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Perception of medical students on teaching method: Power Point Presentation or Chalk and Board with Demonstration?

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Abstract:
Background*: The knowledge of anatomy plays an integral role in the education and practice of health care professionals. Though there is no 'the best method' for teaching or learning anatomy. It is necessary for all teachers to be familiar with and know how of using great many materials techniques, ideas and special skills referred to as teaching methods. Successful teaching is that through which the learner learns the most, and it is not about a stunning power point presentation furnished by an eloquent professor. 'What' and 'how' we teach today will have an impact on students well beyond our lifetime, because each teacher leaves a small part of him/herself in the students they touch.*
Materials and Methods*: Study was done in the Department of Anatomy, Assam Medical College, Assam in the class of topic larynx using power point presentation and chalkboard with different learning tools for 1st MBBS student. At the end of the class' perception was assessed on the basis of a questionnaire in Likert scale regarding lecture content, ability to take note, ability to take diagram, interesting nature of lecture, and advancement in understanding, stimulation of interest, clarity and understandability of lecture, clarity of work, audibility and on organization of lecture .*
Results*: Favorable responses to power point presentation and chalkboard were- informative content (67.307%& 76.923%), ability to take notes (15.384% & 54.487%),take diagram (53.846% & 32.051%) ,interesting nature of lecture(23.717% & 98.717%), advancement of student's understanding on subject (20.512% & 94.871%),stimulation of interest (19.871% & 91.666%),understandability (39.102% & 94.871%), clarity (37.743% & 83.333%), audibility (27.564% & 89.743%) and organization of presentation (31.410% & 96.153%).*
Conclusion: *Medical students preferred chalkboard teaching if demonstration is done using different relevant tools over power point presentation in terms of its informative content, ability to take notes, interesting nature of lecture and advancement of student's understanding on subject, stimulation of interest, understandability, clarity, audibility and organization of presentation. Power point presentation teaching scored over chalkboard in taking diagrams. A combination of both methods could be valuable in some extent.*
Key Word*: Power Point, Chalk Board, Perception, Medical student, Teaching Method, Anatomy.*

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I. Introduction

Most of the clinical skills and procedures require a thorough understanding of the spatial relationship between the adjacent structures of the human body[1]. The knowledge of anatomy plays an integral role in the education and practice of health care professionals[2]. In certain circumstances, the cadaveric dissection may not be an ideal tool for learning anatomy, and can be replaced by or enhanced by, tools like videos of cadaveric dissection or animated pictures [3]. There is no 'the best method' for teaching or learning anatomy [4].

It is necessary for all teachers to be familiar with and know how of using great many materials techniques, ideas and special skills referred to as teaching methods[5]. Generally students prefer to take new information in form of sensory modality. Three major sensory modalities are visual (V), aural (A) and kinaesthetic (K) collectively known as VAK[6]. Traditional lectures have a place in well designed curricula. The primary purpose of this mode of instruction is the delivery of information .In it the instructor specks for a specified period of time, while the students record what is said participation by students is generally minimal. This mode of teaching can be used in any size and often large classes[7].

In the fellowship training even surgeons (26%) were unable to recognize anatomical planes,[8] knowledge that should have been mastered in the first year of medical school, but was perhaps forgotten as a

product of rote memorization. Memorization is essential to some degree, especially in gross anatomy, where a large vocabulary is an intrinsic part of content. The drawback of extensive rote memorization is that retention of the knowledge gained is poor and the facts learned are quickly lost. Learning of gross anatomy, or any learning for that matter, is likely to fail when there is only transference of information from teacher to students with no active involvement of the students[9].

As stated by DiCarlo[10], what and how we teach today will have an impact on students well beyond our lifetime, because each teacher leaves a small part of him/herself in the students they touch. To best prepare our students for medical practice, the focus should be on the learning, not on the teaching. Successful teaching is that through which the learner learns the most, and it is not about a stunning power point presentation furnished by an eloquent professor[11].

II. Material And Methods

The study was conducted in the department of Anatomy, Assam Medical College, Dibrugarh, Assam in the 2016-17 MBBS batch. Didactic lecture of the topic of larynx for 1st MBBS students consisting of total number 168 were taken using power point presentation. Students were divided into 4(Four) groups consisting of 42 no. of students in each group. Each group was taken lecture with chalk and board using the following different tools. Anatomy of the larynx was explained extensively and in totality, in a simple way to reach out to the average and below average students by the developed tools The materials used during chalk and board for the demonstration without using power point presentation were –

1. Real dissected human larynx
2. Separated cartilages of larynx
3. Sagittal section of head & neck
4. Hand-made 3D models of larynx and pharyngeal arch
5. Laryngoscope
6. Endotrachial tube
7. Chart paper diagrams.

Figure 1 Dissected parts of larynx shown in the chalk board teaching (A=Larynx, B=Larynx with trachea and bronchi, C=Medial surface of larynx, D= Cricoid cartilage)

Figure 2 Dissected parts of epiglottis and thyroid cartilage shown in the chalk board teaching (A=Posterior and B=Anterior view epiglottis cartilage, C=Posterior and D= anterior view of thyroid cartilage)

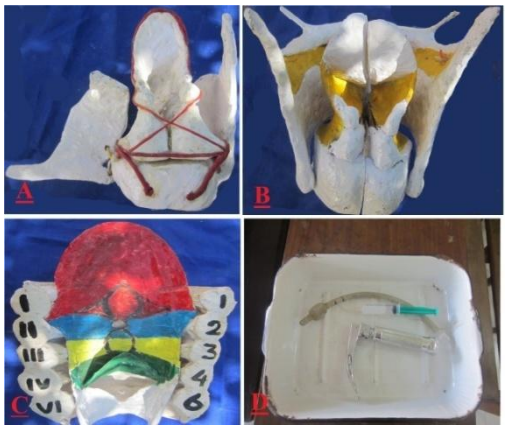

Figure 3 Endotracheal tube and handmade model for the chalk board teaching (A,B= Model of larynx, C=Model of pharyngeal arch, D= Endotracheal tube, Laryngoscope).

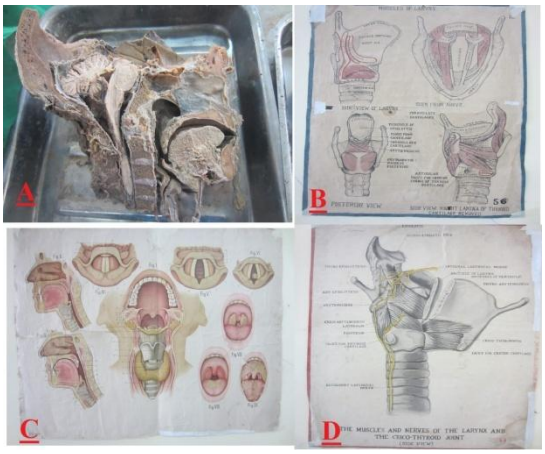

Figure 4 Sagittal section of head and neck part and different charts for the chalk board teaching(A=Sagittal section, B,C,D=Charts)

The materials were prepared and collected by the authors for the class. At the end of the demonstration class the students were asked to fill up a questionnaire made specifically for this purpose. There were ten questions which enquired about their views and perception on the methods of the lecture delivery by power point presentation viz. Lecture in demonstration class. The questionnaire was taken from an earlier study done by Seth et al[12]. A five point 'Likert Scale' was used to record their responses against each question as Strongly disagree-1, Disagree-2, Neutral-3, agree-4 and strongly agree-5. The questions were

Teaching content is informative
I can take my notes
I can take diagrams
The teaching is interesting
The teaching advanced my understanding on the subject
Teaching stimulated my interest
Teaching is clear and understandable
Demonstration/PP work clear
Teaching is audible
Teaching is organized

Students were briefed about the questions and interviewed in relevance to the questionnaire. The responses were collected without having the responder's name or any identification sign in it. Responses were analyzed against each parameter and the preference of the student is measured by method of weighted average regarding both the methods of teaching.

III. Result

The batch consist of total 168(one hundred and sixty eight) students and all participated in the study. 12 no. of students were excluded because the questionnaire was found to be incompletely filled up by them and/or double entries. So, total numbers of 156 students were included in the study. Likert scale 5 and 4 were

considered as favorable response to the question concerned in relation to lecture using Power Point presentation or lecture in the demonstration classes **(Table-1).**

Table1 Responses in Likert scale

		Power Point presentation(PPP)					**Chalk and Board(CB) with Demonstration class**				
Question No	Questions	LS-1	LS-2	LS-3	LS-4	LS-5	LS-1	LS-2	LS-3	LS-4	LS-5
1.	Teaching content is informative	16	14	21	43	62	13	12	11	42	78
2.	I can take my notes	82	28	22	12	12	28	21	22	42	43
3.	I can take diagrams	26	25	21	62	22	37	40	29	26	24
4.	The teaching is interesting	62	47	10	16	21	0	0	2	74	80
5.	The teaching advanced my understanding on the subject	51	42	31	15	17	0	4	4	62	86
6.	Teaching stimulated my interest	58	47	20	15	16	7	6	0	61	82
7.	Teaching is clear and understandable	48	42	5	5	56	4	4	0	73	75
8.	Demonstration/PP work clear	50	40	4	12	50	6	13	7	60	70
9.	Teaching is audible	62	45	6	12	31	4	6	6	66	74
10.	Teaching is organized	56	51	0	6	43	0	3	3	64	86

Table 2 Favorable responses to power point presentation and demonstration classes

		Power Point presentation(PPP) (Favorable response)	**Chalk and Board(CB) with Demonstration class (Favorable response)**
Question No	Questions	Number & % of students	Number & % of students
1.	Teaching content is informative	105(67.307%)	120(76.923%)
2.	I can take my notes	24(15.384%)	85(54.487%)
3.	I can take diagrams	84(53.846%)	50(32.051%)
4.	The teaching is interesting	37(23.717%)	154(98.717%)
5.	The teaching advanced my understanding on the subject	32(20.512%)	148(94.871%)
6.	Teaching stimulated my interest	31(19.871%)	143(91.666%)
7.	Teaching is clear and understandable	61(39.102%)	148(94.871%)
8.	Chalk board with demonstration/PP work clear	62(37.743%)	130(83.333%)
9.	Teaching is audible	43(27.564%)	140(89.743%)
10.	Teaching is organized	49(31.410%)	150(96.153%)

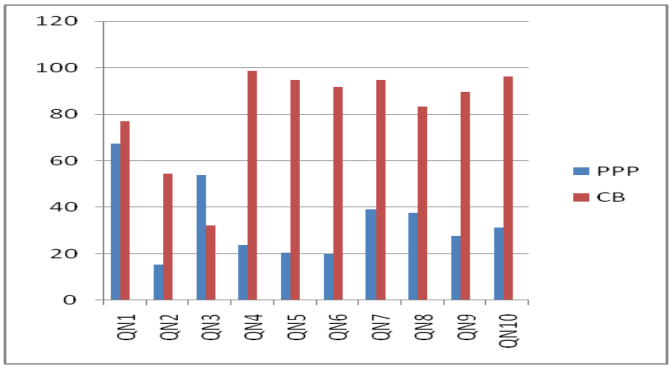

Figure 4 Percentage wise comparison of favorable responses to power point presentation (PPP) and chalk and board (C&B).

IV. Discussion

The lecture itself does not teach the students to analyze, it merely illustrates the process. How much the students learn from the model will depend both on the clarity with which instructor highlights the process and on the sophistication level of the listeners[2]. Modern teaching learning process is more learners oriented. That is why it is necessary to know about students' perception in regard to different tools used in lecture delivery system[13].

Some authors have suggested that, it is better to implement teaching techniques, including 3D models after investigating their effectiveness as a teaching tool[14]. Here we have tried to test the effectiveness of the tools on the students, before it is used as a successful teaching procedure.

Ernest [15] was in consulate that, demonstration method was effective in learning science subject in Essan, Edo state. He reported that, students performed better results and teachers were encouraged to use more of demonstration method while learning some selected concepts in science. This showed that, demonstration method was more effective than the lecture method. This is in line with Moore (1996)[13] reports which said that students remember 90% of what they see and do than what they hear.

Lectures are efficient means of providing knowledge and concepts to a large group and the students should receive information from the lectures[15]. In a survey revealed that the use of such models and demonstrations within the lectures helped 75 - 88% of the students in conceptualizing and understanding better the gross anatomy of difficult to visualize cadaveric structures while simultaneously keeping them engaged by invoking their curiosity[9]. In this study chalk and board class demonstration with different tools(76.923%)was found to be better than power point presentation (67.307%) in this regard. Studies show that most of the students felt that PPP was ineffective than demonstration class to receive information about larynx from the lecture. Some studies show that the learner prefers chalk and presentation over PPT presentation[16,17]. but they not mention about the use of models. On the other hand some studies show that the students prefer PPT presentation over Chalk and Board presentation[18-23.] Preference to combined methods was highest in some studies[24,25].

Ability to take notes in a class helps in revision of the class and future studies. In this study it was seen that chalk and board presentation is better than (54.487% vs. 15.384%). Lalvarmawi F et al found that students preferred power point over chalk and board in taking notes[20]. Some studies found preference of power point over chalk and board[18,26]. A clear preference to chalkboard (80%) in taking notes was seen in one study[27]. In a study done by Saha N et al[24] students considered mixed aid(51%) as best in taking notes followed by power point (13.3%) and chalk board (10.2%). They compared Overhead Projector(41.8%) too with other methods and they did not used the other tools during chalk and board. The commonly cited reason for preference to power point is legibility of the notes. The main reasons for liking chalk and board was because it allowed sufficient time to take down notes and power failure did not interrupt a lecture like it does in a power point presentation[28].

Students preferred power point presentation (53.846% vs. 32.051%) in our study to take diagrams. Lalvarmawi F et al[20] showed students' preference to power point. Saha N et al[24] showed that students preferred power point presentation (28.6%) over chalk and board (6.1%) for better perception of diagram although in his list overhead projector preference (41.8%) was highest. Petimani and Adake[26] showed preference for chalk and board in taking diagrams. Shaguphta T Sheikh[29] showed that 81.65% of the students preferred chalk and board for copying diagrams. But, 81.3% of students felt that for demonstration of three dimensional figures power point presentation is better.

Learning become easier if the teaching way is interesting. Parvin R et al[30] observed that students felt that lecture was more interesting with chalk and board. It was because a teacher could use some extempore method in chalk and board method. In this study too chalkboard method was preferred over power point in this regard with a huge difference (98.717% vs. 23.717%).

Student prefer chalk and board for advancing the understanding on the subject as it contained natural pause and break during writing and rubbing the board which allows the students to follow the material and take down the notes[31]. A study conducted in Bangalore during 2011-2012 considered blackboard teaching as most satisfactory because students can follow the teaching and under-stand the concept effectively[32]. Amane HS et al[36] showed students' preference to power point over chalk and board teaching. In our study students chalk and board teaching preferred for advancement in learning (94.871% vs. 20.512%).

The method of lecture delivery plays a great role in stimulating the interest in the learner. Some studies have shown that the interactive features of blackboard have the potential to enhance the learning experience[34]. A chalkboard presentation allows spontaneity, ûexibility, and nonlinearity[12]. A chalkboard presentation is helpful to follow and a good eye contact with the teacher stimulates interest[30].Studies showed that students preferred chalk and board because it facilitated the interaction between the teacher and the student[25,29]. Petimani and Adake[26] found that students preferred chalk and board over power point (77.5% vs. 22.04%) in stimulating their interest. Saha N et al[24] showed that students felt that stress on important points could be given by the teacher more in chalkboard presentation (46.9%) than power point (10.2%), overhead projector (10.2) or mixed aid presentation(32.7%). In our study chalk and board was preferred by the students over power point presentation (91.666% vs. 19.871%).

In our study chalkboard presentation with different tools were preferred by students (94.871% vs.39.102%). Preference to power point was seen in some studies and Sarma DK(83.33% vs.76.85%) where they did not use the different tools during chalkboard method.[18,20,36]

Petimani and Adake[26] found that preference to chalkboard for its clarity and understandability. Sarma DK[18] found PPP (85.19% vs. 58.33%). was effective than chalkboard method. Saha N et al[24] showed that for understanding the lecture topic chalkboard (12.2%) and overhead projector (12.2%) were preferred than power point presentation (5.1%), although the use of mixed aid (70.4%) topped his list. Teacher's bad handwriting is a major cause of low preference to chalkboard presentation[30,35]. In our study students preferred chalkboard teaching with demonstration (83.333% vs 37.743%) over PPP.

Student preferred power point presentation over chalk and board on the audibility of the lecture in the study by Sarma DK[18] though the difference was minimum (87.04% vs. 82.41%). This was also observed in the study of Amane HS et al[36] . In our study students preferred chalkboard with demonstration (89.743% vs 27.564%) over PPP . Though the audibility mainly depends on teacher's personal capability power point presentation perhaps gives relief from the distraction from repeated writing and rubbing on the board[18].

Petimani and Adake[26] observed student's perception towards chalk and board in organizing the lecture. In our study student preferred the chalkboard method (31.410% vs 96.153%) with different tools were more organised than PPP method. In some studies students felt that a power point presentation is slightly more organized than chalkboard [18,36].

Chalkboard method with different tools was overall preferred method by the medical students in our study. This was observed in many studies done previously though they did not included different tools as materials in their methods [16,17,28,29,30]. In this study, the students showed preference to chalkboard over Power Point presentation in all 9 questionnaires out of 10, which was a diagram from the teaching of larynx. The overall results suggest that chalkboard teaching with relevant all materials may provide absolute knowledge about the topic for medical student.

In many studies showed that PPP method was preference of students rather than chalkboard method[12,18,20-23,27,35]. where as they did not use the different tools during chalkboard method. In a study majority of students opined that both the lecture delivery methods should be used simultaneously in the class[31]. Combination of both the methods were suggested in some studies [23,35-37].

V. Conclusion

Medical students preferred chalkboard teaching in the challenging region of human anatomy like anatomy of larynx to conceptualise the 3D picture if demonstration is done using different relevant tools over power point presentation in terms of its informative content, ability to take notes, interesting nature of lecture and advancement of student's understanding on subject, stimulation of interest, understandability, clarity, audibility and organization of presentation. Power point presentation teaching scored over chalkboard in taking diagrams. A combination of both methods could be valuable in some extent.

References

[1]. Garg AX, Norman G, Sperotable L. 2001. How medical students learn spatial anatomy. Lancet 357:363–364.
[2]. Sergovich A, Johnson M, Wilson T D. Explorable Three-Dimensional Digital Model of theFemalePelvis, Pelvic Contents, and Perineum for Anatomical Education; AnatSciEduc 3:127–133 (2010).
[3]. Mahmud W, Hyder O, Butt J, AftabA.Dissection Videos Do Not Improve Anatomy Examination Scores AnatSciEduc 4:16–21 (2011)

[4]. Winkelmann A. 2007. Anatomical dissection as a teaching method in medical school: A review of the evidence. Med Educ 41:15–22.
[5]. Hodkinson, S. & Jephcote, M. (Eds) (1996). Teaching economics and business. Heinemann Education Publishers
[6]. Fleming ND. I am different: not dumb: modes of presentation (VARK) in the tertiary classroom. In: Research and development in higher education, edited by Zelmer A, Canberra, Australia's: Proceedings of the 1995 Annual conference of the higher education and research development society of Australia 1995:303–18.
[7]. Svinicki MD. A comparison of some alternative teaching modes. Alternative Teaching Methods, Section 4, University of Texas at Austin http://www.utexas.edu/academic/etc/ sourcebook/medical.html
[8]. Mattar SG, Alseidi AL, Jones DB, Jeyarajah DR, Swanstrom LL, Aye RW et al. General surgery residency inadequately prepares trainees for fellowship: Results of a survey of fellowship program directors. Annals of Surgery. 2013,258(3):440-9. http://dx.doi.org/10.1097/SLA.0b013e3182a191ca
[9]. Ahmed S, Carvalho H(2014).The art of demonstration in anatomy instruction, Revista HUPE, Rio de Janeiro, 2014;13(4):46-51
[10]. DiCarlo SE. Too much content, not enough thinking, and too little FUN! Adv Physiol Educ. 2009,33(4):25764. http://dx.doi.org/10.1152/advan.00075.2009
[11]. Mazur E. Peer instruction: Getting students to think in class. In: Redish E, Rigden J, editors. The changing Role of Physics Departments in Modern Universities: Proceedings of ICUPE Woodbury, New York: American Institute of Physics; 1997. p. 981-8.
[12]. Seth V, Upadhyaya P, Ahmad M, Moghe V. Power point or chalk and talk: Perceptions of medical students versus dental students in a medical college in India. Adv Med Educ Pract 2010;1:11-16.
[13]. Moore, J. (1996). Good planning is the key In S. Hodkinson, & M. Jephcote, (Eds) Teaching economics and business, Heinemann Educational Publishers
[14]. Patel KM, Moxham BJ. 2008. The relationships between learning outcomes and methods of teaching anatomy as perceived by professional anatomists. Clin Anat 21:182–189.
[15]. Ernest, F.O. (2010). Relative effects of programmed instruction and demonstration method of students' academic performance in science. College study Journal, June 2009. Retrieved 20th November from http://www.adlog/c/r.
[16]. Roy B, Banerjee I, Sathian B, Mondal M, Kumar SS, Saha CG. Attitude of basic science medical students towards medicine and surgery post graduation: A questionnaire based cross sectional study from western region of Nepal. Nepal Journal of Epidemiology 2010;1(4):126-34.
[17]. Banerjee I, Jauhari A C, Bista D, Johorey A C, Roy B, Sathian B. Medical Students view about the integrated MBBS course: A questionnaire based cross-sectional survey from a medical college of Kathmandu valley. Nep J Epidemiol 2011;1(3):95-100
[18]. Sarma DK(2017). Perception of medical students on lecture methods: Power Point or Chalkboard? .IJHRMLP, Vol: 03 No: 01 January, 2017, P:77-80.
[19]. Seth V, Upadhyaya P, Ahmad M, Moghe V. Power point or chalk and talk: Perceptions of medical students versus dental students in a medical college in India. Adv Med Educ Pract 2010;1:11-16.
[20]. Lalvarmawi F, Ningthoujam S, U, N, Mishra M. Perception of postgraduate students on teaching aids. J Med Soc 2013;27:36-8
[21]. Swati C, Suresh, T, and Sachin D. Student assessment on learning based on power point versus chalkboard. International J of recent trends in science and technology 2014;13:347–51.
[22]. Mishra H, Kumar V, Modi PK. Comparison of different teaching methodologies in a medical college in North India. Indian journal of basic and applied medical research 2013;2(6):464-69
[23]. Manohar T, Dashputra A, Suresh C. Students' perception about teaching learning media in didactic lectures. JETHS 2015;2(3):103-5.
[24]. Saha N, Tripura K, Das R. Students' Opinion towards audiovisual aids used in lecture classes. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 2015;14(4):96-100.
[25]. Chaudary R, Dullo P, Gupta U. Attitude of 1st MBBS medical students about two different visual aids in physiology lectures. Pak J Physiol 2009;5(2):16-19.
[26]. Petimani MS, Adake P. Blackboard versus power point presentation: Students opinion in medical education. Int J Educ Psychol Res 2015;1(4):289-92.
[27]. Jabeen N, Ghani A. Comparison of the traditional chalk and board lecture system versus power point presentation as a teaching technique for teaching gross anatomy to the first professional medical students. JEMDS 2015;4(11):1811-17.
[28]. deSa SB, Keny MS. Power point versus chalkboard based lectures in pharmacology: Evaluation of their impact on medical student's knowledge and their preferences. Int J Adv Health Sci 2014;1(5):10–1.
[29]. Shaguphta TS. Teaching Learning aids in medical education: The students perspective. Int J Clin Surg Adv 2015;3(1):32-37.
[30]. Parvin R, Md Haque N, Ahmed N, Ahmed R, MI, Ara R, Rahman MM, Bhattacharjee S, Bhattacharjee S, Rafiqueuddin AKM. Is audio visual method better than tradi-tional for medical students? A survey report. Bangladesh J Med 2010;21:60-4.
[31]. Biswas S, Mondal S, Mukharjee J. Impact of Electronic and NonElectronic Teaching Methods in Medical Physiology. Indian Medical Gazette 2013;147(12):431-33.
[32]. Priyadarshini KS, Shetty HV, Reena R. Assessment of different teaching aids and teaching methods for the better perception of biochemistry by 1st MBBS students. J Eval Med Dent Sci 2012;1:1159-65.
[33]. Amane HS, Kaore SN, Vasvani SV. Evaluation of existing teaching methods used for lecture classes in pharmacology. Int J Pharm Bio Sci 2013;4(1):193-8.
[34]. Heirdsfield A, Walker S, Tambyah M, Beutel D. Blackboard as an online learning environment: What do teacher education students and staff think?. Aust J Teach Educ. 2011;36:1-17.
[35]. Harley KN, Jankar J, Mohod KM. Perception of first MBBS medical students towards different teaching aids used in teaching learning process: A comparison between power point versus chalkboard teaching. Int J Adv Res Biol Sc 2015;2(7):71-80
[36]. Prabhu R, Pai KM, Prabhu G, Shrilatha. A lecture in medical physiology: PowerPoint versus chalkboard. South East Asian Journal of Medical Education 2014;8(1):72-76.
[37]. Chaudhary R, Dullo P, Gupta U(2009). Attitude of 1st MBBS medical students about two different visual aids in physiology lectures , Pak J Physiol;5(2)P-16-19.

Baro Baneswar, et. al. "Perception of medical students on teaching method: Power Point Presentation or Chalk and Board with Demonstration?." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(8), 2020, pp. 40-46.