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ORIGINAL ARTICLE

Comparison of didactic lecture with interactive lecture for learning enhancement in third year BDS students at Nishtar Medical University, Multan.

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ABSTRACT… Objective: To compare didactic lecture with interactive lecture for learning enhancement in third year BDS students at Nishtar Medical University, Multan. **Study Design:** Descriptive Cross Sectional study **Setting:** Department of Medical Unit-IV, Nishtar Medical University Institutional Review Board. **Period:** Six weeks from mid of January to end of February 2020. **Sample Size:** Fifty four BDS students filled the feedback proforma. **Material & Methods:** The whole class of sixty students was taught respiratory system in medical unit IV by interactive lectures and didactic lectures. Out of 10 lectures in respiratory system, 5 lectures were conducted in interactive style and 5 were conducted in conventional lecture form on alternate basis. Each lecture had duration of one hour. Lectures were made interactive by interposing various activities. After the completion of 10 lectures, feedbacks from students were taken by giving students structured proforma. All the data was analyzed by SPSS version 24. Frequencies (percentages) were calculated for each ordinal data. A p-value was calculated for comparison of didactic lectures with interactive lectures regarding various variables. **Results:** Out of 54 students 51(94.5%) had given their opinion in favor of interactive lectures. The number of students who either agreed or strongly agreed to interactive lecture technique in comparison to didactic lecture regarding creation of interest, maintain attentiveness, promotion of retention, ease of learning, motivation for self-learning and critical thinking and promotion of classroom collaboration was significantly higher. **Conclusion:** Interactive lecture proved to be more acceptable and useful than didactic lecture for learning enhancement.

Key words: Didactic Lectures, Interactive Lecture, Learning Enhancement.

INTRODUCTION

Didactic lecture an ancient and conventional mechanism of teaching for bigger masses in large part of our country. Though this conventional method of educating the students has some benefits but it's not an ideal way of teaching in all circumstances and all students.[1] Didactic lectures when used properly prove to be highly effective in transmission of content knowledge[2], provision of the facilitator's personal overview about content, integration of knowledge from multiple sources, and explanation of complex information.[3] On the contrary, where application of knowledge or critical thought processing is required, didactic lectures turn to be less effective.[2] It has been seen that didactic lectures are spanned over an hour duration and most of data suggests that students are not able to maintain their attention beyond twenty minutes in concentrating lectures.[4] The conventional didactic lecture is based on facilitator-directed teaching environment and students are more like spectators and passive listeners. This type of lecturing would not allow open interactions between facilitator and students and instead puts more stress on students' exposure to course stuff.[5]

Interactive lecture is newer method of lecturing and involves interaction between facilitators and learners. Interactive learning is aimed at keeping the students attentive and provision of an environment that will enhance students'

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capacity and performance. It also motivates the classmates to learn, enhances students' satisfaction, encourages and enhances cognitive skills. Monotony of didactic lectures is broken by various engagement stimuli.[6] For the purpose of engagement one can use different means like questioning and answering by the students, using video clips, taking student response for any specific problem etc. Engagement lectures are helpful in three different aspects including formative, summative and motivational. Engagement lectures let the facilitators allow incorporation of formative assessment. This strategy permits simultaneous application of the content, which further promotes open discussion, feedback by instructor, clarification of wrong concept, and understanding of difficult aspects.[7,8,9] In interactive sessions, after brief lecture sessions short "breaks" are given in which 1-min papers, brainstorming activities, problem solving, or open arguments are carried out. These breaks interrupt lecture and hence enhance performance of students, alertness, engagement, and permits course material application.[10,11,12] During these breaks students can interact in the form of small groups and encourage collaborative learning. This sort of student interaction will promote critical thought processing and problem solution.[13] This peer interactivity among fellow students may be utmost significant in large students groups, and there is sufficient data which shows that big classroom settings may be benefitted by interactive lecturing.[14]

It has been proven by different studies that didactic lectures should be replaced by active learning.[13] Although the superiority of interactive (engagement) learning has been established through well organized and analyzed studies conducted by media and other professional working groups but interactive teaching has not developed its roots in our teaching system. 'I shall teach as I was taught theory' is still strongly followed and adopted by our teachers. We do not have means and facilities for faculty training in capacity building and even there is no mechanism for evaluation of the facilitator and the course by students.[15] Therefore, this study was carried out to know the feasibility and impact of interactive teaching, among undergraduate dental students in Nishtar Medical University, Multan.

MATERIAL & METHODS

Student Sample and Study Design

Written Informed consent was taken from all the students for inclusion in study and publication of their response in journal. Approval of the project was obtained from Nishtar Medical University Institutional Review Board (No83-10-10-.2019).

The whole class of sixty students was taught respiratory system in medical unit IV by interactive lectures and didactic lectures. Out of 10 lectures in respiratory system, 5 lectures were conducted in interactive style and 5 were conducted in conventional lecture form on alternate basis. Each lecture had duration of one hour. Learning enhancement was judged by eight parameters including well defined learning, maintenance of attentiveness, interest in subject, retention of knowledge, flexibility and convenience of learning, motivation for self-learning, development of critical thinking and promotion of classroom collaboration.

Every week there were two lectures in teaching schedule one on Monday from 9 am to 10 am and other on Thursday from 9am to 10 am. Conventional lectures and engagement lectures were carried out on alternate basis. The respiratory system lectures were completed in six weeks from mid of January to end of February 2020. There was interruption of teaching schedule due to sports week from 6th February to 11th February. All the lectures were delivered by a single faculty member to avoid any tutor bias.

Lectures were made interactive by interposing various activities:

A) Video clips
B) Case scenarios
C) Questioning
D) Brainstorming
E) Think-pair-share technique

After the completion of 10 lectures, feedbacks from students were taken by giving students structured

eight point Likert scale proforma, in order to establish whether the engagement lectures carried through the schedule provided them well defined learning, kept attentive, enhanced interest, brought flexibility and convenience in learning, promoted self-learning, encouraged critical thinking and classroom collaboration. Validity and reliability of questionnaire was ensured. The value of Cronbach's alpha of questionnaire was 0.721. Students were also asked to give their opinion regarding liking of the techniques interposed in engagement lecture. All the data was analyzed by SPSS version 24. Frequencies (percentages) were calculated for each ordinal data. A p-value was calculated for comparison of didactic lectures with interactive lectures regarding various variables.

RESULTS

From a sample of 60 students, 54 students submitted their feedback. The remaining six students were absent on the day and could not submit their feedback on that day.

Out of 54 students 51(94.5%) had given their opinion in favor of interactive lectures'

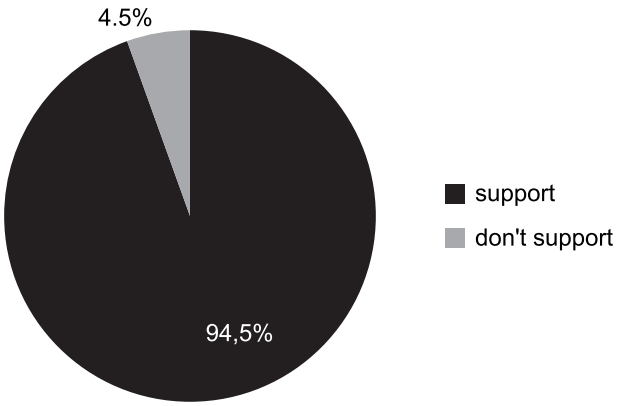

Figure-1. Students' response for interactive lecture

Forty nine (90.7%) students either agreed or strongly agreed that interactive lectures provided them well defined learning, whereas only 12 students (22.2%) agreed or strongly agreed that conventional lectures provided well defined learning opportunity. There was significant statistical difference ($p < 0.000$). Furthermore, the number of those students who either agreed or strongly agreed to interactive lecturing technique regarding creation of interest, maintain attentiveness, promotion of retention, ease of learning, motivation for self-learning and critical thinking and promotion of classroom collaboration was significantly higher.

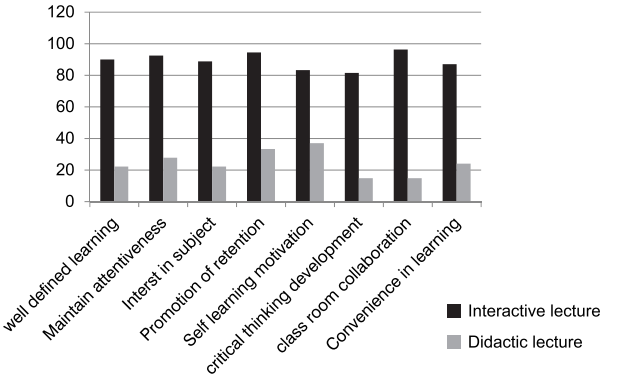

Figure-2. Comparison of student's opinion on interactive and didactic lectures

For all eight parameters the students were more in favor of interactive lectures as compared to didactic lectures as shown in Figure-2.

DISCUSSION

Although tutorial, PBL and seminars are the source of learning which keep learner's and mentor's interest and let them interact but education in a medical college has certain constraints which persuades them to use lecture format. These sorts of constraints also come in front during continuing medical education. Lecture is commonly used and conventional means of teaching big groups. Though role of lectures in information transfer and provision of explanations is ascertained, but didactic lectures will not allow interactive sessions so it is not acceptable as effective technique of learning. A lot of criticism this lecturing technique has faced, so much so the term 'lecturalgia' is introduced for this method.

Majority of medical and dental colleges in Pakistan are exercising didactic lectures as a common means of educating larger classes. In order to overcome these constraints in our setup and to make lecture interactive different measures can be taken. These include: inclusion of video clips relevant to material, questioning, problem solving by students, think-pair-share technique and few others.

Parameters	Number of students who strongly agree	Number of students who agree	Number of students who are Neutral	Number of students who disagree	Number of students who Strongly disagree
Provides of well-defined learning	22	27	3	2	0
Keeps Attentive	28	22	3	1	0
Creates interest in the subject	25	23	5	0	1
Promotes retention	30	21	3	0	0
Brings flexibility and convenience in learning	30	17	6	1	0
Motivation of self-learning	28	17	6	2	1
Helps in critical thinking	29	15	7	2	1
Promotes class room collaboration	34	18	1	1	0

Table-I. Students' opinion about interactive lecture reading various parameters

Parameters	Number of students who strongly agree	Number of students who agree	Number of students who are neutral	Number of students who disagree	Number of students who strongly disagree
Provides of well-defined learning	4	8	18	14	10
Keeps Attentive	6	9	15	16	8
Creates interest in the subject	3	9	16	18	8
Promotes retention	7	11	10	15	11
Brings flexibility and convenience in learning	4	9	11	17	13
Motivation of self-learning	7	13	12	14	8
Helps in critical thinking	2	6	19	18	9
Promotes class room collaboration	1	7	16	18	10

Table-II. Students' opinion about didactic lecture reading various parameters

Technique	Number of Students Who Like Technique	Percentage
Video Clips	14	25.9%
Case Scenarios	16	29.7%
Questioning	9	16.7%
Brain Storming	7	12.9%
Think-Pair-Share Technique	8	14.8%

Table-III. Techniques for interactive lectures liked by students

By adding these all or few to a conventional lecture makes it more interactive, changes 'it into a more fun' and makes session more a 'learning' in contrast to 'teaching'.

In our study, 94.5% students supported interactive lecture as a teaching modality for construction and improvement of knowledge. It is in collaboration with a Chinese study that reported 89.4% students prefer interactive session.[16] Knight JK and Wood WB[17]have also produced similar results.

We have observed that our 83.3% participants also voted that interactive learning promoted self-learning. In 2016, study conducted by Jayakumare et al.[18] found that majority of students (92%) supported that the interactive lectures promoted self-learning. Our observations suggested majority of participant i.e 96.3% believe that classroom collaboration was enhanced. In 2013, Saleh et al.[19] noticed that interactive session encouraged teamwork.

In 2015, Rossi RD[20] and in 2016, Eichler JF and Peeples J[21] have noticed that flipped classroom activities improved critical thinking. Similarly 81.5% of our classroom students voted that interactive session promotes critical thought

process development in students. We have seen that 88.8% students voted that interactive learning is helpful in developing interest in subject. Lindstrom and Shonrock[22] and another study[23] have also observed integrated and interactive learning technique improves the interest level of students in lectures. In our setting we noticed that 92.5% students believe that interactive lectures allow engagement and extend attention span. Long A[24] have found similar impact of engagement lectures on attention span.

There are several activities which can be incorporated for student engagement. We incorporated few techniques in this study including video clip, questioning, case scenarios, think-pair-share technique and brainstorming in our settings. We noticed that 29.7% of students supported case scenarios as effective technique of engagement. Various other studies[25] have proven that majority students find that incorporation of scenarios at the beginning or end of session make them more eager, interactive and oriented thus promoting attention span.

Although engagement lectures are beneficial in many ways, yet our teachers are reluctant to adopt this technique. The reason behind not adopting this method is phobia or fear. Teachers are afraid that they won't be able to cover the subject, have phobia about having poor response or being ridiculed by the learners, have fear of failure to answer a question raised by students.[26] Our study results have shown that interactive lectures are better than didactic or conventional lectures when compared as regard to eight parameters under study. It also provided idea about perspective of students regarding teaching and learning technique in our settings. Our study results may be extrapolated to assist medical teachers to overcome their fears for implementation of "interactive lectures" and will facilitate students in learning.

There are certain limitations in our study like small sample size and non-blinding of the study. Moreover, our interactive sessions were not accompanied by peer review. Therefore, it is suggested that a study with a bigger sample and blinding of study may be conducted to avoid sample bias and will be more representative to generalize these results.

CONCLUSION

Interactive lectures proved to be more acceptable and useful than didactic lectures for the learner. Our results support that interactive lectures help in promoting well defined learning, maintain attentiveness, create interest in subject, help in knowledge retention, more convenient, enable self-learning, induce critical thinking and ensues classroom collaboration. We suggest that interactive lecture is a useful tool of enhancing students' motivation for learning. The benefits of interactive lecturing techniques should be stressed upon and exercised for better medical teaching and learning enhancement.

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2	Shahzad Alam Khan	Joint proposal of study, Data collection.	
3	Mehboob Ahmad	Data analysis, Manuscript writing.	
4	Salahudin Mahmood Rind	Literature review & manuscript writing.	
5	Arooj Fatima	Draft review & Grammical assessment.	
6	Sohail Safdar	Result Preparation & Proof reading.