



FLIPPED SIDE OF E-LEARNING AMID COVID OUTBREAK IN INDIA: A SURVEY-BASED STUDY

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ARTICLE INFO

Article History:

Received 14th March, 2021
Received in revised form
25th April, 2021
Accepted 28th May, 2021
Published online 26th June, 2021

Key Words:

E-Learning, Covid-Outbreak,
Pandemic, India.

ABSTRACT

Background: Covidvirus emerged from China in the end of December 2019 and crippled the whole world immediately. To curb the spread of this virus, complete lockdown in India was implemented by the government. Though it helped in slowing the chain of infection but economical and educational sectors got inflicted severely due to this lockdown. Traditional method of teaching had to switch from offline learning to e-learning. Though it is 21st century and people are supposed to go hand in hand with technology, still majority of Indian students is not friendly with the advanced means of learning. Consequently, Indian students faced several issues related to e-learning programs amidst pandemic. **Objectives:** To find out the flipped side of e-learning faced by Indian students. **Methods:** One hundred and sixty-eight students (n=168) from high school to higher education were approached through snowball sampling method. A self constructed questionnaire was designed for this study to assess the issues caused by e-learning during covid pandemic. **Results:** Findings reveal that purchasing gadgets and internet services for attending e-learning programs are financial burden for most of the students. Technical issues produce problems in attending e-learning programs. Students stated that e-learning does not help them in study as effectively as offline learning. They also faced psychical and psychological problems due to attending e-learning programs for prolonged period. Overall findings show that students preferred offline learning over e-learning programs. **Conclusion:** E-learning has provided students an opportunity to learn in the pandemic but they have been dealing with several financial and health related issues. Silver linings were reported in the propagation of e-learning but it was not as flourishing as offline teachings.

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Citation: Dr. Kehksha. "Flipped side of e-learning amid covid outbreak in India: A survey-based study", 2021. *International Journal of Current Research*, 13, (06), 17726-17731.

INTRODUCTION

In the end of December 2019, the whole world witnessed a deadly virus known as SARS-CoV-2 or covid-19 emerged from Wuhan city of China.⁽¹⁾ Though initially, it did not wreak havoc among people but due to its rapid spread in 28 countries till 21st February 2020, people were frightened by it.⁽²⁻³⁾ WHO declared it pandemic on 11th March 2020 as it inflicted a large number of people all around the world.⁽⁴⁾ There were 750,890 active cases across the globe till the end of March 2020, out of which 36,405 people were died due to this disease.⁽⁵⁾ In India, 1,397 active cases were reported till this time.⁽⁶⁾

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Since very little known about this virus and lack of vaccination, a long chain of precautions was advised by the health experts. Indian government also instructed people to maintain physical distancing, social distancing, wearing masks, sanitization etc. in order to halt its spread. First and foremost precautionary measure implemented fiercely on a large scale by Indian government was "Janta curfew" or one day complete lockdown announced on 22nd march 2020. It was later extended for a longer period. In this extended lockdown period except for emergency services; transportations, international flights, hotels, motels, marriage halls, restaurants, shopping malls etc. were completely closed off.⁽⁷⁾ Educational institutions were also completely closed off in this lockdown period. This shutdown kept 321 million Indian students away from schools and colleges.⁽⁸⁾ So in order to continue learning, educational institutions were instructed to teach the students through e-learning.⁽⁹⁾

E-learning is defined as the teaching and learning method which is facilitated and supported by internet technologies.⁽¹⁰⁾ E-learning provides students facilities of attending lectures, preparing assignments and submitting them within a certain period, online quiz, examination, discussion etc. at a single forum while sitting at home.⁽¹¹⁾ Before covid pandemic, e-learning was not popular among Indian students and only a very small number of students learned through this method. Hence introducing students to e-learning lured them initially but their presence started decreasing gradually after some time.⁽¹²⁾ Studies suggest that lack of social interaction, financial status to access smart devices & Broadband services, poor network connection and lack of knowledge to run these devices decrease motivation of the students to attend e-learning programs.⁽¹³⁾ Furthermore, language bar is also a significant barrier for Indian students. Most of the students in India either study in Hindi or in their regional language but all these applications run through English which is not their first language. That's why Indian students trouble understanding these applications.⁽¹⁴⁾ Before pandemic neither students nor faculties were aware of e-learning process, hence its abrupt implementation produced frustration among them and affected teaching and learning. Hasan & Bano (2020) demonstrated that perception of e-learning crackup significantly affects psychological distress among students.⁽¹⁵⁾ One study conducted in Pakistan on medical students and teachers demonstrated both advantages and disadvantages of e-learning. Distance learning, accessibility of teachers and comfort in attending lectures have been reported as the positive sides of e-learning. Students also claimed that e-learning makes them active learners. On the other hand, inability of teaching skills through e-learning, poor attention, lack of discipline, limited resources and high plagiarism in assignments were disadvantages of e-learning.⁽¹⁶⁾ Another study conducted on polish medical students shows that feasibility of getting education at home, continuous accessing of study material online, self paced learning and learning in comfortable surrounding are positive sides of e-learning while lack of real interaction with the patients and IT equipment related issues are its limitations.⁽¹⁷⁾ In a study, Chinese students reported that studying at home during covid-19 increased responsibility and sense of independent learning among them but they also suffered from poor concentration and lack of motivation for e-learning programs. Technical issues and lack of private space for attending lectures also created problems for them.⁽¹⁸⁾

MATERIALS AND METHODS

Aims: This study aimed to assess the issues of e-learning on five domains as financial burden, technical issues, efficacy of teaching and learning method, physical health and psychological health.

Sample and sampling design: Present study was conducted on a sample of one hundred and sixty-eight students (n=168) approached through snowball sampling method. Only those students were taken as sample who were currently enrolled in educational institution and attending e-learning programs in covid pandemic period. Those students who were suffering from visual and/or hearing impairment or enrolled in distance learning programs were excluded from this study.

Tool: A questionnaire containing multiple items on five domains was constructed by the researcher in order to know

the issues related to e-learning. Construction of the questionnaire was based on an online discussion with the students attending e-learning programs. On the first domain financial burden; two items as “*purchasing gadget for e-learning programs during pandemic caused financial strain on my family*” and “*getting internet recharge for e-learning is a financial burden*” were included. Second domain deals with technical issues students have been facing during e-learning programs. This domain contains two items as “*little knowledge of advanced technology makes it more difficult to attend e-learning programs*”, and “*most of the time I trouble with network issues*”. Third domain assesses the efficacy of teaching and learning method of e-learning. There were five items in this domains i.e. “*online classes are as effective in clearing concepts of studies as offline classes*”, “*study related doubts can't be clear in the absence of real interaction with the teachers*”, “*e-learning has made education easier to access for every learner*”, “*online classes are monotonous*” and “*online examination can't testify the knowledge of students*”. Last two items of this questionnaire concern about physical and psychological health of the students as a result of e-learning. These items were “*I suffered from visual and auditory ailments due to continuous exposure to screen during e-learning programs*” and “*I feel more mental pressure for attending e-learning programs than to offline classes*”. All the items were rated on four point scale as “strongly agree”, “agree”, “disagree”, “strongly disagree”. Two additional questions as “*in e-learning programs students become active/passive learners*” and “*I would prefer to learn through offline medium/ e-learning*” were also asked from the students to get an overall idea about e-learning.

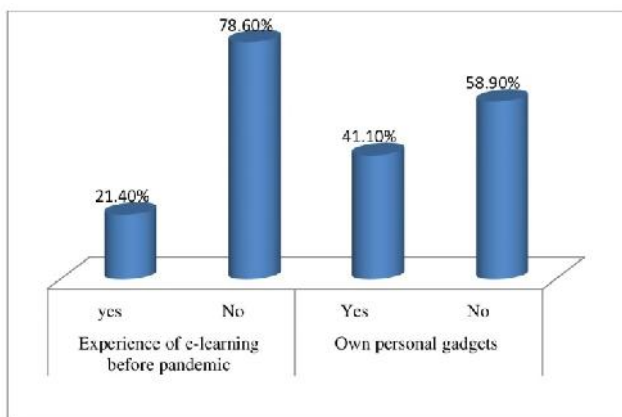
Procedure: Initially, an online discussion with the graduate students was done in order to know their viewpoint regarding e-learning programs in covid pandemic. Based on their views, a questionnaire in English language was constructed which contains five domains as financial burden, technical issues, efficacy of teaching and learning method, physical health and psychological health. A translated Hindi version of the questionnaire was also designed with the help of a language expert for Hindi speaking students. A google document for the questionnaire was created and its link was sent to the students through social media platforms like personal mail address, whatsapp groups and facebook messenger. All the receivers of the link were also asked to forward it to the other students. Data was collected between March and April 2021 and analyzed by using IBM SPSS version 20.

RESULTS

Findings indicate that 50% students were between 16-20 years, 40.5% were between 21-25 years and only 9.5% were above 25 years of age. 79.2% students were girls while 20.8% were boys. 70.8% were from urban areas while 29.2% were from semi-urban areas and remaining 16.7% students belonged to rural areas. 13.7% students were from upper class, 84.5% were from middle class and only 1.8% was from lower class. Educational findings suggest that 4.8% were the students of high school, 10.7% were from intermediate, 61.9% were graduates and 19% were post graduates. 3.6% were enrolled in diploma and other courses. 54.8% students were learning through Hindi medium while 45.8% were studying through English medium [Table-1].

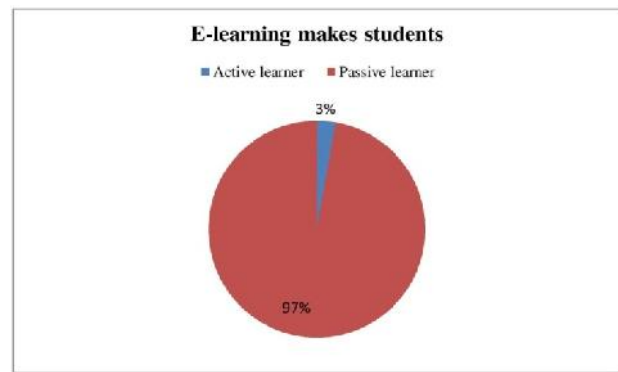
Table 1- Socio-demographic profile of students

| Variable | | Frequency (n=168) | Percentage (%) |
|----------------------|-----------------|----------------------|-------------------|
| Age | 16-20 | 84 | 50% |
| | 21-25 | 68 | 40.5% |
| | Above 25 | 16 | 9.5% |
| Gender | Female | 133 | 79.2% |
| | Male | 35 | 20.8% |
| Resident | Rural | 28 | 16.7% |
| | Semi-urban | 21 | 29.2% |
| | Urban | 119 | 70.8% |
| Socioeconomic status | Upper | 23 | 13.7% |
| | Middle | 142 | 84.5% |
| | Lower | 3 | 1.8% |
| Education | High school | 8 | 4.8% |
| | Intermediate | 18 | 10.7% |
| | Graduate | 104 | 61.9% |
| | Post graduate | 32 | 19% |
| | Diploma & other | 6 | 3.6% |
| Medium of education | English | 77 | 45.8% |
| | Hindi | 91 | 54.2% |

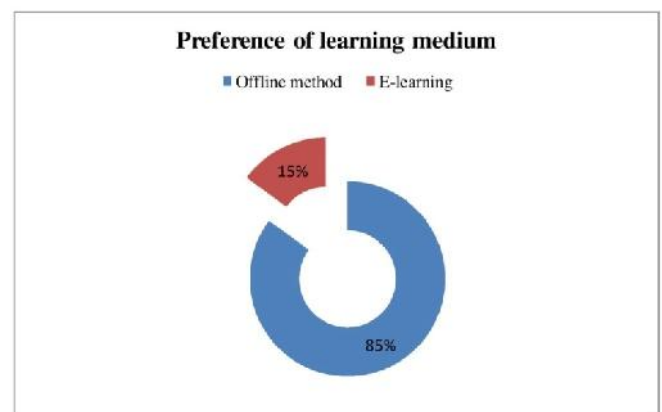
**Figure 1. Percentage of students experienced for e-learning method and having personal gadgets**

78.6% students didn't have experience of e-learning before pandemic while 21.40% students had attended e-learning programs before pandemic. On the other hand, only 41.10% students had personal gadgets while 58.90% students did not have personal gadgets for attending e-learning programs [Figure-1].

50% students agreed that purchasing gadgets for e-learning programs during pandemic and internet recharge are financial burden for them. 55.4% students agreed that little knowledge of advanced technology makes e-learning more difficult. 50.6% students agreed that most of the time they troubled with network issues. Third domain "efficacy of teaching and learning method" shows that 42.3% students disagreed that online classes are equally effective in clearing concepts as offline classes. 58.9% mentioned that study related doubts cannot be clear in virtual interactions with the teachers. However, 58.9% students agreed that e-learning has made education easier to access for everyone. 56.6% believed that online classes are monotonous and 51.8% also agreed that online examination can't testify the knowledge of the students in real sense. 49.9% students reported that e-learning has produced visual and auditory problems due to continuous exposure to digital screen. 48.2% agreed that e-learning caused them more mental pressure than offline classes [Table-2].

**Figure 2. Percentage of active and passive learners during e-learning programs**

97% students stated that online class makes students passive learners while only 3% students stated that e-learning makes them active learners [Figure-2].

**Figure 3. Percentage of preference for offline method and e-learning method**

85% students stated that they would like to learn through offline medium while only 15% students preferred e-learning programs [Figure-3].

Verbatim of students on e-learning

Students were also asked to explain their views on e-learning programs. Out of 168 students, only 102 students (60.71%) responded to this item. 10.73% participants provided mixed responses. They favoured e-learning but they also described several issues of e-learning programs. 69.60% students provided negative responses for e-learning and mentioned only problems. Only 19.60% students favoured e-learning. Some of the responses are following-

A: "It saves time, energy and money in the way that you don't have to travel to the classes and attend them back to back while on the other hand, they are boring, less interactive and difficult to understand and the biggest problem is network issues."

B: "Offline classes are better than online classes because in online classes we can't interact with other students and teachers. In online class, we can't discuss difficult topics with class fellows so online classes are not good as much as offline class."

C: “E-learning is not effective and it perpetually fails in students to grow lazy and not be attentive in their further education process.”

D: “Not everyone can access the internet facilities in times of financial crisis. Private companies charge so much for one month data pack and 1.5 GB is not enough to attend all the classes online. One who is already in crisis can't think of having a wi-fi connection. Not every learner can get education. Mainly children of primary classes are facing issues with keeping the students up to the mark. It is also a reason for online classes. Parents are paying fees in lakhs and thousands to the schools because their children are attending online classes even in which they don't get anything. Parents are suffering from this loss for the sake of saving their children's academic year. Offline classes should reopen as soon as possible with covid precautions. Everybody should value education because the students are the future of India and we should not compromise with education.”

Majority reported that purchasing gadgets and internet facilities for attending e- Majority reported that purchasing gadgets and internet facilities for attending e-learning programs during pandemic caused them financial burden. India has been facing complete or partial lockdown since the emergence of covid disease. This lockdown period has affected economical system dearly.⁽²⁵⁾ Millions of people have to lose their job or they were getting or they were getting half of their salaries in this period^[26-29]. That's why students reported that accessing digital devices and internet facility are financial burden on them. half of their salaries in this period^[26-29]. That's why students reported half of their salaries in this period.⁽²⁶⁻²⁹⁾ That's why students reported that accessing digital devices and internet facility are financial burden on them. Students stated that offline learning helps them in understanding the study concepts more than e-learning. Furthermore, they also reported that virtual interaction with teachers does not help them in study.

Table 2. Frequency of responses on all the domains of e-learning

| Domain | Items | Strongly agree | Agree | Disagree | Strongly disagree |
|--|---|----------------|------------|------------|-------------------|
| Financial burden | Purchasing gadget for e-learning programs during pandemic caused financial strain on my family. | 14 (8.3%) | 84 (50%) | 60 (35.7%) | 10 (6%) |
| | Getting internet recharge for e-learning is a financial burden. | 26 (15.5%) | 84 (50%) | 50 (29.8%) | 8 (4.8%) |
| Technical issues | Little knowledge of advanced technology makes it more difficult to attend e-learning programs. | 11 (6.5%) | 93 (55.4%) | 53 (31.5%) | 11 (6.5%) |
| | Most of the time I trouble with network issues. | 35 (20.8%) | 85 (50.6%) | 38 (22.6%) | 10 (6%) |
| Efficacy of teaching & learning method | Online classes are as effective in clearing concepts of studies as offline classes | 8 (4.8%) | 54 (32.1%) | 71 (42.3%) | 35 (20.8%) |
| | Study related doubts can't be clear in the absence of real interaction with teachers. | 27 (16.1%) | 99 (58.9%) | 34 (20.2%) | 8 (4.8%) |
| | E-learning has made education easier to access for every learner. | 15 (8.9%) | 77 (45.8%) | 58 (34.5%) | 18 (10.7%) |
| Physical health | Online classes are monotonous. | 28 (16.7%) | 95 (56.5%) | 41 (24.4%) | 4 (2.4%) |
| | Online examination can't testify the knowledge of students | 46 (27.4%) | 87 (51.8%) | 31 (18.5%) | 4 (2.4%) |
| | I suffered from visual and auditory ailments due to continuous exposure to screen during e-learning programs. | 23 (13.7%) | 83 (49.9%) | 50 (29.8%) | 12 (7.1%) |
| Psychological health | I feel more mental pressure for attending e-learning programs than to offline classes. | 26 (15.5%) | 81 (48.2%) | 52 (31%) | 9 (5.4%) |

DISCUSSION

Most of the students in this study were 16-20 years old, female, urban residents, belonged to middle socioeconomic status and graduates. Majority of them didn't have experience of e-learning prior to pandemic and didn't own personal gadgets for attending e-learning programs. In India, most of the institutions have been providing education through offline medium before pandemic but sudden onset of covid-19 reinforced them for adopting e-learning in order to continue education. That's why students didn't have experience of e-learning before pandemic. Furthermore, India is considered a low income country where only 42% of the whole population has been possessing smart phones currently.⁽¹⁹⁾ Besides it, In India usually two or three family members have these devices and rest of the members share them. This may be the reason that they did not have personal gadgets for attending e-learning programs. Due to deprivation of devices and novelty of e-learning method, students face problems in e-learning programs. Some other issues like costs, inadequate technology, lack of skills and computer anxiety were also reported as the barriers of e-learning.⁽²⁰⁾ Network issues have also been found the most common problem for students. This problem has already been found in several studies.⁽²¹⁻²⁴⁾

In e-learning programs, students deal with network issues. Most of the time, they lose connection during lectures and left important part of it. It is also very impractical for the teachers to repeat the same lesson to each and every student separately. Consequently, students could not understand what is being taught but such problems don't occur in offline classes. In face to face learning, teachers may teach student separately out of the lecture hours but this facility is absent in e-learning programs. It might be the reason that students preferred offline classes over e-learning programs and stated that e-learning programs are not as effective as offline learning. Online examination also does not have the ability of testing students' knowledge sincerely because in online exam presentation of knowledge subjectively and objectively is missing. Practical exams are also not possible through e-medium. This is the reason majority of students reported that online exams are not capable to test the knowledge of students. Several drawbacks of e-learning have been reported in previous studies⁽³⁰⁻³³⁾ but students think that e-learning has made access to education easier for everyone. They can attend lectures while sitting anywhere in the whole world through e-learning. E-learning also helps them in maintaining physical distancing and curbs the spread of covid-19 infection.⁽³⁴⁾ On one hand, students favoured e-learning programs for its easier access; on the

other, they also posited that e-learning programs are monotonous and make them passive learners. It is very difficult for teachers to pay attention to each and every student during e-learning programs. Students also remain silent till the end of lecture in order to inhibit disturbance. Merely looking at the screen and listening in the absence of real interaction makes lectures monotonous and turns students into passive learners.⁽³⁵⁻³⁶⁾ Most of the students stated that due to attending e-learning programs, they suffered from physical health issues like visual & auditory problems. On average, students spend 3-5 hours before digital screen for e-learning. At this time they look at screen and listen continuously without interruption. Consequently, prolonged and continuous exposure to digital screen causes them several issues like eye strain, watering, redness, blurred vision, fatigue, body pain and hearing problems.⁽³⁷⁻³⁸⁾ Students also reported that e-learning caused them more mental pressure in comparison to offline classes. In offline learning, students get prepared for institution, meet with their class fellows and have interaction with them in actual environment. Socialization in the real world reduces their stress and makes them happy.⁽³⁹⁾ On the other hand, e-learning doesn't provide socialization to the students and they just sit before screen idly for a longer duration. That might be the reason students feel mental pressure for attending e-learning programs. When students were asked about their preference for method of learning, majority preferred offline medium of learning over e-learning. A study revealed that 77.4% students have negative perception for e-learning and most of the students favoured offline teachings and think that e-learning has little impact on their learning.⁽⁴⁰⁾ Though a review study also suggests that e-learning is equally potent as offline learning⁽⁴¹⁾ but findings of the present study suggest that e-learning causes several problems to the students and offline learning is more effective method than e-learning programs.

CONCLUSION

E-learning is the only way to continue teaching and learning in covid pandemic all around the world but socioeconomic status, infrastructure and developmental status of a particular country affect the efficacy of e-learning method. Students have been getting education through e-learning but it is not beneficial for them. Socioeconomic status, medium of language, less knowledge of advanced technology are reducing the positive outcome of learning. Prolonged and continuous exposure to digital screen is also causing them mental and physical health issues. Therefore, government officials, teachers, mental health experts and policy makers need to be concerned for the repercussions of e-learning and they should make out the way which is equally beneficial for all the students of different backgrounds for providing better education.

Acknowledgment: I acknowledge this work to all the students participated in this study.

Key points

-) Most of the students don't own personal gadgets for attending e-learning programs. They think that purchasing gadgets and internet services are financial burden on them.
-) Technical issues make e-learning programs difficult to attend and understand study related topics as well.

-) Prolonged and continuous exposure to digital screen for attending e-learning programs produces auditory and visual ailments among students.
-) E-learning makes students passive learners.
-) Students preferred offline learning over e-learning.

Conflict of interest- Nil

Funding- Nil

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