_____

# Student's perception on online teaching,learning and evaluation during the covid-19 pandemic: a survey

**Nevin Sabu Thomas[1*], Mitesh Thakkar[2] , Jaishree Ghanekar[3]**
*[1]Junior Resident, Department of General Medicine, MGM Medical College and Hospital, Navi Mumbai, India*
*[2]Professor, Department of General Medicine, MGM Medical College and Hospital, Navi Mumbai, India*
*[3]Professor & Head of Department, Department of General Medicine, MGM Medical College and Hospital, Navi Mumbai, India*

## Abstract

COVID 19 pandemic brought a huge change in medical education as it shifts the focus from the traditional in-house lectures and bed side teachings to e-learning. Although a lot of information is available to students on the internet for learning, but live online teaching by teachers guides the student learning in proper context of their curriculum in a structured format. This study is intended to find out about the student's perception about online teaching, learning and evaluation of General Medicine after 6 months of online lectures, tutorials and clinical postings. The study concluded that the students prefer classroom teaching above e-learning.
**Keywords:** Online teaching & Covid-19.

## Introduction

E-learning also known as electronic learning or online learning means when the knowledge is imparted through the use of electronic technologies or when the learning is happening with the help of online electronic techniques. E-learning is defined as using information technology to improve the quality of education[1]. In March 2020, the World Health organization (WHO) declared Corona virus disease 2019 (COVID-19) as a worldwide pandemic. This pandemic is an unprece-dented emergency that has affected all global industries, including medical education. As a result of social distancing and various government lockdowns, medical education has been profoundly affected as it involves in-person didactic lectures and tutorials, observing and learning relevant clinical examination

skills[2,3]. Moreover there was a shift in the role of medical faculty entirely towards care of patients instead of teaching[4]. Hence all medical colleges across the country, suspended all lectures and bedside teaching to avoid further spread of the SARS CoV-2 virus. However in this environment also, it was imperative that the learning continued, even if it was not possible face to face. So, the COVID 19 pandemic brought a huge change in medical education as it shifts the focus from the traditional in-house

lectures and bed side teachings to e-learning. Although a lot of information is available to students on the internet for learning, but live online teaching by teachers guides the student learning in proper context of their curriculum in a structured format. Keeping this in mind, a regular schedule of live teaching was planned and live online lectures were delivered through video conferencing to all the students of MBBS at a private medical college of India. This study is intended to find out about the students perception about these live online classes of General Medicine after 6 months of online lectures and tutorials.

### Objective
To study the perception of medical students about e-learning during the Covid-19 pandemic.

### Methods
An observational study is planned to be conducted on all the MBBS students attending General Medicine classes from the 5th-9th Semester at MGM Medical College under MGM Institute of Health Sciences, Navi Mumbai. Total 300 such students were involved in the study. A pre-designed questionnaire made on Google forms containing 4 parts is to be sent via e-mail to the students and their anonymous replies will be recorded and analysed.

### Inclusion criteria
All the students attending General Medicine classes from the 5th-9th Semester at MGM Medical College who are willing to participate in the study.

### Exclusion criteria

_____

*Correspondence*
**Dr. Nevin Sabu Thomas**
Junior Resident, Department of General Medicine, MGM Medical College and Hospital, Navi Mumbai,India.
**E-mail:** nevinst92@hotmail.com

_____

_____

Those students who are not willing to give their consent for the study.
**Statistical analysis**

The data collected from 300 students attending General Medicine classes from the 5th -9th Semester at MGM Medical College and it was analysed using SPSS statistical package.

**Results**
**Gender distribution**

**Table 1: Gender distribution in the study**

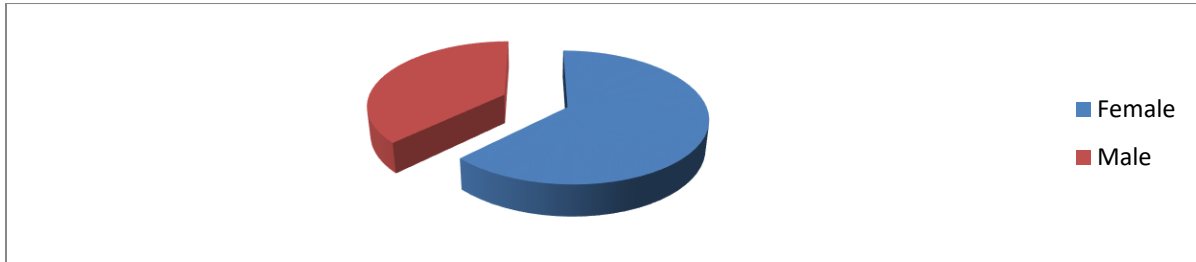| Gender | Count | Column N % |
|--------|-------|------------|
| Female | 188 | 62.7% |
| Male | 112 | 37.3% |



**Fig 1: Graphical representation of gender distribution**

The analysis showed that there are 188 female students and 112 male students participated in the study.

**IT skills of the students**

**Table 2: IT skills of the students based on their responses**

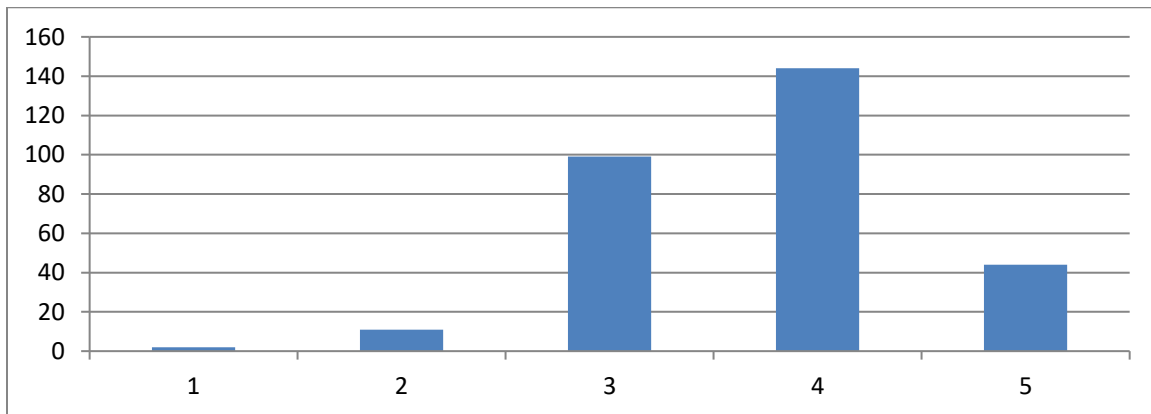| | Count | Column N % |
|--------|-------|------------|
| 1.00 | 2 | 0.7% |
| 2.00 | 11 | 3.7% |
| 3.00 | 99 | 33.0% |
| 4.00 | 144 | 48.0% |
| 5.00 | 44 | 14.7% |



**Fig 2: Graphical representation of IT skills of students based on their responses**

The analysis showed that maximum participants i.e. around 95% are having good IT skills.

**Participation in any type of e-learning before the pandemic**

**Table 3: Distribution of responses based on participation in e-learning program before pandemic**

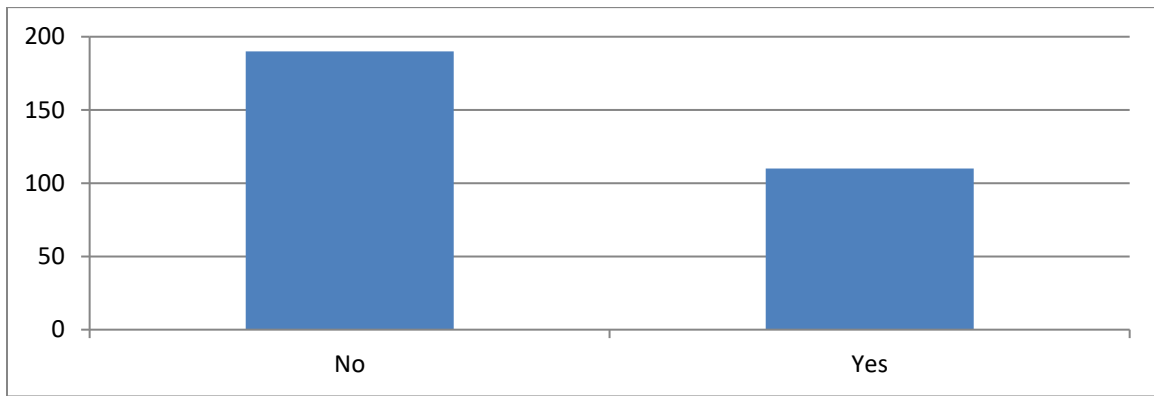| | Count | Column N % |
|--------|-------|------------|
| No | 190 | 63.3% |
| Yes | 110 | 36.7% |

_____

_____



**Fig 3: Graphical representation of response distribution based on participation in e-learning program before pandemic**

The graph above showed that more than 60% students have not participated in any type of online learning program before the pandemic.

**Effectiveness of e-learning in terms of improving – knowledge, clinical skills, social competences and knowledge about social competences.**

**Basic Data Distribution**

**Table 4: Basic data distribution of Effectiveness of e-learning in terms of improving – knowledge, clinical skills, social competences and knowledge about social competences**

| | 1.00 | | 2.00 | | 3.00 | | 4.00 | | 5.00 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| Rate the effectiveness of e-learning in terms of improving knowledge | 8 | 2.7% | 31 | 10.3% | 136 | 45.3% | 114 | 38.0% | 11 | 3.7% |
| Rate the effectiveness of e-learning in terms of improving clinical skills | 95 | 31.7% | 121 | 40.3% | 68 | 22.7% | 14 | 4.7% | 2 | 0.7% |
| Rate the effectiveness of e-learning in terms of improving social competences | 44 | 14.7% | 83 | 27.7% | 124 | 41.3% | 44 | 14.7% | 5 | 1.7% |
| Rate the effectiveness of e-learning in terms of improving social competences knowledge | 7 | 2.3% | 18 | 6.0% | 59 | 19.7% | 135 | 45.0% | 81 | 27.0% |

**Descriptive Statistics**

**Table 5: Descriptive statistics regarding effectiveness of e-learning in terms of improving knowledge, clinical skills, social competence and effectiveness of traditional learning in terms of improving knowledge**

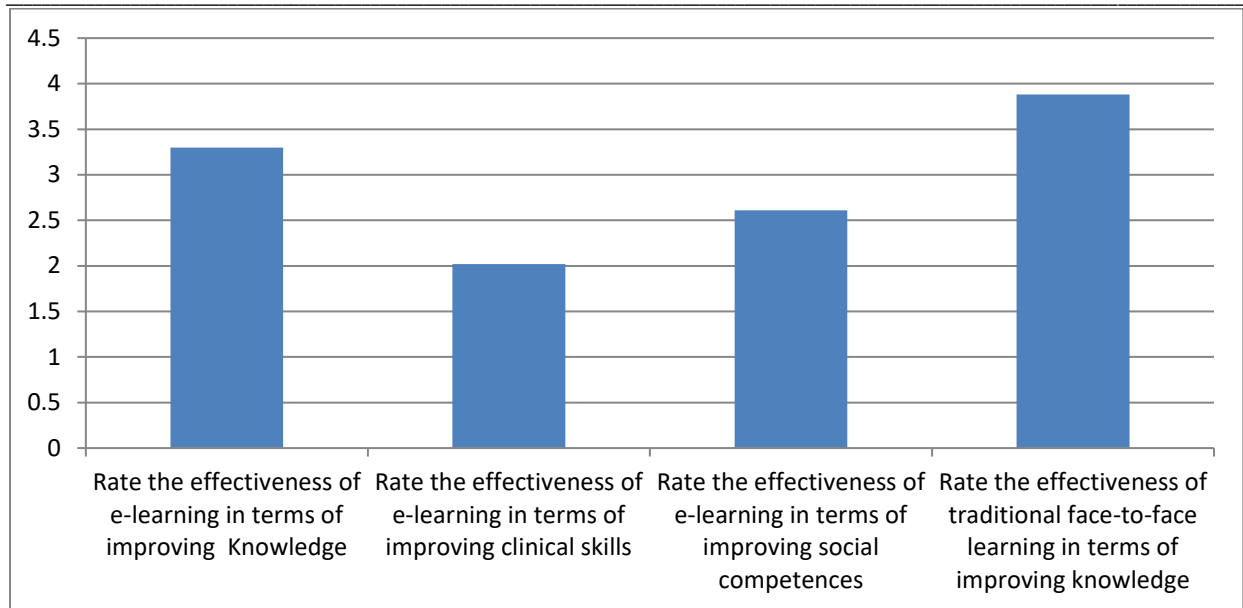| | Median | Mean | Standard Deviation |
|---|---|---|---|
| Rate the effectiveness of e-learning in terms of improving Knowledge | 3.00 | 3.30 | .81 |
| Rate the effectiveness of e-learning in terms of improving clinical skills | 2.00 | 2.02 | .89 |
| Rate the effectiveness of e-learning in terms of improving social competences | 3.00 | 2.61 | .96 |
| Rate the effectiveness of traditional face-to-face learning in terms of improving knowledge | 4.00 | 3.88 | .95 |

_____

**Fig 4: Graphical representation of Descriptive statistics regarding effectiveness of e-learning in terms of improving knowledge, clinical skills, social competence and effectiveness of traditional learning in terms of improving knowledge**

The graph above showed that the response for traditional face to face learning was highest as compared to e – learning.

**Student's alertness during e-learning and classroom learning**

**Basic Data Distribution**

**Table 6: Basic data distribution of student's alertness during learning process**

|  | 1.00 | | 2.00 | | 3.00 | | 4.00 | | 5.00 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | Count | % | Count | % | Count | % | Count | % | Count | % |
| How active were you during e-learning? | 3 | 1.0% | 29 | 9.7% | 122 | 40.7% | 113 | 37.7% | 33 | 11.0% |
| How active were you during traditional face-to-face learning? | 0 | 0.0% | 8 | 2.7% | 57 | 19.0% | 154 | 51.3% | 81 | 27.0% |

**Descriptive Statistics**

**Table 7: Descriptive statistics of student's alertness during learning process**

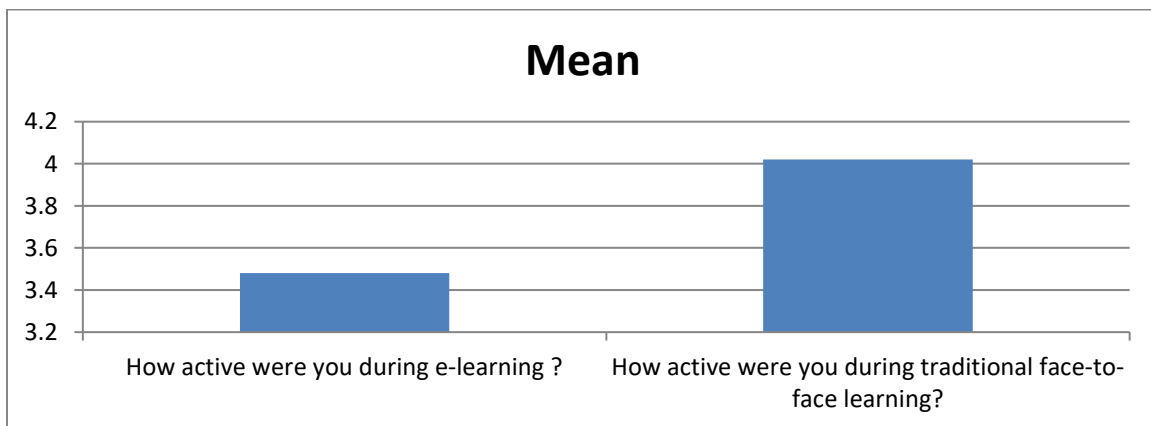|  | Median | Mean | Standard Deviation |
|---|---|---|---|
| How active were you during e-learning? | 3.00 | 3.48 | .85 |
| How active were you during traditional face-to-face learning? | 4.00 | 4.02 | .75 |



**Fig 5: Graphical distribution of Descriptive statistics of student's alertness during learning process**

The graph above clearly showed that students are more active during classroom teaching as compared to e-learning.

_____

**Preparedness of the teachers during online classes**
**Basic Data Distribution**
<div align="center">

**Table 8: Basic data distribution of teacher's preparedness during online classes**
</div>

| | 1.00 | | 2.00 | | 3.00 | | 4.00 | | 5.00 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Count | % | Count | % | Count | % | Count | % | Count | % |
| The faculty stimulated my interest in the online class topic | 9 | 3.0% | 26 | 8.7% | 112 | 37.3% | 118 | 39.3% | 35 | 11.7% |
| The faculty were well-prepared and organized for every online class | 2 | 0.7% | 13 | 4.3% | 80 | 26.7% | 133 | 44.3% | 72 | 24.0% |
| The faculty encouraged discussion and was ready to answer all of my questions | 0 | 0.0% | 7 | 2.3% | 56 | 18.7% | 148 | 49.3% | 89 | 29.7% |
| Overall, how do you rate your experience with online classes? | 6 | 2.0% | 40 | 13.3% | 119 | 39.7% | 115 | 38.3% | 20 | 6.7% |

**Descriptive Statistics:**
<div align="center">

**Table 9: Descriptive statistics of teacher's preparedness during online classes**
</div>

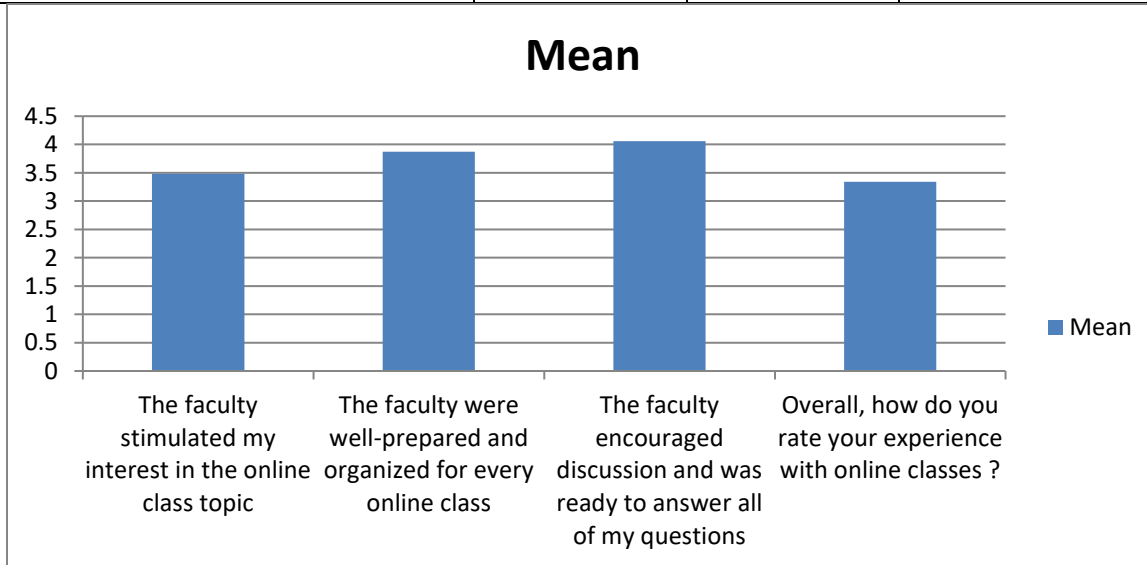| | Median | Mean | Standard Deviation |
|---|---|---|---|
| The faculty stimulated my interest in the online class topic | 4.00 | 3.48 | .92 |
| The faculty were well-prepared and organized for every online class | 4.00 | 3.87 | .85 |
| The faculty encouraged discussion and was ready to answer all of my questions | 4.00 | 4.06 | .76 |
| Overall, how do you rate your experience with online classes? | 3.00 | 3.34 | .86 |



**Fig 6: Graphical representation of student's responses regarding teacher's preparedness during online classes**

The graph above showed that the maximum number of students agreed that the teachers were well prepared and were able to engage them during online classes. The students also agreed that their overall experience with online classes was satisfactory.The students were asked about the various evaluation methods which were used to assess the efficacy of the online teaching methods. The students overwhelmingly ie, 98 % of them found the theory exams which were conducted were relevant to the course of study. However 56

_____

% of the students responded negatively to the clinical competence evaluation methods.

## Results & Discussion

The study findings showed that there are 188 female students and 112 male students participated in the study. The results showed that maximum participants i.e. around 95% are having good IT skills. The results above showed that more than 60% students have not participated in any type of online learning program before the pandemic. The analysis above showed that the response for traditional face to face learning was highest as compared to e – learning.The results also showed around 70% of the students agreed to this that the e-learning won't be able to help them in improving their clinical skills much. The results above clearly showed that students are more active during classroom teaching as compared to e-learning. The results above showed that the maximum number of students agreed that the teachers were well prepared and were able to engage them during online classes. The students also agreed that their overall experience with online classes was satisfactory.Similar kind of study was conducted by Baczek M. et. al. in Poland[5] and the study concluded that e-learning is a valuable method of teaching medical students.However, successful implementation of online learning into the curriculum requires a well thought-out strategy and a more active approach.Agung, A. S. N., Surtikanti, M. W., & Quinones, C. A[6]conducted a similar study on the English students of STKIP PamaneTalino, Indonesia. 66 students of English Language education study program were involved. The perceptions of the student were recorded regarding their online teaching through survey method. The recorded perceptions are in terms of students' participation, accessibility, material and assignment delivery, and the use of e-learning platforms. The study identified three major obstacles in conducting online learning: the first is availability and sustainability of internet connection, the second is accessibility of the teaching media, and the last is the compatibility of tools to access the media. The result of the study suggests that accessibility is still the major factor influencing the success of online learning. The study finally concluded that online learningand potentially Indonesia in general, requires some more friendly platforms so that students' participation can be increased. This is especially for students who reside in rural areas with limited internet connections and other support systems.Shawaqfeh, M. S. et. al[7]conducted a similar study on pharmacy students. A cross-sectional survey was utilized where a 3-domain survey questionnaire focused on preparedness, attitude and barriers was utilized to collect the responses from the pharmacy students. The response rate was about 75% (n = 309). The results' analysis revealed no gender differences in any of these domains. However, there were some variable responses among different educational levels. The results also indicated that 49.2% of the students showed positive attitude toward the provided online learning. The results indicated that about 34% of the students identify some barriers toward the provided online learning. The study concluded that e-learning poses different challenges as well as provides opportunities during this Covid-19 situation. The study finally concluded that the need for training for students and faculty was highly associated with the preparedness and barriers domains rather than the infrastructure or computer literacy, so the school can improve their experience by addressing these needs.In a study conducted on faculty by Shruti Bhargava it was concluded that live online classes were an easy and cheap alternative to the classroom teaching of undergraduates during the COVID -19 pandemic. They also found that the online lectures cannot totally replace the traditional classroom teaching due to the lack of interaction and personal touch, which is an critical component of medical education[8].In this study the students had affirmed the evaluation methods which were used to assess student's theory knowledge via tests which were conducted via quizzes on Google forms, written theory exams. Questions for theory exams were projected remotely via Google Meet platform by the professors and students were required to send in their answer sheets by email. These were evaluated remotely by the faculty. 98% of the students found this method useful to evaluate their theoretical knowledge. The students were also evaluated on their clinical skills through face-to-face viva voce, case scenarios, etc by the faculty through Google Meet platform. However, 56 % of the students found this method inadequate to demonstrate their clinical skills and preferred traditional bedside evaluation methods to assess the same. Students were also asked open-ended questions regarding the online teaching, learning and evaluation methods. Majority of them wanted bedside teaching compared to online teaching. Connectivity issues were also faced by the students which could be improved. Students also wanted more interaction with the faculty instead of didactic classes. Less number of studies were done to evaluate the efficacy of medical education during the COVID 19 pandemic, however this study was able to do the same.According to Abbasi et al it was concluded that in Pakistan, despite gaining immense popularity today, digital technology has still not been embraced by the Medical and Dental students for use in teaching. Students are still more inclined towards face-to-face teaching rather than e-teaching. Administration and faculty members should take necessary measures for improving e-teaching quality to help with better learning of students during lock down[9].

In today's world mobile phone as a medium for accessing e-learning has become one of the most popular devices among students as compared to laptops and tablets due to the easy portability and also due to the faster internet speeds nowadays[10]. Students are able to access classes anytime and anywhere in the world[11].

## Conclusion

The study concluded that although more than 60% students have never attended any online program before but most of them possess good IT skills before this pandemic. The study also concluded that the students prefer classroom teaching above e-learning although they agree that their faculty taking online sessions were well prepared and were able to engage them in the e-learning session but still they would prefer

_____

classroom teaching rather than online learning. Also for learning clinical skills, which are very important for a medical professional, classroom learning is important.

## References

1.  Howlett D, Vincent T, Gainsborough N, Fairclough J, Taylor N, Vincent R. Integration of a case-based online module into an undergraduate curriculum: what is involved and what is effective? e-Learning. 2009;6(4):372–84.
2.  Ferrel MN, Ryan JJ. The Impact of COVID-19 on medical education. Cureus 2020; 12:e7492.
3.  Rose S. Medical student education in the time of COVID-19. JAMA 2020; 323:2131-2312.
4.  Mian A, Khan S. Medical education during pandemics: A UK perspective. BMC Medicine. 2020; 18: 100
5.  Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., &Wożakowska-Kapłon, B. Students' perception of online learning during the COVID-19 pandemic: a survey study of Polish medical students. Research Square2020:1-14.
6.  Agung, A. S. N., Surtikanti, M. W., & Quinones, C. A. Students' Perception of Online Learning during COVID-19 Pandemic: A Case Study on the English Students of STKIP Pamane Talino. Soshum: Journal Sosialdan Humaniora, 2020; 10(2): 225-235.
7.  Shawaqfeh, M. S., Al Bekairy, A. M., Al-Azayzih, A., Alkatheri, A. A., Qandil, A. M., Obaidat, A. A. &Muflih, S. M.Pharmacy Students Perceptions of Their Distance Online Learning Experience During the COVID-19 Pandemic: A Cross-Sectional Survey Study. Journal of Medical Education and Curricular Development, 2020; 7: 2382120520963039.
8.  Shruti Bhargava, Online Classes for Medical Students During COVID-19 Pandemic: Through the Eyes of the Teaching Faculty, J Res Med Dent Sci, 2020, 8(4): 189-192.
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 (COVID19-S4):S57-S61.
10. Yilmaz O. E-Learning:Students Input for Using Mobile Devices in Science Instructional Settings. Edu Learn. 2016;5:182.
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):98.

**Conflict of Interest: Nil**
**Source of support:Nil**

_____