Transition To Online Teaching During Covid Times: A Comparative Study Of Online Education And Traditional Offline Education From A 1st-Year Medical Student's Perspective.

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Abstract

Background: Since the start of the COVID -19 Pandemic, we have been hearing that this pandemic is here to stay and this will be the "The New Normal" for a few more years. For the first time, a disease had stopped the entire world from functioning normally. Since then everything has become online, from classes to offices, grocery shopping, etc. Schools and Universities were conducting classes, exams, and Viva, all online. This study was undertaken to highlight the strength and weaknesses of e-learning during the pandemic. Also, we wanted to know if both modalities of learning can be integrated into the medical curriculum in the future, especially for 1st-year medical students.

Aim: To compare the benefits and drawbacks of online vs offline teaching from the student's perspective, so that if needed online teaching can be integrated with the offline mode of teaching in the future.

Materials and Methods: After taking ethical clearance from the institutional ethics committee, the study was conducted amongst 1st-year medical students of NIIMS. An online questionnaire on google forms was specially designed and the link was sent to 150 students. Out of these 141 students responded to the questionnaire.

Results: In our study students preferred online teaching for its convenience, cost-effectiveness, learning at their own pace from the comfort of home, and more flexibility and found it better for theoretical learning. They preferred offline lectures for practical learning, technical issues, and more social interaction and found them to be more motivating.

Conclusion: The majority of students responded in favor of the hybrid model of learning (42.6%). Only 17.7% wanted a purely online mode for future learning. In the future to promote online learning technical issues should be addressed properly. Students should be provided with recorded lectures so there is more flexibility in learning. To avoid physical and mental stress lectures should be of short duration with breaks in between.

Keywords: Traditional offline learning, Covid-19, Online education, Hybrid mode, Medical students

Introduction:

During the Covid times, online teaching became the core method of teaching in medical Institutions. This shift of teaching to a purely online platform posed a lot of challenges both for the students and the faculty, but they have also prompted new examples of educational innovation using digital interventions. As they say, every dark cloud has a silver lining this Covid pandemic could be considered as an opportunity to bring about some reforms because academic institutions for ages have been continuing with didactic lectures, in which there is only the

teacher speaks. [1] The lecture is a simple, fast, and cheap method to present the vast issues to a lot of groups of learners.[2]Inactiveness of the students, tiring long lectures, one-way communication, and fast forgetting of the issues are the disadvantages of this method.[3]

Critical thinking and creativity of students increase with innovative educational methods according to the world declaration on higher education in the twenty-first century.[4]"Electronic (e) or online learning can be defined as the use of electronic technology and digital media to enhance both learning and teaching. It also involves communication between learners and teachers utilizing online content."[5] If we see this pandemic optimistically we can say that COVID-19 acted as a trigger for educational institutions worldwide to pursue creative approaches to online teaching and learning on relatively short notice. During this time, most of the universities had shifted to online mode using Blackboard, Microsoft Teams, Zoom, or other online platforms.[1] The global pandemic of COVID-19 has taught us many things. One of them is new examples of educational innovation using digital interventions. India is not new to online education. Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM), an integrated web portal, conducts online education from the high school to the university level.[6] These days electronic media and the internet have reached every nook and corner and have assumed a significant place of importance in our everyday life. It is also serving as an important tool to complement traditional teaching.[7]

Like any method of teaching, online teaching has its share of ups and downs for both the students and teachers. The benefits included that there was no pause in the teaching-learning process, increased convenience, access to resources regardless of location and time, and reduction of costs and air pollution, for example, carbon dioxide emission because of the reduction in traffic.[8-10] Online classes also have limitations, including problems with internet access, poor internet connection quality, and insufficient digital skills of the respondents. Some benefits such as time flexibility can also be a limitation, especially for students who have difficulties with self-discipline.[11-14] The online learning environment varies profoundly from the traditional classroom situation when it comes to learners' motivation, satisfaction, and interaction.[15]Combining face-to-face lectures with technology gives rise to blended learning and flipped classrooms; this type of learning environment can increase the learning potential of the students. On the online platform, students can learn anytime and anywhere and they also develop new skills in the process, which makes them lifelong learners. The pandemic also made the government realize the increasing importance of online learning in this dynamic world.

With this rationale, we collected the opinion of 1st-year medical students who had attended the online classes and their perceptions on continuing online classes in the "new normal" era.

Objectives:

This study was conducted to compare the perspectives of medical students regarding Traditional and Online Teaching-Learning so that in the future a hybrid model of learning could be included in designing the medical curriculum.

Material And Methods:

The study was conducted in October from 20-10-2021 to 27-10-2021, after 4 months of online teaching and 4 months of offline teaching. The study participants were 1st-year Undergraduate students of Noida International institute of medical College. Out of a total of 150 students, 142 participated in the study (response rate= of 94%). Prior approval for the conduct of the study was obtained from the institutional ethics committee.

Study Tool:

A self-designed questionnaire was used for data collection. Google form was used to collect the questionnaire and collect data electronically. The questionnaire consisted of 4 parts.

In the first part, students were asked to enter their demographic details (age, gender, schooling) of study subjects.

In the second part, respondents were given questions related to general information regarding -ease of use of online tools, internet connectivity, type of device, and home environment.

In the third part, respondents were given various parameters to give their preferences about online vs offline.

In the last part, students were asked to rate the benefits and drawbacks of online vs offline teaching, using the Likert scale from 1 to 5 (1=strongly disagree, 5- strongly agree)

Discussion:

In this study, we evaluated 1st-year medical undergraduates regarding their perceptions of online teaching. Online teaching was conducted in our college on Microsoft teams. Most of the students used their mobile phones for accessing the online lectures. Most of the students had good internet connectivity. Here we will discuss whether online teaching has the potential to be integrated into the future medical curriculum along with the traditional mode of teaching.

In our study higher proportion of students agreed that online education is more convenient, cost-saving, was easier for shy students to participate, is more flexible, has increased participation, and is good for theoretical learning which is similar to the study of Ranu Rawat & Parmal Singh,[7]; Meeta et al.,[5]; Shivangi Dhawan.[16] Students also agreed that during online teaching they had more facility to ask questions, plus online tools were easy to use. They also felt that the home environment is suitable and comfortable for online learning which is also supported by the study of Michal Bazek.[17]

Ease of access to educational materials and the ability to choose the time and place to study were shown as the strongest advantages of online learning among the students in our survey. During online teaching, students can have access to a wide range of learning materials. Students studying in smaller institutions or who had colleges in remote areas can also get an insight into complex procedures and diseases that were previously not possible. Khurana et. al. reviewed the positive and negative of various mediums that can be used by medical students.[18] Craddock et. al. observed that pediatric residents who used an online module for learning atopic dermatitis showed statistically significant improvement in disease-specific knowledge when compared to controls.[19] Shah et. al. initiated a satellite school in India in 2006 which evoked tremendous response

because of its ability to teach techniques in remote places via telemedicine.[20] This terrible time of fate has taught us that nothing is predictable and challenges in form of the pandemic, natural disasters can strike anywhere and anytime. Although this outbreak did not give us much time to plan we should take a lesson from this that planning is the key for an online teaching platform to be successful.

The students in our study felt that the main disadvantages of online teaching appeared to be technical issues, frustration and lack of interest, sleep disturbances, more distractions (like gaming and all), and less retention of the course material. Students found it difficult to be motivated for online lectures and also felt deprived of social interactions with their peer group and teachers. Most of them also had a significant amount of weight gain during the online lectures. The current pandemic forced all the academic institutions on an online platform all over the world, so there were a lot of inconsistencies with an underdeveloped medical curriculum, many teachers were inadequately prepared, and everyone faced technical difficulties.[7]

In our study students preferred offline education for practical knowledge, more personal attention from teachers, more interaction between fellow students and teachers, and for better understanding of concepts. Frustration and lack of interest felt by the students can be due to incompatibility between the design of the technology and the component of psychology required by the learning process. This requires customization of the required learning process i.e. Medical curriculum in our case.[3]

In our study students preferred offline education for practical knowledge, more personal attention from the teachers, more interaction between fellow students and teachers, and for better understanding of concepts. This is in line with the studies given by Ranu Rawat[7] and Chauhan et al.[21] This may be due to face-to-face interaction which is the hallmark of traditional teaching and leads to more understanding among the students. This is, in contrast, to a study given by Wernecke and Pearson[22], Behrooz Golchai et al[23] where e-learning was found to be more efficient because learners gained knowledge, skills, and attitudes faster from online methods than through traditional instructor-led methods.

Most of the students preferred the online mode for theoretical learning with downloadable AV lectures but they wanted the offline mode for practical learning. This is in line with the study given by Meeta et al [5]and also supported by Ruf et al [24]

Lastly, when enquired about their preference for the future, 42.6% of students wanted a hybrid model of teaching followed by offline (39.6%). Only 17.7% wanted purely the online mode. It is evident from our study that students perceived hybrid methods for future medical education, which is in line with the study [1] where theoretical learning online and practical learning offline conducted in small batches with social distancing was preferred. These were also the findings in the studies given by Chauhan et al.[21] where students perceived both the methods as more or less equivalent with no clear preference for either method, that is they prefer the hybrid(mixed) method of learning using both traditional as well as online teaching.

Online learning along with traditional learning methods (hybrid learning) can increase the learning of students. Mixed learning may be the future option for medical education Students are likely to perform better when the components of online and offline classes are mixed judiciously. This is called "blended education". E-learning modules in higher education will be successful if teachers and students integrate online classes into the current curriculum.[25,26,27]There is practically very little experience with online classes within the existing medical curriculum. To overcome this online training of both faculty and students should become part of medical university protocol. Both students and the teachers should receive full technical training and support from the IT department before and during an online curriculum. We believe that the future education model will better meet the needs of teachers and students and create a new era of medical education In the future, medical schools must carefully build an infrastructure comprising of technologically versatile lecturers to deliver well-organized, succinct tutorials, games, and resources, especially given the lack of awareness of 'conscientious online lecture design' among medical educators [28]

Limitations Of The Study:

The was limited in being carried out in a single medical college. Secondly, the perspective of the faculty should have been included.

Conclusion:

It is concluded from our study that participants are in favor of hybrid teaching instead of only online or offline learning.

The major factor that prevents online teaching as a preferable platform is technological constraints, i.e lack of access to the internet, slow connection, data limit, interrupted internet supply, lack of desire, and online classes that cannot be downloaded or recorded for future learning, low-quality audio or video.

Other factors for which participants don't like online classes are distractions, lack of discipline as no one is there to control the students, lack of interest and laziness among the students, prolonged usage of mobile phone/ laptop for classes causes a headache, sleep disturbances, continuous classes lead to worsening of migraine and backache, more tiring, sense of isolation and less hand-on experience.

But in wake of the coronavirus or other calamities in the future, we have to change the education system more online friendly. As there are disadvantages of online learning, but it also has many advantages.

In efforts to prevent the spread of corona universities and institutions are shifting to an online platform to catch up with the curriculum, so we should try to make the online education more students friendly, more effective, and productive. Students should be provided with well-structured content with recorded videos uploaded, sessions should be precise and interactive with quizzes, and assignments at the end of each class. Breaks should be given between two lectures. This could be achieved via student response systems incorporating methods such as polls, quizzes, or breakout rooms,[29,30] which have been shown to encourage student participation.[31] Indeed, previous literature suggests the incorporation of online Q&A sessions to improve student engagement,[32] Based on a previous model advising the use of synchronous learning.[33]

Therefore all these factors should be considered so that even after the corona pandemic settles down, we may continue using online education, although in

hybrid mode as practical learning is possible effectively only offline in medical education.

So mixed learning is the option of the future

The concept of online classes is still evolving. Governments in alliance with mobile service providers could address the Network problems experienced by the students. The online classes should be scheduled well in advance, duration of classes should be short with breaks in between classes, which would minimize fatigue and improve interactions. It would be appropriate if the educational institutions adhere to the "new normal "- which should be a blend of both online and offline learning – teaching methods, after the lockdown period.

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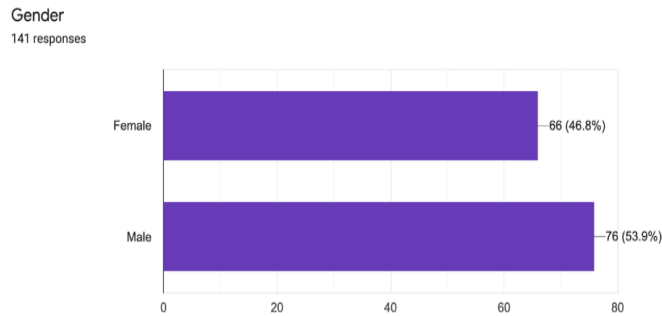Internet. *Innovations in Education and Teaching*

Results:

Gender
141 responses

Female — 66 (46.8%)

Male — 76 (53.9%)

Figure 1: Gender wise distribution of study participants. As can be seen male participants are more as compared to females
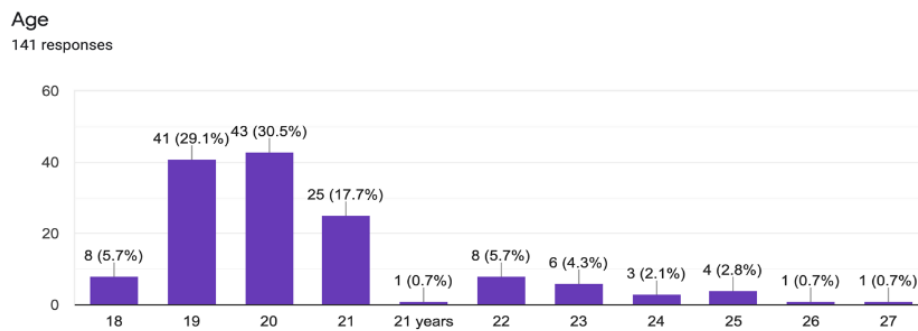
Age
141 responses

8 (5.7%) | 41 (29.1%) | 43 (30.5%) | 25 (17.7%) | 1 (0.7%) | 8 (5.7%) | 6 (4.3%) | 3 (2.1%) | 4 (2.8%) | 1 (0.7%) | 1 (0.7%)
18 | 19 | 20 | 21 | 21 years | 22 | 23 | 24 | 25 | 26 | 27

Figure 2: Age wise distribution of study participants. More participants are less than < 21 years of age (83.6%)

Type of school
141 responses

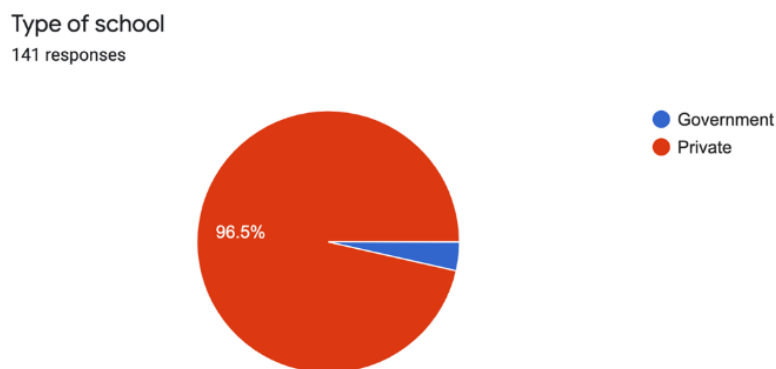● Government
● Private

96.5%

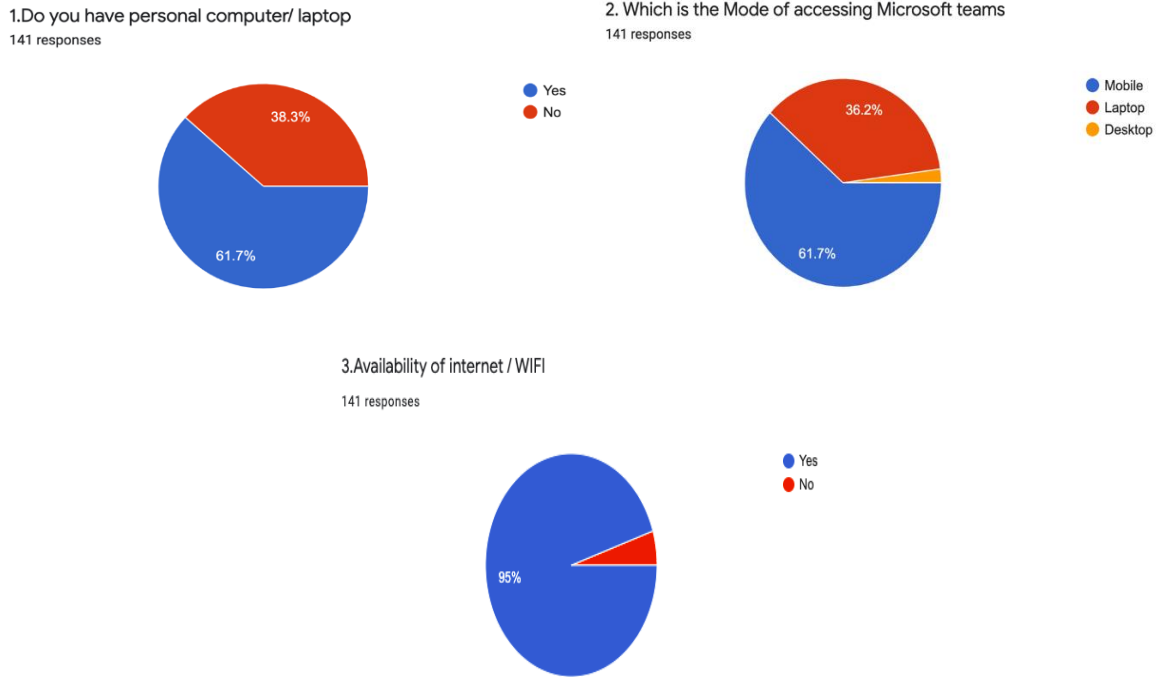**Figure 3: Most (96.5%) students had done their schooling from private schools.**

Figure 4, 5, & 6: Shows that 61.7% have personal computers, 61.7% accessed Microsoft team on mobile and 95% students had easy availability of WIFI.

TABLE 1 shows that higher percentage of participants have ease in using online tools (92.9% vs7.1%). Students feel facility to ask doubts online is more easy(77.3% vs 22.3%). Teacher's personal interest was less during online classes(47.5% vs 52.5%). They also feel home environment is more suitable for learning(56.7% vs 43.3%). Also distraction from other family members was more during online teaching(51.1% vs 48.9%). Most of students felt lack of interest and frustration (69.9% vs30.5%). Also there was weight gain during lockdown(63.1% vs 36.9%).

Parameter	Yes %	No %
Online tools easy to use	92.9	7.1
Facility to ask doubts during online lectures	77.3	22.7
Teacher's personal attention is less during online lectures	47.5	52.5
Suitability of Home environment for participating in online lectures	56.7	43.3
Is Possibility of distraction from other family members more during online lectures	51.1	48.9

Do you feel frustrated and lack of interest in learning while in lockdown	69.5	30.5
Has there been weight gain during online classes	63.1	36.9

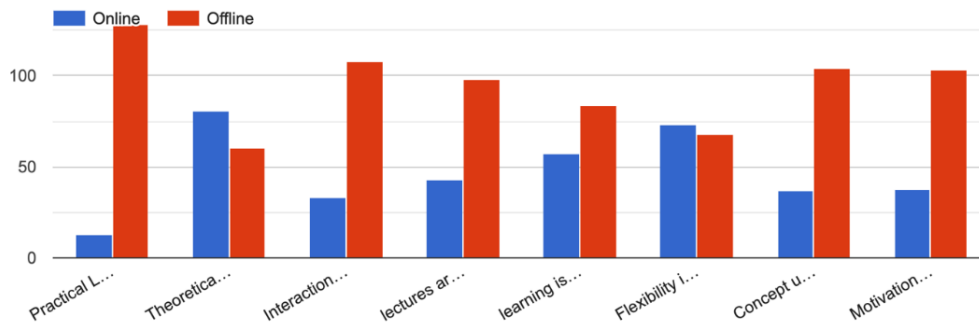11. Which one do you prefer for following parameters

Figure 7: Online / offline preference of students on various parameters. All the parameters show students prefer offline mode except for theoretical learning (57.4% vs 42.5%). Regarding flexibility in lecture participation (51% vs49%) the result was non-significant

Table 2 shows benefits of online teaching. The Likert scale options of strongly agree and agree were merged, for ease of convenience in calculation, into a single option of Agree. Also the options of strongly disagree and disagree were merged into a single option of Disagree. Students agree that online teaching is better under the following headings –

Parameters	Disagree	Neutral	Agree
Convenience	18.4%	34	47.5
Cost saving	19.1	29	51.8
Easy for shy students to participate	18.4	29.7	51.8
Flexibility	14.8	33.3	44.6
Increased participation	28.3	31.9	39.7
Learning at own pace	29	28.3	25.5
Fewer distractions	48.2	24.8	26.9
More retention	41.1	31.2	27.6

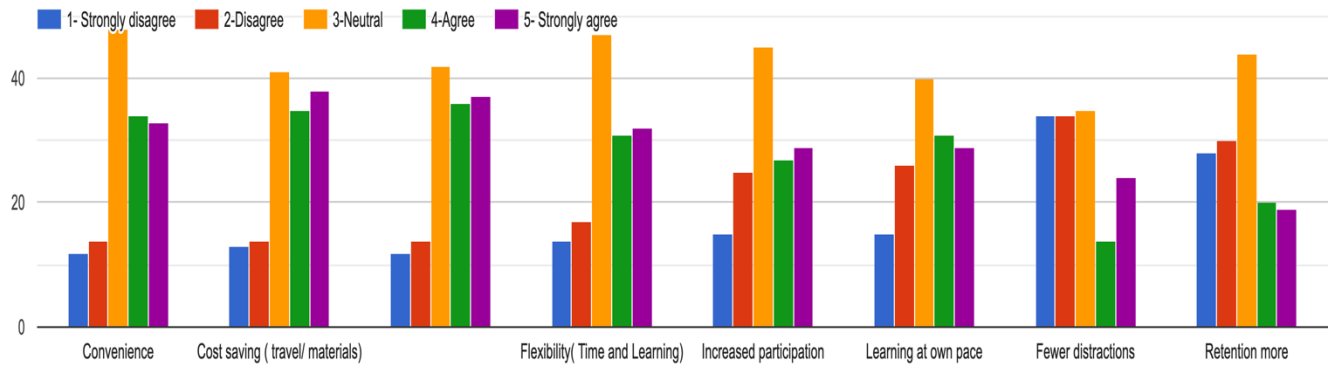12. What are benefits of online teaching (rate in order of 1 -5)

Figure 8: Benefits of online teaching

Table 3 shows responses regarding drawbacks of online teaching. Again the Responses were merged into 3 categories Agree, Neutral and Disagree as shown in table .Most of the students agreed with the all the drawbacks of online teaching.

Parameters	Disagree	Neutral	Agree
Difficult to ask questions	36%	35.4	28.3%
Technical issues	14.8	26.9	58
Sleep disturbances	27%	27.6	38.2
Less social interaction	23.4	22.69	53.9
Time consuming	25.5	26.9	47.5
Increased distraction(gaming etc)	29.7	24.8	38.3
Difficult to be motivated	27.6	24.8	47.5
Less hands on experience	17.7	24.8	57.4
Cannot highlight /write online teaching	27.6	24.8	47.5
More tiring	29.7	25.5	44.6

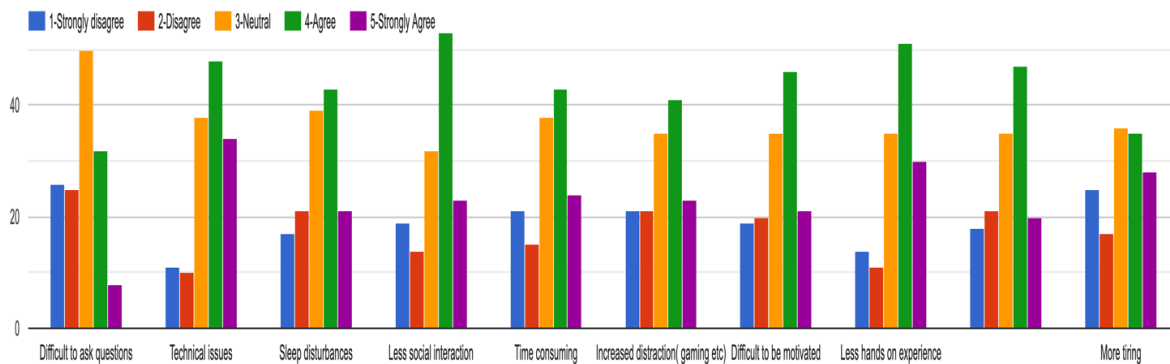13. Drawbacks of online teaching(rate in order of 1 -5)

Figure 9: Shows drawbacks of online teaching

In the end we wanted to know in future what mode of learning they would prefer . Maximum students preferred Hybrid mode(42.6%), followed by 39.7% offline and 17.7% preferred only the online teaching mode.

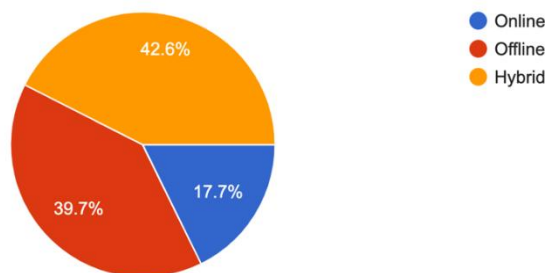14. For the future which mode of teaching would you prefer
141 responses

Figure 10: Showing preference for future modes of teaching