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Scope and limitations of digital learning's in developing countries: A real time survey

Kavita Munjal◆, Gautam Kumar*, Vinod Gauttam**, Anchal Arora*** and Jyotiram Sawale**

Department of Pharmacognosy, M.M. College of Pharmacy, M.M. (Deemed to be University), Mullana-133207, Ambala, Haryana, India
*M.M. Institute of Computer Technology & Business Management, M.M. (Deemed to be University), Mullana-133207, Ambala, Haryana, India
**IES Institute of Pharmacy, IES University, Bhopal-462044, Madhya Pradesh, India
***Department of Pharmacology, All India Institute of Medical Sciences, Bathinda-151001, Punjab, India

Abstract

Since its inception in 2019, coronavirus wreaked havoc on health and economical systems of the world. The impact of COVID-19 on Education system is most important area of concern as economy and health structures can be reformed, but compromised education system can damage even future hope of the globe. Resourceful educational systems were able to opt certain technological system to provide the best possible care of their scholars through IT and other means of AI. But, developing countries, like India where the reach of internet connectivity and teaching methodologies are major barrier while adopting the online mode of delivering the syllabi content. In our previously published survey report on outcome of online teaching-learning during COVID-19, we concluded that digital learning cannot replace the conventional methodology of education though it can help in building education system more effective. The announcement of third wave of COVID-19 by WHO sparked panic among students as well as educational, systems. This paper is a small initiative to understand the students' perception and adaptation towards digital education reforms along with their sentiments ranging from complete acceptance of online classes over traditional teaching techniques. In this survey, we shared online questionnaire in different educational institutions of India through different stake holders. We received the response of 284 students from 12 states of the country.

Our survey reports around 70% students are feeling fit to face the third wave of COVID as a student. Zoom app has established as more convenient and popular platform to get connected for digital learning. About 60% of students are comfortable while adopting the digital learning and study from home. Certain issues related to training of faculty while adopting digital learning style and methodology, practical exposure and compromised one-to-one interaction is still a big challenge for the students.

1. Introduction

The novel coronavirus disease (nCoV-19) was firstly reported in Wuhan, Hubei Province of China at the end of the year 2019. The World Health Organization declared it as 'pandemic' on 11th March 2020 (Upadhyay *et al.,* 2022). Education is one of the most affected sectors due to COVID-19, the pandemic. Around the globe, most countries have ordered to shut all educational institutions. Since they had to protect their students from viral exposures, which are likely in a highly socializing student society, the formal structure of educational systems came to a halt. This indefinite closure of schools and colleges pushed the system to find out the alternate method to be adopted to fulfill the completion of mandated syllabi within the time window set by the academic calendar (Essgaer and Nasir, 2021). Nonetheless, COVID-19 has prompted educational institutions around the world to investigate innovative techniques in a timely manner. During the first two waves of COVID, organizations such as the United Nations Educational Scientific and Cultural Organization (UNESCO), the Office of the United Nations High Commissioner for Human Rights (OHCHR), the International Federation of the Red Cross and Red Crescent Societies (IFRC), and the World Health Organization (WHO) have advised governments to provide well-prepared, acceptable, adaptive, and accessible education settings in schools and universities to all students, through any of the methods that can ensure the continuation of education to every single student (Pokhrel and Chhetri, 2021). As the result, remote online learning and a variety of distribution methods were developed for the academic content delivery to all stakeholders of education systems. Several methodologies based on AI, IoT, ICT picked up for the purpose and partial success has been achieved too. But, this also resulted in discomfort and lack of communication as compared to classroom teaching (Almahasees *et al.,* 2021; Munjal *et al.,* 2021). In contrast, many institutions have also sparked fresh examples of educational innovation involving digital inputs. Though, it seems the slow rate of reform and adoption by academic institutions, which continues to use millennia-old lecture-based teaching methods, embedded institutional biases, and outdated classrooms, this is a silver lining on a black cloud (Ahmadon *et al.,* 2020).

Corresponding author: Dr. Kavita Munjal
Assistant Professor, M. M. College of Pharmacy, M. M. (Deemed to be University), Ambala, Haryana, India
E-mail: Kavitamunjal915@gmail.com
Tel.: +91-8860801205

Fortunately, the advancement of Science and Technology helped the world community against this COVID pandemic by inventing Vaccines against the virus. The entire world was having an opinion that the permanent solution of COVID-19 has arrived. Inspite of booster doses, the vaccines could not able to control the spread of infection and health consequences. The mutagenic property of the coronavirus made it very much difficult to control, as the virus entered into the phase of mutations like delta, kappa, *etc*., (Forni and Mantovani, 2021). At present, the World is facing great health concerns due to new corona variants like "Omicron". The variant has highly contagious and the rate of infection is increased in the world like never before although the rate of mortality is drastically reduced (Mandal *et al.,* 2021). This triggered pain and fear of uncertainty to the governments of different countries and in response; they shut almost all sectors/activities that are non-commercial and responsible for social gathering. This results in a continuation of non-contact based virtual teaching to impart syllabus-based learning to the scholars (Dhawan, 2020).

India is a developing country and exploration of e-learning over traditional learning is required for adoption of online education system. It has been almost more than a year since digitalization reforms in education in India specifically concerning e-learning that students have started learning *via* online mode. Recently, in a major push for digital education, Finance Minister Nirmala Sitharaman in her Budget 2022 speech announced a host of measures for the COVID-19 pandemic-hit sector. Respected Finance Minister Sitharaman stated that a digital university will be established to provide students with access to world-class quality education under ISTE standards. "PM eVIDYA's "one class, one TV channel" programme will be expanded from 12 to 200 channels to compensate for the loss of formal schooling caused by the COVID-19 pandemic; all states will be able to provide supplemental education in regional languages for grades 1 to 12 as per her announcement (indiatoday.in). Although, online classes have limitless potential, educational institutions face challenges in merging both theoretical and practical aspects of education into an online format. Occasionally, there can be issues with the university's digital platform, as well as delays in students' internet connections (Pham *et al.,* 2021; Munjal *et al.,* 2020).

Digital learning has yet to be evaluated in an unprepared environment of transition from traditional classroom learning during unforeseen conditions such as a pandemic sickness. In this light of information, a questionnaire-based survey was conducted among the students studying in different universities across the Indian states to evaluate their perception regarding the effectiveness of e-learning and highlight the concerns faced by them regarding their future plans. In survey report on outcome of online teaching-learning over traditional education during COVID-19 pandemic published in 2020 (Kumar *et al.,* 2020) stated that online teaching-learning cannot replace the conventional methodology of education, but it can build the conventional education system more effective. Thus, it is the time to adopt online education after proper training of both teachers and students. This paper is a small initiative to understand the students' perception and adaptation towards digital education reforms along with their sentiments ranging from complete acceptance of online classes over traditional teaching techniques.

2. Data and Methods

2.1 Subjects

The study was based on the 284 students as participants from various institutions and universities across India (Table 1).

Sr. No.	State	Number of participants
1.	Assam	2
2.	Bihar	16
3.	Delhi	3
4.	Gujarat	3
5.	Haryana	20
6.	Jammu and Kashmir	43
7.	Madhya Pradesh	17
8.	Manipur	1
9.	Punjab	162
10.	Rajasthan	1
11.	Tamilnadu	1
12.	Uttar Pradesh	15
	Total no. of participants	**284**

2.2 Data collection and procedure

This is an online poll based on a questionnaire that focuses on the perspectives of university students on current difficulties in higher education after adopting the online learning system almost since the first wave of COVID-19 in India. They are retaining their viewpoints on COVID-19's third wave and its impact on the educational system. From 15th Jan to 24th Jan 2022, an e-survey was undertaken to collect data using a "Google Form." The questionnaire had a total of ten items, as shown in Table 2. Participants were sent a link to a structured questionnaire *via* e-mail and social media sites. Before doing the online survey, the participants were given complete consent and assurances about the confidentiality of their personal information.

S.No.	Question
1.	Do you feel you are mentally fit to face third wave of COVID as a student?
2.	Which technical platform you are using for online classes?
3.	Do you feel online classes impact your communication and interactive abilities in the real world?
4.	Do you feel now you have the necessary support and resources to effectively study from home in third wave of COVID?
5.	Do you feel due to online education you have lack of practical knowledge?
6.	Have you ever faced any psychological issues due to online education during pandemic?
7.	Are you agreeing online learning can be a complement to traditional learning?
8.	Is ICT or e-learning worth acquiring knowledge?
9.	Do you feel online teaching mostly distracted due to household activities?
10.	Do you feel, further online teaching will impact on your chances of employability?

2.3 Data analysis

Advanced numerical methods, descriptive statistics were used to better comprehend the participants' perspectives. To analyze their mental state, communication and interacting abilities in the real world, psychological concerns related to online education during the pandemic, and so on; a simple percentage distribution was calculated. Various pie charts and bar charts were used to depict the data.

3. Results

The findings were based on the distributed questionnaire among the students from different Indian universities.

3.1 Do you feel you are mentally fit to face third wave of COVID?

'Do you feel you are mentally fit to face the third wave of COVID as a student?' Out of 284 individuals, 197 (69.37%) felt confident in their ability to confront COVID-related health difficulties, whereas 35 (12.32%) were not, believing themselves to be mentally weak or unsuited for the real-world demands of COVID. However, out of 284, 52 students (18.31%) were unsure about the question as shown in Figure 1.
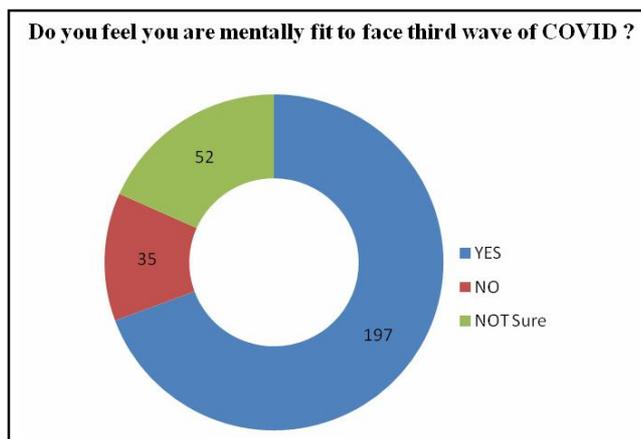

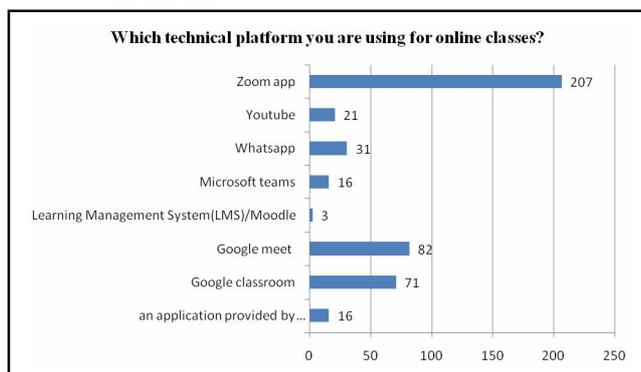**Figure 1: Do you feel you are mentally fit to face third wave of COVID?**

Figure 2: Which technical platform you are using for online classes?

3.2 Which technical platform you are using for online classes?

For the question, 'which technical platform you are using for online classes?' participants chose among the list provided in the question.

The participants had to pick from a list offered in the question. Zoom platform was discovered to be the most popular application among students, with 72.89 per cent of 207 participants across various colleges utilizing it. As shown in the Table, 16, 71, 82, 3, 16, 31, 21 votes were cast for an application supplied by their institutions/universities as shown in Figure 2.

3.3 Do you feel online classes impact your communication and interactive abilities in the real world?

The next question was related to 'do you feel online classes impact your communication and interactive abilities in the real world? The responses to the same question were compiled into a report. The 178 (62.68%) were very concerned and acknowledged that online learning had an impact on their ability to engage in the real world. However, 69 (24.3%) students disagreed, while roughly 37 (13.03%) students were unsure about the question as shown in the Figure 3.
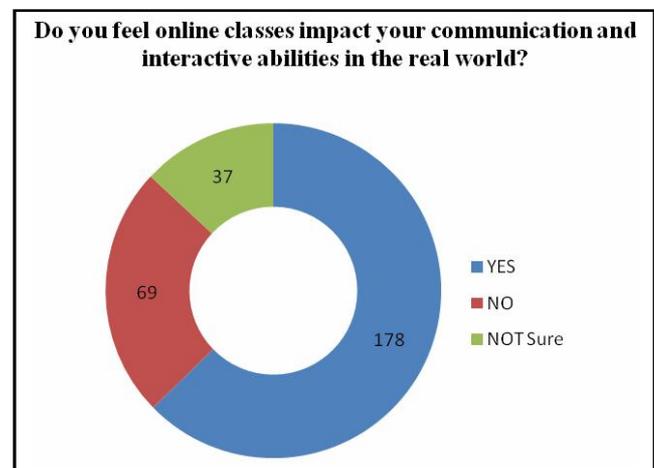

Figure 3: Do you feel online classes impact your communication and interactive abilities in the real world?

3.4 Do you feel now you have the necessary support and resources to effectively study from home in third wave of COVID?

For the question, 'do you feel now you have the necessary support and resources to effectively study from home in the third wave of COVID?' Out of 284 participants, 172 (60.56%) felt ease in studying from home in the third wave of COVID with all of the necessary tools. Furthermore, 72 per cent (25.35%) disagreed, while 40 per cent (14.08%) were undecided as depicted in Figure 4.
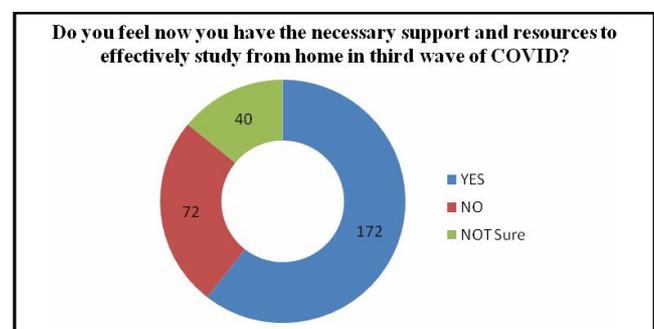

Figure 4: Do you feel now you have the necessary support and resources to effectively study from home in third wave of COVID?

3.5 Do you feel due to online education you have lack of practical knowledge?

Regarding the question, 'do you feel due to online education you have lack of practical knowledge?' Almost all of the participants, 233 (82.04%), agreed that online education does not necessarily lead to more practical exposure and understanding. Despite the fact that 32 (11.27%) of the participants disagreed with the response. 19 people (6.69%) were undecided as shown in Figure 5.
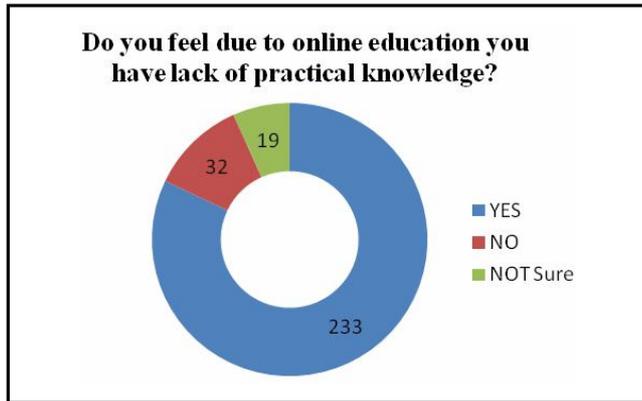

Figure 5: Do you feel due to online education you have lack of practical knowledge?

3.6 Have you ever faced any psychological issues due to online education during a pandemic?

Regarding the participants opinion poll on the question, 'have you ever faced any psychological issues due to online education during a pandemic?' The responses were virtually evenly split between agreement and dissent. Out of 284, 119 (41.9%) strongly agreed with the statement that online education causes various psychological disorders in their thoughts, 135 (47.54%) strongly disagreed, and 30 (10.56%) felt unable to respond to the topic as depicted in Figure 6.
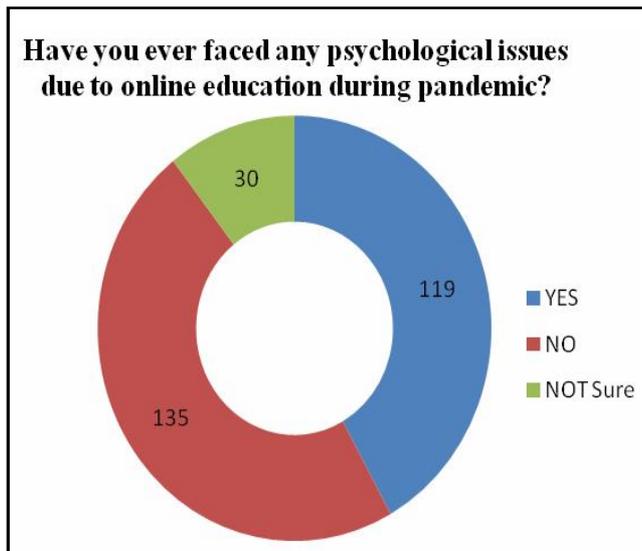

Figure 6: Have you ever faced any psychological issues due to online education during pandemic?

3.7 Are you agree online learning can be a complement to traditional learning?

'Are you agreeing online learning can be a complement to traditional learning?' It was another intriguing question. 108 (38.03%) of the 284 participants agreed that online education can be a supplement to traditional learning; however, roughly the same number disagreed, with 114 (40.14%) feeling more connected and confident in traditional learning methods. However, 62.83 per cent of respondents were undecided on this subject as depicted in Figure 7.
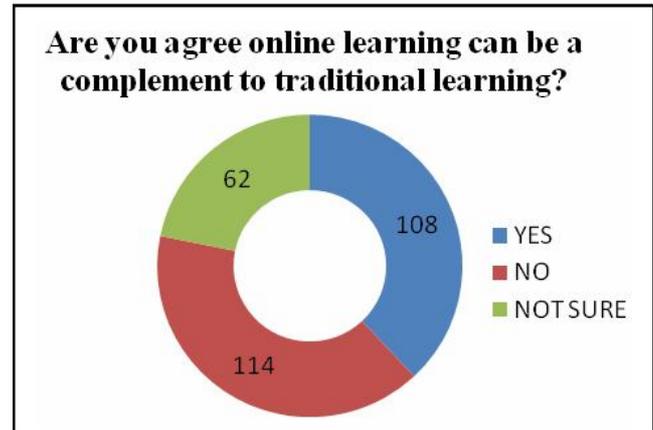

Figure 7: Are you agree online learning can be a complement to traditional learning?

3.8 Is ICT or e-learning worth acquiring knowledge?

In addition, participants were questioned on the following topic: 'Is ICT or e-learning worth acquiring knowledge?' The 112 (39.44%) felt sure with strong response judging e-learning worth in acquiring knowledge. Moreover, mixed responses were observed in participants' disagreement and neutral as 85 (29.93%) and 87 (30.63%), respectively. The 112 (39.44 %) respondents were confident in their assessment of the value of e-learning in terms of knowledge acquisition. Furthermore, participants' disagreement and neutral responses were mixed at 85 (29.93%) and 87 (30.63 %), respectively as shown in Figure 8.
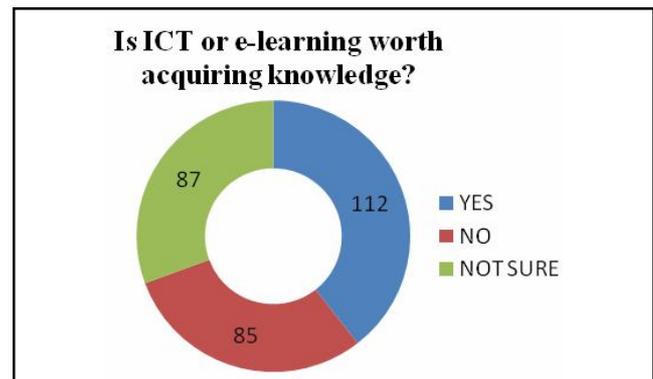

Figure 8: Is ICT or e-learning worth acquiring knowledge?

3.9 Do you feel online teaching mostly distracted due to household activities?

For the question, 'do you feel online teaching mostly distracted due to household activities?' a large number of participants (185,

or 65.85%) agreed that digitally learning *via* e-platforms distracts them a lot owing to home tasks. Though, 72 per cent (25.35%) disagreed, and 25 per cent (8.8%) said they were unsure about the subjectas shown in Figure 9.
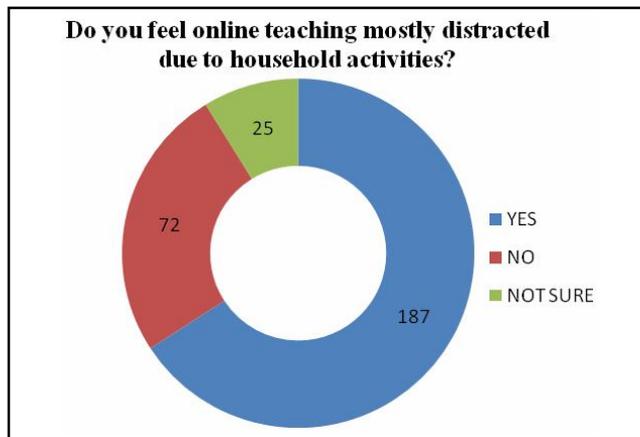
Do you feel online teaching mostly distracted due to household activities?

Figure 9: Do you feel online teaching mostly distracted due to household activities?

3.10 Do you feel, further online teaching will impact your chances of employability?

Then comes the most and the last intriguing and pertinent question among the survey questions: 'do you feel, further online teaching will impact your chances of employability?' 182 (64.08%) of the 284 participants strongly agreed that online teaching will have an impact on their job prospects in the future. However, 49 (16.9%) people said they were unconcerned about their career prospects and disagreed with the afore mentioned question. Further more, 54 (19.01%) of the participants were unsure of the responseas depicted in Figure 10.
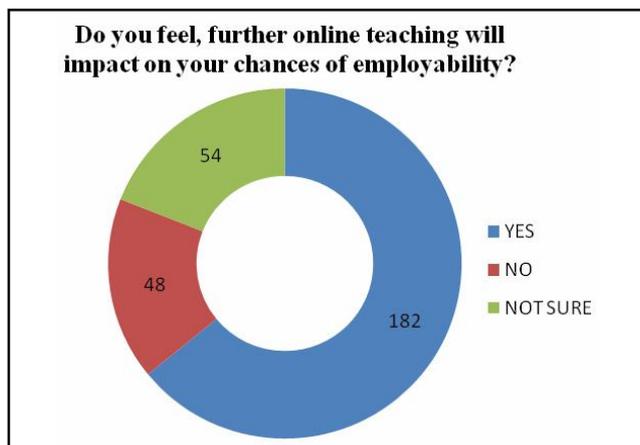
Do you feel, further online teaching will impact on your chances of employability?

Figure 10: Do you feel, further online teaching will impact on your chances of employability?

4. Discussion

The COVID-19 pandemic has affected millions of students worldwide. The sudden transformation in the teaching and learning activities into virtual modalities were carried out in order to continue the academic courses while avoiding people gathering and the potentialrisk of the spread of infection. The present study-

documented, the student perspective of learning delivered through online mode. The survey demonstrated 69.37% students are mentally prepared to face the third wave of COVID-19. The study is showing (78.89%) students were using zoom app for study. 62.68% students were affirmative for adverse impact on communication and interactive ability during studying online related study by Alawamleh *et al.* (2022) also showing the results in support of result of the study. Current study is showing 60.56% participants have the necessary resources means that shows more students have proper recourse to continue study as compare to study carried by Kumar *et al.* (2020) that show 41.9% participants were lacking of resources. Current study shows higher % (82.04%) than study done by Kumar *et al.* (2020) with respect to the factor related to the lack of practical knowledge during online study. The present findings shows (41.9%) participants facing psychological issues during online study that is lesser than the result (61%) shown in study by Choukseyand Agrawal (2021). The study done by Lam *et al.* (2008) shown that e-learning could be complement to tradition learning, current study shows 38.03% participants are also in support of using e-learning as complement to traditional learning. Another author, Choules (2017) stated the use of ICZ/online learning is worth to acquire knowledge. Our study shows 39.44% participants are agred with the concern. The study shows 65.85% participants were distracted due to household activities during online classes in pandemic that is higher than study done by Ambika *et al.* (2021) who reported that as 63%. The study by Singh and Singh (2017) confirms that e-learning is preferred by the students as it is easy to use and occupation oriented that make them ready with job specific skills, but the current survey shows 64.08% participant think taking education by online mode can put impact on their employability. Thus, for educators involved in e-learning must ensure to incorporate, easy to use and occupation oriented modules for e-learning along with flexibility.

5. Conclusion

India is the second-largest populated country in the world. Here a large number of people are involved in teaching-learning activities. The education sector is focusing on exploring the uses of information communication technology (ICT) for making teaching-learning process more attractive and useful. During the COVID-19 pandemic, teaching-learning activities shifted to online learning or e-education practices from the traditional form of education system. The study through the online survey reflected, however, people faced some psychological issue during pandemic but now people are mentally prepared to accept the online education after the 3rd wave of COVID in India. Now students have necessary resources to continue study in online mode and they are agree on point of usefulness of acquiring knowledge through e-learning. Online teaching-learning can not replace the conventional education system, but it can be a complement of tradition way of learning. Survey study is presenting some adverse impact of e-learning due to household activities during online studies at home, adoption of unstructured e-learning system like communication and interactive ability have no suitable environment to get developed. Online education cannot give the full exposure to practical knowledge without doing experiments in lab. Due to studying online, students have fear of employability. To overcome these issue students need proper career counseling and mentoring to be fear free about their career. It is the time to adopt online education after proper training and counseling of both teachers and students.

Conflict of interest

The authors declare no conflicts of interest relevant to this article.

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