there was a more organized one in the autumn of 2020. Since the change is no longer "temporary," both network operators (associated with strength) and users (students) need to provide considerable support for distant learning for a more extended period rather than just a short-term repair. As a result, we note that the ERT's established guiding principles will no longer be relevant in the fall term of 2020. As a result, we propose the term "protracted emergency distant teaching" (PERT) in this study to emphasize the length of this situation, the fact that its end is uncertain, and the need to assess the practicality of using human resources under these circumstances (Maity et al., 2021).

(Patil & Patil, 2022). studied that The Sustainable Development Goals (SGDs), which the United Nations adopted in 2015, are affected by the COVID-19 pandemic. Out of these objectives, the fourth SGD, "Quality Education," has been developed to address the standard of education at the global level. The notion that every learner must acquire the knowledge

and skills necessary to assist global sustainable development for the sake of the whole worldwide people, present and future generations and the environment is promoted by this specific goal. The implementation of COVID-19, however, has affected the worldwide education sector, mainly due to the closing of educational institutions. Even a year after the virus's widespread distribution, the COVID-19 pandemic still poses a severe threat to all of humanity and, tragically, still holds the whole world firmly under its grasp. The spreading of this virus has utterly changed every element of life throughout the whole planet as we know it. Throughout these circumstances, reducing the fast spreading of COVID-19 in society is every nation's top priority. Schools, colleges, and other higher education institutions had to close abruptly throughout the world due to the deadly COVID-19 spread to stop a widespread infection—policymakers swiftly adjusted to the new norm as a result, notably in the area of global education. In order to maintain the present teaching and learning process, the majority of academic institutions around the world have also converted to the E-learning system (Bhatt& Rayees., 2022).

Suresh et. al. (2020). found that online learning refers to idea of teaching or educating pupils through the use of the internet, satellites, interactive TV, or intranets. E-learning is a strategy that uses current technology and readily available e-tools for efficient two-way communication to disseminate information to all significant worldwide players in the educational sector. It has been determined that e-learning is essential for successfully sustaining all levels of education during the COVID-19 pandemic. E-learning requires a substantial investment of time and effort to provide an environment that assists learners in unexpected and organized ways. In this respect, it should be emphasized that the rapid shift from classroom training to online learning during the worldwide COVID-19 pandemic has led to various difficulties and issues (Jena. 2020).

Bansal. Et al. 2022). found that With a rise in the number of confirmed corona cases, India has faced severe economic difficulties and is currently ranked in a worrying position globally. The World Bank has written a warning that the nation "risks squandering its hard-won achievements against poverty" in India Development Update (IDU). It also claims that many households "are likely to relapse into poverty as a result of income and employment losses brought on by COVID-19." Although the government has started to gradually open up economic activity during this crisis, it intends to not abandon the daily wage workers to

famine and exploitation. However, the administration still lacks the confidence to restart traditional classroom talks in any type of educational facility. There is no opportunity for direct connection between the professors and pupils outside of virtual interactions because they are both restricted to their homes. Unfortunately, not all student communities have access to internet accessibility, leading to digital deprivation or the digital gap.

Patil. Et al, (2021). found that The safety of both students and teachers was prioritised in order to address the abrupt distance barriers in education, and the majority of institutions were urged to employ interactive E-learning systems. Additionally, it broadened purview of education and took it outside walls of traditional classroom. "It is possible to access social networks for e-learning, such as Virtual Lab, DIKSHA, e-Adhyayan, e-Pathshala, SWAYAM, Sodhganga, and Vidwan, as well as the National Educational Alliance for Technology (NEAT) and the National Digital Library of India". By bridging a sizable demand gap in the country's educational environment and assuring continuity in students' learning throughout the epidemic, the networks have emerged as one of the most successful methods of ensuring student learning. E-learning will soon change the academic environment by removing several educational obstacles. All academic judgements and recommendations from the University Grant Commission (UGC) and the Government of India on, among other things, new assessment patterns (Mathivanan et al., 2021).

Dhawan, (2020). examined that A pandemic known as COVID-19 completely destroyed the global economy. Every industry has halted operations. The psychological well-being of instructors and pupils is also at risk, in addition to the financial and social aspects of society. Here, our technology sector emerges by the education sector's side. We are conscious that technology has been employed in education, but only sometimes or extensively. Even educators were hesitant to use them to instruct pupils remotely. In order to prevent learning from being disturbed by COVID-19, the education sector accelerated the digital classroom process for a few days. This put to the test how well-prepared the education industry is to handle a crisis that calls for the use of hardware and software from the digital world to support efficient online learning.

Patil, (2021). found that UGC has directed HEIs to use digital learning as a platform for engaging students as a response to the closure of institutes due to lockdown. However, there is a significant problem with internet access in many areas of India, particularly rural areas.

In order to take advantage of online learning, relatively few students and even educators have access to the internet. Only 50% of Indians have access to internet services. Internet service is not available in many rural areas of India. Even if it is available in certain places, the quality is terrible. Some rural residents cannot afford the expense of the internet, mobile phones, or computers since they do not even make enough money to feed their families. The effectiveness of online learning may be hampered by the lack of infrastructure and the high cost of hardware equipment. On the other hand, some teachers are unprepared to instruct online because they continue to adhere to the traditional classroom teaching approach and have never created study materials that can be shared online. In this situation, the e-learning paradigm may not succeed and a significant number of students won't be able to finish their conventional studies.

(Nambiar, 2020). studied that E-learning is "understanding" learning that makes use of technology to organise, disseminate, choose, manage, support, and widen the learning process. Due to the lockdown, all educational institutions throughout the nation have been shuttered, and students' ability to study has also been impacted. When faced with health emergencies, students' mental wellness is profoundly affected, and they require the concern, assistance, and support of the public at large, families, and educational institutions. Universities may employ online study portals to serve as a support system for students struggling with mental health issues.

The education industry has suffered during the Corona crisis, but there is still hope because to digital learning, which allows students to continue their studies. Education-related activities including courses, examinations, admission exams, etc. were hindered. The notion of education has been driven by the experience of people performing experiments in labs. Rural students and instructors need help with issues including inadequate power supplies, internet access, and technological proficiency. As a result, the possibility of online learning still needs to be improved. Every parent cannot be expected to assume responsibility for their children's education. Some parents from disadvantaged circumstances might not take their kids to school since they can't pay the tuition because of unemployment. This might result in a widening of the urban/rural and rich/poor gaps. Students who have easy access to technology tend to get hooked, which has a negative impact on their health. Due to the separation of pupils from the playground caused by school closures, their physical development was

impacted. In order to handle the COVID-19 dilemma, educational institutions must develop their expertise, technology, and infrastructure.

Objectives

1. To identify long term sustainability of online teaching and learning post pandemic period.
2. To ascertain how online teaching and learning can be proved beneficial after covid.

Methodology

Nature of study is empirical. 181 participants were included in study. Questionnaire was structured in nature to collect data. To ascertain result of Mean and t-test applied. Method of sampling was convenience sampling.

Demographic Result

Table 1 displays gender of participants, male are 56.35%, and female are 43.65%. Age of participants is, 16 to 18 years are 35.91%, 18 to 22 years are 25.97%, and more than 22 years are 38.12%. Regarding Educational level, Below Intermediate is 20.44%, Intermediate / Graduation is 23.76%, Post-Graduation is 29.83%, and others is 25.97%. Looking at Regions, urban region is 45.85% and rural region is 54.15%.

Table1. Demographic Details of participants

Variable	No. of participants	%
Gender		
Males	102	56.35%
Females	79	43.65%
Total	181	100 %
Age		
16 - 18 years	65	35.91%
18 - 22 years	47	25.97%

More than 22 years	69	38.12%
Total	181	100 %
Educational Level		
Below Intermediate	37	20.44%
Intermediate / Graduation	43	23.76%
Post-Graduation	54	29.83%
Others	47	25.97%
Total	181	100 %
Regions		
Urban regions	83	45.85%
Rural regions	98	54.15%
Total	181	100 %

Table2. Sustainability and benefits of Online teaching and learning

Sr. No.	Statement of Survey	Mean Values	T-Values	Significance.
1.	Online teaching and learning is sustainable even after covid because its has not time and place boundaries	4.29	17.660	0.000
2.	Online system of education is suatainable as it does not require physical presence of teacher and student	4.23	16.946	0.000
3.	Online learning and teaching provide wide range of study material accessible to everyone	4.27	17.775	0.000
4.	The system is sustainable as it provides free and open source of technology to teacher and student	4.10	15.085	0.000
5.	E teaching and learning provide wide access to	4.12	15.612	0.000

	information and knowledge			
6.	Introduction of online learning and teaching has provided people to work and study at the same time	3.13	1.782	0.038
7.	Installation of additional tools are not needed as once installed and documents uploaded, it can be used anytime	4.01	13.972	0.000
8.	Online education is very beneficial in higher education where user can study or teach without disturbing current life	3.22	3.057	0.001
9.	Online teching and learning gained popularity because of the flexibility it offers	4.17	16.062	0.000
10.	Online learning helps students to learn in their own rhythm and pace without any discomfort like in traditional methods	3.67	9.359	0.000

Table 2 shows mean values of the “Sustainability and benefits of Online teaching and learning” the first statements of T-test is about no time and place boundaries “Online teaching and learning is sustainable even after covid because its has not time and place boundaries” it has scored the mean score of 4.29, next statement says it does not need physical presence “Online system of education is suatainable as it does not require physical presence of teacher and student” mean score is 4.23. Another statement is regarding providing wide range os study material “Online learning and teaching provide wide range of study material accessible to everyone” mean value is 4.27, next statement is “The system is sustainable as it provides free and open source of technology to teachers and students” with the mean value of 4.10, fifth statement is about provide wide access to information “Online teaching and learning provide wide access to information and knowledge” it ha cored mean value of 4.12, next statement is “Introduction of online learning and teaching has provided people to work and study at the same time” mean value is 3.13. Seventh statement is “Installation of additional tools are not needed as once installed and documents uploaded, it can be used anytime” mean score is 4.01, next statement is “Online education is very beneficial in higher education where user can study or teach without disturbing current life” mean score is 3.22. Ninth statement talks about flexibility “Online teching and learning gained popularity because of the

flexibility it offers” mean score is 4.17. Last and tenth statement is “Online learning helps students to learn in their own rhythm and pace without any discomfort like in traditional methods” mean value is 3.67. T-value of survey statements with regards to Sustainability and benefits of Online-teaching and learning are significant as t-value of statement is positively significant as the value is less than 0.05.

Conclusion

We now have obligations in addition to obstacles as a result of the COVID-19 pandemic. It has demonstrated how much our communities and the international system make use of power disparities. There are demands for reaffirming commitments to multilateralism and international collaboration, as well as a rekindled global solidarity that is rooted in empathy and an understanding of our shared humanity. The concepts presented in the UNESCO Committee report on the Futures of Education urge governments, global institutions, civil society groups, educators, students, and all levels of stakeholders to join in discussion and take action. Interactions with others and general wellbeing must be prioritised in the reform of education. The biggest threat during turbulent times is not the turbulence itself, but rather acting on the basis of outdated reasoning. The worldwide epidemic forced us to evaluate and reevaluate the present digital platforms for lifetime learning and remote learning. The pentagon hypothesis of learning intelligence, which takes into account social, technological, cultural, political, and economical intelligence, has to be adopted. Building a learning ecosystem is necessary. Technologies, especially digital technology, is a potent tool since it allows for cross-distance contact, cooperation, and learning. Although it is not a miracle cure, it can lead to innovation and greater potential. It takes judicious use of digitalization, learning statistics, and artificial intelligence to comprehend and adapt this new paradigm. T-value of every statement in the context of Sustainability and benefits of Online teaching and learning is significant because t-value statements are found to be positive and significance value also less than 0.05.

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