International Journal of Arts, Humanities and Social Studies
Website: https://www.ijahss.in/
ISSN(*Online*): 2582-3647
Volume 3; Issue 6; Nov-Dec 2021; Page No. 156-161

Open Access | Original Paper

Role of Virtual Classrooms in Learning due to Forced Transition to Online Learning during Pandemic

Mamta Pal
Central University of South Bihar, Gaya (Bihar), India

ABSTRACT
In this 21st century, we made a lot of progress in all fields. But also this progress could not save us from the ill effects of pandemic COVID-19. All the sectors were badly hit including education leading to the closure of schools, colleges, and other institutions of learning. It was done to maintain social distancing to avoid the spread of the pandemic. So a complete shutdown was observed leading to disruption of education and hence hampering the teaching and learning of the students. In such tumultuous times online learning, e-learning was the only rescuing method of teaching as there was no physical interaction between the teacher and the taught. So the whole world including India opted for e-learning utilizing the benefits of any time, anywhere offered by the employment of such technology to keep the process of teaching and learning going. In the wake of the pandemic, many institutions opted for virtual classrooms in one form or the other via the internet. So this paper conceptualizes virtual classrooms, their need in such times, their synchronous and asynchronous modes of course delivery, their components which include whiteboards, audio and video, instant messaging and feedback mechanism as well as their advantages and disadvantages.

Keywords: *Virtual classrooms, Synchronous mode, Asynchronous mode, Whiteboards, Instant messaging.*

***Citation*:** Mamta Pal (2021). Role of Virtual Classrooms in Learning due to Forced Transition to Online Learning during Pandemic. *International Journal of Arts, Humanities and Social Studies*, 3(6), 156-161.

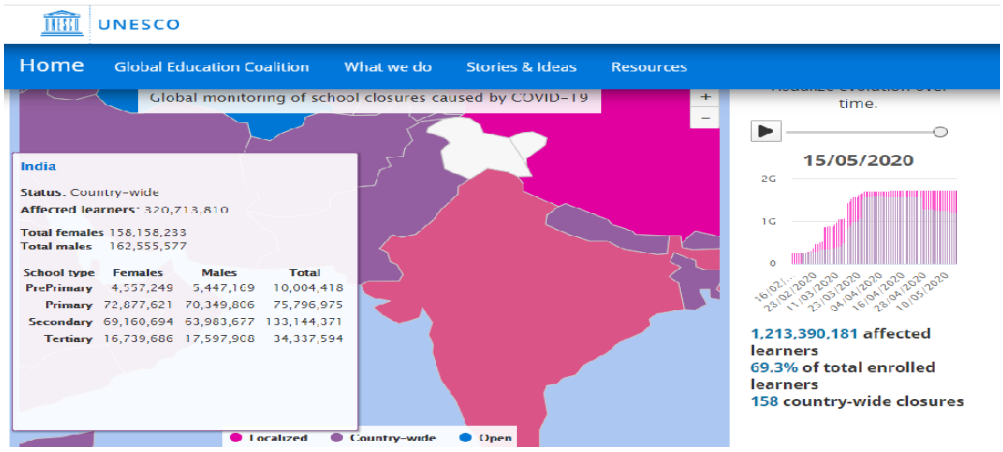
INTRODUCTION

The pandemic initially broke out in Wuhan city of China and in no time it took the whole world in its claws. So seeing the severity of infection and death toll, on 11 March 2020 World Health Organization declared it a pandemic [1]. This impacted every facet of life, be economic, social, and not to forget educational.

Talking of the global scenario, the schools, colleges, and universities closed down their premises to stop the infection [2] thus adversely affecting nearly 70 % of students worldwide [3]. According to UNESCO [3], thirty-nine countries either announced or enforced schools as well as university closures which included Asia, Europe, the Middle East, North America, and South America as of March 11, 2020. Adding to this, in twenty-two countries nationwide school closures had been already imposed that impacted 37.23 lakh children and youth. So, most of the countries resorted to online learning. During this period Ivy League Universities planned to conduct virtual classes. Stanford University announced to use of virtual classes rather than in-person classes. The reaction was no different from this in other countries.

The story of the Indian continent was no different. India followed localized lockdown. In these tumultuous times schools, colleges and universities followed closure as per the government's order to maintain social distance and to stop the spread of contagion. According to UNESCO [3], as of March 4, 2020, 27 out of 28 states and 5 out of 8 union territories announced school closures despite no national level announcement. The worst part was that no one knew when the normalcy would be restored hence a situation of uncertainty prevailed. To curtail the horrific situation, the institutions such as schools, colleges, and universities opted for online learning [2] like most of the countries of the world. In such times of distress, this was also urged by the students to opt for online modes of education so that academics were not hampered and the learning process could be continued [4]. So online modes of course delivery emerged as the savior in these unprecedented times. Many opted for MOOCs, some for YouTube channels. Others preferred to learn through computer applications (apps) such as Telegram, and Unacademy where top educators taught online and also prepared students for various exams such as UPSC, SSC, NTA-exams, CTET, and various state and railway exams [5]. Some students also attended classes via video conferencing apps such as Zoom [6] Sayem, A. S. M., Taylor, B., Mcclanachan, M., & Mumtahina, U. [7], and a new term was coined called zoom bombing. Many also attended live classes on YouTube and Facebook. All this owed to the internet connection where the whole of the universe was disconnected yet very much connected and could share the information in no time [8]. So the world witnessed the increased global connectivity during SARS COV-2 as in the case of SARS breakout in 2003 in China as stated by Qiu, Chu, Mao, and Wu [8].

The below figures have been taken from the UNESCO website which shows data for school closure as of 15 May 2020.



***Note**: Figures correspond to the number of learners enrolled at pre-primary, primary, lower-secondary, and upper-secondary levels of education [ISCED levels 0 to 3], as well as at tertiary education levels [ISCED levels 5 to 8]. Enrolment figures are based on the latest [UNESCO Institute for Statistics data](#).*

So, now the whole of education was imparted through virtual classrooms in one form or the other that became the default mode of education for the continuation of the learning process in the wake of COVID-19 [9, 4]. In some parts of the world, many countries opted for virtual classrooms to continue the education of their students without disruption as the schools were closed due to shut down, and these proved to be effective in the past for distance learning [10]. That means people tried to find the solution which was really in a virtual world [11].

So the present study explores the features of virtual classrooms that make them convenient to be used during the closure of the educational institutions and the challenges that remain in their implementation in the education system.

OBJECTIVES OF STUDY

i. To define virtual classrooms.
ii. To study various components of virtual classrooms.
iii. To study the advantages and disadvantages of virtual classrooms.

METHODOLOGY

The present qualitative study is based on secondary data that is searched from various databases and repositories. For searching the data various search engines like google scholar, the BASE was used. The research papers published in the English language were only included in the study. The research paper is divided into various sections such as the definition of virtual classrooms, various components of virtual classrooms, and advantages and disadvantages in the way of implementation of virtual classrooms.

Definition of virtual classrooms

Hiltz in 1986 used the term "Virtual Classroom" for the first time in the paper "Virtual Classroom: Using Computer-Mediated Communication for University Teaching" while investigating the use of computers in education. According to Hiltz [10], virtual classrooms are a kind of teaching and learning environment that is located within a computer-mediated communication system. It is not built of bricks and boards instead it is software comprising of a set of group and work "spaces" as well as facilities.

The virtual classroom is an e-learning concept. It came into being to enable the teachers and students to interact, communicate and work in unison in online mode exploiting the benefit of the World Wide Web. It means the whole gamut of teaching and learning process occurs via the internet offering the opportunity to teach from anywhere anytime and at the same time to access the course from any time anywhere remotely [10, 12, 13]. They access the course via a multitude of ways such as webinars, audio and video conferences, web presentations, live streaming, text chats as stated by Edusys in [14] and Ebbers, et.al. [12].

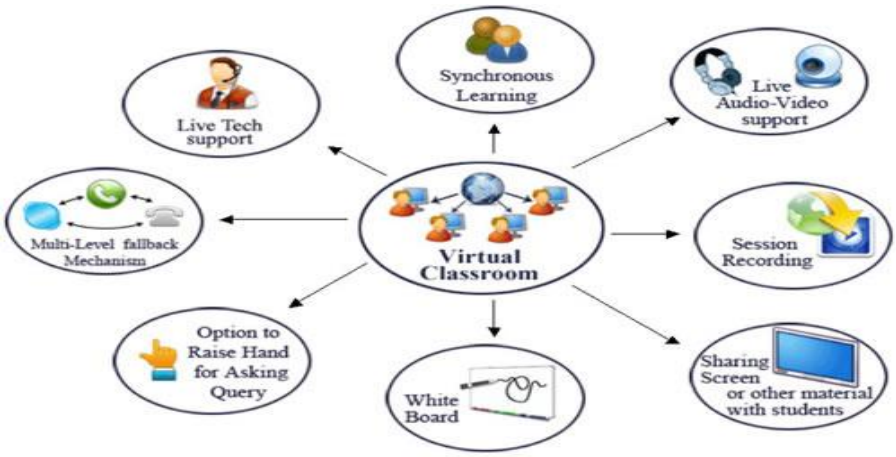


Fig 2: Source: Timeless Learning Technologie

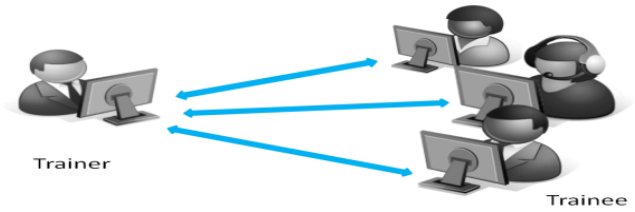


Fig 3: Source:Paradiso: Virtual classrooms by Sam Lewis

Fig 2 shows the dynamics of the virtual classroom and fig 3 shows how the teacher is connected with the students.

Edusys [14] also highlights that they are similar in ways to smart classrooms as they are the fruits of developing technologies but differ from it in ways by achieving the digital transformations in the classroom via the internet. It offers to the instructors many innovative teaching tools which they can use virtually from anywhere at any point in time. The geographical area does not pose any problem and is no more a constraint in imparting distance education to remote students through web-based online programs.

Examples of virtual classrooms

- Amrita Virtual Interactive E-learning World [15] provides a kind of interactive social environment for e-learning which is used by the teacher to provide rich live interactive experiences to the students of various geographical locations across India. It has enhanced features of face recognition.
- Ebbers, et.al. [12] developed IBM LOTUS Virtual Classrooms, a kind of live virtual classrooms

Virtual classrooms can take up two scenarios

Virtual classrooms support e-learning, so it is based on two types of communication: synchronous and asynchronous [16, 17, 18, 19].

In asynchronous virtual learning classrooms, learners engage with the already uploaded content which can be a text, a presentation, or a pre-recorded audio or video. It is self-paced based on course content. Besides this, it facilitates interaction among the learners via chat rooms and discussion forums. Then learning outcomes are evaluated, assignments are graded and feedback is provided by the facilitator to the students [12, 20]. Examples of asynchronous virtual classrooms are Educomp smart classes and apps like Byjus [20].

Contrary to it is a Synchronous virtual learning classroom**.** It is a real-time virtual classroom where the student and the teacher are present in the same space and at the same time. It is an instructor-led classroom, so the instructor plays a pivotal role. At the same time, it happens through a Virtual Management Learning System (VMLS). Attendance of the students is marked by video conference [20]. It requires more bandwidth than asynchronous mode [12].

Components of virtual classroom

Virtual classrooms comprise a whiteboard. It is a white rectangular chalkboard having an electronic edge and mimics the functions of the traditional blackboards. In it, the mouse or an external electronic writing pen replaces the chalk. The

whiteboard not only allows drawing shapes but also text and free handwriting. In addition to these, they are also equipped with color selection menus and various text editing tools. Screen sharing is an added benefit [15, 12, 21].

Due to advancements in High Definition (HD) video over the internet not only the visual quality has improved but also round trip latency for realistic dialog has been narrowed. The quality and clarity of the video motivate the students to be better engaged with the instructor as well as grab student's attention during each session. Audio quality is very much essential for clearly understanding the offered content without much distraction. Both audio and video must be in sync. To achieve this, a good broadband connection is of utmost importance.

It also has Instant messaging (IM). It is one of the very useful communication tools which is a form of real-time communication and based on typed text messages stated by Vohra in [22] A-VIEW [15] and Lewis [21]. Additionally, it requires the least bandwidth as compared to other virtual classroom tools. It is one of the fastest means of communication when bandwidth is limited. It is of utmost importance to audibly impair by allowing visual communication and at the same time helps those who cannot support video and audio to encourage their active participation in the sessions. These messages can be public as well as private.

The most striking feature is feedback mechanisms and interactions. A virtual classroom is a setup that offers an opportunity for the facilitator to ask questions and get feedback from the students of the class. It's quite time-consuming. So virtual classrooms are equipped with polling mechanisms that enable the facilitator to ask general questions which every participant can answer at the same time by selecting an answer of their choice, the results of which are visible to the facilitator [12].

Advantages and disadvantages of Virtual Classroom

Virtual classrooms are very advantageous to both the teachers and the students. Virtual classrooms not only provides personalized learning which means students can learn at any time and from anywhere [23, 24, 15, 2, 14, 25] and also they need not travel long distances [22, 14], making it more affordable [26, 20, 22, 14]. At the same time, virtual classrooms also provide opportunities for collaboration and communication, real-time teaching and learning, effective and efficient time management [22, 14]. Besides this, they also provide an opportunity for students and teachers to interact globally [26, 22, 14]. Not only this they also enable everyone and anyone to equally access the course material from anywhere and at any time [26, 27, 17, 20], thus providing comprehensive online tutorials and improved visualization [22]. Most importantly while in the asynchronous scenarios, students can be more creative, more innovative, and build their communities as penned down by Stoeva [25]. These benefits make the virtual classroom the future of education [22].

Contrary to these, there are certain limitations also to the use of virtual classrooms. Vohra, in [22] stated that first and foremost is access to the internet which may not be accessible to everyone. Even if accessible, may not have sufficient speed. Another problem may be power disruption. So, once there is a power disruption, the user will be logged off. So there is a need to maintain a constant power supply. These virtual classrooms do not provide hands-on experiences [12]. Also, a teacher needs the training to operate these to avoid technical glitches. Synchronous sessions are mostly teacher-led, so all the control is in the hands of the teacher [12].

Government Involvement in the usage of Virtual classrooms in India

Recently in the wake of the pandemic SARS COV-2, MHRD on [28], initiated a campaign "Bharat Padhe Online: Intensifying Online Education" where it invited suggestions from academicians, research scholars, and students on how to implement online education innovatively. Realizing the potential benefits of technology, the Ministry of Electronics and Communication Technology (government of India) proposed a project to set up smart virtual classrooms through its autonomous scientific society, National research and education network [29] (ERNET) India. The main objective of the project was to set up smart virtual classroom facilities in 3204 government-owned schools. Apart from this, it was also proposed to set up the classrooms in 50 DIETs in seven pilot states of Himachal Pradesh, Gujarat, Rajasthan, Tripura, Haryana, Andhra Pradesh, and Tamil Nadu. The focus of the project was the improvement of the quality of education provided to the students from the remote and rural backgrounds of the country (ERNET India, n.d.). Due to this project, 61% of schools showed improvement when two consecutive years were compared. Schools were also benefitted from the objective/motive-based sessions. Not only this, Madhya Pradesh Agency for Promotion of Information Technology [30] under the Department of Science and Technology (Government of Madhya Pradesh, GoMP) also launched a project Virtual Classroom (VCR) or Video Interactive Didactics for Your Awareness (VIDYA) which benefitted nearly 1,23,62,927 students through 4,976 broadcasted lectures as on Dec 2017 while working towards the set objectives.

CONCLUSION

Virtual classrooms leverage the best available technology thus reducing the cost of teaching and learning and are very convenient to use. They can revamp the education system that largely depends on its stakeholders. The virtual classrooms have superior reach to both the teachers and students. In such disrupted situations as of the COVID-19, to

maintain the continuity of education, e-learning environments like virtual classrooms must be looked upon. Such other technologies similar to this must be devised. But this is just a temporary solution, we must move towards a permanent solution to this in the long run.

REFERENCES

1. World Health Organization (2020, March 11). WHO Timeline - COVID-19. Retrieved from https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19
2. Xavier, J. (2020, March 13). Online tools for teachers and students to hold virtual classes during the coronavirus pandemic. *The Hindu.* Retrieved from https://www.thehindu.com/sci-tech/technology/online-tools-for-teachers-and-students-to-hold-virtual-classes-during-the-coronavirus-pandemic/article31057151.ece
3. UNESCO (2020). COVID-19 Educational Disruption and Response. Retrieved from https://en.unesco.org/covid19/educationresponse
4. Association of Indian Universities (n.d.). AIU: Minimizing impact of COVID-19 on students [Blog post]. Retrieved from https://aiubloggroup.wordpress.com/
5. Anand, A. (2020, April 10). Covid-19 pandemic: E-learning trends you need to watch for. *India Today*. Retrieved from https://www.indiatoday.in/education-today/featurephilia/story/covid-19-pandemic-e-learning-trends-you-need-to-watch-for-1665292-2020-04-10
6. International Baccalaureate Organization (2020). Online learning, teaching, and education continuity planning for schools. Retrieved from https://www.ibo.org/globalassets/news-assets/coronavirus/online-learning-continuity-planning-en.pdf
7. Sayem, A. S. M., Taylor, B., Mcclanachan, M., & Mumtahina, U. (2017, Dec 10-13). Effective use of Zoom technology and instructional videos to improve engagement and success of distance students in Engineering. AAEE2017 conference Manly, Sydney, Australia
8. Qiu, W., Chu, C., Mao, A., & Wu, J. (2018). The impacts on health, society, and economy of SARS and H7N9 outbreaks in China: a case comparison study. *Journal of Environmental and Public Health*. *2018*(7). DOI: https://doi.org/10.1155/2018/2710185
9. Gopinathan, C. P., & Ramachandran, K. (2020, April 14). Higher education post-COVID-19. *The Hindu*. Retrieved from https://www.thehindu.com/education/comment-higher-education-post-covid-19/article31341564.ece
10. Hiltz, S. R. (1988). Collaborative learning in a virtual classroom: highlights of findings. Retrieved from https://dl.acm.org/doi/pdf/10.1145/62266.62289
11. Pearson, A. F. (2010). Real problems, virtual solutions: engaging students online. *Teaching Sociology*, *38* (3), 207-214. DOI: 10.1177/0092055X1037011
12. Ebbers, M., Balagué, D., Ganguly, B., Noyes, D., & Salm, P. (2003*). Using IBM LOTUS Virtual Classrooms: a best practices guide to e-learning (2nd. Ed.)*. An IBM Redbooks publication, North Castle Drive Armonk, NY, USA. http://www.redbooks.ibm.com/abstracts/sg246842.html
13. Vishwanathan, & Rajagopalan, (2017). E-learning: virtual classroom. *Journal of Technology for ELT*, *7*(2). Retrieved from https://sites.google.com/site/journaloftechnologyforelt/archive/vol-3-no-4-oct-dec-2013/5
14. Edusys. (2020, April 18). What is virtual classroom? advantages & disadvantages [Blog post]. Retrieved from https://www.edusys.co/blog/what-is-virtual-classroom
15. A-View: http://aview.in/aview-classroom.php
16. Hrastinski, S. (2008). Asynchronous & synchronous: A study of asynchronous and synchronous e-learning methods discovered that each supports different purposes. *Educause quarterly, 4(0)*.
17. Anderson, T. (2008). The theory and practice of online learning. Athabasca, AB: Athabasca University.
18. Kirkwood, A., & Price, L. (2012). The influence upon design of differing conceptions of teaching and learning with technology. In A.D. Olofsson and J.O.Lindberg (eds,.), Informed Design of Educational Technologies in Higher Education. Enhanced Learning and Teaching, 1–120. Hershey, PA: IGI Global.
19. Timeless Learning Technologies (n.d.). Virtual Classroom Technology & Software Systems. Retrieved from http://www.timelesslearntech.com/virtual-classroom.php
20. Vdocipher. (2018, July 23).Virtual classroom: learning beyond four walls [Blog post]. Retrieved from https://www.vdocipher.com/blog/2018/07/virtual-classroom/
21. Lewis, S. (2015). Virtual classrooms. Retrieved from https://www.paradisosolutions.com/blog/virtual-classroom/
22. Vohra, G. (2018, Nov 30). How are virtual classrooms better than traditional classrooms? [Blog post]. Retrieved from https://analyticstraining.com/how-are-virtual-classrooms-better-than-traditional-classrooms/
23. Hanover Research (2014). Strategies for Virtual Learning Implementation. Retrieved from https://www.hanoverresearch.com/media/Strategies-for-Virtual-Learning-Implementation.pdf
24. Blackboard virtual classrooms: https://help.blackboard.com/en-us/Learn
25. Stoeva, Z. (2018, August 31). Benefits of virtual classroom training for students [Blog post]. Retrieved from https://www.vedamo.com/knowledge/benefits-virtual-classroom-training-students/
26. Harper, K. C., Chen, K., & Yen, D. C. (2004). Distance learning, virtual classrooms, and teaching pedagogy in the Internet environment. *Technology in Society*, *26*(4), 585–598. doi:10.1016/j.techsoc.2004.08.002

27. Andersson, A., & Grönlund, Å. (2009). A conceptual framework for e-learning in developing countries: A critical review of research challenges. *The Electronic Journal on Information Systems in Developing Countries*, *38*(8), 1–16.
28. Ministry of Human Resource Development. (2020, April 10). Bharat Padhe Online: Intensifying Online Education. Retrieved on https://pib.gov.in/newsite/PrintRelease.aspx?relid=202214
29. National Research and Education Network. (n.d.). Retrieved from https://ernet.in/projects/svc.html
30. Madhya Pradesh Agency for Promotion of Information Technology (2013). Retrieved from https://www.mapit.gov.in/ProjectDetail?psectid=HbyPiQySlfB%2BVAWrSj70Bw%3D%3D&pid=ydRRTTxkdt6Trx91pX1%2BcA%3D%3D