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ORIGINAL ARTICLE

A Comparison between Teacher centered and Student Centered Medical Education Approach: An experimental research in Medical and Dental Colleges in Lahore

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ABSTRACT

Aim: To investigate the comparison between teacher centered and Student centered medical education approach among multiple medical and dental institutes of Lahore.
Methods: A thorough investigation was done by collecting data on results of students given Teacher centered medical education and Student centered medical education. Students of each class were divided into 5 groups and given tasks of presenting on given topics and individual students' participation was encouraged in each group.
Results: The results of teacher centered teaching showed that 20% of class scored above 80% marks. 78% of class scored between 60% and 80% marks and 2% scored less than 60% marks. On the other hand the student centered presentation had an excellent outcome where 100% of students scored more than 80% marks, out of which 60% scored more than 90%.
Conclusion: It is concluded that Students' performance in student centered medical education was higher than that in teacher centered education. This teaching technique was seen to be better retentive because of active participation of students.
MeSH Words: Medical Education, Self-centered learning, Student centered learning, teacher centered learning.

INTRODUCTION

Health profession education has advanced in last decade and numerous new techniques and theories have been implemented in all departments' e.g. mode of transfer of knowledge, assessment methods, assessment formation and curriculum designs[1]. Health professional education emphasizes on getting a regular and pressure free feedback on multiple modalities of teaching so that performance of students can be evaluated and methods of teaching can be modified accordingly[2].

To keep the teaching environment pleasant and positive, it is recommended that feedback must be collected anonymously and students must not feel any restraints to express their views. Where feedback is typically one way process, the transfer of medical knowledge should be two way process of teaching. This two way process must not be incorporating a single type of teaching method, but should integrate with multiple types of medical education approaches[3].

Assessment of teaching methods is very diverse and complex component of medical education. However, performance based evaluation and assessment of medical education has been widely accepted and popular among teachers and trainers[4]. Performance based evaluation is a productive method to judge the success of educating methods. However, finding the method with best results is not the answer. The right approach is to combine or incorporate all the teaching modalities in the best of combination. The focus afterwards, should be shifted to the standardization of the method across all the domains[5].

A paradigm shift in medical education, not only globally but also in Pakistan, was observed during and after Covid 19 pandemic. The educators around the country shifted to online medical education and assessment of its success was largely dependent on medical education training[6]. A huge debate sparked on the effective of online teaching sessions and its utilization was questioned differently among basic theoretical, pre-clinical and clinical subjects. Keeping in view the mentioned, a comparison was done after evaluation students in subjects of basic and clinical subjects of medical and dental fields. Teacher oriented medical education relies on educator where he/she is in charge for the transfer of knowledge which can render the students being passive and limited to the information given to them. Student centered medical education limits the direct role of educator and students are given an environment to play an active role to gather the knowledge, discuss it with others and finally coming to the conclusion for the topic[7]. One important rational to incorporate student centered learning in curriculum is to enhance the learners' motivation levels through making them responsible for their self-learning and also promoting team spirit in large audience of medical and dental colleges. Incorporation of novel teaching techniques breaks the monotonous teaching routine both for educators and learners. Our study incorporated an experimental approach to assess the effectiveness of both methods in multiple specialties of medical and dental fields from multiple medical and dental colleges to overcome the bias.

This study was structured with the objective of investigating success of student centered learning in comparison with traditional teacher centered learning coordinated by 5 departments of different medical and dental institutes of Lahore.

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METHODS

Few domains of Oral Medicine departments of two dental colleges, Community Dentistry department, Dental Material department, Oral Pathology department and Anatomy department were taught by conventional teacher centered lecture which included use of power point presentation and audio visual aids while some other domains were transferred using student centered model. In this model, medical and dental classes of 1st and 2nd Year MBBS, 2nd year BDS and 3rd year BDS were divided into 5 groups and a domain was given to them which they had to present on a decided date and time. It was ensured that all participants of every group were actively involved in every presentation as all presentations were followed by Question and Answer Sessions. Same method was used for another class in a different college. The total number of participants' responses was recorded to be 362. At the end an assessment was planned to check efficacy of both methods. Multiple educators were involved in assessment and in the end an average assessment score was calculated for every student. Statistical analysis for comparison of scores of students for Teacher directed and self-directed learning was done using SPSS software. For testing the significance level, Analysis of Variance

(ANOVA test) was used and p-value less than 0.05 was taken as significant.

RESULTS

The results of teacher centered teaching showed that 20% of class scored above 80% marks. 78% of class scored between 60% and 80% marks and 2% scored less than 60% marks. On the other hand the student centered presentation had an excellent outcome where 100% of students scored more than 80% marks, out of which 60% scored more than 90%.

We also stratified the data subject wise and found the similar results with high significance levels. This stratification was done to see if the trend of results are similar with over all result. The stratification of data set into departments also showed the consistent significant results. Improvement in achieving 80% marks or above was seen in all departments but major improvement was seen in Community Dentistry and Oral Pathology departments. ANOVA analysis showed significant P-values in all categories. Student centered educating clearly showed a prominent increment in scores not only among brilliant students but also among those students who were underperforming in teacher centered education.

Learning Method	Less than 60% Marks	60%-80% Marks	Above 80% Marks	P-value
Teacher centered	8 (2.20%)	284 (78.45%)	70 (19.33%)	<0.05
Student centered	0	0	362 (100%)	<0.05
Department of Oral Medicine of two Dental Colleges (n=71)				
Teacher centered	1 (1.40%)	53 (74.64%)	17 (23.94%)	<0.05
Student centered	0	0	71 (100%)	<0.05
Department of Community Dentistry (n=29)				
Teacher centered	1 (3.44%)	23 (79.31%)	5 (17.24%)	<0.05
Student centered	0	0	29 (100%)	<0.05
Department of Dental Materials (n=78)				
Teacher centered	1 (1.28%)	61 (78.20%)	16 (20.51%)	<0.05
Student centered	0	0	78 (100%)	<0.05
Department of Anatomy (n=140)				
Teacher centered	4 (2.85%)	102 (72.85%)	34 (24.28%)	<0.05
Student centered	0	0	140 (100%)	<0.05
Department of Oral Pathology (n=44)				
Teacher centered	1 (2.27%)	36 (81.81%)	7 (15.905)	<0.05
Student centered	0	0	44 (100%)	<0.05

DISCUSSION

Teacher centered lectures are getting obsolete even with use of modern techniques like power point presentation, audio visual aids, movies etc. the newer generation process information faster than their teachers. Studies have shown that audience loses concentration after 20 minutes of conventional teacher centered lecture[8]. A phenomenon is observed by Medical Education specialists that some students are more comfortable in teacher centered learning as they constantly depend on external stimuli for acquisition of knowledge. However, with training and behavioral modification, such dependence can be overcome and students get attuned to novel methods of teaching[9]. The millennial need new ways of transfer of knowledge. In student centered teaching, teacher is a facilitator only while knowledge is transferred from the students to the students in less time[10]. Here, the emphasis on teacher being an excellent facilitator cannot be undervalued. A teacher must know that some students are not comfortable in public speaking and shy away from being on the stage. A modification must be incorporated on individual basis to encourage such students, especially when they are giving the presentation. They need much more comfortable environment and encouragement to bring about the best of their presenting abilities. Newer teaching methods are far more better than the old one not because they have flaws, but because the new generation have faster processing which may be because of advancement of gadgetry and invention of new diagnostic tools[11]. They need quick results and get bored by long lectures. The involvement of students can only be achieved in long lectures if they actively participate in lectures and student centered learning achieve the similar effects of active participation. Our study encompassed multiple curriculums of subjects to see the phenomenon of active leaning regardless of subjects and colleges they are being taught in. These student centered activities also encourage learning by interaction among students that gives better outcomes in terms of evaluation and assessment[12]. The results of study are in coherence with multiple studies done to develop new methods of learning in fields other than Medical[13,14,15,16]. Students' presentation is a very doable way of teaching in which students take responsibility and there is less burden on teacher too with better results. Teacher can also utilize this method to encourage and develop a sense responsibility among the students. This can also impart an individual training of working and contributing as an efficient team member. Evidence based teaching methods also showed that students learn more without losing concentration and withdrawal of attention is less prevailed in active learning[17]. The strengths of our study included multiple departments of medical and dental fields and inclusion of blinding techniques for students. It is the need of hour to adopt newest methods of teaching in medical and dental fields to produce better health professionals in Pakistan.

CONCLUSION

Results of our study showed that students performed better when they are given opportunities for student directed learning methods. The teachers should be given a professional training on how to develop a student centered learning culture in the institutes. It is recommended that new methods of student oriented learning should be implemented in Medical and Dental colleges of Pakistan so that students can participate actively during their learning times.

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Contribution: ER: Conceptualization and design of Study. **FR, NH,RZ, OA:** Data Collection, **FR:** Data Analysis and data interpretation, **MBS:** Drafting and compiling the results, **RZ:** Proof reading and referencing, **OA:** Manuscript Writing

REFERENCING

1. Lavin MA, Ruebling I, Banks R, Block L, Counte M, Furman G, Miller P, Reese C, Viehmann V, Holt J. Interdisciplinary health professional education: a historical review. Advances in Health Sciences Education. 2001 Mar;6(1):25-47.
2. Archer JC. State of the science in health professional education: effective feedback. Medical education. 2010 Jan;44(1):101-8.
3. El-Awaisi A, Anderson E, Barr H, Wilby KJ, Wilbur K, Bainbridge L. Important steps for introducing interprofessional education into health professional education. Journal of Taibah University Medical Sciences. 2016 Dec 1;11(6):546-51.

4. Prediger S, Schick K, Fincke F, Fürstenberg S, Oubaid V, Kadmon M, Berberat PO, Harendza S. Validation of a competence-based assessment of medical students' performance in the physician's role. BMC medical education. 2020 Dec;20(1):1-2.
5. Richardson D, Kinnear B, Hauer KE, Turner TL, Warm EJ, Hall AK, Ross S, Thoma B, Van Melle E, ICBME Collaborators. Growth mindset in competency-based medical education. Medical Teacher. 2021 Jul 3;43(7):751-7.
6. Hall AK, Nousiainen MT, Campisi P, Dagnone JD, Frank JR, Kroeker KI, Brzezina S, Purdy E, Oswald A. Training disrupted: Practical tips for supporting competency-based medical education during the COVID-19 pandemic. Medical teacher. 2020 Jul 2;42(7):756-61.
7. Bai X, González OR. A comparative study of teachers' and students' beliefs towards teacher-centered and learner-centered approaches in grade 12 English as a foreign language class at one governmental senior secondary school in Shaan'xi Province, China. Scholar: Human Sciences. 2019 Jun 27;11(1):37-.
8. Babik JM, Luther VP. Creating and Presenting an Effective Lecture. Journal of Continuing Education in the Health Professions. 2020 Jan 1;40(1):36-41.
9. Frambach JM, Driessen EW, Chan LC, van der Vleuten CP. Rethinking the globalisation of problem- based learning: how culture challenges self- directed learning. Medical education. 2012 Aug;46(8):738-47.
10. Goodman BE, Barker MK, Cooke JE. Best practices in active and student-centered learning in physiology classes. Advances in Physiology Education. 2018 Sep 1;42(3):417-23.
11. Kalyani D, Rajasekaran K. Innovative teaching and learning. Journal of applied and advanced research. 2018 May 10;3(1):23-5.
12. Suyunovna MS. Interactive teaching methods in the process of foreign language communicative competence development. Наука и образование сегодня. 2020(6-2 (53)):35-6.
13. Qodirovich MD, Jalolovich YN, Samadovich AS, Abdurazzakovna RN. Methods of developing students' spatial imagination using computer graphics in the teaching of drawing. Journal of Contemporary Issues in Business and Government. 2021;27.
14. Subramanian DV, Kelly P. Effects of introducing innovative teaching methods in engineering classes: A case study on classes in an Indian university. Computer applications in engineering education. 2019 Jan;27(1):183-93.
15. Alhirtani NA. The Use of Modern Teaching Methods in Teaching Arabic Language at Higher Education Phase from the Point View of Arabic Language Professors--A Case of a Premier University. International Education Studies. 2020;13(1):32-41.
16. Ibrokhimovich FJ. Application Of Some Teaching Methods in Mathematics Lessons in Elementary Grades. Journal of Pedagogical Inventions and Practices. 2022 Feb 11;5:15-7.
17. Nguyen KA, Borrego M, Finelli CJ, DeMonbrun M, Crockett C, Tharayil S, Shekhar P, Waters C, Rosenberg R. Instructor strategies to aid implementation of active learning: a systematic literature review. International Journal of STEM Education. 2021 Dec;8(1):1-8.