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Original Research Article

Assessment of online teaching as teaching learning method among the university students in the COVID pandemic

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ABSTRACT

Background: The urgent need to educate during COVID times has led to stresses and needs for reimagining the education system, and now the system is evolving and has led to organising and designing in the current scenario to reap the benefits.
Method: A total of 600 electronic students in Bihar, India participated in the study conducted to assess the barrier and facilitator of online learning. Participants in the study were post-secondary students graduating in electronics stream. Access to the online platform was through mobile and mobile data was used for connecting to online platform like google classroom. Majority of them (42%) preferred traditional teaching and complained of health issues, eye strain and loss of concentration.
Results: The study showed most commonly used gadget for online teaching was mobile (98.8%) and google meet was the most common connecting platform (66.8%). The most common challenge faced was network issue (68.3%). Average screen time spent was 4.5 hours, that leads to eye strain and mental fatigueness as most common symptom reported.
Conclusions: The reflection on how teaching learning process evolved during pandemic and incorporating ideas to deal with challenges help us build education system that is resilient and help us embrace an evolving teaching learning format now and in future.

Keywords: Online learning, Pandemic, Students, COVID, Barrier

INTRODUCTION

India, till the lockdown imposed due to current COVID-19 pandemic, is based only on traditional methods of learning, that is, most common being the face-to-face (f2f) lectures in a classroom. The educational hub such as schools, colleges, and universities have embarked on online learning to support their teaching and learning which came to stand still.[1,2] The forced shift to an online teaching–learning methods mode of teaching overnight was without any prior preparation, and it was assumed that challenges can exaggerated due to special requirements.[3] The deviation from the classroom model to online mode made us wonder on the sustainable education model that can be continued even after the pandemic. Long term impact of these changes and their effects in the worldwide education market is to be studied in further detail.[3-6] Government has recognised its importance during pandemic and is looking forward to building guidelines and curriculum for digital literacy.

Though online learning was being practiced globally its application in electronic field, especially in India, is rather new. The teachers may lack experience the 'principle' of online learning is almost same as f2f learning, teaching-learning processes, interaction,

integration, assessment and feedback are the same, differences are due to use of technology, student and teacher are separated by distance which can lead to lack of f2f interaction and isolation. The remarkable benefit is access, the flexibility of place, distance and time and convenience. Teaching without geographical barriers, in real time, where teachers can compress live video conferencing to reach students who otherwise cannot avail it, has pushed the capacity of education system to a tremendous limit, making higher education accessible.

Often term "online" is a loosely used term, subjected to different ideas, interpretations and perspectives. Various terminology like e-learning, distance learning, web-based learning, virtual learning, computer-based learning, and technology-based learning have been used to denote non-f2f learning depending on purpose, technology, context and institution.[7] Online learning takes place purely through internet and lacks f2f interaction while in blended/hybrid learning is a teaching-learning facilitator integrates both online teaching and f2f sessions.

The question that arises in our mind is whether switch to online learning can be the catalyst to more effective method readily acceptable to students or some evidence-based proof and research are needed to support it, so as to accrue benefits in future. The study was conducted to find different options and the challenges faced by students in attending the online classes.

Identifying barriers will offer suggestions for improvement in the online learning.

METHOD

Study design and sampling

This is a cross sectional study and purposive sampling is done, as the study sample included electronics students from the technological colleges of Bihar. Questionnaire were sent to the electronic students as google form through WhatsApp and mail.

Inclusion and exclusion criteria

All students willing and who consented to participate (through Google forms) in the study time period or till responses are being accepted were included and those who did not gave consent were excluded. The study period was of 1 month duration (01/01/2021-31/01/2021).

Data collection tool and technique

A pretested, predesigned, semi-structured questionnaire with sociodemographic detail, details on mode used, barriers and facilitators in online learning was used. The questionnaire is designed by google forms and circulated among the electronics student (all three year) studying in Bihar due to social distancing during the COVID pandemic and also closure of institutions during the pandemic. The circulation of the forms was through the social media platform and consent was taken through the same. Characteristics of study will include questionnaire including gender, year of birth, the network issues, tools used by the respondents, reason for preferences for online and classroom learning, health and other problems arising as result of online learning. Participants' teaching/learning challenges during COVID-19 pandemic will also be presented in tabular format. Responses were automatically recorded in google sheets and were analysed and responses noted as proportions.

Statistical analysis

The responses were entered and analysed on Microsoft-excel. The quantitative variables for sociodemographic characteristics and barrier of online learning were reported as frequencies and percentages.

RESULT

Basic demographics

A total of 610 students, pursuing electronics course in various institute of Bihar, were sent google forms to participate in survey. Of these, 600 students responded, the final response rate was 97%, student free to opt out of the study. These students were studying in any year (1st, 2nd and 3rd). Their age varied from 17 to 25 years, median age being 21 years. There were 453 (75.5%) males and 147 (24.5%) females. Of all participants, sociodemographic detail of which has given in Table 1.

Table 2 shows that respondents used devices like computers/laptops/ smartphones/tablet, among which most of them preferred mobile 569 (94.8%) followed by laptop 72 (12%) and access to internet was mobile data in 577 (96.2%). Furthermore, 167 (27.8%) of respondents had prior training in computer handling, software and 320 (53.3%) preferred communicating in English. Most commonly used platform for online classes Google meet/classroom 401 (66.8%) followed by WhatsApp 247 (41.2%) and zoom 135 (22.5%) followed by power point presentation through mail, Microsoft, Webex and Cisco.

Most of the respondents were at ease with this new method of teaching 257 (42.8%) but some of them felt that traditional f2f classes were handier and motivating compared to online classes. However, students' affinity for college, f2f interaction and peer learning and fun with classmates, could not be denied. On an average approximately 4-5 h spent daily in online classes. Long screen time in 447 (74.5%) health issues in 386 (64.3%) and difficulty to concentrate in 359 (59.9%) students were causing discomfort among students. Two third of respondents, 511 (85.2%), honestly attending entire sessions (audio and video on) of online classes. Two third of students; 467 (77.8%) found time management of sessions appropriate and 423 (70.5%) admitted that their queries were solved during the online teaching sessions.

Table 1: Sociodemographic characteristics of the electronics student, (n=600) (%).

Variables	N (%)
Religion	
Hindu	590 (98.3)
Muslim	8 (1.3)
Others	2 (0.4)
Gender	
Male	453 (75.5)
Female	147 (24.5)
Electronic item most commonly used	
Laptop	72 (12)
Mobile	569 (94.8)
Desktop	9 (1.5)
Tablet	7 (1.2)
Preferred language	
English	320 (53.3)
Hindi	280 (46.7)
Most common platform used	
Google meet	401 (66.8)
WhatsApp	247 (41.2)
Zoom	135 (22.5)
PPT on mail	50 (8.3)
Microsoft	48 (0.8)
Cisco	12 (0.2)
Webex	6 (0.1)
Preferred network used	
Wi-fi	78 (13)
Mobile	577 (96.2)

Table 2: Challenges during the online session during COVID times, (n=600).

Variables	N (%)
Challenges	
Video and audio on	511 (85.2)
English language as preferred communication	320 (53.3)
Connectivity issues	330 (55)
Frequency of interruption	
Daily	225 (68.3)
Thrice a week	58 (17.6)
Once a week	47 (14.1)
Borrowing laptop	243 (40.5)
Content covered in specified time	410 (68.2)
Use of technology tools (access to hardware and software)	120 (57.7)
Experience in online teaching/learning	87 (41.8)
Mental health (stress, anxiety)	120 (57.7)
Content covered	28 (13.5)
Time management appropriate	467 (77.8)
Query solved	423 (70.5)
Technophobia	43 (27.2)
Eye strain	67 (74.5)
Able to concentrate	360 (59.9)
Health affected	386 (64.3)
Stress and anxiety	368 (61.3)
Traditional method is better	257 (42.8)
Problem with concentration	360 (59.9)
Average time spent in online class	4.5±2 hours

DISCUSSION

The sudden shift from the classroom model almost throughout the globe to online platform raised many eyebrows and people were wondering whether this will continue post pandemic and how this shift is going to impact the worldwide education system. But with the time we have now realised that traditional and online teaching learning can go hand in hand. The current research identifies the specific areas that students perceive as barriers for their successful online learning.

Most of the respondents in our study were Hindus (98.3%), two third of which were males. The user-friendly software used by the students were Zoom, Webex, Google Meet, Microsoft team, among which google meet/classroom (67%) was the most commonly used. Preferred device for joining online class in 95% of student is mobile phone. Lack of prior training in computer handling was seen in 72.2% of these students. Technophobia was present in 22% of student which is an important determinant in other studies were, few students with low computer aptitude had greater barriers to learn online.[8] Mobile network was used for attending class by 97% of the students. Network issues due to different areas of location of student may pose a significant challenge in about 55% of them, where daily interruption was reported by 68.3% respondents.[9] Technology issues were also found in other studies as well.[10] Almost one third (32%) of the students also felt that the content was not covered appropriately.[9] Almost half of them preferred English language as a medium of communication during the online classes, communication channel has been seen as barrier in other studies as well.[11]

Studies have shown positive impact, one of the reasons being freedom of interaction from any location.[7,12] Techno savvy behaviour was assumed due to the fact that most student were of electronic stream but low retention rate (either their video or audio off) was found, which is about 14.8% in current. study. Some studies have also shown that online format has lower course persistence than f2f interaction.[13] Eye strain was a major issue in 74.5%, Stress and anxiety in 61% followed by difficulty in concentration in 40% of the students, but recorded lecture can be a rescue for these problems.[14] Health issues (64.3%) arising as a result of longer duration can be seen as a barrier. The problems can be sought out by mindful thinking to facilitate its usefulness in normal routine, apart from pandemics. Almost less than half (43%) told that they would still prefer traditional way of teaching and learning, reasons being network issues, lack of personal interaction, conduction of exam easy in offline mode, practical classes, better learning, problem solving is better, eye to eye contact, financial issues in recharging for data pack to access internet, extra time given in classes and group work, health issues, barrier in effective communication, loneliness, and frustration in online mode, stress, anxiety, disturbances by siblings, background noise, data speed, technical disturbances, subjectivity of better understanding offline, lack of two way communication, leads to poor learning.

Online learners may encounter the lack of support and services such as providing tutors, computer handling skills, and technical assistance that can affect quality. The barriers in online learning can be categorised as those of students, their socio demographic characteristics, financial constraints, their needs and motivation, along with those of instructors, their abilities, pedagogical skill, lack of training.[15-17] Creating proactive supports for faculty and students can be an inexpensive endeavour. Course content, curriculum design, resources, assessment and evaluation can also be a challenge in online mode. Institutional/organisational/administrative factor are structural constraints which can be taken care by technology and ergonomics. Technology can be a barrier as well due to decreased f2f interaction and problem with multimedia and internet connection due to high cost incurred, but willingness and innovation by institution can help in solving this problem.[18]

Providing infrastructure, devices and connectivity, appropriate bandwidth and internet access for learners, along with standardized course design, clarity of instructions, open communication between faculty and students, feedback on student progress and experience, monitoring and evaluation should be planned ahead to utilize online learning maximally for students benefit. The only need that exists is to reduce the gap of challenges and student expectations.

From an institutional perspective, online modalities allow colleges to offer additional courses in post-secondary education, increasing student access to required courses, reducing dropouts. The institutions must plan ahead in stepwise manner and gauge the performance before the expansion of courses so that they are at par with the traditional methods.

Assessment has to be planned accordingly in online teaching learning, instant feedback and immediate response are not possible in asynchronous environment.[19]We have to think how to assess the competencies, with the availability of software which permits real time interactivity such as Google Meet, Zoom or Skype, through which students can be assessed. Personalized interaction and feedback with the students may be very productive yet taxing for the teachers. More interaction can be done through fixed time slots for personalized interactions through virtual mode including messaging and E-mail. Group feedback is another technique, where all assignments and feedback are available for all members to view and correct themselves, making the whole process transparent. The interaction among the electronic student should be such that it ensures correct and complete transfer of content to the learner. Virtual classroom can be a rescue to the practical session in exceptional circumstances. Charting out of the problem areas leads to prioritizing and decision making

for improvement. The interaction can be designed to improve the pedagogy approach taking into account multifactorial components of education cycle to increase the likelihood of successful teaching and learning. Mindful thinking will be spreading out higher education courses and facilitate the usefulness in normal routine apart from pandemics.

The difficulties encountered can be overcome by planning ahead by the instructor, the layout of course and replanning with the help of feedback of the students. Quick survey conducted to understand the demography of the class can help in curating tool according to the student need. Self-reporting and difficulty in recall bias can be limitation of the study.

CONCLUSION

Deliberate effort to inculcate digital literacy requires technology related information, accessibility, continuous utilization of the newer methods and critical evaluation to enhance the teaching learning skills, Education cannot be limited to organisations, time and place, new education should help students to learn, how to learn and what to learn. Rethinking on delivery of education the organisation must take in account of all the stakeholders (teacher, learner and institution), barriers at all levels, gains from past experience, resource commitment, pre-planned curriculum and team effort. Online learning is powerful tools in delivering the teaching learning process when the pandemic ends, albeit in predesigned formats.

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