

## Online Teaching during Covid-19 Pandemic- Perceptions of Undergraduate Medical Students in Uttar Pradesh, India

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Received: 28-08-2022 / Revised: 26-09-2022 / Accepted: 08-10-2022

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Conflict of interest: Nil

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### Abstract

**Background:** The suspension of regular face to face teaching during Covid Pandemic lead to emergence of e learning with full swing in every field of education including Medical Colleges. Students perceived this unplanned shift differently. So, this study was planned to explore the perceptions of medical students in a private medical university, UP, India.

**Methods:** A questionnaire was designed on google form with close ended questions & likert scale questions. Link was shared with medical students who have attended online classes during Covid pandemic. Respondents were 140 medical undergraduates from 1st Professional, regular & supple batch. Responses were analyzed & results obtained

**Results:** Majority of students (76%) used smart phones to attend online classes & Google meet was the preferred platform (45.35%). Duration of online classes preferred by students was 30-45min (54.28%). Usefulness of online teaching by most of the students perceived as passable (Likert scale, LS- 2.84). Extent of understanding the topic was not equivalent to face to face (LS- 2.9) & internet connectivity posed problems (LS- 3.77) that is why most of the students demanded for reconduction of classes after resumption of regular offline classes (LS- 3.91) Most of them agreed that medical learning is suffering as practical classes cannot be conducted online (LS-3.98). Most of the students (45%) confessed that self-study was less at homes as compared to their hostels. Both students & their parents were worried about quality of studies & their future performance in exams (LS 4.02 &3.66). Students were not in favour of online teaching in future (LS-2.31)

**Conclusion:** Online teaching was well received by medical students but they faced several challenges like sometimes internet connectivity issues, less student teacher interaction,

methodology barriers, less development of practical skills. Despite all the hassles, chain of learning did not break due to online teaching. Efforts should be done to address the problems faced by students at individual faculty level as well as Institute level.

**Keywords:** Covid, Online Connectivity, Smart Phones, Reconductation.

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## Introduction

Information technology has very widely effected our day to day life in almost every aspect, be it health care, education, entertainment, commerce or medical education [1]. During Covid-19 pandemic its utility or importance increased multiple folds when all educational institutions around the world were closed down and gave rise to multiple challenges at all stages and levels of education both for teachers as well as students [2]. Government of India declared a nation-wide lock down on March 25, 2020. As medical faculty in our medical college, our teaching program had been significantly impacted by the global pandemic and lock-down. At that time innovative technologies and learning management systems both for teaching and assessment took a step forward by providing a utilizable solution for teachers and giving policy makers an option to implement the use of information technology during the pandemic for covering the course work.[3] Institutional administrators, teachers, students, etc. made considerable efforts to optimally utilize the available technology for continuing the process of education [1,4]. There are several studies based on the significance and efficacy of implementation of e-learning [1,3,5]. But even after having multiple advantages there were few limitations of e-learning such as social isolation, lack of student - teacher interaction and connectivity issues etc [6-8]. Although Medical Colleges' administrators and teachers took appropriate measures to conduct effective e-learning via e-lectures, e-tutorials, e-case based learning, etc. so that continued education can be provided without getting

much affected during COVID-19 pandemic [7,8]. Various e-teaching softwares were explored by teachers to bring maximum possible ease for students. Our institute also conducted online classes using various e-platforms. It was important to find out our medical students' opinion and views about online teaching and learning who were forced to adjust quickly to learning entirely from home. So, the purpose of this study was to determine the perceptions of medical students of a Tertiary Care Teaching Hospital, UP, Northern India, towards e-learning during the covid-19 pandemic.

## Material & Methods

The study was conducted in a Tertiary Care Teaching Hospital, UP, Northern India among 1<sup>st</sup> Professional medical students from Oct 2020 to Dec 2020 after obtaining the Certificate from Institutional Ethical Committee. It was a cross sectional descriptive study. Total 140 participants were involved. A questionnaire was developed after going through literature search. It had 18 items all together. These items are close ended questions .Out of them 10 items were rated on 5 point Likert Scale: 1-Strongly Disagree (SD), 2- Disagree(D), 3- Neutral (N), 4- Agree(A) & 5- Strongly Agree (SA).

These items were about usefulness of online teaching, extent of understanding, repetition of classes after resumption of offline mode, condition of internet connectivity, apprehension of students as well as their parents regarding examination result outcome & concern for future studies if online teaching continues. 2 items covered demographics, one item to

determine choice of gadgets used for online learning. 5 items were not rated on Likert scale.

The responses were given percentage. These items were related to platform used for e-learning, preferences for online assessment methods, duration of online classes, quantity & quality of self-study at home & psychological impact on academic performance.

## Results

A total of 140 MBBS 1<sup>st</sup> year students participated in the study. Demography & choice of gadgets used by students are listed in table 1. Overall perception & category wise responses of students towards E- learning were calculated on Likert scale, which ranges from 1-5, strongly agree, Agree, Not sure, disagree, and strongly disagree. A mean score was calculated (dividing total value of likert by total no of responses) for each item & according to those students responses are inferred for each item. (Table 2)

For online teaching, platforms used were google meet, google classroom, Webex & zoom classes. The preferences of students are shown in fig 1. The duration of classes preferred by students was different. These were 30-45 min, <30 min, one hour & any duration. (fig 2) The students were also enquired about self-study at home as compared to study at college. The responses were like able to study as before, able to study better in a relaxed manner, study time & quality has reduced & not able to study at home. (Fig 3)

The methods of online assessment were uploading of answer sheets, one line answers, multiple choice questions & viva voce through video conferencing. Different preferences of students regarding online methods of assessment were depicted in fig 4. On enquiring about psychological impact of lockdown on academic performance, the responses were different like adversely affected initially but later normalized, normal initially but affected adversely later, no psychological stress throughout & not sure. (fig 5)

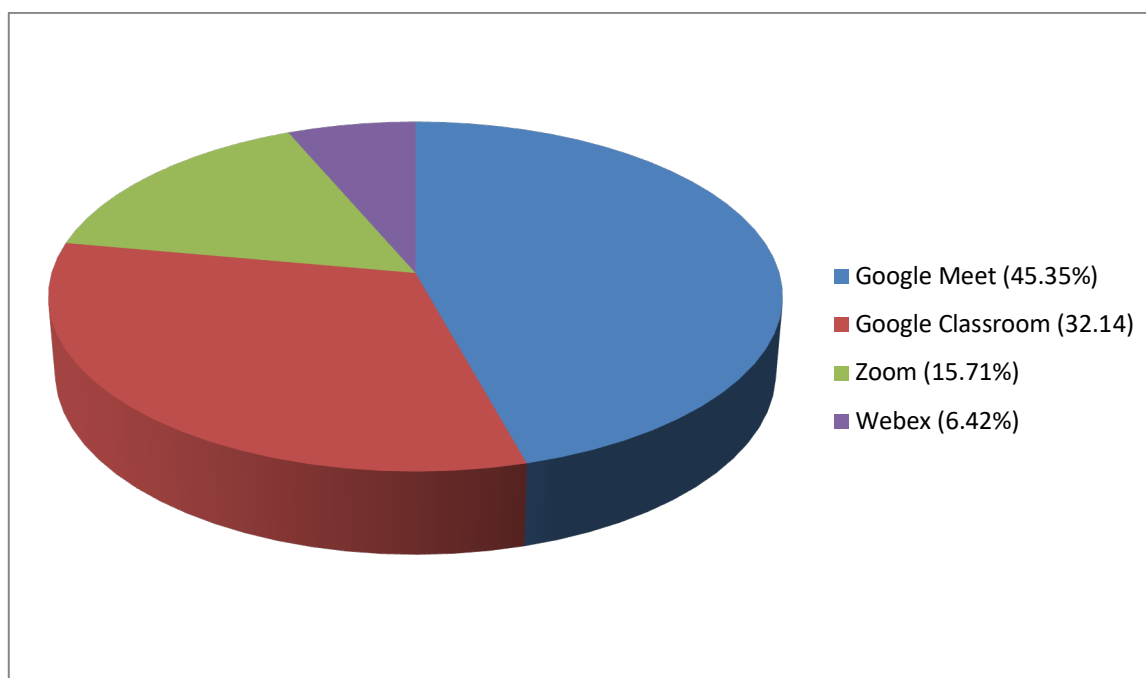


Figure 1: Platforms Preferred by Students for Online Teaching

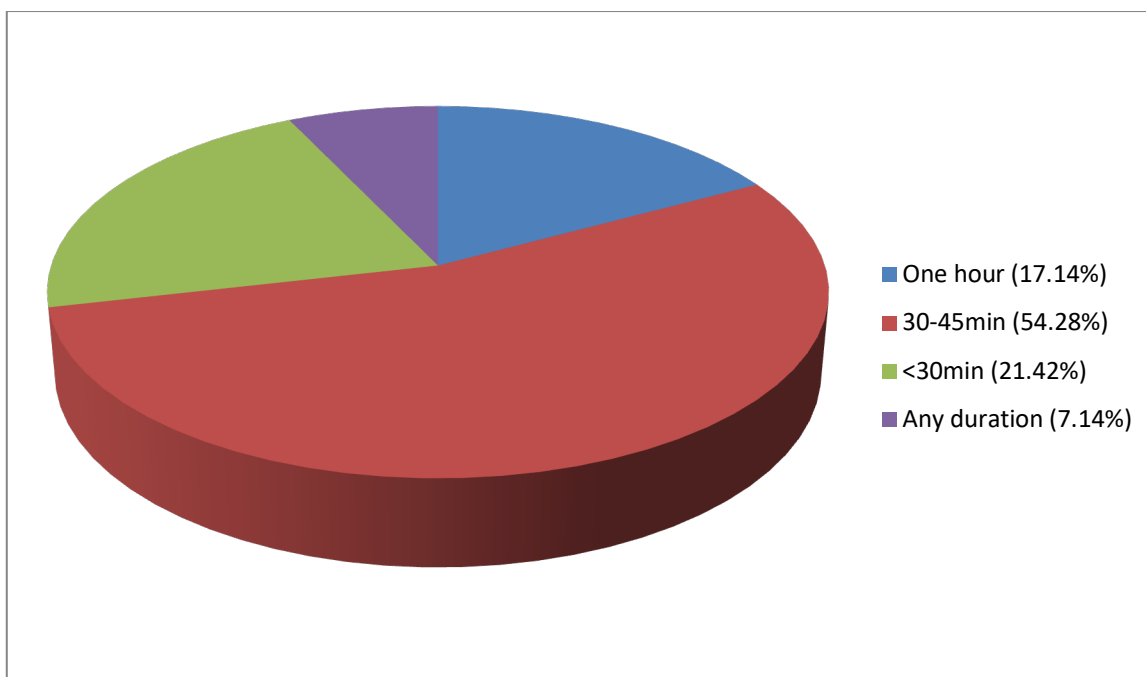


Figure 2: Duration of Online Teaching Preferred by Students

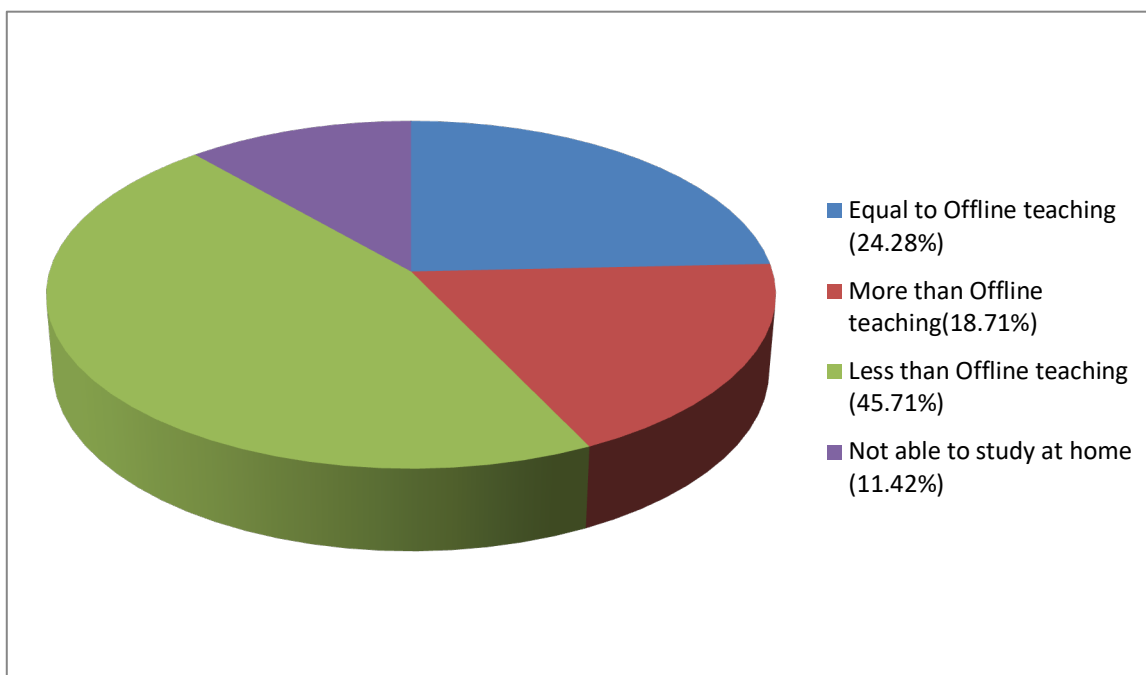


Figure 3: Extent of Self Study by Students During Lockdown

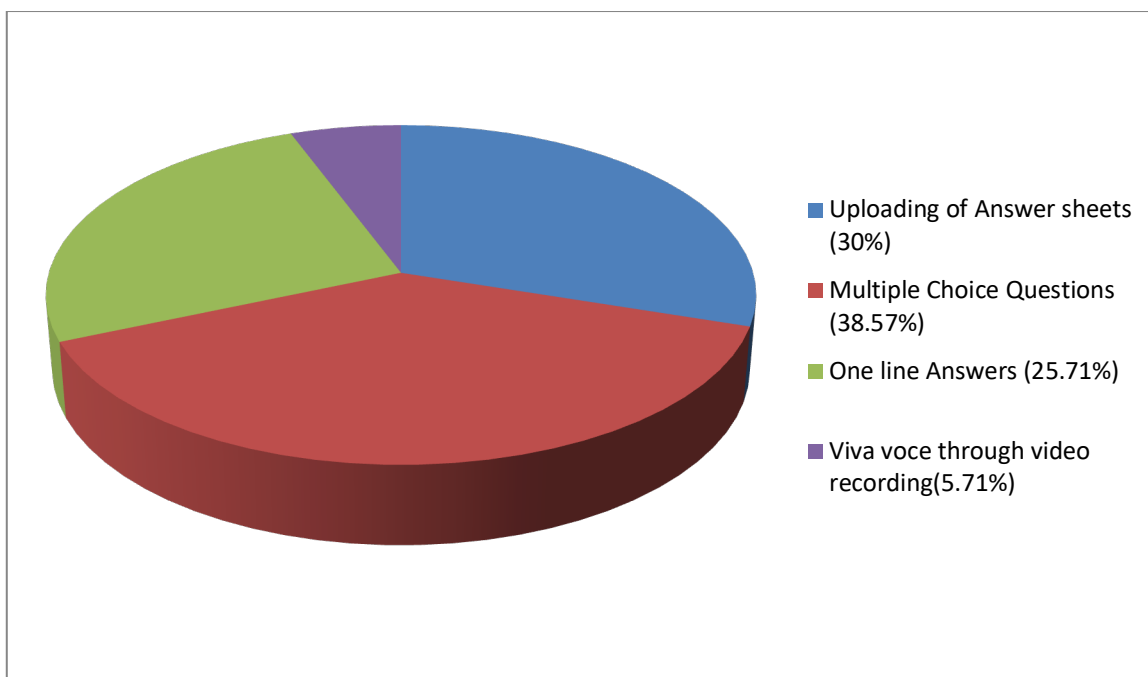


Figure 4: Online Method of Assessment Preferred by Students

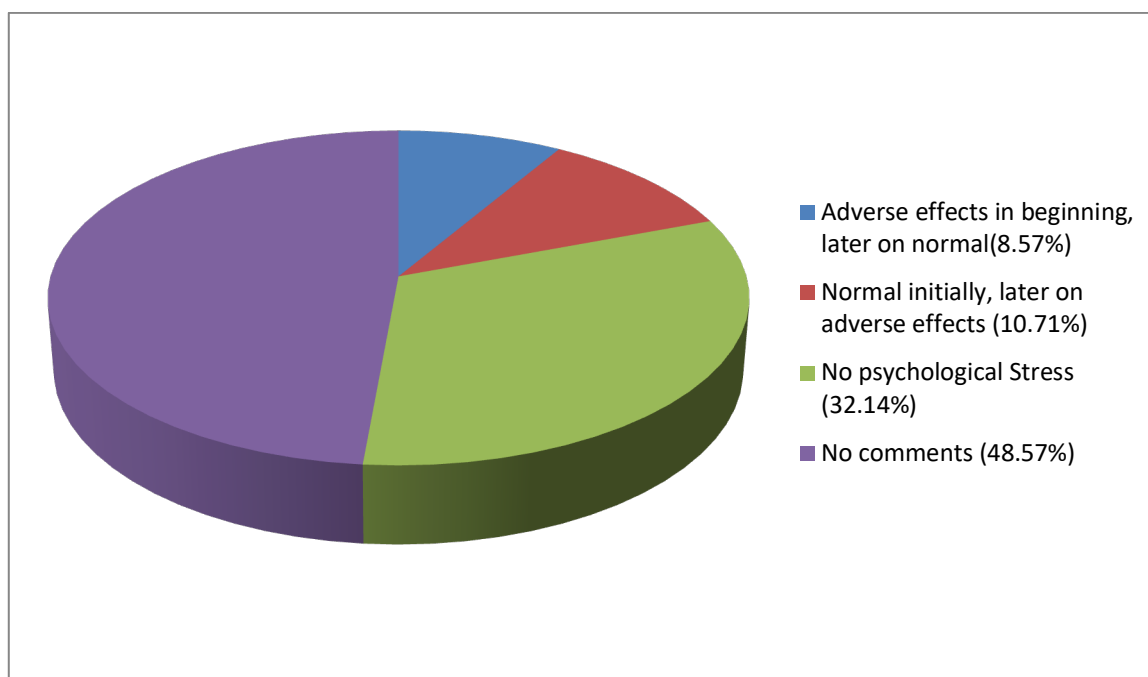


Figure 5: Psychological Impact of Lockdown on Academic Performance

Table 1: Demographics & choice of gadgets used for e learning

Gender	Frequency	Percentage (%)
Male		
Female	86	61.42
Discipline	64	45.71
MBBS (1 <sup>st</sup> year)		
Regular batch	118	84.28
Supplementary batch	22	15.71
Choice of Gadgets/Device		

Mobile	106	75.71
Computer	02	1.4
Laptop	28	20
Tablet	04	2.85

**Table 2: Overall perception and category wise responses of students towards e-Learning**

Items	@ Likert Scale		Mean	Inference
	Responses	Likert value		
1. Online teaching during COVID-19 Pandemic was very useful.	S A – 24 A – 27 N – 22 D – 37 S D – 30 Total - 140	X 5 = 120 X 4 = 108 X 3 = 66 X 2 = 74 X 1 = 30 Total - 408	2.84	Not sure
2. Extent of understanding the topic online is equivalent to regular classroom teaching.	S A – 25 A – 26 N – 27 D – 34 S D – 28 Total - 140	X 5 = 125 X 4 = 104 X 3 = 81 X 2 = 68 X 1 = 28 Total - 406	2.9	Not sure
3. Lack of practical classes during the pandemic affected understanding of subjects.	S A – 62 A – 36 N – 24 D – 14 S D – 4 Total - 140	X 5 = 310 X 4 = 144 X 3 = 72 X 2 = 28 X 1 = 4 Total - 558	3.98	Agree
4. Classes should be reconducted after resumption of normal face to face teaching .	S A – 72 A – 21 N – 19 D – 19 S D – 9 Total - 140	X 5 = 360 X 4 = 84 X 3 = 57 X 2 = 38 X 1 = 9 Total - 548	3.91	Agree
5. Internet connectivity posed problem during online classes.	S A – 60 A – 29 N – 23 D – 16 S D – 12 Total - 140	X 5 = 300 X 4 = 116 X 3 = 69 X 2 = 32 X 1 = 12 Total - 529	3.77	Agree
6. Online teaching have a bearing on the final result outcome.	S A – 25 A – 44 N – 32 D – 19 S D – 20 Total - 140	X 5 = 125 X 4 = 176 X 3 = 96 X 2 = 38 X 1 = 20 Total - 455	3.25	Not sure
7. You were worried about future of your studies, when lock down was imposed.	S A – 65 A – 35 N – 25 D – 09 S D – 6	X 5 = 325 X 4 = 140 X 3 = 75 X 2 = 18 X 1 = 6	4.02	Agree

	Total - 140	Total - 564		
8. Parents were worried for the quality of your studies during the lockdown.	S A – 40 A – 51 N – 22 D – 16 S D – 11 Total - 140	X 5 = 200 X 4 = 204 X 3 = 66 X 2 = 32 X 1 = 11 Total - 513	3.66	Agree
9. Online method of assessment according to you is appropriate.	S A – 18 A – 19 N – 21 D – 37 S D – 45 Total - 140	X 5 = 90 X 4 = 76 X 3 = 63 X 2 = 74 X 1 = 45 Total - 348	2.48	Disagree
10. Online method of teaching should be continued in future.	S A – 10 A – 18 N – 28 D – 42 S D – 42 Total - 140	X 5 = 50 X 4 = 72 X 3 = 84 X 2 = 84 X 1 = 42 Total - 332	2.31	Disagree

Abbreviations: SA- Strongly agree, A-Agree, N-neutral, D- disagree, SD- Strongly disagree  
Score SA-5; A-4; N-3; D-4; SD-1. Mean value is calculated by dividing total value of likert scale responses by total no of responses

## Discussion

The Covid-19 posed challenges to health care system globally. In such a scenario, teaching & training of medical students was a great hassle. This challenge was faced by e- learning technologies & self-study to some extent.

In this study, we analyzed & summarized responses received from students regarding their experience with use of online teaching. Our study indicates that out of 140 students, 75.71% students used mobile phones, 20% students used laptops & rest used computers (1.4%) & laptops (2.8%). The statistics match with a similar study conducted by Abbasi *et al.*, 20209 & Rafi *et al.*, 2020 [9,10]. A very common cause of much mobile use for learning is that it can be used at any place & at any time. The results of Study by Murphy *et al.*, 2014 [11] were different as their first choice among students was laptop followed by mobile phones.

Overall perception of students for online teaching is towards neutral (LS mean 2.8) as assessed by Likert scale & then drawing

an inference. Other studies also concluded negative perception for online modality of teaching [9,12]. Regarding duration of online teaching, most of the students (54.28%) wanted it for 30-45 minutes duration, our results were consistent with [10,13]. This duration can be attributed to maximum attention span, a student can have. In our study, self-study by students at home was less as compared to regular hostel stay by majority of students (45%), reason may be exposure to conflicts among family members. This is in contrast with another study, where most of the students were satisfied with their home study [13]. Most of the students preferred uploading of answer sheets as a method of assessment followed by Multiple Choice questions (MCQs). While in other studies, MCQs were the mainstay of method of assessment [13].

Most of the students (48.57%) preferred not to comment on effect of psychological impact on academic performance while another study conducted by Sharma *et al.*,

2020 [14] concluded that lockdown imposed negative psychological impact.

Most of the students agreed that lack of practical classes affected the understanding of the subject (LS mean 3.98). This is consistent with another study [10]. Students were also willing (LS mean 3.91) to reconduct the lectures after resumption of normal offline classes. This is in line with Rafi *et al* [10]. Internet connectivity posed problems during online teaching (LS 3.77). Several other studies [15,16] also concluded the same.

Students and parents both were worried (LS 4.02 & 3.66 respectively) about quality of studies & its impact on future studies. Further, the students were not in favour of online teaching in future (LS mean 2.31). Another author concluded the same [9].

**Limitation:** One of the limitations of the study is sample population is from a single teaching Institute that too only 1st year students were enrolled. So, results cannot be generalized.

### Conclusion

The overall impact of lockdown caused by COVID -19 on medical students was significant. Though online teaching was well received by students but they had to face several challenges like internet connectivity problems, less understanding of the topic, less interaction of students with faculty & methodology barriers. The concept of online classes is still evolving. All problems experienced by the students should be addressed at faculty level as well as Institute level.

### References

1. L Vitoria, M Mislinawati, N Nurmasyitah. Students' perceptions on the implementation of e-learning: Helpful or unhelpful? *J Physics*. 2018;1088.
2. Aggarwal A, Comyn P, Fonseca PM. Discussion: Continuing online learning and skills development in times of the

COVID-19 crisis. 27 March - 17 April. Available online: [https://www.skillsforemployment.org/KSP/en/Discussions/EDMSP1\\_256625](https://www.skillsforemployment.org/KSP/en/Discussions/EDMSP1_256625)

3. Anca P, Cosmina M. Students' Perception on Using eLearning Technologies. *Procedia Soc Behav Sci*. 2015; 180:1514-1519.
4. CAE Team | Online language training. COVID-19 Virus: Changes in Education. Available online: <https://www.cae.net/covid-19-virus-changes-in-education/>
5. Govindasamy T. Successful implementation of e-Learning: Pedagogical considerations. *Internet High Educ*. 2001; 4(3):287-299.
6. Blas TM, Fernandez AS. The role of new technologies in the learning process: Moodle as a teaching tool in Physics. *Comput Educ*. 2009;52(1):35-44.
7. Kwary DA, Fauzie S. Students' achievement and opinions on the implementation of e-learning for phonetics and phonology lectures at Airlangga University. *Educ Pesqui*. 2018;44.
8. Maheshwari S, Zheleva B, Rajasekhar V, Batra B. e-Teaching in pediatric cardiology: A paradigm shift. *Ann Pediatr Cardiol*. 2015;8(1):10-13.
9. Abbasi S, Ayoob T, Malik A, Memon SI. Perceptions of students regarding E-learning during Covid-19 at a private medical college. *Pak J Med Sci*. 2020;36(COVID 19-S4):57-61.
10. Rafi AM, Varghese PR, Kuttichira P. The Pedagogical Shift During COVID 19 Pandemic: Online Medical Education, Barriers and Perceptions in Central Kerala. *Journal of Medical Education and Curricular Development*. 2020; 7:1-4.
11. Murphy A, Farley H, Lane M, Hafeez-Baig A, Carter B. Mobile learning anytime, anywhere: What are our students doing? *Australas J Inf Syst*. 2014; 18(3).



12. Gupta S, Dabas A, Swarnim S, Mishra D. Medical education during COVID-19 associated lockdown: Faculty and students' perspective. *Medical Journal Armed Forces India*. 2021; s79-s84.
13. Kumar P, Kumar A, Rahul, Rastogi D, Singh J, Gupta A, Srivastava C. Preferred online teaching and assessment methods among Indian medical graduates in coronavirus disease era. *National Journal of Physiology, Pharmacy and Pharmacology*. 2021; 11(1): 173-77.
14. Sharma S and Sarkar P. Psychological Impact of E-Learning among Students: A Survey. *European Journal of Molecular & Clinical Medicine*. 2020; 7(8): 3239-48.
15. Khurana Mark P. Learning under Lockdown: navigating the best way to study online. *BMJ* 2020;369:M128.
16. Khalil R, Mansour AE, Fadda WA, Almisnid K, Aldamegh M, Nafeesah A, Alkhalifah A, Wutayd O. The Sudden Transition to Synchronized Online Learning during the COVID-19 Pandemic in Saudia Arabia: a qualitative study exploring medical students' perspectives. 2020; 20:285.