

**Original article:**

## Introduction of Different On-line Methods in Undergraduate Anatomy Teaching

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### Abstract:

**Introduction:** Electronic learning (e-learning) is moving from textbooks in electronic format to a truly interactive medium that can be delivered to meet the educational needs of the medical students with the increasing use of technology in education, online learning has become a common teaching method.

**Methods:** The study was conducted among the phase-1 students of Coochbehar Govt. Medical College where the teaching module were delivered by 'power-point presentation with audio narration' shared by what's app, 'uninterrupted full video lecture' shared by you tube upload and 'live class' on zoom app. The feedback from students and faculty were collected and analysed.

**Observations:** 82.83% students agreed that the you-tube uninterrupted video is interesting, 78.79% students agreed that they were motivated PPT with audio narration. 75.76% students agreed that You-Tube uninterrupted video helped in better understanding of the topic. 91.92% students agreed that PPT with audio narration stimulated the critical thinking. 81.82% students agreed that PPT with narration helped in memorizing the facts easily. 85.86% students agreed that PPT with narration helped in facts finding. 79.8% agreed that You-Tube video increased sensitivity towards the topic. 6.69% students agreed that Zoom Class room increases the confidence in subject learning. 80% faculty agreed that it is feasible to conduct online session by PPT & You-Tube video. 60% faculty agreed that Zoom & You-Tube stimulated self-directed learning. 60% faculty agreed that PPT with audio narration stimulated students' desire to learn. 60% faculty agreed that both PPT with audio narration & You-Tube video were good methods to practice integration of knowledge and skill.

**Conclusion:** Different online platform can be used as a supplementary teaching learning tool in addition to traditional teaching methods and also that it can be replicated by other Departments and can be incorporated in to the Medical Curriculum in the future.

**Keywords:** Zoom Classroom, What's-App Power-Point Presentation, You-Tube Video.

### Introduction:

Since the ancient eras of Vedic time, a relation between teacher and apprentice can never be changed. Changes may be observed in the method of teaching, choice of equipment and many more. In context of an outstanding improvement of technology, the method of learning is henceforth converted into e-learning. Teaching in medical sciences involves lots of facts and concepts. Now a days, there are so many online methods are being introduced for teaching like classes on google meet, Dhoot, zoom, You tube uninterrupted video, YouTube live, Facebook

live, recorded PowerPoint audio narration presented with laser pointer, sharing of PowerPoint as pdf with a separate doubt clearing session. Out of all of these three methods are chosen for this present study. You-Tube uninterrupted video, Zoom Classroom and PowerPoint with audio narration. Hence, there is a time constraint for the use of interactive teaching methods. Due to the advent of internet and advanced technology, information is available immediately for access. Nowadays, there is an increase use of Whats app as an instant mode of communication among students<sup>1</sup>. Students are also habituated in using you-tube videos for self-directed learning. In current scenario suspension of all regular classes is noted in all the institution due to pandemic COVID-19 outbreak. Also the classes of medical colleges are not excluded from this list. So, introduction of classes based on online platform are being initiated in all the medical, dental and nursing colleges during the lockdown period. The present study was conducted to find out the perceptions of Phase-1 medical students on the effectiveness of different on line platforms as a teaching learning tool as a supplement to the traditional teaching methods and thus to find out other better way of making the classes more presentable and acceptable.

**Aims and objectives:**

The present study was conducted for collecting the students' perception and attitude regarding the different online teaching methods of Anatomy among the phase-1 medical students. The study was also conducted to exclude, include & improvise the different online methods of learning and the software using for that.

**Specific objectives of this study are:**

- 1) To elicit student's perception for different pros and cons of online classes by using different soft wares.
- 2) To find out the usefulness of different online platform in future medical education for learning Anatomy in Phase-1 students.
- 3) To find out any other interesting way other than this platform in future medical education for learning Anatomy in Phase-1 students.

**Materials and Methods:**

An educational interventional study with cross sectional design of data collection was conducted among the phase-1 students of Coochbehar Govt. Medical College & Hospital during a period of six months. Permission from Institutional Ethics Committee and consent from both students & faculty were taken prior to study. The faculty (five in number) were sensitized in the beginning of the study & they were shown how to conduct 'online teaching', emphasizing the role of teacher as facilitator. The students were also sensitized regarding this method.

In the next one month the online modules were prepared for two topics with the help of the senior faculty of the department. Pre-validated feedback questionnaires were also prepared during the same period of time. One topic was selected from Embryology (development of kidney & ureter), & another from Gross Anatomy (Lungs & Pleura).

Among the different online methods, three methods were used during the study periods for teaching Anatomy. The selected topics were delivered by 'power-point presentation with audio narration' shared by what's app, 'uninterrupted full video lecture' shared by you tube upload and 'live class' on zoom app.

The following materials were used for the study:

- a) Classroom with proper illumination.
- b) White board and colour sketch pens.
- c) Video camera having 720p, 1080p and 4K video recording ability.

- d) Micro SD card for storage of recorded video.
- e) Desktop and laptop for storing, streaming and uploading those videos.
- f) High speed internet connection.
- g) Tablet or mobile phone having Wi-Fi connection.
- h) Viscera, cadaver and other supportive required documents.

The hundred Phase-I students were divided into five groups (twenty students in each group) and the selected topics were delivered in three online methods for the period of five weeks. Only one student could not participate in the learning session due to illness & therefore the final sample size was ninety-nine. For each group the first topic was delivered by three online methods on day 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup> day of a particular week and the second topic was shared by the same online methods on day 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup> day of the same week. The feedback from the students were collected within the same day with the help of a pre-validated questionnaires and a short assessment was also taken at the last working day of the week by MCQ in Google Form. The collected data was tabulated in Microsoft excel spread sheet and analysed by Epi-info 7.0 and SPSS 20. The report was prepared within a period of one-month.

### **Observations & Result**

The average age of the students and faculty were 18.5152 & 38.2 years with standard deviation of 0.7741 years & 13.5351 years respectively. (**Table-I, Fig-1**) 81.81 percent students were male and rest were female.

### ***Viewpoints of students***

82.83% students agreed that the you-tube uninterrupted video was interesting and 16.16% students strongly agreed with that. 69.7% & 70.71% students agreed and 26.26% & 25.25% students strongly accepted that they were motivated by You-Tube video and Zoom Class respectively. 39.39% students strongly agreed that Zoom Class helped in better understanding of the topic. 91.92% students agreed that Power Point Presentation with audio narration stimulated the critical thinking but interestingly, no student strongly supported that. 24.24% students strongly agreed that You-Tube uninterrupted video stimulated the critical thinking. 81.82% & 85.86% students agreed that Power Point Presentation with narration helped in memorizing the facts easily but no student strongly supported that again. Any of the procedure was not helpful for group interaction. Among the three methods only Zoom Class could motivate the students for increasing the sensitivity towards the topic (66.67% agreed & 26.26% strongly agreed). 30.3% students strongly agreed and 66.67% students agreed that you-tube uninterrupted video gave confidence in subject learning. 23.23% students strongly agreed & 72.73% students agreed that You-Tube uninterrupted video to be continued as online platform for future batches. At the same time 19.19% students strongly agreed and 75.76% students agreed that Zoom Class room could be continued for future classes. The details of students' feedback are portrayed in **Table-II, III, IV. (Fig:2-4)**

The views of the open ended question are depicted in **table-VIII, IX, X & Fig-8 A & B, 9 A & B, 10 A & B**. 68.69% students suggested that the zoom classroom felt like a real classroom 56.57% students suggested to increase the time of interaction in zoom. 42.42% students said that you tube uninterrupted video helped in clear understanding of the topic and it was student friendly. 71.72% students told that the audio quality was not satisfactory. 83.84% students said that the advantage of Power Point Presentation with audio narration was its all-time availability.

The average marks that was obtained by the students in assessment was 40.2121 ±3.459 (SD). (**Table-XIV**)

**Viewpoints of Faculty**

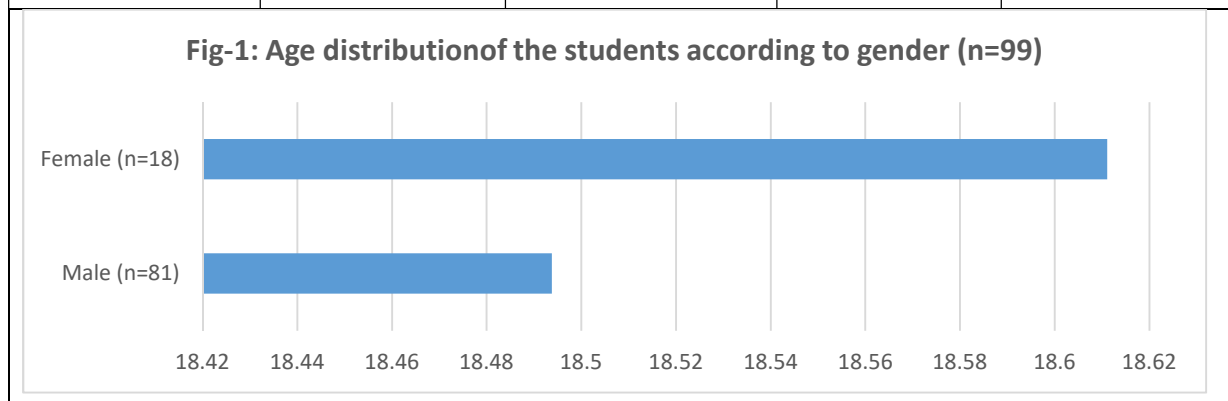
80.0% faculty agreed that it was feasible to conduct online session by You-tube uninterrupted video. 80.0% disagreed that online class was time consuming & hindered the normal speed of class in Power Point Presentation with audio narration. 60.0% faculty strongly agree that online preparation for zoom class required a lot of efforts. 60.0% faculty agreed that online class stimulates students' desire to learn in Power Point Presentation with audio narration. 60.0% faculty agreed that Power Point Presentation with audio narration helped towards SDL in students. 60.0% faculty disagreed that student felt confident to apply the theoretical knowledge of anatomy to solve clinical cases. 60.0% faculty agreed that online class was a good method to practice integration of knowledge and skill for Power Point Presentation with audio narration. 60.0% faculty were not satisfied with Zoom Class but 80% faculty were satisfied with online approach of teaching by Power Point Presentation with audio narration. 40% faculty strongly agreed that other topics of anatomy should be taught by online method by Zoom Class room only 20 % faculty agree for other online methods. 40% faculty strongly agree & 60% faculty agreed that Power Point Presentation with audio narration could be used as a TLM for future batches. The details of faculty feedback are depicted in **Table-V, VI, VII (Fig:5-7)**.

Other opinion of the faculty is mentioned in **table- XI, XII, XIII and Fig-11 A & B, 12 A & B, 13 A & B**. 60% faculty suggested that longer time was required for conducting zoom class than normal class. 60% faculty told that the advantage of you tube video was its all-time availability but they believed that another doubt clearing session was required after posting the you-tube video. 60% faculty said that audio narration was better than normal Power Point Presentation as it helps to realise the actual facts that is written in Power Point Presentation.

**Tables & Figures:**

**Table-1: Distribution of the mean age of the students according to gender (n=99)**

Gender	Mean	Standard Deviation	Range	Test of significance
Male (n=81)	18.4938	0.6349	18-21	P-value = 0.56363
Female (n=18)	18.6111	1.2433	18-23	



**Table-II: Analysis of students' feedback on Zoom Class room (n=99)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Method is interesting	0 (0.0%)	2 (2.02%)	2 (2.02%)	60 (60.61%)	31 (31.31%)
2. Motivate to read more	0 (0.0%)	2 (2.02%)	2 (2.02%)	70 (70.71%)	25 (25.25%)
3. Better understanding of topic	0 (0.0%)	2 (2.02%)	8 (8.08%)	50 (50.51%)	39 (39.39%)
4. Motivate clinical thinking	0 (0.0%)	9 (9.09%)	78 (78.79%)	8 (8.08%)	4 (4.04%)
5. Helps in memorizing facts easily	0 (0.0%)	4 (4.04%)	66 (66.67%)	19 (19.19%)	10 (10.1%)
6. Helps facts finding	0 (0.0%)	9 (9.09%)	6 (6.06%)	50 (50.51%)	34 (34.34%)
7. Increase group interaction	0 (0.0%)	4 (4.04%)	85 (85.86%)	6 (60.61%)	4 (4.04%)
8. Increase sensitivity towards topic	0 (0.0%)	2 (2.02%)	5 (5.05%)	66 (66.67%)	26 (26.26%)
9. Give confidence in subject learning	0 (0.0%)	6 (6.06%)	7 (7.07%)	68 (68.69%)	18 (18.18%)
10. To be continued (online platform be used as a TLM for future batches)	0 (0.0%)	2 (2.02%)	3 (3.03%)	75 (75.76%)	19 (19.19%)

**Table-III: Analysis of students' feedback on you-tube uninterrupted video. (n=99)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Method is interesting	0 (0.0%)	1 (1.01%)	0 (0.0%)	82 (82.83%)	16 (16.16%)
2. Motivate to read more	0 (0.0%)	1 (1.01%)	3 (3.03%)	69 (69.7%)	26 (26.26%)
3. Better understanding of topic	0 (0.0%)	0 (0.0%)	15 (15.15%)	75 (75.76%)	9 (9.09%)
4. Motivate clinical thinking	0 (0.0%)	1 (1.01%)	7 (7.07%)	67 (67.68%)	24 (24.24%)
5. Helps in memorizing facts easily	0	0	10 (10.1%)	74	15

	(0.0%)	(0.0%)		(74.75%)	(15.15%)
6. Helps facts finding	0 (0.0%)	1 (1.01%)	18 (18.18%)	70 (70.7%)	10 (10.1%)
7. Increase group interaction	2 (2.02%)	66 (66.67%)	28 (28.28%)	3 (3.03%)	0 (0.0%)
8. Increase sensitivity towards topic	0 (0.0%)	0 (0.0%)	8 (8.08%)	79 (79.8%)	12 (12.12%)
9. Give confidence in subject learning	0 (0.0%)	0 (0.0%)	3 (3.03%)	66 (66.67%)	30 (30.3%)
10. To be continued (online platform be used as a TLM for future batches)	0 (0.0%)	2 (2.02%)	2 (2.02%)	72 (72.73%)	23 (23.23%)

**Table-IV: Analysis of students' feedback on PPT with narration (n=99)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Method is interesting	0 (0.0%)	0 (0.0%)	32 (32.32%)	54 (54.55%)	13 (13.13%)
2. Motivate to read more	0 (0.0%)	4 (4.04%)	17 (17.17%)	78 (78.79%)	0 (0.0%)
3. Better understanding of topic	0 (0.0%)	3 (3.03%)	38 (38.38%)	41 (41.41%)	17 (17.17%)
4. Motivate clinical thinking	0 (0.0%)	0 (0.0%)	8 (8.08%)	91 (91.92%)	0 (0.0%)
5. Helps in memorizing facts easily	0 (0.0%)	3 (3.03%)	15 (15.15%)	81 (81.82%)	0 (0.0%)
6. Helps facts finding	0 (0.0%)	0 (0.0%)	14 (14.14%)	85 (85.86%)	0 (0.0%)
7. Increase group interaction	25 (25.25%)	62 (62.63%)	7 (7.07%)	5 (5.05%)	0 (0.0%)
8. Increase sensitivity towards topic	0 (0.0%)	4 (4.04%)	24 (24.24%)	65 (65.66%)	6 (6.06%)
9. Give confidence in subject learning	2 (2.02%)	3 (3.03%)	22 (22.22%)	66 (66.67%)	6 (6.06%)
10. To be continued (online platform be used as a TLM for future batches)	0 (0.0%)	10 (10.1%)	33 (33.33%)	48 (48.48%)	8 (8.08%)

**Table-V: Analysis of feedback of the Faculty on zoom classroom. (n=5)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. It is feasible to conduct online session	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (60.0%)	2 (40.0%)
2. Online class is time consuming & hinders the normal speed of class	0 (0.0%)	1 (20.0%)	0 (0.0%)	2 (40.0%)	2 (40.0%)
3. Online preparation requires a lot of efforts	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (40.0%)	3 (60.0%)
4. Online class stimulates students' desire to learn	0 (0.0%)	0 (0.0%)	2 (40.0%)	2 (40.0%)	1 (20.0%)
5. It helps towards SDL in students	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (60.0%)	2 (40.0%)
6. Student felt confident to apply the theoretical knowledge of anatomy to solve clinical cases	0 (0.0%)	3 (60.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)
7. Online class is a good method to practice integration of knowledge and skill	0 (0.0%)	0 (0.0%)	2 (40.0%)	2 (40.0%)	1 (20.0%)
8. I am satisfied with online approach of teaching	0 (0.0%)	3 (60.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)
9. Other topics of anatomy should be taught by online method	0 (0.0%)	2 (40.0%)	1 (20.0%)	0 (0.0%)	2 (40.0%)
10. Online teaching be used as a TLM for future batches	0 (0.0%)	0 (0.0%)	2 (40.0%)	2 (40.0%)	1 (20.0%)

**Table-VI: Analysis of feedback of the Faculty on PPT with audio narration. (n=5)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. It is feasible to conduct online session	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (80.0%)	1 (20.0%)
2. Online class is time consuming & hinders the normal speed of class	1 (20.0%)	4 (80.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
3. Online preparation requires a lot of efforts	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
4. Online class stimulates students' desire to learn	0 (0.0%)	1 (20.0%)	0 (0.0%)	3 (60.0%)	1 (20.0%)
5. It helps towards SDL in students	0 (0.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)	3 (60.0%)

6. Student felt confident to apply the theoretical knowledge of anatomy to solve clinical cases	0 (0.0%)	1 (20.0%)	3 (60.0%)	0 (0.0%)	1 (20.0%)
7. Online class is a good method to practice integration of knowledge and skill	0 (0.0%)	1 (20.0%)	0 (0.0%)	3 (60.0%)	1 (20.0%)
8. I am satisfied with online approach of teaching	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (80.0%)	1 (20.0%)
9. Other topics of anatomy should be taught by online method	0 (0.0%)	2 (40.0%)	2 (40.0%)	0 (0.0%)	1 (20.0%)
10. Online teaching be used as a TLM for future batches	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (60.0%)	2 (40.0%)

**Table-VII: Analysis of feedback of the Faculty on You-tube uninterrupted video. (n=5)**

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. It is feasible to conduct online session	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (80.0%)	1 (20.0%)
2. Online class is time consuming & hinders the normal speed of class	0 (0.0%)	3 (60.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)
3. Online preparation requires a lot of efforts	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
4. Online class stimulates students' desire to learn	0 (0.0%)	1 (20.0%)	0 (0.0%)	2 (40.0%)	2 (40.0%)
5. It helps towards SDL in students	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (60.0%)	2 (40.0%)
6. Student felt confident to apply the theoretical knowledge of anatomy to solve clinical cases	0 (0.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)
7. Online class is a good method to practice integration of knowledge and skill	0 (0.0%)	1 (20.0%)	0 (0.0%)	3 (60.0%)	1 (20.0%)
8. I am satisfied with online approach of teaching	0 (0.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)
9. Other topics of anatomy should be taught by online method	0 (0.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)
10. Online teaching be used as a TLM for future batches	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)



**Table-VIII: Percentage of students attempting for different open ended questions and frequency of their common answer for zoom classroom (n=99)**

Open Ended question	Response Obtained	No. of students	Percentage
What do you think was best about the session?	Felt like a real classroom	68	68.69%
	No disturbance	28	28.28%
	No comment	03	3.03%
What improvement can be done to make it even better?	Teacher student interaction time	56	56.57%
	Permission of full recording	04	4.04%
	Class time should be more	27	27.27%
	Sharing of slides and important questions	04	4.04%
	Doubt session	08	8.08%

**Table-IX: Percentage of students attempting for different open ended questions and frequency of their common answer for you tube uninterrupted video (n=99)**

Open Ended question	Response Obtained	No. of students	Percentage
What do you think was best about the session?	Clear understanding of the topic, student friendly	42	42.42%
	Anytime streaming	32	32.32%
	Very nice presentation and delivery	25	25.25%
What improvement can be done to make it even better?	Audio quality	71	71.72%
	Picture quality	12	12.12%
	Pixel should be increased from 240p to 720 or 1080p	5	5.05%
	A pdf of the same topic should be shared	4	4.04%
	Doubt session	7	7.07%

**Table-X: Percentage of students attempting for different open ended questions and frequency of their common answer for PPT with audio narration. (n=99)**

Open Ended question	Response Obtained	No. of students	Percentage
What do you think was best about the session?	Anytime available	83	83.84%
	Very informative and nice presentation	16	16.16%
What improvement can be done to make it even better?	No such	56	56.57%
	Need a doubt clearing session	24	24.24%
	At the end of presentation, some questions may be asked for home work	19	19.19%

**Table-XI: Percentage of Faculty attempting for different open ended questions and frequency of their common answer for zoom classroom (n=5)**

Open Ended question	Response Obtained	No. of faculty	Percentage
What do you think was best about the session?	Better than nothing	1	20%
	The method is interactive	2	40%
	More like a real class room	2	40%
What improvement can be done to make it even better?	Time should be lengthened	3	60%
	The interruption of the class may occur during interaction	2	40%

**Table-XII: Percentage of faculty attempting for different open ended questions and frequency of their common answer for you tube uninterrupted video (n=5)**

Open Ended question	Response Obtained	No. of faculty	Percentage
What do you think was best about the session?	You may play whenever you want	3	60%
	Any demonstration or practical class can be conducted easily by this method	2	40%
What improvement can be done to make it even better?	Another doubt clearing session may be needed	3	60%
	No comments	2	40%

**Table-XIII: Percentage of faculty attempting for different open ended questions and frequency of their common answer for PPT with audio narration. (n=5)**

Open Ended question	Response Obtained	No. of students	Percentage
What do you think was best about the session?	You may play whenever you want	2	40%
	This method help to realise the actual facts that is written in ppt	3	60%
What improvement can be done to make it even better?	Another doubt clearing session is needed regarding the topic after class	2	40%
	Difficult to send it by what's app	1	20%
	No comments	2	40%

**Table-XIV: Marks distribution of phase-1 students after online assessment (n=99)**

Marks Distribution according to percentage	Number of students (n=99)
<50%	0
50-59%	0
60-69%	5
70-79%	33
80-89%	47
90-100%	14

**Fig-2: Marks distribution of students (n=99)**

Marks Distribution	Number of students
<50%	0
50-59%	0
60-69%	5
70-79%	33
80-89%	47
90-100%	14

**Discussion:**

In this present study we mainly focus on experiences and feedback shared by a group of students and respective teachers. The rise of the "YouTube Generation" or "Generation Connected" (Gen C), offers new possibilities for anatomy education. This integration of social media into undergraduate learning, and the attitudes and mind-set of Gen C, who routinely creates and publishes blogs, podcasts, and videos online, has changed traditional learning approaches and the student/teacher relationship<sup>2</sup>. Conventional teaching resources inside and outside of the laboratory tend to be preferred by students, according to Nageswari et. al (2004)<sup>3</sup>. These resources usually include the recommended anatomy atlases and textbooks, traditional lectures supplemented with PowerPoint presentations, and dissector guides. The quality of such resources varies by program but Mayfield et. al (2012)<sup>4</sup> looked at the use of online dissector guides during laboratory time versus more traditional paper guides and hardcover atlases.

Mahmud et. al (2011)<sup>5</sup> reported that showing videos depicting the dissection of the upper and lower limbs did not have a significant impact on class test scores (the tests consisted of a written multiple choice exam, an oral exam, and a pinned practical of laboratory specimens/donors) but that students did report that they liked the resources and felt they helped them learn the material better. However, Collins et. al (2015)<sup>6</sup> found the opposite of Mahmud's study. Collins showed a group of students at various stages in their medical training an upper limb dissection video before a dissection course. The students that saw the video outperformed their peers at the same level of training who did not see the video. It is possible that these two studies made opposite conclusions because of differences in their methods.

According to the study of Ranjan R et al., 2017, WhatsApp based m-learning emerged as an adept adjuvant to class-room teaching in terms of ubiquitous availability and collaborative learning. WhatsApp m-learning assistance was highly acknowledged by the participants with 74% positive response as an adept learning methodology, 89% appreciate its confusion clearing approach, 84% appreciate the availability of learning resource, 87% approve its quicker knowledge sharing, 78% found its helpfulness in complete coverage of anatomy curriculum, 79% acknowledge its time saving, 78% approves its learning capability by group

discussion and 89% advocate it as an adjuvant to classroom learning in future<sup>7</sup>. In the study of Ramachandran K (2018) 98% of students have agreed or strongly agreed that learning material shared through WhatsApp was easily available and downloadable. It also has helped them learn anytime anywhere and 82% of students felt that their confidence level in learning Anatomy has increased<sup>8</sup>. The study of Gashegu J et al., 2019 reported that the online availability of the anatomy lecturer stimulates the online exchanges, and provides a fast opportunity for coordination of the whole class and an easy way of sharing illustrative diagrams related to the topic<sup>9</sup>.

Because students in e-learning environments are more independent than face-to-face learners and content and activities are created and determined by faculty, instructors must do more to engage and motivate online learners. Clear instructions, as well as pre- and post-exercises, are required to engage students with the teaching materials. In our study special care was taken with planning and recording video content. The following measures were considered when using video in medical education: orienting students to the video content; using interactive elements to promote student participation; aligning videos with learning objectives and course outcomes; integrating PowerPoint slides; including the lecturer's own voice in audio narration format, with use of on-screen laser pointer, and a transcript; avoiding cognitive overload; and limiting but good quality video length. Other activities like multiple-choice questions and mini quizzes, if arranged have also been shown to be effective in engaging students taking part in online learning (Irizarry, 2002)<sup>10</sup>.

### **Conclusion**

The perception of Anatomy teaching and attitude among medicos have been studied and opinion from them had thrown light for incorporation of newer techniques in their teaching curriculum. Owing to the advantages offered by using different on line methods as a teaching and learning tool for phase-I medical students, as perceived by students the author concludes that different online platform can be used as a supplementary teaching learning tool in addition to traditional teaching methods and also that it can be replicated by other Departments and can be incorporated in to the Medical Curriculum in the future.

The sudden change from on-campus learning to distance learning approaches is a challenging task for both faculty and students and has required a great deal of preparation over a short period of time. A systematic approach with the involvement of the whole stakeholders is required for this change. The proposed process will hopefully assist the medical colleges in response to the current pandemic (COVID-19) and when facing similar situations<sup>10</sup>.

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