

Technology Enabled Teaching and Online Learning in North India during Lockdown in Pandemic COVID 19

Dr Richa H Rai¹, Dr. Harvinder Popli², Poulomi Ganguly³, Dr. Prashant Kesharwani⁴

¹Professor, School of Physiotherapy, Delhi Pharmaceutical Sciences and Research University, New Delhi, India
Email: richaraidpsru[at]gmail.com

²Professor, Director, School of Pharmaceutical Sciences & DIIF, Delhi Pharmaceutical Sciences and Research University, New Delhi)
Email: popli.harvinder[at]gmail.com

³Director, Product Hughes Global Education
Email: poulomiganguly[at]gmail.com

⁴Assistant Professor & Ramanujan Fellow (SERB-DST), Department of Pharmaceutics, School of Pharmaceutical Education and Research, Jamia Hamdard
Email: prashantdops[at]gmail.com

Running Title: *Technology Enabled Teaching and Online Learning in India during Lockdown in Pandemic COVID 19*

Work carried out at Delhi Pharmaceutical Sciences and Research University

Abstract: ***Introduction:** COVID19 has made online education indispensable. Technology which till pre-COVID was considered an enabling tool for education has been converted into a mandatory must-have for delivery of mainstream education, without disruption and all segments of learners have to leverage technology for their ongoing learning and skilling needs. What has differed is the mode of delivery which has varied from live or synchronous learning to asynchronous in the form of pre-recorded videos to hybrid blend of digital media and has moved away from didactical form of teaching. **Objective:** The objective of the survey was to assess the issues related to adapting to the "Technology enabled teaching and learning in India during COVID 19". **Method and Study Design:** Online Cross Sectional Survey was conducted in April-August 2020 amongst teachers of professional education in North India. **Results:** The teaching faculty in India was found to be proactive and technology was also available at very low cost to carry on the teaching learning activities. However, internet connectivity and non-verbal pedagogical challenges along with interrupted concomitant and discriminative skill learning amongst students were feared by the teachers. **Discussion:** The seamless connect between the teacher and learner and his peer group in turn, has taken a position of eminence via the Digital Education Tool reducing the digital divide. But amidst this entire perplex circumstances, all are striving to strike the right balance and facing several challenges. This survey highlights those challenges related to the Technical and Pedagogical aspect. It also objectively elaborates upon some aspects related to the approach of the Teaching professionals in the period of PANDEMIC COVID 19. Blended teaching learning is most effective. **Conclusion:** Catalysis of the reforms requires purposeful guidelines by policy makers, with specific objectives and employment of resources along with interdisciplinary commitment and political agendas to achieve the desired results.*

Keywords: COVID 19, lockdown, Technology Enabled Teaching learning, challenges, policy

1. Background to the Survey

Education Policy metaphor wants to integrate technology as a prerequisite to or in classroom teaching as researchers believe that it stimulates profound imagination and has a long lasting effect leading to application based learning(1). Reviews of several indexed journals have led to a variety of ramifications, suggesting that a system with blended learning has comparatively less deficits than exclusively online or classroom teaching(2).

However, adapting to the needs of technology based learning is a challenging task in developing countries though it is indispensable. During the pandemic CORONA 19, many such countries which were not getting into the course of taking it up as a routine, due to limitations, suddenly saw a surge due to demand placed by the forced lockdown.

It led to mobilization of self and industry resources with respect to this aspect. Government and private organizations promoted the same for their own credibility. Students too tried to tap their own resources to their best. It was a challenging situation for each one. Some families did not have as many gadgets to accommodate the number of children studying and as the economic condition, emoluments and jobs were at stake some could not afford the means to gain accessibility. Others in turn tried to exploit the best out of the situation and excelled whereas some saw apathy due to the challenges.

Objective: In purview of the above we decided to conduct a survey so as to adjudge the situation. The objective of the survey was to assess the issues related to adapting to the "Technology enabled teaching and learning in India during COVID 19".

2. Method

Volume 10 Issue 6, June 2021

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

Study design and Sample

A cross sectional survey was conducted online in the was conducted in April-August 2020 amongst teachers of professional education in Delhi and NCR. Teachers from Primary, secondary school and faculty from college, both private and Government organizations of Northern India, primarily Delhi and NCR were included in the survey.

Google form was used to design survey questionnaire to gauge the issues and experiences related to "Technology enabled teaching and learning" of teachers from Primary, secondary school and faculty from college, both private and Government organizations of Northern India, primarily from Delhi and NCR, during the period of lockdown April- June 2020. The link for this questionnaire was mailed to the Faculty on their email ids or through what's app. With just one click on the link, the respondents could enter the survey, and then fill the form within five minutes. And with just one click the responses were sent back to the researcher for them to access. The questionnaire contained questions arranged in a systematic series, based upon the research objectives. Almost all the questions in the questionnaire were close ended for the ease of the researcher without defeating the aim of the survey.

3. Results and Discussion

56.3% of the respondents were females and 43.8% were males. 87.6% data was from institutions of Delhi and NCR.

The sample had an almost equal proportion of faculty having a teaching experience of less than 5 years (22.9%), 5-10 years (25%), 10-15 years (18.8 %), 15-20 years (20.8%) and more than 20 years (22.9%).

87.5% of the respondents were College/University faculty with 50% of them teaching at postgraduate level and rest were school teachers.

3.1 Brief Outcome of the survey

97.9 % of the faculty was found to be using Technology for various limbs of Education as seen in Figure 1.

We were inquisitive about, what platform/software most of the people were using when suddenly forced into the situation and all had to start using online mode. It was found that 43.8% of the teachers and faculty were using Zoom, a little more than 10.4% were exploring Google Education, 6.3% were using Microsoft Teams and to our surprise a huge number of them that is around 39.6% had set their hands on more than the above three platforms, that is they were using these as well as many others. Some of the other platforms which caught the attention in initial phase of lockdown were Cisco Webex, Skype, Microsoft Teams and few others.

A very small number of them around 5.3% used self-videos for the teaching process.

To our surprise, we had technology available at door step at a very low cost, as only 10.5% people had to bear some cost for the same. Rest all did not have to invest any extra

resource to resort to online teaching. The cost was majorly related to Internet package and speed. Some of the applications for online teaching also involved cost, but finally faculty landed using those which were either free or were bought by the University.

3.2 Approach and Attitude of Faculty

41.7% Faculty had a workload of almost 2 classes per day whereas around 33.3% of them took a minimum of 1 hour class and 16.7% of them took almost 3 hours class. We also had 8.3% of faculty working as hard as taking 4 hours classes in a day as seen in figure 2.

The duration of each class per day in minutes was 40 min for 64.6% of the faculty, as most of the faculty were using the Zoom Application which had a maximum time of 40 min at a time. 29.2% of the faculty were teaching for a usual 60 min class and a very small percentage ie around 6.3% were taking 30 min session.

On an average we found that 70.8% of the faculty did not have any experience in online teaching. Only a small percentage of the faculty reported that they had formal training on this aspect (figure 3)

Controversial to earlier studies where female faculty was hesitant(3), Faculty in this survey is found to be proactive in the matter as 31.3% of them reported that they were learning while they were conducting the session and 35.4% had informed that they were comfortable with online teaching. A meager number of 4.2% showed total discomfort on the aspect, despite of majority of respondents being females.

Though 68.8% of them were sure they can meet the learning objective of the syllabi and 27.1 % still felt that they might not, however most of them (47.9%) have reported that only 41-60% syllabus can be covered online whereas 35.4% were of the opinion that 61-80% of syllabus can be covered online. However 12.6% of them reported that 'less than 40%' and 4.2% expressed that almost 81-100% syllabus can be covered online.

3.3 Challenges faced during the Online mode

3.3.1 Technical Challenges

Figure 4 demonstrates some overlapping Technical Challenges hindered the efforts of the Faculty. The most challenging was Internet connectivity followed by lack of Technical Support system and Computer/software literacy whereas Hardware related issues were last on the list.(4)

3.3.2 Pedagogical Challenges

One of the most challenging was loss of Eye to Eye contact that is non-verbal communication. The opinion on challenges like time consuming lecture preparation, Lack of online teaching resources were also highlighted by other authors.(5). The least challenging was collaborative effort between teachers as seen in figure 5.

Gagne classified learning outcomes into five categories(5). As a faculty, a teacher sets some learning objectives and

judges the ability of the student as he imparts the knowledge and thus expects a reflection of effective learning. When asked what would be the most challenging learning objective for them, they expressed Psychomotor skills equivalent to physical skills and thus Cognitive (Intellectual) skill were equally difficult, followed by Affective or Emotional skills, Unconscious behavioral learning (Concomitant skill) and discriminative skills. The last two referred to the comparison of related concept being the most important of any classroom teaching, are graded the least challenging as the initial skills which are taken care of effortlessly, in a classroom teaching, are missing in online mode. Thus they have become relatively less relevant unless the basics are taken care of.

Most of the faculty, 54.2% were aware that slow learners, underachievers and children who are differently abled can be better approached by Blended Learning.

However when asked about the challenges faced if exams were to be conducted online the major hurdle was labelled by 41.7 % faculty to be Absence of exposure/skills in students, next on list with highest probability as a hurdle was connectivity with 37.5% faculty feeling that it would be the issue, and only 18.75% declared that it would be Absence of exposure/skills in faculty, followed by issues related to software and hardware which were minimal, (figure 6) as most of the faculty may be aware of different evaluation software available in the market.

When asked about how difficult an online exam would be for students 25% faculty felt it would be same as offline whereas 45.8% felt it would be difficult and 6.3% faculty opined that it would be very difficult. Technical issues will definitely crop up due to internet connectivity, power failure and lack of software in native language of our country as well as outdated curriculum(4). Another extremely pertinent area where expertise is vital is the conduct of assessment online and over and above this it should be ethical and secure. While Technology had no doubt enabled us to proctor and supervise the exams remotely, stringent guidelines to reduce the risk of malpractices and misconduct need to be implemented. Counselling sessions for students will help to maintain ethics and integrity while appearing for E-Exams, and prevent them from resorting to dishonest means. A collective effort from all stakeholders, parents, guardians, mentors and teachers will play a vital role in this regards.

3.3.3 Behavioral/Disciplinary Challenges:

Student attention and participation was of maximum concern followed by student discipline like scribbling on the shared screen, talking in between, not attending the class, etc.

Having asked what would one label as the best attribute of online teaching, as a faculty, among Good blend of material, opportunity to learn new pedagogy, Cost effective, Reduced Travel cost , no distraction from students and accessibility to remote areas, equal response was gained for Good blend of material and opportunity to learn new pedagogy followed by accessibility to remote areas and the least favored was no distraction from students, suggesting

that most of the faculty was enthusiastic about online teaching

3.3.4 Adapting to the Didactic Change:

77.1% of the faculty opined that both technical and pedagogical support would be needed to adapt to this mode of teaching whereas only 6.3% felt they did not require any support. 12.5% of the whole wanted only Technical support whereas 4.2% of the whole wanted no technical but only pedagogical support as they might be Tech savvy. This reverberates with the expression of authors in other developing countries(4,6).

81.3% agreed that they would like to be trained for Technology Enabled Teaching and Assessment Techniques /Learning Management System in the light of this kind of situation such as COVID 19 whereas 16.7 % were not sure.

3.4 Faculty purview on Institutional Preparedness for adapting to Learning Management System:

When asked about whether the faculty felt that their institution was well prepared for adapting to the Learning Management system at present a huge number of 60.4% of the faculty felt that they were whereas 20.8% said it was not and 18.8% felt they weren't sure about it. It will appeal to all that it is a task, to set up as well as maintain this physical infrastructure with other challenging reforms in a developing country.

It is rightly quoted by one of the authors, that to integrate the technology is a process and it is not just a product(4,7,8).

4. Conclusion

As it is rightly discussed by Khan et al, the issues and challenges related to technology and learning are not limited or unique to itself but involve an amalgamation of several aspects related to the culture, technology, infrastructure, and skills. This makes it a difficult task for professionals to adapt to it and also equally crucial is their training and providing them technical as well as pedagogy related support(9). Based on analysis of more than 30 articles and other database, blended learning was found to be more than just teaching online encompassing several aspects of learning objectives, facilitating interaction with a ease of accessibility and rendering both efficiency and flexibility(2). To explore the innovative instincts of the faculty on this, we need to first allocate resources to set up an infrastructure and train them for reducing the divide between their skills and application of ICT, designing curriculum accordingly and remove the bottlenecks and psychological barriers for implementing it(10,11). Catalysis of the reforms requires purposeful guidelines by policy makers, with specific objectives and employment of resources along with interdisciplinary commitment and political agendas to achieve the desired results.

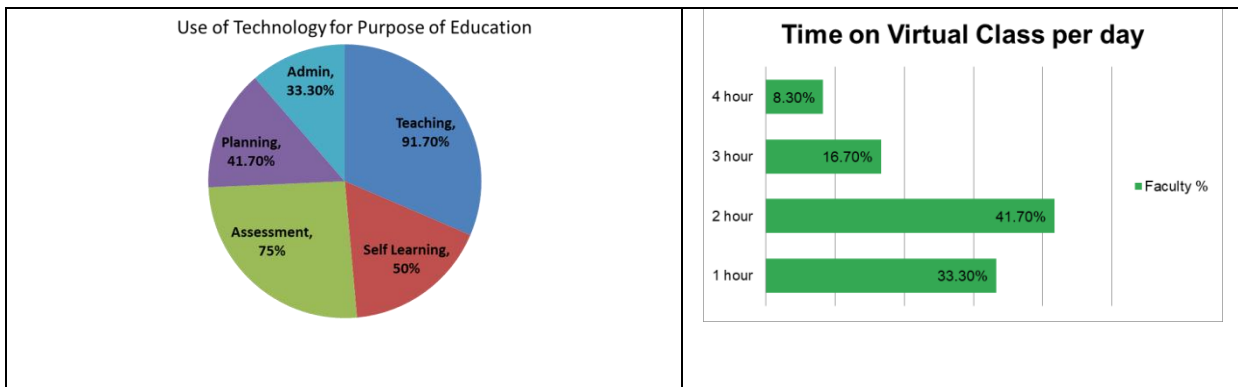


Figure 1: Use of Technology for Purpose of Education

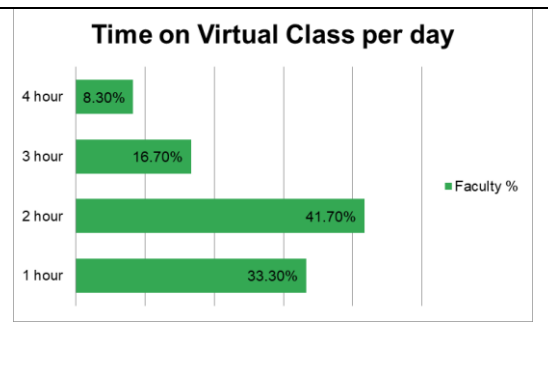


Figure 2: Time on Virtual class per day

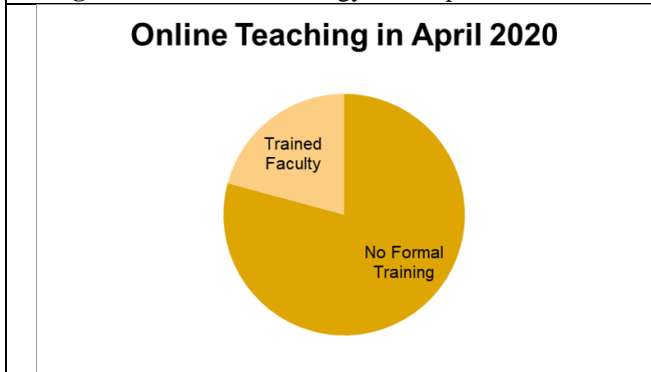


Figure 3: Experience in online teaching

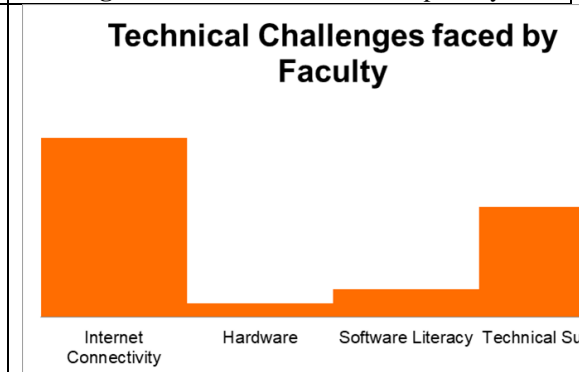


Figure 4: Technical Challenges

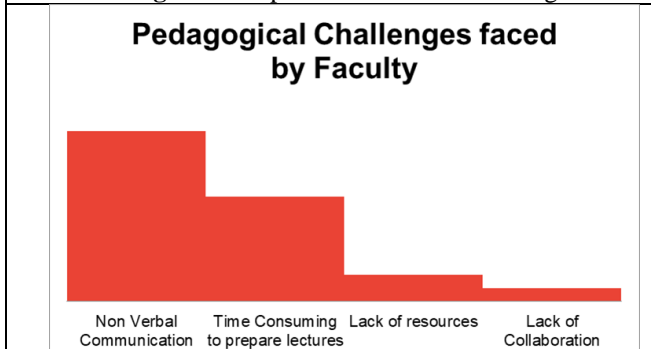


Figure 5: Pedagogical Challenges

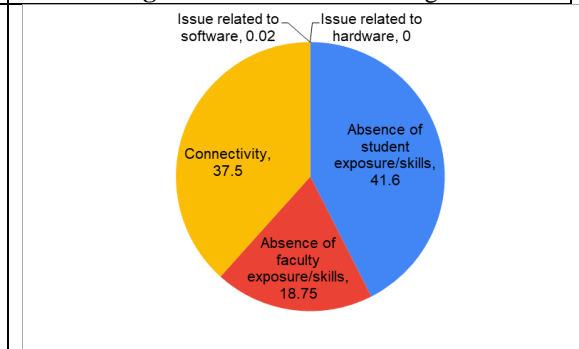


Figure 6: Challenges in online exams