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ORIGINAL RESEARCH

Evaluation of Knowledge, Attitude and Perception of MBBS Students towards Teaching through Onscreen Classes

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ABSTRACT

Background: Change in the learning environment can affect student's learning outcome. The teaching by onscreen classes or e-learning has entirely changed the learning environment. This study was conducted to find the Knowledge, attitude and Perception of MBBS students towards teaching through onscreen and conventional classes.

Methods: This observational, questionnaire based, cross sectional study was conducted on MBBS students of all Professional years of 2015 to 2019 studying in medical college of Northern India. The 19 item questionnaire was sent to the students by electronic mode through Google forms. The completely filled questionnaire was accepted and the responses were recorded and analyzed using SPSS version 21 software. The data was presented in percentage.

Results: 400 students had given their informed consent and submitted the completely filled Questionnaire. The mean age of the participant was 20.87±1.407. 70.5% (282) students used phone, 2.75% (11) used Laptop and 26.75% (107) used both to attend online classes.

Majority students found reading, understanding and concentration easier through conventional teaching and also rated it 'good' for time duration, interactions and adherence to classes. 166(41%), 148(37%), 168(42%) students were moderately satisfied through conventional classes while 151(37.8%), 144 (36%), 146(36.5%) were moderately satisfied through onscreen classes in respect to reading, understanding & learning and interaction with teacher respectively.

Conclusions: We concluded that students preferred conventional teaching and their level of satisfaction was higher in reading, understanding, concentrating, interacting with teacher and adherence. Technical issues like poor internet connectivity, lack of skill; psychological issues like maintaining positive attitude, distraction in home environment and health issues like headache, strain in eyes and blurring of vision were the various issues and barriers reported by the students while attending online classes.

Keywords: Classes, MBBS, Online, Questionnaire, Students, Teaching

INTRODUCTION

Teaching institutes are stressing on online education of their curriculum.Theoretical part of every course can be dealt online but courses requiring skill development is still challenging in online training. This particularly hold true for medical courses. In our country, India most of the teaching especially in medical courses is done by traditional class rooms where teachers deliver their lecture by using black board, Power point, Smart board, etc.

As seen in the past during covid 19 pandemic, institutes rely extensively on online teaching to push ahead with the academic calendar forcing the students to be kept out of the classroom. This change in the learning environment can affect students learning outcome. The teaching by onscreen classes or e-learning has entirely changed their learning environment and has forced the students to learn by themselves away from class room setting.

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e –learning means any teaching process which integrates any form of technology. Nichols defines e-learning as the use of various technological tools that are Web based, Web distributed or Web – capable for the purpose of education[1]. The American Society for education and development defines e-learning as any form of information transmitted, facilitated or provided by electronic technologies in order to explicitly to support the process of learning. E-learning is a form of education which implies involvement, motivation and efficiency in communication from the student point of view [2].

Advances in technology have lead to evolution of e learning methods. Sudden spurt in online teaching has created a buzz everywhere. Amidst this reaching out to students for better understanding of curriculum is challenging task. It is important for the teachers to familarize themselves with the available e learning methods. Challenges reported for online learning include issues related to communication, student assessment, use of technology tools, online experience, anxiety or stress, time management, and technophobia[3]. Though e learning helped to continue the education but has its own limitations also. It can be causal of social isolation, lacks face to face communication, focuses mainly on theory rather practical, hardens cheating prevention in online assessments. Different people have different attitude and perception for e learning depending on the access of internet and knowledge of e learning techniques. Shahmoradi carried a study on challenges of e learning system and reported that 40% of participants had problems to access the technology which can be improved by strengthening IT infrastructure and creating awareness of methods among students and teachers[4]

The successful e learner must have self-motivation, patience, self-discipline, ease in computer use, good technical skills regarding time management, communication and organization[2,5,6]. Kim in 2006 quoted important role of e learning in facilitating emerging competency based training[7]. Yadav stressed on adopting e learning in present time illustrating the role of every stakeholder in making provisions for e learning[8]. Svirko concluded in his study that e learning needs to be aided by clinical cases to enhance the deep learning by students[9]. However, MasicIzet stated that e learning is not suitable for most biomedical disciplines[10]. Pei& Wu carried out the metanalysis to know if online learning work better than offline and concluded that effective online learning can happen if only digital material, learning goals, students preferences are meticulously evaluated[11].

Students may have different opinions and attitude towards this process of onscreen learning. The efficiency of these onscreen classes depends upon the student attitude and utility they perceive in attending these classes. So this questionnaire based observational study is designed to know the Knowledge, Attitude and Perception of MBBS students towards teaching through onscreen classes and to compare their views of face to face conventional classes which they were attending routinely.

Objectives:

- To find the Knowledge and attitude of MBBS students towards teaching through onscreen and conventional classes
- To find the Perception of MBBS students towards teaching through onscreen and conventional classes

METHOD

This observational, questionnaire based, cross sectional study was conducted on MBBS students of all Professional years of Punjab Institute of Medical Sciences, Jalandhar after obtaining their informed consent. The study sample was non probability sample of convenience drawn from voluntary participants enrolled in MBBS course during year 2015 to 2019. The pilot study was conducted on 20 participants and the 19 item questionnaire was validated by using crohn's back alpha, value 0.816.

The 19 item questionnaire consisting of 16 closed ended and 3 open ended questions was sent to the students by electronic mode through Google forms. Those who wished to participate in this anonymous survey filled this questionnaire. The questions in section 1 were based on demographic details of the student: Age, Professional year of study, gender and Resident location. Section 2 consists of 19 questions based on knowledge, Attitude and Perception. The completely filled questionnaire was accepted for further analyses. The responses were recorded andanalyzed using SPSS version 21 software. The data was presented in percentages.The study was approved by Institutional ethics committee by vide letter no. PIMS/IEC/20/12 dated 21.09.2020 and by clinical trial registry of India via CTRI/2020/09/028157.

RESULTS

There were 750 students doing graduation during the study period, out of which 400 students had given their informed consent and submitted the completely filled Questionnaire. The mean age of the participant was 20.87±1.407. 63.8% (255) were females and 36.2% (145) were males. 33.5% (134) belongs to First year, 32.5% (130) to second and 34% (136) to Third year of professional study. 68.8% (275) of the students reside in urban area, 15% (60) in semi urban and 16.2% (65) in rural area. (Fig.1)

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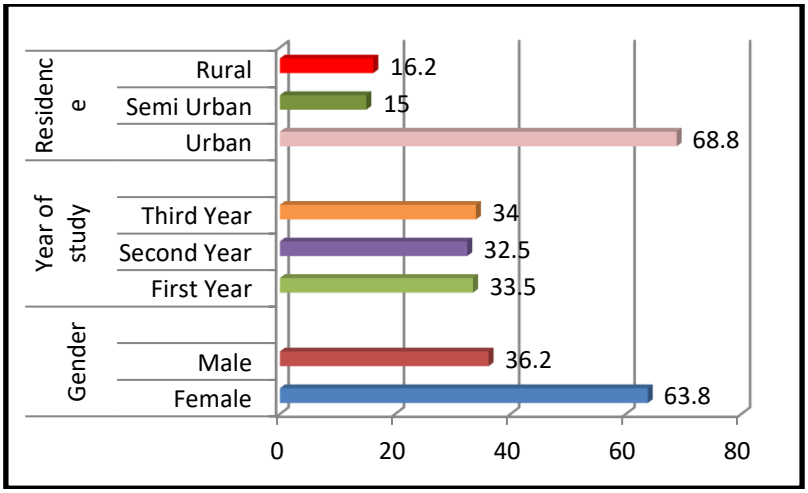

Fig.1 Demographic distribution of Participants

70.5% (282) students used phone, 2.75% (11) used Laptop and 26.75% (107) used both to attend online classes. All the students were familiar with the online teaching tools like Zoom, Microsoft teams and Google classroom.

62.5%(250) and 38%(152) students had neutral opinion in respect to reading through conventional and online teaching respectively. 26.5%(106) students found reading through conventional classes easy to very easy while 50.3% (201) students found it difficult to very difficult through online teaching. 56% (224) had neutral opinion, 30.3% (121) found easy in understanding through conventional classes while 37.7%(151) had neutral opinion and 54.5%(218) found difficult to very difficult through online teaching. 55.5%(222) students had neutral opinion and 27.7%(111) found easy in concentrating through conventional teaching while 22.5%(90) had neutral opinion and 71.5% (286) found it difficult to very difficult in concentrating through onscreen teaching. (Table1)

Table1: Comparison of Level of difficulty in attending classes through onscreen and conventional teaching in respect to Reading, Understanding and Concentration

Level of Difficulty	Classes	Very Difficult	Difficult	Neutral	Easy	Very Easy
Reading	Conventional	04 (1%)	40 (10%)	250 (62.5%)	89 (22.3%)	17 (4.2%)
	Onscreen	57 (14.3%)	144 (36%)	152 (38%)	41 (10.3%)	6 (1.4%)
Understanding	Conventional	06 (1.4%)	29 (7.3%)	224 (56%)	121 (30.3%)	20 (5%)
	Onscreen	59 (14.7%)	159 (39.8%)	151 (37.7%)	23 (5.8%)	08 (2%)
Concentration	Conventional	12 (3%)	36 (9%)	222 (55.5%)	111 (27.7%)	19 (4.8%)
	Onscreen	146 (36.5%)	140 (35%)	90 (22.5%)	21 (5.2%)	03 (0.8%)

Table 2: Comparison of Rating of onscreen and conventional Classes in respect to Time duration of lecture, Interaction with teacher and adherence

Rating	Classes	Excellent	Very Good	Good	Fair	Poor
Time duration	Conventional	10 (2.4%)	32 (8%)	217 (54.3%)	125 (31.3%)	16 (4%)
	Onscreen	06 (1.5%)	20 (5%)	124 (31%)	191 (47.8%)	59 (14.7%)
Interaction with teacher	Conventional	19 (4.8%)	75 (18.8%)	202 (50.5%)	93 (23.2%)	11 (2.8%)
	Onscreen	02 (0.5%)	15 (3.7%)	94 (23.5%)	172 (43%)	117 (29.3%)
Adherence	Conventional	23 (5.8%)	82 (20.4%)	176 (44%)	104 (26%)	15 (3.8%)

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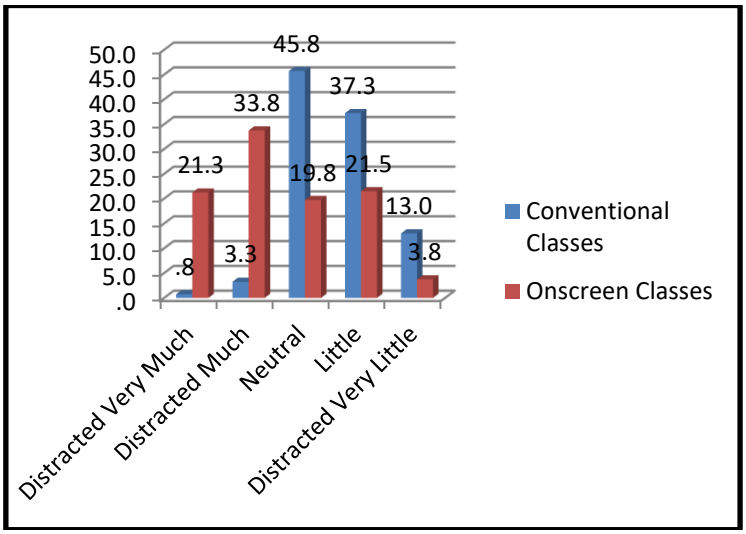
	Onscreen	05 (1.3%)	25 (6.2%)	97 (24.2%)	158 (39.5%)	115 (28.8%)

54.3% (217) students rated time duration as good and 31.3%(125) as fair through conventional teaching while only 31%(124) rated it as good and 47.8% (191) rated it as fair through onscreen teaching. 50.5%(202), 23.5%(94) students rated interaction with teacher as Good through conventional teaching and online teaching respectively.

44%(176) students felt good adherence to conventional teaching, on the other hand only 24.2%(97) had good adherence to onscreen teaching. (Table2)



Fg.2 Comparison of level of distraction in onscreen and conventional Classes

4.1 % were distracted much to very much and 50.3% were distracted little to very little through conventional classes while 56.1% were distracted much to very much and 25.3% were distracted little to very little through onscreen classes (Fig 2)

Table 3: Comparison of Level of Satisfaction in respect to Reading, Understanding and Learning, and Interaction with teacher via onscreen and conventional Classes

Level of Satisfaction	Classes	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very Satisfied	Extremely satisfied
Reading	Conventional	09 (2.3%)	50 (12.5%)	166 (41.5%)	138 (34.4%)	37 (9.3%)
	Onscreen	75 (18.8%)	124 (31%)	151 (37.8%)	42 (10.4%)	08 (2%)
Understanding & Learning	Conventional	08 (2%)	45 (11.3%)	148 (37%)	153 (38.2%)	46 (11.5%)
	Onscreen	69 (17.3%)	129 (32.2%)	144 (36%)	45 (11.2%)	13 (3.3%)
Interaction with teacher	Conventional	5 (1.2%)	47 (11.8%)	168 (42%)	136 (34%)	44 (11%)
	Onscreen	63 (15.8%)	135 (33.8%)	146 (36.5%)	42 (10.4%)	14 (3.5%)

166(41%), 148(37%), 168(42%) students were moderately satisfied through conventional classes while 151(37.8%), 144 (36%), 146(36.5%) were moderately satisfied through onscreen classes in respect to reading, understanding & learning and interaction with teacher respectively. (Table 3)

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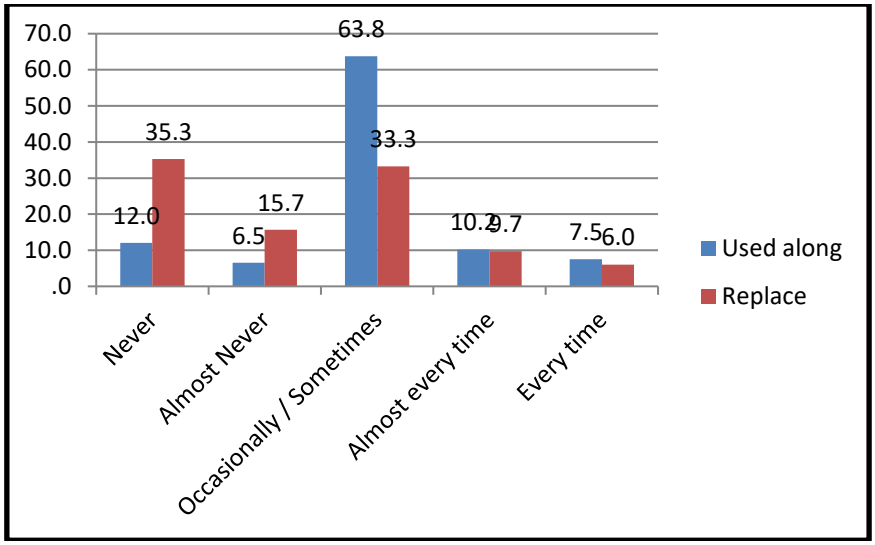

Fig.3 Usage and Replacement of Onscreen classes with conventional classes

63.8% think that onscreen classes can be used occasionally / sometimes along with conventional classes. 35.3% students felt that onscreen classes can never replace conventional classes and 33.3% felt that onscreen classes can sometimes replace. (Fig. 3)

Table 4: Key barriers of onscreen Classes

Key Barriers	Responses
Poor internet connectivity	77(19.2%)
Distraction in home environment	37(9.2%)
Maintaining Positive attitude	19(4.7%)
Time constrain	17(4.2%)
Lack of skill	9(2.2%)
Poor internet connectivity, Distraction in home environment	34(8.5%)
Lack of skill, Maintaining Positive attitude & Distraction in home environment	20(5%)
Poor internet connectivity, Distraction in home environment, Lack of skill & Maintaining Positive attitude	64(16%)
Time constrain, Poor internet connectivity, Distraction in home environment, Lack of skill & Maintaining Positive attitude	123(31%)

19.2%(77) found poor internet connectivity, 9.2%(37) found distraction in home environment, 4.7%(19) found difficulty in maintaining positive attitude, 4.2%(17) found time constrain and 2.2%(9) found lack of skill as a key barrier while attending Onscreen classes. 31%(123) reported all the above issues as key barriers (Table 4) Out of 400 students 360(90%) reported various Health issues due to increased onscreen time. 200(55.5%) of students reported headache along with various eye symptoms including strain, irritation, dryness, watery eyes, blurring of vision and decreased eyesight as the major health issue. 130(36.1%) reported eye symptoms only. 20(5.6%) and 10(2.8%) reported headache and back and neck pain respectively.

DISCUSSION

Though onscreen teaching mayfillthe lapse in studies and help educational institutes to push ahead with the academic calendar and ensured educational continuity. It was seen that by the year 1994 there were 3.2 million computer users spread over 80 countries[19]. Internet embraced medicine and health care as well. 2002 Eurobarometer survey reported that 78% of Europeon general practioners practised online as well, highest number being in Sweden reaching 98% and 97% in United Kingdom. The information availability grew fastly with patients and medical professionals. Hence internet technology growth also influenced the institutions and online courses started to usher. The distance learning, availability of digital libraries and e learning materials revolutionized medical education[10]. It is necessary that the high quality of education given traditionally should also be maintained online. Hence it is a great opportunity to access the knowledge, attitude and perceptions of students in this unwanted times. In this study opinion of the students regarding onscreen and conventional teaching were taken on Likert scale.

282(70%) students used phone as most common tool for attending online classes while only 11(2.7%) students used laptops. Abbasi in his study on perceptions of students regarding e learning during

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Covid 19 at private medical college reported 76% students preferred use of mobile phone for e learning. His study included 382 participants including 137(35.9%) males and 245 females (64.1%) which is similar to present study[12]. A study on students in spain found that students prefer mobile phones for online learning for it is easy to carry mobile anywhere any time making online learning more accessible[13,14].

In this study maximum number of students (62.5%), had neutral opinion regarding level of difficulty, 22.3% found it easy for reading through conventional classes as compared to 38% and 10.3% through onscreen classes. Only 11% found it to be difficult to very difficult through conventional as compared to 50.3% through onscreen teaching. Similarly 56% of students felt that understanding through conventional classes was neither difficult nor easy whereas 54.5% students found understanding through onscreen classes difficult to very difficult. Regarding level of concentration, it was either difficult or very difficult to maintain concentration in onscreen classes (71.5%) contrast to conventional classes where maximum students 55.5% were of neutral opinion. Hence it can be inferred that it was difficult in reading, understanding and maintaining concentration through onscreen teaching in comparison to conventional teaching. Warnecke& Pearson evaluated perception of medical students of using e learning on 108 participants. Video lectures of one hour and communication skill, methodology video recordings and related videos of 10 minutes were given to students as e-package which could be viewed as many times as the student wanted at their will. It was concluded that majority participants especially femlaes rated e learning to be enjoyable. Also majority perceived their knowledge to be increased due to this e learning and allowed enhancement in their preparation for exams[17]. Present study is different as sessions were not prerecorded and students did not always have option to see lectures again and again.

62.3%, 69.3% and 64.4% students rated time duration of lecture, interaction with teacher and adherence, good to very good in conventional teaching in comparison to 35%, 26.2% and 30.4% through onscreen teaching while more percentage of students (62.5%, 72.3%, 68.3%) rated onscreen teaching as fair to poor in respect to time duration of lecture, interaction with teacher and adherence. In a study by Svirko[9] it was reported that students attitude towards computer aided learning was deep only when clinical relevance is incorporated well in the content of lecture as this helped in better retention. Pei reported from metaanalysis search that online teaching is effective as offline but it should be designed in a way to benefit every students[11].

Sreehari in his article on online learning during the Covid 19 lockdown: learner's perceptions found that onscreen classes are less inviting than face to face and significant number of students liked face to face learning[15]. In our study majority of students rated time duration of lecture, interaction with teacher and adherence to the lecture as good to very good through conventional classes as compared to onscreen.

4.1% of students were distracted much to very much in conventional classes as compared to 56.1% in onscreen while 50.3% had little to very little distraction in conventional classes as compared to 25.3% in onscreen. Majority of students felt that level of distraction was more in onscreen teaching than conventional teaching where level of distraction was less. 49.8%, 49.5% and 49.6% of students were slightly to not at all satisfied in respect to Reading, Understanding & Learning, and Interaction with teacher via onscreen teaching in comparison to 14.5%, 13.3%, 13% via conventional teaching. Similarly more percentage of students 43.7%, 49.7% and 45% were very to extremely satisfied in respect to Reading, Understanding & Learning, and Interaction with teacher via conventional classes. Hence level of satisfaction of students was more with conventional teaching than onscreen teaching in respect to reading, understanding, learning and interaction with teacher. Singh in his study on students satisfaction level towards e learning observed that majority of them accepted digital lectures on gross anatomy[18]. In a study by Schimmingon Measuring Medical Student Preference: A comparison of classroom versus online instruction for teaching Pubmed, it was concluded that student satisfaction were similar for training students in a computer classroom traditionally and for those taking instruction entirely online. Schimming reported students found the training useful, boring, waste of time depending on their previous knowledge about using research engines and satisfaction level increased as the subsequent batches were enrolled[16].

Maximum percentage of students (63.8%) felt that onscreen classes can occasionally be used along with conventional classes while 17.7% felt that they can be used every to almost every time. 51% of the students were of the view that onscreen classes can never be replaced with conventional classes and 33.3% felt that they can be occasionally replaced. So in this study students opted that onscreen classes can be used occasionally along with conventional classes but never be replaced. Sreehari too reported same in his study on learner's perception that online learning can't be replaced by face to face learning. He also reported that students want to blend 30% online and 70% face to face teaching[15]. Abbassi also reported in his study that 85% students preferred face to face teaching, 75.7% of the students have negative perceptions towards e-learning[12]. Poor internet connectivity was the key barrier reported by majority of students while attending online classes. Time constraint, distraction in home environment, lack of skill & maintaining positive attitude were the other factors affecting online teaching. Due to increased onscreen time 55.5% students had reported various health issues like headache, eye strain, irritation in

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eyes, blurring of vision, decreased eyesight, backache and pain in the neck. Majority of students reported headache, strain in eyes and blurring of vision while attending onscreen classes. Leila shamoradi[4] observed that 40% of the participants in her study in challenges of e learning system had problem in accessing the technology & 38% faced difficulty in using technology like attaching or downloading files, video audio communication, writing notes, understanding videos, time management for attempting answers. It was concluded that both teacher &learner's involvement is necessary to improve upon the difficulties faced. Various activities that engage learner in the subject and can also be graded could help in keeping health issues at bay. This can do by asking learners to make models and getting it submitted online to check technicalities of subject. Other effects implied to screen are on cognition changes, behavioural changes and disconnection from nature, play and society which has not been included in present study[6].

We concluded that students preferred conventional teaching and there level of satisfaction was higher in reading, understanding, maintaining concentration, interaction with teacher and adherence. Technical issues like poor internet connectivity, lack of skill; psychological issues like maintaining positive attitude, distraction in home environment and health issues like headache, stain in eyes and blurring of vision were the various issues reported by the students while attending online classes.

DECLARATIONS

Conflict of interest: Nil

Ethical approval: study was approved by Institutional ethics committee by vide letter no. PIMS/IEC/20/12 dated 21.09.2020 and by clinical trial registry of India via CTRI/2020/09/028157.

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