Envisioning Future Classrooms: after effects of Covid-19

Ankit Kumar
Ph. D. Research Scholar at the Department of Education in Central University of Jharkhand, Ranchi
Email id: ankitsinha2006@gmail.com

Vimal Kishor
Associate Professor, at the Department of Education in Central University of Jharkhand, Ranchi Email id: vimal.kishor@cug.ac.in

Abstract

The ongoing Covid-19 pandemic and the emergence of new variants has adversely affected close to the majority of students across the world by partial or full closure of classes. Apart, from its serious repercussions in the classroom teaching-learning process, it has paved a path to focus on alternative mode i.e., technology-driven teaching-learning process. There are basic elements like blackboard, chalk & paper which were necessary for classroom-based learning before, have now been replaced with computer, smart boards and mobile learning applications. This paper makes an attempt to elaborate the various dimensions of virtual learning, smart classrooms & technological innovations in educational sphere. It also briefly deals with the benefits and limitations of virtual learning. Moreover, an effort has been made to understand the emerging pedagogical strategies in relation to the virtual mode of learning.

Keywords: Covid-19, Smart-classrooms, Virtual learning

INTRODUCTION

The war against novel corona virus is not over yet. This ongoing pandemic has also established the fact that online and virtual mode of learning will be a new normal. The COVID-19 pandemic had a devastating impact on almost all the strata of the population and especially the vulnerable sections of the society. When we talk about the education sector, it can be considered the largest disruption in the history of education. The indefinite closures of schools, colleges, universities have universally affected the entire teaching-learning process. As a result of this, the students physical as well as their mental well-being were adversely affected. In an estimate, approximately, 94 per cent of learners worldwide were affected by the pandemic, representing children and youth, from pre-primary to higher education, in 200 countries.

The potential to respond to school closures changes gravely with degree of development: for instance, in the course of the second quarter 2020, 86 per cent of children in elementary education have

been effectively out of school in nation with low human development in contrast with just 20 per cent in countries with extremely high human development.

Besides the learning loss, the economic effect on households is likely to broaden the inequities in education attainment. The majority of the population has experienced extreme poverty and malnutrition. Empirical evidence shows that children belonging to households in the poorest regions are incapable to complete primary and lower secondary education than those in residing in comparatively developed regions. The divide can be greater than 50 percentage points in many sub-Saharan countries, as well as in nations like Haiti, Jordan, Nepal, and Pakistan.

UNESCO estimates that 23.8 million additional children and youth (from pre-primary to tertiary) are in a position to drop out or will not have access to school in the near future because of the pandemic's economic impact alone. The combined number of children not coming to formal education after the school closures is estimated to be much greater. School closures make girls and young women more vulnerable to early marriage, untimely pregnancy, and gender-based brutality, which in turn leads to decreasing their chance of continuing their education. With the combined effect of the pandemic's intercontinental economic impact and the school closures, the learning crisis could turn into a generational disaster.

FUTURE CLASSROOM– AUTOMATED & TECHNOLOGY-ENABLED EDUCATION

The pandemic led to a huge economic loss and promoted lack of access as far as education is concerned. But alternatively, it promoted the way to strengthen the concept of virtual and online learning, which already existed in teaching-learning process since last couple of decades.

To envision the virtual learning environment (VLE) of future, we should think about advanced methodologies augmented with technologies that equip us to generate effective, valid and specialized virtual learning experiences. The classroom as the focal point must be varied to match the profile of any given discipline, area of study or standard of education.

Like Socrates said, "As society goes so goes education." In organizing these classrooms, we ought to consider the current status of the society in which we live and where it is headed towards in the near future. Teachers and Students, alike, live in a digitally-paced world, where getting information is just a click away. Internet and various mobile applications have made the world of information easily accessible. But there are several information which are misleading and can lead to illusion and dilemma regarding the concepts and ideas. At this juncture, the role of teachers and educators becomes pivotal. So, to create a better experience through technology-enabled learning a sincere effort is required from the educators to make the content reliable, powerful and multi-faceted.

In actuality, however, today's online classrooms are more often than not, counter-cultural, with students are finding tough to work in a VLE that is lacking of digital potentiality they have grown customary to using in their personal and professional lives. Thus, to establish a more flawless and productive experience, the learning conditions must be more closely aligned to day to day scenario.

Fundamentally, expectations are dominated by the marketplace, rather than by the organization which means that teaching-learning in the future should mirror both the technology we use and the connected world in which we live, with its ever-evolving access to specialist knowledge. It stands to reason then, that by exploring the digital technology their learners use to retrieve, assemble and harness this knowledge without any external support. In this scenario, teachers should have the potential to generate structured and effective learning experiences that meets the demands of a changing world and a changing workforce.

In a well-framed VLE, learners will get real-time and practical information to help them learn what they require, when they require it, while instructors will have the capacity to customize the

teaching-learning experience in line with those needs. Similarly, the correct digital tools and applications will help both to generate content in a prompt and effective manner.

VIRTUAL CLASSROOM - A NEW NORMAL

A virtual classroom is generally an online teaching -learning system where both the learners and teachers interact with each other using the different platforms of ICT. The experience more or less similar to the real classroom set up but from different geographical locations. The system comprises of all the basic tools and internet required to run effectively a classroom. Communication among the participants can be achieved in varied ways like text chat, live audio-video sessions and presentations using power point presentations etc. Some of the basic tools required for conducting the virtual classroom are whiteboard, a robust audio-video system, camera with good internet connectivity.

Advantages

Increased convenience

- Learners have the liberty to learn and complete the coursework anytime and from any geographical location. It promotes the concept of self-paced learning.

- Learners also enjoys the freedom to engage with their classmates regarding the topics taught in the class, prepare the assignments, and moreover to take the evaluation process according to their scheduled time and convenience. It thus paves the path of collaborative learning.

Effective management

- Online learning provides an opportunity to the learners who are already engaged in job to strike a balance between work and family and at the same time learning without compromising their aspirations and goals.

- Attending virtual classes also helps saving time and energy as there is no need to travel to campus to learn. It saves time and it's cost-effective too.

Enhancement of digital skills

- On the one hand, Learning the skills and knowledge required in the area of study, learners have an chance to brush their digital skills and be updated to modern tools of techniques related to ICT in education

- Learners get acquainted with the virtual learning tools and they also get expertise to develop them if needed.

Cost-Effective

- Setting up of a classroom requires a massive investment as far as infrastructural cost is concerned. Online teaching-learning is not only favorable from the part of the students but it is of quite significant from the administration point of view too. It helps in expansion of class by enrolling additional students at no extra investment in developing the infrastructure.

- These savings can generally be passed onto the learners, where they will be required to pay significantly less tuition fees for the same quality of learning.

Instant feedback

- Online learning also has a great advantage as far as feedback is concerned. Now, the wait time to get the feedback on the exams is significantly reduced. After, the exams the students can get feedback instantaneously which will help the student to improve their grades accordingly.

- Attempting examination, quizzes and tests are of great significance as it is quick and it easy to track the progress of the students easily. It thus helps the teacher as well as learners to identify the weak areas and go for improvement without any wastage of time.

Limitations

Training

- Teachers face numerous challenges in acquiring and adopting the technology and upgrading themselves to the ICT skills required for teaching. As a result technical problems are a major road block while teaching online.

- Some teachers also face problem in developing the content online and designing or uploading the tests and online quizzes. Evaluating them is also a daunting task for the teachers who are not technologically well equipped with the latest technology.

Infrastructural challenges

- The expense of installing digital infrastructures is exceptionally high and for some institutions it might be unaffordable.

- Good internet connectivity and support is also a major prerequisite.

- Digital divide especially for the learners residing in far-flung rural and tribal belts of the country is a major issue for virtual learning.

CONTEMPORARY ISSUES & CHALLENGES

The education system is currently undergoing major changes due to the emergence of educational concepts and technological advancements. Advances in educational concepts and technological advancements pose several challenges for smart learning environments, as discussed below.

Pedagogical Approaches

With further integration of personal learning and smart learning environment, many advances in education will be achieved (Price, 2015). Chatti et al. (2010) explained that learning is personal, social, global, flexible, dynamic and complex. In a smart learning environment, basic changes are needed for a more personal, social, organized, emergent, and highly dynamic model as opposed to one-dimensional, centralized, fixed, hierarchical, and learning. To achieve this goal, new pedagogical measures related to the effective use of integrated technology in the curriculum in a smart learning environment are needed to improve the effectiveness and quality of the learning experience.

Personalized Adaptive Learning

In a virtual learning environment, further attention has been paid to individual requirements of learners. According to Hwang and Fu (2020), technology enabled learning environment is considered as a learning system for facilitating effective customised learning. Adaptive learning provides specialized and methodological support for substantiated learning. Personalized adaptive learning fosters adjustments according to the individual traits of learners to enable the individualized development of learners. Smart learning environments have great potential to successfully promote the development and expansion of autonomous and convenient learning (Peng, Ma & Spector, 2019). Thus, how to design a learning ecosystem that integrates smart learning for personalization and self-regulation of learning will be a key challenge (Gross, 2016).

Affective Interaction

Social interaction is s significant feature in generating new concept and knowledge. The smart learning environment makes it convenient in imparting knowledge and concept clarity but there there

is no guarantee that social interaction will definitely take place (Feidakis, et al., 2013). Emotion is a type of psychological response that can affect and coordinate human cognitive activities such as attention, feeling, expression, memory, thinking, and language. It occurs during social interaction between students. In the traditional face-to-face learning system, effective interaction between teachers and students occurs to a large extent, while the goal of smart learning is to provide information and education through effective interaction instead of the classroom. Therefore, sincere efforts should be made to improve effective interaction in an intelligent learning environment. One effective approach is to develop a dynamic learner model that integrates learner emotions as an important determinant (Hwang & Fu, 2020).

Assessment Method

Despite advances in research on psychological measures and educational technology, assessment practices in educational institutions have remained largely unchanged for decades. In a smart learning environment, there is a strong demand to move beyond traditional assessment and evaluation methods. Teachers need to create new tools and techniques to not only teach but also to assess students effectively. Regarding the type of assessment, formative assessment can be a constructive approach. It can greatly improve learners' ability to move from passive learners to active or learning partners, where they can understand strengths and limitations, identify learning gaps, and develop solutions (Price, 2015).

Integration of formal learning and informal learning

In the recent past, the source for learners to acquire knowledge were limited to formal school, colleges and universities, but in the present scenario, ICT has revolutionized the education sector in totality. Through the effective use of ICT, students can easily obtain information and utilize in clarifying the concepts and applying them in their work. It also reduces reliance on formal education methods by up to 50 percent (Kinchuk et al., 2016). However, due to blurring the boundaries between formal and informal learning and increasing emphasis on informal learning, smart learning design combines formal and informal learning to create a personal learning environment to help individual learners (Gross, 2016).

Learning Data

Education has always been concerned with the use, planning, coordination, and operation of demographic and behavioral data, and smart technologies offer great opportunities to expand the "data vision" (Kwet & Prinsloo, 2020). In a smart learning environment, there is a wealth of data about student behavior. However, it is important to note that the data collected may vary depending on technology, background, institutional specificity, and pedagogical approach (Broughan & Prinsloo, 2020; Pink et al., 2018). So, integrating data and providing personalized and improved services to students is a challenge (Zhu, Yu & Riezebos, 2016). Learning analytics can be used to manage learning data, monitor learning progress, and provide feedback to systems, teachers, and students. It focuses on the study and learning of analysts from a technological and pedagogical perspective.

CONCLUSION

In the past decade, innovation has changed the teaching and learning experience at a rapid pace. Modern advances in pedagogy and technology create new opportunities to develop virtual learning environments in implementation, assessment, and instructional design. In an era where almost everything has become more virtual and access to technology and its devices has increased significantly, there is a sincere need to bring about a transformation in the mode of content delivery and imparting knowledge. By using modern and latest technology, we can not only save resources and time but also make learning more interesting and accessible.

With that being said, another argument might be brought up as to where and to what degree technology must be used in education. And whether there are still some areas of education that require the traditional approach to be followed. Also, given that developing countries like India and China, where the resources are less but the population is more, how exactly can traditional cost-effective ways of imparting education be replaced by modern-day teaching using technology? These are some of the questions which need to be answered. But, overall, technology and education are the two sides of the same coin. An effort has to be made towards promotion of the concept of blended learning at all levels of education. The learning environment is continuously evolving and the teaching-learning process itself is undergoing a major transformation at different levels. The need of the hour is to follow an eclectic approach and integrating the traditional and virtual mode of learning for the best results.

REFERENCES

Broughan, C., & Prinsloo, P. (2020). (Re)centring students in learning analytics. In conversation with Paulo Freire. Assessment and Evaluation in Higher Education, 45(4), 617–628.

Chatti, M. A., Agustiawan, M. R., Jarke, M., & Specht, M. (2010). Toward a personal learning environment framework. International Journal of Virtual and Personal Learning Environments, 1(4), 66–85.

Feidakis, M., Daradoumis, T., Caballé, S., Conesa, J., & Gañán, D. (2013). A dual-modal system that evaluates user's emotions in virtual learning environments and responds affectively. Journal of Universal Computer Science, 19(11), 1638–1660.

Global Partnership for Education (GPE), "Opinion: Don't let girls' education be another casualty of the coronavirus", 1 May 2020, available at https://www.globalpartnership.org/news/opinion-dont-let-girls-education-be-another-casualty-coronavirus

Gros, B. (2016). The design of smart educational environments. Smart Learning Environments, 3, 15. https://doi.org/10.1186/s40561-016-0039

Hwang, G. J., & Fu, Q. K. (2020). Advancement and research trends of smart learning environments in the mobile era. International Journal of Mobile Learning and Organisation, 14(1), 114-129. https://www.inderscienceonline.com/doi/abs/10.1504/IJMLO.2020.103911

Kinshuk, K., Chen, N., Cheng, I., & Chew, S. W. (2016). Evolution is not enough: revolutionizing current learning environments to smart learning environments. International Journal of Artificial Intelligence in Education, 26(2), 561–581.

Kwet, M., & Prinsloo, P. (2020). The smart classroom: a new frontier in the age of the smart university. Teaching in Higher Education, 25(4), 510–526.

Lee, L. K., Cheung, S. K. S., & Kwok, L. F. (2020). Learning analytics: Current trends and innovative practices. Journal of Computers in Education, 7, 106.

Peng, H., Ma, S., & Spector, J. M. (2019). Personalized adaptive learning: An emerging pedagogical approach enabled by a smart learning environment. Smart Learning Environments, 6, 9. https://doi.org/10.1186/s40561-019-0089-y

Pink, S., Ruckenstein, M., Willim, R., & Duque, M. (2018). Broken data: Conceptualising data in an emerging world. Big Data and Society, 5, 1. https://doi.org/10.1177/2053951717753228

Price, J. K. (2015). Transforming learning for the smart learning environment: Lessons learned from the intel education initiatives. Smart Learning Environments, 2, 16. https://doi.org/10.1186/s40561-015-0022-y

Ros, B. (2016). The design of smart educational environments. Smart Learning Environments, 3, 15. https://doi.org/10.1186/s40561-016-0039-x

Singh, A.D., and Hassan, M. (2017). In Pursuit of Smart Learning Environments for the 21st Century. In: Current and Critical Issues in Curriculum, Learning and Assessment, UNESCO International Bureau of Education. Geneva: UNESCO. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000252335

Spector, J. M. (2014). Conceptualizing the Emerging Field of Smart Learning Environments. Smart Learning Environments, 1, 2. https://doi.org/10.1186/s40561-014-0002-7

UNESCO, "COVID-19 Education Response: How many students are at risk of not returning to school?" advocacy paper, June 2020

United Nations Development Programme (UNDP). COVID-19 and human development: Assessing the crisis, envisioning the recovery. 2020 Human Development Perspectives, 2020, New York: UNDP, available at http://hdr.undp.org/en/hdp-covid.

Zhu, Z., Yu, M., & Riezebos, P. (2016). A research framework of smart education. Smart Learning Environments, 3, 4. https://doi.org/10.1186/s40561-016-0026-2

***